LANDFIRE/GAP Land Cover Map Unit Descriptions

Modified by GAP/USGS to incorporate descriptions
for all LANDFIRE Map Units, and the 2015 NVC Hierarchy
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3001: Inter-Mountain Basins Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: Inter-Mountain Basins Sparsely Vegetated Systems

Codes: ESLF: 3101 EVT_fuel: 2001

ESP: 1001 NatureServe Id: CES304.618

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

Summary: This sparsely vegetated system group ranges from the Colorado Plateau north to the Columbia Plateau and from Wyoming basins west to the Great Basin and North Pacific Maritime region. It is comprised of cliff faces, narrow canyons, open tablelands, saline playas, eroded badlands, and volcanic areas of cinder fields and cones, lava flows, and active inland dunes that occur near the terminus of glaciers, on the edge of outwash plains, near playas or other sand deposits. Various sparsely vegetated substrates define these systems, including massive layers of sedimentary rock with sandstones interbedded with shale; rounded badland hills and plains of marine shales; volcanic cinder, ash and tuff deposits; basalt flows, dykes, and cliffs; extensive sand deposits; smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock types; unstable scree and talus slopes; intermittently flooded playas areas on impermeable soil subhorizons; and dunes and sandsheets. Vegetation on these harsh sites is characterized by sparse cover of trees, shrubs, dwarf-shrubs, forbs or grasses of various mixtures. Species are variable and may include trees such as *Abies concolor, Juniperus* spp., *Pinus edulis, Pinus flexilis, Pinus monophylla, Pinus ponderosa*, and shrubs or dwarf-shrubs such as *Allenrolfea occidentalis, Alnus* spp., *Artemisia filifolia, Artemisia tridentata, Atriplex canescens, Atriplex confertifolia, Atriplex corrugata, Atriplex gardneri, Artemisia pedatifida, Betula papyrifera, Eriogonum corymbosum, Eriogonum ovalifolium, Cercocarpus intricatus, Cercocarpus ledifolius, Fallugia paradoxa, Coleogyne ramosissima, Ephedra* spp., *Ericameria nauseosa, Grayia spinosa, Holodiscus discolor, Prunus virginiana, Psoralidium lanceolatum, Purshia tridentata, Salvia dorrii, Sarcobatus vermiculatus, Tetradymia tetrameres*, and *Tiquilia* spp. Characteristic herbaceous species may include *Achnatherum hymenoides, Andropogon hallii, Distichlis spicata, Eriogonum* sp., *Leymus arenarius, Leymus cinereus, Leymus flavescens, Puccinellia lemmonii, Sporobolus airoides*, and species of *Mentzelia, Camissonia, Mimulus*, or *Cleome*.

Range: This sparsely vegetated system group occurs from the Colorado Plateau north to the Columbia Plateau and from Wyoming Basins west to the Great Basin and North Pacific Maritime region, but not west of the Cascades or Sierra Nevada.

States: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 7:C, 8:C, 9:C, 10:P, 12:C, 13:C, 15:C, 16:C, 17:C, 18:C, 19:C, 20:C, 22:C, 23:C, 24:C, 25:C, 27:?, 28:C, 29:?, 30:C

Similar:

Descriptors:

Landforms	Playa
Specialized Substrates	Basalt
Specialized Substrates	Cinder
Specialized Substrates	Lava
Specialized Substrates	Rock Outcrops/Barrens/Glades
Topography	High Ridge/Upper Slope
Landforms	Cliff
Life Zones	Montane
Landforms	Badlands
Bioclimate	Temperate
Landforms	Lava flow (undifferentiated)
Landforms	Dune field
Landforms	Dune
Major Physiognomy	Shrubland (Shrub)
Life Zones	Lowland
Life Zones	Lowland
Landforms	Cinder cone
Soil Texture	Sand
Subsoil Structure	Impermeable Layer
Subsoil Structure	Caliche Layer
Specialized Water Chemistry	Saline
Water pH	Alkaline
Lifeform	Graminoid
Wind Intensity/Spatial Character	Landscape/High Intensity
Specialized Substrates	Sedimentary Rock
Soil Moisture (NRCS)	Aridic
Bioclimate	Temperate
Soil Texture	Clay
Soil Texture	Silt
Specialized Substrate Chemistry	Saline
Specialized Substrate Chemistry	Shale and mudstone
Soil pH	Alkaline
Hydrogeomorphic Units	Depressional

Flooding Return Interval : Intermittent

Disturbance Return Interval : Very Short

3002: Mediterranean California Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: Mediterranean California Sparsely Vegetated Systems

Codes: ESLF: 3102 EVT_fuel: 2002

ESP: 1002 NatureServe Id: CES206.619

BioGeographical Division : Mediterranean California

NVC MacroGroup: M887 Western North American Temperate Cliff, Scree & Rock Vegetation

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

NVCS Division: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

Summary: This sparsely vegetated system group occurs in California's Coast Ranges, Sierra Nevada, Klamath Range, Mount Shasta, Transverse Ranges, the Peninsular Ranges, and White Mountains. It is comprised of steep cliff faces, narrow canyons, smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock, bald ridgetops and shoulder outcrops, narrow canyons, bedrock outcrops and scree slopes. Vegetative cover is sparse and composed of trees, shrubs, forbs, grasses, mosses, or lichens. Characteristic species may include trees *Abies magnifica, Acer macrophyllum, Juniperus osteosperma, Pinus contorta var. murrayana, Pinus jeffreyi, Pinus monophylla, Pinus ponderosa, Populus tremuloides, Pseudotsuga menziesii*; shrubs *Arctostaphylos glauca, Ceanothus megacarpus, Ceanothus leucodermis, Cercocarpus montanus var. minutiflorus (= Cercocarpus minutiflorus), Xylococcus bicolor*; and herbaceous species *Arabis* spp., *Astragalus* spp., *Draba* spp., *Achnatherum lemmonii, Achnatherum occidentale, Elymus elymoides, Oxytropis* spp., *Sedum oregonense*.

Range: This sparsely vegetated system group occurs in the Mediterranean California mountains from southern Oregon into Baja.

States: CA, MXBC, NV, OR

Map Zones: 2:C, 3:C, 4:C, 5:C, 6:C, 7:P

Similar:

Descriptors:

Juxtaposition : Canyon mosaic

Juxtaposition : Alpine mosaic

Lifeform :	Nonvascular
Mass Movement Type :	Landslide
Bioclimate :	Temperate
Bioclimate :	Mediterranean
Specialized Substrates :	Rock Outcrops/Barrens/Glades
Specialized Substrates :	Talus
Specialized Substrates :	Cliff
Topography :	High Ridge/Upper Slope
Landforms :	Canyon
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Montane
Life Zones :	Alpine

3003: North Pacific Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: North Pacific Sparsely Vegetated Systems

Codes: ESLF: 3108 EVT_fuel: 2003

ESP: 1003 NatureServe Id: CES204.624

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

NVCS Division: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

Summary: Sparsely vegetated areas in the Pacific Northwest are limited by substrate, or extreme climatic exposure at high altitudes. Vascular vegetation cover is usually less than 10%. Substrates include vertical to near-vertical cliffs, scree and talus slopes at their bases, recent volcanic flow surfaces and cinder fields. Other substrates include rock outcrops and expanses of exposed slabs of bedrock. Alpine areas are all the exposed rock and rubble above the forest line (subalpine parkland and above) in the North Pacific mountain ranges, and is restricted to the highest elevations in the Cascade Range, from southwestern British Columbia south into northern California. Coastal areas include unvegetated or sparsely vegetated rock cliffs and very steep bluffs of glacial deposits along the Pacific Ocean and associated marine and estuarine inlets. Exposure to waves, eroding and desiccating winds, slope failures and sheet erosion create gravelly to rocky substrates that are often unstable. Non-coastal cliff and talus slopes include foothill to subalpine elevations and barren and sparsely vegetated landscapes (generally<10% plant cover) of steep cliff faces, narrow canyons, and larger rock outcrops of various igneous, sedimentary, and metamorphic bedrock types. Note that these cliffs and slopes can have up to 10% cover by trees and/or shrubs, but these are scattered, with never more than 10% canopy cover. Volcanic rock and cinder lands include active volcanic landscapes dominated by ash, pyroclastic deposits, lava, landslides and other exposed bare mineral and

Range: This aggregated system occurs on the tops of the highest peaks (Olympic, Cascadian and Coastal mountains) from British Columbia to California, recent volcanic surface flows (e.g., Mount St. Helens), coastal cliffs and bluffs and non-coastal cliffs, bluffs, and canyon walls from northern California, Oregon, Washington, and British Columbia, Canada.

States: BC, CA, OR, WA

Map Zones: 1:C, 2:C, 3:P, 6:?, 7:C

Similar:

Descriptors:

Specialized Substrates :	Cinder
Landforms :	Headland
Landforms :	Bluff
Landforms :	Canyon
Landforms :	Sea cliff
Specialized Substrates :	Cliff
Specialized Substrates :	Talus
Life Zones :	Alpine
Specialized Substrates :	Lava
Landform/Topography/Special Substrates :	Alpine Slopes
Specialized Substrates :	Basalt
Bioclimate :	Temperate
Soil Fertility :	Oligotrophic
Specialized Substrate Chemistry :	Salt Spray
Soil Depth :	Very Shallow
Mass Movement Type :	Landslide
Wind Intensity/Spatial Character :	Landscape/High Intensity
Specialized Substrates :	Rock Outcrops/Barrens/Glades

3004: North American Warm Desert Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: North American Warm Desert Sparsely Vegetated Systems

Codes: ESLF: 3104 EVT_fuel: 2004

ESP: 1004 NatureServe Id: CES302.620

BioGeographical Division : North American Warm Desert

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

Summary: This systems group occurs across the warm deserts of North America. It occurs on active dunes and sandsheets derived from quartz or gypsum sands, badlands and mudhills, steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock types, unstable scree and talus slopes that typically occur below cliff faces, flat basins where extreme temperature and wind develop ground surfaces of fine to medium gravel coated with "desert varnish," volcanic substrates such as basalt lava (malpais) and tuff, and playas where salt crusts form. The harsh soil properties and high rate of erosion and deposition are driving environmental variables supporting sparse shrubs and dwarf-shrubs, succulents, lichens, desert scrub species, and ephemeral herbaceous species. Characteristic species include *Ambrosia dumosa, Abronia villosa, Eriogonum deserticola, Eriogonum fasciculatum, Larrea tridentata, Chorizanthe rigida, Eriogonum inflatum, Geraea canescens, Pleuraphis rigida, Poliomintha* spp., *Prosopis* spp., *Psorothamnus* spp., *Artemisia filifolia, Rhus microphylla, Atriplex hymenelytra, Bursera microphylla, Fouquieria splendens, Nolina bigelovii, Opuntia bigelovii, Allenrolfea occidentalis, Suaeda* spp., *Distichlis spicata, Eleocharis palustris, Oryzopsis* spp., *Sporobolus* spp., *Tiquilia* spp., or *Atriplex* spp.

Range: This sparsely vegetated systems group is found within the warm deserts of southwestern North America.

States: AZ, CA, MXBC, MXBS, MXCH, MXSO, NM, NV, TX

Map Zones: 4:C, 5:?, 12:P, 13:C, 14:C, 15:C, 23:?, 24:C, 25:C, 26:C, 27:C, 28:?

Similar:

Descriptors:

Bioclimate	Temperate
Landforms	Dune
Landforms	Dune field
Landforms	Playa
Landforms	Badlands
Landforms	Canyon
Landforms	Cliff
Specialized Substrates	Dune
Specialized Substrates	Rock Outcrops/Barrens/Glades
Specialized Substrates	Lava
Specialized Substrates	Desert pavement
Specialized Substrates	Cinder
Life Zones	Lowland
Bioclimate	Tropical/Subtropical
Flooding Return Interval	Intermittent
Hydrogeomorphic Units	Depressional
Soil pH	Alkaline
Specialized Substrate Chemistry	Shale and mudstone
Soil Texture	Silt
Soil Texture	Clay
Soil Texture	Sand
Soil Moisture (NRCS)	Aridic
Wind Intensity/Spatial Character	Landscape/High Intensity
Water pH	Alkaline
Specialized Water Chemistry	Saline
Subsoil Structure	Caliche Layer
Subsoil Structure	Impermeable Layer
Specialized Substrates	Basalt

3006: Rocky Mountain Alpine/Montane Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: Rocky Mountain Alpine/Montane Sparsely Vegetated Systems

Codes: ESLF: 3106 EVT_fuel: 2006

ESP: 1006 NatureServe Id: CES306.622

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M887 Western North American Temperate Cliff, Scree & Rock Vegetation

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Nb Western North American Temperate Cliff, Scree & Rock Vegetation

Summary: This ecological system group is found from foothill to alpine elevations within the Rocky Mountain Cordillera and Cascade Range. It also occurs in several scattered locations on the tallest mountains in the Great Basin and Colorado Plateau. It is composed of scree slopes, steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock type. Exposure to desiccating winds, rocky and sometimes unstable substrates, and a short growing season limit plant growth. Substrates are rocky and soil development is limited. There may be small patches of dense vegetation, but it typically includes scattered trees and/or shrubs or sparse herbaceous vegetation. Nonvascular cover may be sparse to moderately dense. Characteristic trees include *Abies concolor, Abies lasiocarpa, Pinus flexilis, Pinus ponderosa, Populus tremuloides, Pseudotsuga menziesii*, or *Pinus edulis* and *Juniperus* spp. at lower elevations. There may be scattered shrubs present, such as *Amelanchier alnifolia, Jamesia americana, Mahonia repens, Rhus trilobata*, species of *Holodiscus, Juniperus, Physocarpus, Ribes*, and *Rosa*. Herbaceous cover is sparse and restricted to crevices and soil pockets.

Range: This sparsely vegetated system group occurs in the Black Hills, Rocky Mountains, Cascade Range and in the alpine zone of high mountains in the Great Basin and Colorado Plateau.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, TX, UT, WA, WY

Map Zones: 1:P, 7:P, 9:C, 10:C, 12:P, 15:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:C, 28:C, 29:C

Similar:

Descriptors:

Landform/Topography/Special Substrates : Alpine Slopes

Mass Movement Type : Landslide

Soil Depth :	Very Shallow
Soil Fertility :	Oligotrophic
Specialized Substrates :	Rock Outcrops/Barrens/Glades
Specialized Substrates :	Talus
Landforms :	Cliff
Landforms :	Canyon
Landforms :	Ridgetop bedrock outcrop
Life Zones :	Montane
Life Zones :	Alpine

3007: Western Great Plains Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: Western Great Plains Sparsely Vegetated Systems

Codes: ESLF: 3107 EVT_fuel: 2007

ESP: 1007 NatureServe Id: CES303.623

BioGeographical Division : Western Great Plains

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Nc Great Plains Cliff, Scree & Rock Vegetation

Summary: This western Great Plains sparsely vegetated system group includes stands found in canyons in southeastern Colorado, south to the panhandle of Texas and badlands such as those found in North and South Dakota. The badland portion of this sparsely vegetated system group is typified by extremely dry and easily eroded, consolidated clay soils with bands of sandstone or isolated consolidates and little to no cover of vegetation (usually less than 10%). Vegetation includes scattered individuals of *Grindelia squarrosa, Gutierrezia sarothrae*, or *Eriogonum* spp. Occasional patches of *Artemisia* spp. can also occur. This system occurs where the land lies well above its local base level and is created by several factors, including elevation, rainfall, carving action of streams, and parent material.

The southwestern Great Plains canyon portion of this system group is found where geologic uplifts have permitted down-cutting by ancient streams leaving dissected canyon systems. Both perennial and intermittent streams may occur. Landforms range from cliffs to canyon slopes, stream terraces and riparian zones. Soils can range from shallow rocky colluvium and bedrock to sandy alluvium. The varied geology, diverse soil types, and topographic dynamics together form a distinct ecological system characteristic of the canyons and dissected mesas of the southwestern Great Plains. Rock outcrops with sparse vegetation are common, but vegetation varies both regionally and locally depending on latitude, aspect, slope position and substrate, and can range from riparian vegetation to xeric or mesic woodlands and shrublands. Open to moderately dense pinyon-juniper woodlands occupy most of the canyonland slopes.*Juniperus monosperma* is the most common tree species and forms open woodlands with a grassy understory of *Bouteloua eriopoda, Bouteloua gracilis, Bouteloua hirsuta, Bouteloua curtipendula*, and *Pleuraphis jamesii*, or sometimes with an open shrub layer dominated by *Cercocarpus montanus*. In Kansas, *Juniperus*

virginiana can become more dominant and replace *Juniperus monosperma*. Isolated patches of *Pinus ponderosa* or *Populus tremuloides* are found in some locations. Shrublands occur on canyon bottoms, in narrow side canyons, and integrate with woodlands on upper slopes. Many shrub species are characteristic of canyon walls and slopes and vary with substrate and moisture availability. Common species include *Artemisia bigelovii, Cercocarpus montanus, Rhus trilobata, Ribes* spp., *Prosopis glandulosa* (in Texas), *Ptelea trifoliata, Philadelphus microphyllus*, and *Yucca glauca*. *Frankenia jamesii* and *Glossopetalon spinescens var. meionandrum* form a community restricted to gypsiferous and calciferous soils. Canyon floors often support a degraded shrubby grassland of *Ericameria nauseosa* and *Opuntia imbricata* with a grassy understory. Because of the varied topography, relatively permanent water along streambeds and southern location, these canyonlands have a rich herpetofauna (Mackessy 1998). This system provides good habitat for a number of snake species that are otherwise uncommon in the Shortgrass Prairie. Occasional seeps and springs on canyon walls provide habitat for rare ferns.

Range: This sparsely vegetated system group occurs across the western Great Plains and includes stands found in canyons in southeastern Colorado, eastern New Mexico, western Oklahoma and the panhandle of Texas and badlands such as those found in North and South Dakota.

States: CO, KS, MB?, MT, ND, NE, OK, SD, TX, WY

Map Zones: 20:C, 22:?, 25:P, 26:C, 27:C, 29:C, 30:C, 31:C, 33:C, 34:C, 35:?, 40:P

Similar:

Descriptors:

Landforms : Canyon
Landforms : Badlands

3008: North Pacific Oak Woodland

Match Confidence: Direct Match

Suggested Match: North Pacific Oak Woodland

Codes: ESLF: 4101 EVT_fuel: 2008

ESP: 1008 NatureServe Id: CES204.852

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G206 Cascadian Oregon White Oak - Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system is limited to the southern portions of the North Pacific region. It occurs primarily in the Puget Trough and Willamette Valley but trickles down into the Klamath ecoregion and into California. This system is associated with dry, predominantly low-elevation sites and/or sites that experienced frequent presettlement fires. In the Willamette Valley, soils are mesic yet well-drained, and the type is clearly large patch in nature. In the Puget Lowland and Georgia Basin, this system is primarily found on dry sites, typically either shallow bedrock soils or deep gravelly glacial outwash soils. It occurs on various soils in the interior valleys of the Klamath Mountains, and on shallow soils of "bald hill" toward the coast. Even where more environmentally limited, the system is strongly associated with a pre-European settlement, low-severity fire regime. Succession in the absence of fire tends to favor increased shrub dominance in the understory, increased tree density, and increased importance of conifers, with the end result being conversion to a conifer forest. The vegetation ranges from savanna and woodland to forest dominated by deciduous broadleaf trees, mostly *Quercus garryana*. Codominance by the evergreen conifer *Pseudotsuga menziesii* is common, and *Pinus ponderosa* is important in some stands. In the south, common associates also include *Quercus kelloggii* and *Arbutus menziesii*. This system merges into ~Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)$$ on sites that support more conifer cover, and into ~Mediterranean California Mixed Oak Woodland (CES206.909)$$ in the southern portion of its distribution. This system is borderline between small patch and large patch in its dynamics.

Range: This system occurs primarily in the Puget Trough and Willamette Valley and extends southward at low elevations in the Klamath Mountains on both sides of the Oregon/California stateline.

States: BC, CA, OR, WA

Map Zones: 1:C, 2:C, 3:C, 6:?, 7:C

Similar: Mediterranean California Mixed Oak Woodland (CES206.909)

Descriptors:

Floristics/Dominants :	Quercus garryana
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland

3009: Northwestern Great Plains Aspen Forest and Parkland

Match Confidence: Direct Match

Suggested Match: Northwestern Great Plains Aspen Forest and Parkland

Codes: ESLF: 4146 EVT_fuel: 2009

ESP: 1009 NatureServe Id: CES303.681

BioGeographical Division : Western Great Plains

NVC MacroGroup: M151 Northern Great Plains Woodland

NVC Group: G328 Northern Great Plains Fescue Aspen Parkland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system ranges from the North Dakota/Manitoba border west to central Alberta and is considered part of the boreal-mixedgrass prairie grassland transition region. The climate in this region is mostly subhumid low boreal with short, warm summers and cold, long winters. Much of this region is covered with undulating to kettled glacial till. *Populus tremuloides* dominates this system. Common associates are *Betula papyrifera* and *Populus balsamifera* with an understory of mixedgrass species and tall shrubs. More poorly drained sites may contain willow (*Salix* spp.) and sedges (*Carex* spp.). Fire constitutes the most important dynamic in this system and prevents boreal conifer species such as *Picea glauca* and *Abies balsamea* from becoming too established in this system.

Range: This system is found in the boreal-grassland transition region from the North Dakota/Manitoba border west to central Alberta. and south along the eastern slopes of the Front Range of Montana, where it occurs below lower treeline.

States: AB, MB, MT, ND, SK

Map Zones: 19:C, 30:?, 40:P

Similar: Eastern Great Plains Tallgrass Aspen Parkland (CES205.688), Rocky Mountain Aspen Forest and Woodland (CES306.813)

Descriptors:

Glacial History : Glaciated

Bioclimate : Boreal

Major Physiognomy : Woody-Herbaceous

Major Physiognomy : Forest and Woodland (Tree)

3011: Rocky Mountain Aspen Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Rocky Mountain Aspen Forest and Woodland

Codes: ESLF: 4104 EVT_fuel: 2011

ESP: 1011 NatureServe Id: CES306.813

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G222 Rocky Mountain Subalpine-Montane Aspen Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This widespread ecological system is more common in the southern and central Rocky Mountains but occurs in the montane and subalpine zones throughout much of the western U.S. and north into Canada. An eastern extension occurs along the Rocky Mountains foothill front and in mountain "islands" in Montana (Big Snowy and Highwood mountains), and the Black Hills of South Dakota. In California, this system is only found on the east side of the Sierra Nevada adjacent to the Great Basin. Large stands are found in the Inyo and White mountains, while small stands occur on the Modoc Plateau. Elevations generally range from 1525 to 3050 m (5000-10,000 feet), but occurrences can be found at lower elevations in some regions. Distribution of this ecological system is primarily limited by adequate soil moisture required to meet its high evapotranspiration demand. Secondarily, it is limited by the length of the growing season or low temperatures. These are upland forests and woodlands dominated by *Populus tremuloides* without a significant conifer component (<25% relative tree cover). The understory structure may be complex with multiple shrub and herbaceous layers, or simple with just an herbaceous layer. The herbaceous layer may be dense or sparse, dominated by graminoids or forbs. In California, >*Symphyotrichum spathulatum (= Aster occidentalis)* is a common forb. Associated shrub species include *Symphoricarpos* spp., *Rubus parviflorus, Amelanchier alnifolia*, and *Arctostaphylos uva-ursi*. Occurrences of this system originate and are maintained by stand-replacing disturbances such as avalanches, crown fire, insect outbreak, disease and windthrow, or clearcutting by man or beaver, within the matrix of conifer forests. It differs from ~Northwestern Great Plains Aspen Forest and Parkland (CES303.681)$$, which is limited to plains environments.

Range: This system is more common in the central and southern Rocky Mountains extending south to the Sacramento Mountains, however, it occurs in the montane and subalpine zones throughout much

of the western U.S. and north into Canada, as well as west into California. Elevations generally range from 1525 to 3050 m (5000-10,000 feet), but occurrences can be found at lower elevations in some regions. Very small occurrences may be found in a few scattered locations of the Trans-Pecos of Texas.

States: AB, AZ, BC, CA, CO, ID, MT, NM, NV, OR, SD, TX, UT, WA, WY

Map Zones: 1:C, 3:C, 6:C, 7:C, 8:?, 9:C, 10:C, 12:C, 13:?, 15:C, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:P, 25:C, 26:C, 27:C, 28:C, 29:C

Similar: Northwestern Great Plains Aspen Forest and Parkland (CES303.681)

Descriptors:

Floristics/Dominants :	Populus tremuloides
Lifeform :	Broad-Leaved Deciduous Tree
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Long
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Shallow Soil
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3012: Rocky Mountain Bigtooth Maple Ravine Woodland

Match Confidence: Direct Match

Suggested Match: Rocky Mountain Bigtooth Maple Ravine Woodland

Codes: ESLF: 4105 EVT_fuel: 2012

ESP: 1012 NatureServe Id: CES306.814

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G222 Rocky Mountain Subalpine-Montane Aspen Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs in cool ravines, on toeslopes and slump benches associated with riparian areas in the northern and central Wasatch Range and Tavaputs Plateau extending into southern Idaho, as well as in scattered localities in southwestern Utah, central Arizona and New Mexico and the Trans-Pecos of Texas. Substrates are typically rocky colluvial or alluvial soils with favorable soil moisture. These woodlands are dominated by *Acer grandidentatum* but may include mixed stands codominated by *Quercus gambelii* or with scattered conifers. Some stands may include *Acer negundo* or *Populus tremuloides* as minor components. It also occurs on steeper, north-facing slopes at higher elevations, often adjacent to ~Rocky Mountain Gambel Oak-Mixed Montane Shrubland (CES306.818)$$ or ~Rocky Mountain Aspen Forest and Woodland (CES306.813)$$.

Range: Occurs in the northern and central Wasatch Range and Tavaputs Plateau extending into southern Idaho, as well as in scattered localities in southwestern Utah, central Arizona and New Mexico and the Trans-Pecos of Texas.

States: ID, NM, TX, UT

Map Zones: 15:C, 16:C, 17:C, 18:C, 23:P, 24:P, 25:C, 26:C

Similar:

Descriptors:

Floristics/Dominants : Acer grandidentatum

Lifeform : Broad-Leaved Deciduous Tree

Mass Movement Type : Landslide

Substrate Consolidation :	Unconsolidated
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Landforms :	Toeslope
Landforms :	Stream terrace (undifferentiated)
Landforms :	Colluvial slope
Landforms :	Ravine
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3013: Western Great Plains Dry Bur Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Western Great Plains Dry Bur Oak Forest and Woodland

Codes: ESLF: 4106 EVT_fuel: 2013

ESP: 1013 NatureServe Id: CES303.667

BioGeographical Division : Western Great Plains

NVC MacroGroup: M151 Northern Great Plains Woodland

NVC Group: G329 Northern & Central Great Plains Oak Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is dominated by *Quercus macrocarpa* and is found in upland areas in the northern part of the Western Great Plains. It often occurs as small to large patches on buttes, escarpments, and in foothill zones, usually on northerly-facing slopes. Other species, such as *Tilia americana* (not in the Dakotas), *Populus tremuloides, Juniperus virginiana*, and *Fraxinus* spp., may be present. The herbaceous layer can vary from sparsely to moderately vegetated and is composed of prairie grasses or woodland *Carex* spp. Shrub associates can include *Prunus virginiana, Corylus cornuta, Amelanchier alnifolia*, or *Symphoricarpos* spp. Historically, higher cover of grass species occurred as these stands were more open due to more frequent fires. Few good examples of this system likely remain because of past timber harvesting and heavy grazing. Where it occurs at elevations above 915 m (3000 feet), *Pinus ponderosa* woodlands are probably adjacent.

Range: This system is found throughout the northern part of the Western Great Plains Division. In Wyoming, it occurs in the Bear Lodge Mountains and around Devils Tower National Monument. In North Dakota, it is found in the Killdeer Mountains, and it may occur in the Pine Ridge region of Nebraska.

States: MT, ND, NE?, SD, WY

Map Zones: 29:C, 30:C, 31:C, 33:C, 38:?, 39:C, 40:C

Similar: Central Mixedgrass Prairie (CES303.659)

Descriptors:

Grazing Intensity/Spatial Character : Landscape/Medium Intensity

Fire Intensity/Spatial Character : Landscape/Medium Intensity

Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Lowland

3014: Central and Southern California Mixed Evergreen Woodland

Match Confidence: Direct Match

Suggested Match: Central and Southern California Mixed Evergreen Woodland

Codes: ESLF: 4201 EVT_fuel: 2014

ESP: 1014 NatureServe Id: CES206.920

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This system occurs from Monterey, California, south across the outer Central Coast Ranges to crests of Peninsular Ranges. It can occur on metasediments and granitics. In much of this area, conifers are relatively infrequent, *Pinus coulteri* occurs in scattered stands and *Pseudotsuga macrocarpa* picks up in Transverse Ranges south to Mexico. Characteristic tree species include *Quercus chrysolepis, Quercus agrifolia, Quercus kelloggii, Umbellularia californica, Acer macrophyllum*, and *Arbutus menziesii*. Historic fire frequency was likely higher in this system than in similar systems to the north.

Range: Occurs from Monterey, California, south across the outer Central Coast Ranges to crests of Peninsular Ranges, and in Transverse Ranges south to Mexico.

States: CA, MXBC

Map Zones: 4:C, 5:?

Similar:

Descriptors:

Lifeform :	Broad-Leaved Evergreen Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Xeric
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3015: California Coastal Redwood Forest

Match Confidence: Direct Match

Suggested Match: California Coastal Redwood Forest

Codes: ESLF: 4202 EVT_fuel: 2015

ESP: 1015 NatureServe Id: CES206.921

BioGeographical Division : Mediterranean California

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G235 California Coastal Redwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This system occurs from the Klamath Mountains south to Monterey Bay, California. At its northern extent, it transitions into southern examples of the coastal Sitka spruce and western hemlock systems that extend into coastal Alaska. However, the coastal redwood system generally can be found in areas of lower rainfall but still within the fog belt. In the northern portion, it occurs on upland slopes and in riparian zones and on riverine terraces that are flooded approximately every 50-100 years. In the southern portion of the range, annual precipitation may be as little as 50 cm, and the system is limited to coves and ravines. It is commonly found on moderately well-drained marine sediments (non-metamorphosed siltstones, sandstones, etc.). This system forms the tallest forests in North America, with individuals reaching 100 m high (tallest being 106-110 m [350-360 feet]). Typically, mature stands of *Sequoia sempervirens* produce a deep shade, so understories can be limited, but coarse woody debris from past disturbance can be quite large. *Pseudotsuga menziesii* is the common associate among the large trees. *Tsuga heterophylla* is found in old-growth stands, and *Lithocarpus densiflorus* occurs as a subcanopy in almost all stands (possibly as a result of fire suppression). The moist, coastal *Chamaecyparis lawsoniana* stands from southwestern Oregon and northwestern California, often mixed with *Sequoia sempervirens, Pseudotsuga menziesii*, or *Tsuga heterophylla*, are included in this system, as ecologically they function in the same way and have the same overall floristic composition. Shade-tolerant understory species include *Rubus parviflorus, Oxalis oregana, Aralia californica, Mahonia nervosa (= Berberis nervosa), Gaultheria shallon*, and many ferns, such as *Blechnum spicant, Polystichum* spp., and *Polypodium* spp. Historically, ground fires likely exposed mineral soil for redwood seed germination. Less frequent disturbance can result in increases in *Tsuga heterophylla* in northern occurrences, as it is sensitive to fire and is a decreaser with fire and flood. Fire suppression has tended to result in increasing abundance of *Lithocarpus densiflorus, Umbellularia californica, Alnus*

rubra, Arbutus menziesii, and *Acer macrophyllum*; all respond favorably to fire, flood, wind and slides, becoming more abundant in areas of frequent disturbance.

Range: This system occurs from the Klamath Mountains south to Monterey Bay, California.

States: CA

Map Zones: 2:C, 3:C, 4:C

Similar:

Descriptors:

Temporal Persistence :	Long (> 500 yrs)
Floristics/Dominants :	Sequoia sempervirens
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Bioclimate :	Mediterranean
Specialized Substrates :	marine sedimentary
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland
Life Zones :	Montane

3016: Colorado Plateau Pinyon-Juniper Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4203 EVT_fuel: 2016

ESP: 1016 NatureServe Id: CES304.767

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M027 Southern Rocky Mountain Two-needle Pinyon - One-seed Juniper W

NVC Group: G250 Colorado Plateau Pinyon - Juniper Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This ecological system occurs in dry mountains and foothills of the Colorado Plateau region including the Western Slope of Colorado to the Wasatch Range, south to the Mogollon Rim, and east into the northwestern corner of New Mexico. It is typically found at lower elevations ranging from 1500-2440 m. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Soils supporting this system vary in texture, ranging from stony, cobbly, gravelly sandy loams to clay loam or clay. *Pinus edulis* and/or *Juniperus osteosperma* dominate the tree canopy. In the southern portion of the Colorado Plateau in northern Arizona and northwestern New Mexico, *Juniperus monosperma* and hybrids of *Juniperus* spp. may dominate or codominate the tree canopy. *Juniperus scopulorum* may codominate or replace *Juniperus osteosperma* at higher elevations. Understory layers are variable and may be dominated by shrubs, graminoids, or be absent. Associated species include *Arctostaphylos patula, Artemisia tridentata, Cercocarpus intricatus, Cercocarpus montanus, Coleogyne ramosissima, Purshia stansburiana, Purshia tridentata, Quercus gambelii, Bouteloua gracilis, Pleuraphis jamesii, Pseudoroegneria spicata, Poa secunda*, or *Poa fendleriana*. This system occurs at higher elevations than ~Great Basin Pinyon-Juniper Woodland (CES304.773)$$ and Colorado Plateau shrubland systems where sympatric.

Range: This system occurs on dry mountains and foothills of the Colorado Plateau region from the Western Slope of Colorado to the Wasatch Range, south to the Mogollon Rim, and east into the northwestern corner of New Mexico. It is typically found at lower elevations, ranging from 1500-2440 m. In Wyoming, it would occur only in the southern portions of mapzone 22.

States: AZ, CO, NM, UT, WY?

Map Zones: 13:P, 15:C, 16:C, 17:P, 22:C, 23:C, 24:C, 25:C, 28:C

Similar: Colorado Plateau Pinyon-Juniper Shrubland (CES304.766), Great Basin Pinyon-Juniper Woodland (CES304.773), Inter-Mountain Basins Juniper Savanna (CES304.782)

Descriptors:

Topography	High-Low Slope
Life Zones	Lowland
Major Physiognomy	Forest and Woodland (Tree)
Landforms	Foothill(s)
Landforms	Mesa
Landforms	Piedmont
Life Zones	Montane
Topography	High Ridge/Upper Slope
Floristics/Dominants	Pinus edulis, Juniperus osteosperma
Specialized Substrates	Sedimentary Rock
Bioclimate	Temperate
Soil pH	Alkaline
Soil Moisture (NRCS)	Aridic
Disturbance Return Interval	Long
Fire Intensity/Spatial Character	Patch/Medium Intensity
Landforms	Plateau

3017: Columbia Plateau Western Juniper Woodland and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4204 EVT_fuel: 2017

ESP: 1017 NatureServe Id: CES304.082

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G248 Columbia Plateau Western Juniper Woodland & Savanna

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This woodland system is found along the northern and western margins of the Great Basin, from southwestern Idaho, along the eastern foothills of the Cascades, south to the Modoc Plateau of northeastern California. Elevations range from under 200 m along the Columbia River in central Washington to over 1500 m. Generally soils are medium-textured, with abundant coarse fragments, and derived from volcanic parent materials. In central Oregon, the center of distribution, all aspects and slope positions occur. Where this system grades into relatively mesic forest or grassland habitats, these woodlands become restricted to rock outcrops or escarpments with excessively drained soils. *Pinus monophylla* is not present in this region, so *Juniperus occidentalis* is the only tree species, although *Pinus ponderosa* or *Pinus jeffreyi* may be present in some stands. *Cercocarpus ledifolius* may occasionally codominate. *Artemisia tridentata* is the most common shrub; others are *Purshia tridentata, Ericameria nauseosa, Chrysothamnus viscidiflorus, Ribes cereum*, and *Tetradymia* spp. Graminoids include *Carex filifolia, Festuca idahoensis, Poa secunda*, and *Pseudoroegneria spicata*. These woodlands are generally restricted to rocky areas where fire frequency is low. Throughout much of its range, fire exclusion and removal of fine fuels by grazing livestock have reduced fire frequency and allowed *Juniperus occidentalis* seedlings to colonize adjacent alluvial soils and expand into the shrub-steppe and grasslands. *Juniperus occidentalis* savanna may occur on the drier edges of the woodland where trees are intermingling with or invading the surrounding grasslands and where local edaphic or climatic conditions favor grasslands over shrublands.

Range: This woodland and savanna system is found along the northern and western margins of the Great Basin, from southwestern Idaho, along the eastern foothills of the Cascades, south to the Modoc Plateau of northeastern California. It also occurs in scattered localities of northern Nevada and

south-central Washington.

States: CA, ID, NV, OR, WA

Map Zones: 6:C, 7:C, 9:C, 12:C, 18:C

Similar:

Descriptors:

Floristics/Dominants :	Juniperus occidentalis
Soil Moisture (NRCS) :	Aridic
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3018: East Cascades Mesic Montane Mixed-Conifer Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4205 EVT_fuel: 2018

ESP: 1018 NatureServe Id: CES204.086

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G212 East Cascades Mesic Grand Fir - Douglas-fir Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs on the upper east slopes of the Cascades in Washington, south of Lake Chelan and south to Mount Hood in Oregon. Elevations range from 610 to 1220 m (2000-4000 feet) in a very restricted range occupying less than 5% of the forested landscape in the east Cascades. This system is associated with a submesic climate regime with annual precipitation ranging from 100 to 200 cm (40-80 inches) and maximum winter snowpacks that typically melt off in spring at lower elevations. This ecological system is composed of variable montane coniferous forests typically below Pacific silver fir forests along the crest east of the Cascades. This system also includes montane forests along rivers and slopes, and in mesic "coves" which were historically protected from wildfires. Most occurrences of this system are dominated by a mix of *Pseudotsuga menziesii* with *Abies grandis* and/or *Tsuga heterophylla*. Several other conifers can dominate or codominate, including *Thuja plicata, Pinus contorta, Pinus monticola*, and *Larix occidentalis*. *Abies grandis* and other fire-sensitive, shade-tolerant species dominate forests on many sites once dominated by *Pseudotsuga menziesii* and *Pinus ponderosa*, which were formerly maintained by wildfire. They are very productive forests in the eastern Cascades which have been priority stands for timber production. *Mahonia nervosa, Linnaea borealis, Paxistima myrsinites, Acer circinatum, Spiraea betulifolia, Symphoricarpos hesperius, Cornus nuttallii, Rubus parviflorus*, and *Vaccinium membranaceum* are common shrub species. The composition of the herbaceous layer reflects local climate and degree of canopy closure and contains species more restricted to the Cascades, for example, *Achlys triphylla, Anemone deltoidea*, and *Vancouveria hexandra*. Typically, stand-replacement fire-return intervals are 150-500 years with moderate-severity fire-return intervals of 50-100 years.

Range: This ecological system occurs on the upper east slopes of the Cascades in Washington, south of

Lake Chelan and south to Mount Hood in Oregon.

States: BC, OR, WA

Map Zones: 1:C, 7:C, 9:P

Similar: Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest (CES306.805)

Descriptors:

Temporal Persistence :	Long (> 500 yrs)
Floristics/Dominants :	Pseudotsuga menziesii
Floristics/Dominants :	Tsuga heterophylla, Thjua plicata
Floristics/Dominants :	Abies grandis-mixed
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Disturbance Return Interval :	Very Long
Soil Moisture (NRCS) :	Udic
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3019: Great Basin Pinyon-Juniper Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4206 EVT_fuel: 2019

ESP: 1019 NatureServe Id: CES304.773

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G247 Great Basin Pinyon - Juniper Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This ecological system occurs on dry mountain ranges of the Great Basin region and eastern foothills of the Sierra Nevada south in scattered locations throughout southern California. It is typically found at lower elevations ranging from 1600-2600 m. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Woodlands dominated by a mix of *Pinus monophylla* and *Juniperus osteosperma*, pure or nearly pure occurrences of *Pinus monophylla*, or woodlands dominated solely by *Juniperus osteosperma* comprise this system, but in some regions of southern California, *Juniperus osteosperma* is replaced by *Juniperus californica*. *Cercocarpus ledifolius* is a common associate. On the east slope of the Sierras in California, *Pinus jeffreyi* and *Juniperus occidentalis var. australis* may be components of these woodlands. Understory layers are variable. Associated species include shrubs such as *Arctostaphylos patula, Artemisia arbuscula, Artemisia nova, Artemisia tridentata, Cercocarpus ledifolius, Cercocarpus intricatus, Coleogyne ramosissima, Yucca brevifolia, Quercus gambelii, Quercus turbinella, Quercus john-tuckeri, Juniperus californica, Quercus chrysolepis*, and bunch grasses *Hesperostipa comata, Festuca idahoensis, Pseudoroegneria spicata, Leymus cinereus (= Elymus cinereus)*, and *Poa fendleriana*. This system occurs at lower elevations than ~Colorado Plateau Pinyon-Juniper Woodland (CES304.767)$$ where sympatric.

Range: This system occurs on dry mountain ranges of the Great Basin region and eastern foothills of the Sierra Nevada, typically at lower elevations ranging from 1600-2600 m. It extends southwest in California to the northern Transverse Ranges (Ventura County) and San Jacinto Mountains (Riverside County).

States: CA, ID, NV, UT

Map Zones: 4:C, 6:C, 7:?, 9:C, 12:C, 13:C, 14:C, 15:C, 16:C, 17:C, 18:C, 23:C

Similar: Colorado Plateau Pinyon-Juniper Woodland (CES304.767), Inter-Mountain Basins Juniper Savanna (CES304.782)

Descriptors:

Floristics/Dominants :	Pinus monophyllus, Juniperus osteosperma
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Long
Soil Moisture (NRCS) :	Aridic
Soil pH :	Alkaline
Bioclimate :	Temperate
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Landforms :	Plateau
Landforms :	Piedmont
Landforms :	Foothill(s)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3020: Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4207 EVT_fuel: 2020

ESP: 1020 NatureServe Id: CES304.790

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G224 Intermountain Basins Subalpine Limber Pine - Bristlecone Pine Woo

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system extends from the Mojave Desert and Sierra Nevada across the central Great Basin to the central Wasatch and western Uinta mountains. These open woodlands are typically found on high-elevation ridges and rocky slopes above subalpine forests and woodlands. Site are harsh, exposed to desiccating winds with rocky substrates and a short growing season that limit plant growth. Parent materials include dolomitic, limestone or granitic rocks. Occurrences can be found on all aspects but are more common on southwestern exposures on steep convex slopes and ridges between 2530 and 3600 m (8300-12,000 feet). Stands are strongly dominated by *Pinus flexilis* and/or *Pinus longaeva*. *Pinus monophylla* may be present in lower-elevation stands. If present, shrub and herbaceous layers are generally sparse and composed of xeric shrubs, graminoids and cushion plants. Associated species may include *Antennaria rosea, Arenaria kingii, Artemisia tridentata, Cercocarpus intricatus, Chamaebatiaria millefolium, Cymopterus cinerarius, Elymus elymoides, Erigeron pygmaeus, Eriogonum ovalifolium, Festuca brachyphylla, Koeleria macrantha, Leptodactylon pungens, Ribes cereum*, or *Ribes montigenum*.

Range: This system extends from the Mojave Desert and Sierra Nevada across the Great Basin to the central Wasatch and extreme western Uinta mountains.

States: CA, NV, UT

Map Zones: 6:P, 7:?, 9:?, 12:C, 13:C, 16:C, 17:C, 18:P

Similar:

Descriptors:

Floristics/Dominants : Pinus longaeva, P. flexilis

Soil Moisture (NRCS) : Xeric

Specialized Substrate Chemistry :	Calcareous
Bioclimate :	Temperate
Topography :	High Ridge/Upper Slope
Landforms :	Ridge
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3021: Klamath-Siskiyou Lower Montane Serpentine Mixed Conifer Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4208 EVT_fuel: 2021

ESP: 1021 NatureServe Id: CES206.917

BioGeographical Division : Mediterranean California

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This system occurs throughout the Klamath - Siskiyou region below 1500 m (4550 feet) elevation on thin, rocky, ultramafic (gabbro, peridotite, serpentinite) soils below winter snow accumulations and typically experiences hot and dry summers. Soils are not always rocky; they can be loamy, up to 76 cm (30 inches) in depth, and can be heavy clay. Not all ultramafic outcrops support distinct vegetation; only those with very low Ca:Mg ratios impact biotic composition. These systems are highly variable and spotty in distribution. These sites are more productive and can support large-statured (dbh, height) trees, although they tend to be widely spaced. Common species include *Pseudotsuga menziesii, Pinus sabiniana, Pinus lambertiana, Pinus jeffreyi, Pinus attenuata, Lithocarpus densiflorus var. echinoides, Calocedrus decurrens , Arctostaphylos* spp., *Quercus vacciniifolia*, and *Xerophyllum tenax*. Perennial grasses such as *Festuca idahoensis* may also be characteristic. *Chamaecyparis lawsoniana* communities can occur within occurrences of this system in mesic and linear riparian zones. Herbaceous-dominated serpentine fens (and bogs) are treated in ~Mediterranean California Serpentine Fen (CES206.953)$$.

Range: This system occurs throughout the Klamath - Siskiyou region below 1500 m (4550 feet) elevation.

States: CA, OR

Map Zones: 2:C, 3:C, 7:?

Similar: Klamath-Siskiyou Xeromorphic Serpentine Savanna and Chaparral (CES206.150)

Descriptors:

Soil Moisture (NRCS) : Xeric

Specialized Substrate Chemistry : Ultramafic with low Ca:Mg ratio

Bioclimate :	Mediterranean
Specialized Substrates :	Serpentine
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3022: Klamath-Siskiyou Upper Montane Serpentine Mixed Conifer Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4209 EVT_fuel: 2022

ESP: 1022 NatureServe Id: CES206.914

BioGeographical Division : Mediterranean California

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This system occurs throughout the Klamath - Siskiyou region above 1500 m (4550 feet) elevation on thin, rocky, ultramafic (gabbro, peridotite, serpentinite) soils in dry-mesic conditions. Not all ultramafic outcrops support distinct vegetation; only those with very low Ca:Mg ratios impact biotic composition. Although ultramafics may be relatively dry and have a moderate to high grass component, they do not burn often where the serpentine syndrome [see Kruckeberg (1984)] is severe. The problem is not just the calcium:magnesium ratio, but heavy metals and sometimes high clay content limit biomass production. These systems are highly variable and spotty in distribution. Common species include *Pinus monticola, Pinus balfouriana, Quercus vacciniifolia, Pinus jeffreyi, Ceanothus pumilus, Arctostaphylos* spp., *Lithocarpus densiflorus var. echinoides, Abies X shastensis (= Abies magnifica var. shastensis*), and *Chamaecyparis nootkatensis*. Stands of stunted (up to 12 m [40 feet]) but straight *Pinus contorta* are also possible. *Chamaecyparis lawsoniana* communities can occur in this system in mesic and linear riparian zones. Herbaceous-dominated serpentine fens (and bogs) are treated in ~Mediterranean California Serpentine Fen (CES206.953)$$.

Range: This system occurs throughout the Klamath - Siskiyou region above 1500 m (4550 feet) elevation.

States: CA, OR

Map Zones: 2:C, 3:C, 7:?

Similar:

Descriptors:

Lifeform : Broad-Leaved Evergreen Shrub

Lifeform : Broad-Leaved Evergreen Tree

Lifeform :	Needle-Leaved Tree
Soil Moisture (NRCS) :	Ustic
Soil Depth :	Very Shallow
Specialized Substrate Chemistry :	Ultramafic with low Ca:Mg ratio
Bioclimate :	Mediterranean
Specialized Substrates :	Serpentine
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3023: Madrean Encinal

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4210 EVT_fuel: 2023

ESP: 1023 NatureServe Id: CES305.795

BioGeographical Division : Sierra Madre

NVC MacroGroup: M010 Madrean Lowland Evergreen Woodland

NVC Group: G201 Madrean Encinal

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: Madrean Encinal occurs on foothills, canyons, bajadas and plateaus in the Sierra Madre Occidentale and Sierra Madre Orientale in Mexico, extending north into Trans-Pecos Texas, southern New Mexico and sub-Mogollon Arizona. These woodlands are dominated by Madrean evergreen oaks along a low-slope transition below ~Madrean Lower Montane Pine-Oak Forest and Woodland (CES305.796)$$ and ~Madrean Pinyon-Juniper Woodland (CES305.797)$$. Lower elevation stands are typically open woodlands or savannas where they transition into desert grasslands, chaparral or in some cases desertscrub. Common evergreen oak species include *Quercus arizonica, Quercus emoryi, Quercus intricata, Quercus grisea, Quercus oblongifolia, Quercus toumeyi*, and in Mexico *Quercus chihuahuensis* and *Quercus albocincta*. Madrean pine, Arizona cypress, pinyon and juniper trees may be present but do not codominate. Chaparral species such as *Arctostaphylos pungens, Cercocarpus montanus, Purshia* spp., *Garrya wrightii, Quercus turbinella, Frangula betulifolia (= Rhamnus betulifolia)*, or *Rhus* spp. may be present but do not dominate. The graminoid layer is usually prominent between trees in grassland or steppe that is dominated by warm-season grasses such as *Aristida* spp., *Bouteloua gracilis, Bouteloua curtipendula, Bouteloua rothrockii, Digitaria californica, Eragrostis intermedia, Hilaria belangeri, Leptochloa dubia, Muhlenbergia* spp., *Pleuraphis jamesii*, or *Schizachyrium cirratum*, species typical of ~Apacherian-Chihuahuan Semi-Desert Grassland and Steppe (CES302.735)$$. This system includes seral stands dominated by shrubby Madrean oaks typically with a strong graminoid layer. In transition areas with drier chaparral systems, stands of chaparral are not dominated by Madrean oaks; however, Madrean Encinal may extend down along drainages.

Range: This system is found in the Sierra Madre Occidentale and Sierra Madre Orientale of Mexico, Trans-Pecos Texas, southern New Mexico and southeastern Arizona.

States: AZ, NM, TX

Map Zones: 14:P, 15:C, 24:C, 25:C, 26:C, 27:P

Similar: Apacherian-Chihuahuan Semi-Desert Grassland and Steppe (CES302.735)

Descriptors:

Floristics/Dominants :	Quercus arizonica, Q. emoryii, Q. grisea, Q. oblongifoli
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Evergreen Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Bioclimate :	Tropical/Subtropical
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3024: Madrean Lower Montane Pine-Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4211 EVT_fuel: 2024

ESP: 1024 NatureServe Id: CES305.796

BioGeographical Division : Sierra Madre

NVC MacroGroup: M011 Madrean Montane Forest & Woodland

NVC Group: G203 Madrean Lower Montane Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This system occurs on mountains and plateaus in the Sierra Madre Occidentale and Sierra Madre Orientale in Mexico, Trans-Pecos Texas, southern New Mexico and Arizona, generally south of the Mogollon Rim. These forests and woodlands are composed of Madrean pines (*Pinus arizonica, Pinus engelmannii, Pinus leiophylla*, or *Pinus strobiformis*) and evergreen oaks (*Quercus arizonica, Quercus emoryi*, or *Quercus grisea*) intermingled with patchy shrublands on most mid-elevation slopes (1500-2300 m elevation). Other tree species include *Cupressus arizonica, Juniperus deppeana, Pinus cembroides, Pinus discolor, Pinus ponderosa* (with Madrean pines or oaks), and *Pseudotsuga menziesii*. Subcanopy and shrub layers may include typical encinal and chaparral species such as *Agave* spp., *Arbutus arizonica, Arctostaphylos pringlei, Arctostaphylos pungens, Garrya wrightii, Nolina* spp., *Quercus hypoleucoides, Quercus rugosa*, and *Quercus turbinella*. Some stands have moderate cover of perennial graminoids such as *Muhlenbergia emersleyi, Muhlenbergia longiligula, Muhlenbergia virescens*, and *Schizachyrium cirratum*. Fires are frequent with perhaps more crown fires than ponderosa pine woodlands, which tend to have more frequent ground fires on gentle slopes.

Range: This system is found in the Sierra Madre Occidentale and Sierra Madre Orientale of Mexico, Trans-Pecos Texas, southern New Mexico and Arizona, generally south of the Mogollon Rim.

States: AZ, NM, TX

Map Zones: 14:C, 15:C, 24:C, 25:C, 26:C, 27:P, 28:?

Similar:

Descriptors:

Floristics/Dominants : Pinus discolor, P. leiophylla, P. engelmannii

Floristics/Dominants :	Quercus arizonica, Q. emoryii, Q. grisea, Q. oblongifoli
Lifeform :	Evergreen Sclerophyllous Shrub
Lifeform :	Xeromorphic Shrub
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Soil Depth :	Shallow Soil
Bioclimate :	Tropical/Subtropical
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3025: Madrean Pinyon-Juniper Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4212 EVT_fuel: 2025

ESP: 1025 NatureServe Id: CES305.797

BioGeographical Division : Sierra Madre

NVC MacroGroup: M010 Madrean Lowland Evergreen Woodland

NVC Group: G200 Madrean Pinyon - Juniper Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This system occurs on foothills, mountains and plateaus in the Sierra Madre Occidentale and Sierra Madre Orientale in Mexico, Trans-Pecos Texas, southern New Mexico and Arizona, generally south of the Mogollon Rim. Substrates are variable, but soils are generally dry and rocky. The presence of *Pinus cembroides, Pinus discolor*, or other Madrean trees and shrubs is diagnostic of this woodland system. *Juniperus coahuilensis, Juniperus deppeana, Juniperus pinchotii, Juniperus monosperma*, and/or *Pinus edulis* may be present to dominant. Madrean oaks such as *Quercus arizonica, Quercus emoryi, Quercus grisea*, or *Quercus mohriana* may be codominant. *Pinus ponderosa* is absent or sparse. If present, understory layers are variable and may be dominated by shrubs or graminoids.

Range: This system occurs in the Sierra Madre Occidentale and Sierra Madre Orientale of Mexico, Trans-Pecos Texas, southern New Mexico and Arizona, generally south of the Mogollon Rim. It occurs on the west side of the Sacramento Mountains but may transition into ~Southern Rocky Mountain Pinyon-Juniper Woodland (CES306.835)$$ or ~Southern Rocky Mountain Juniper Woodland and Savanna (CES306.834)$$ on the eastern side.

States: AZ, NM, TX

Map Zones: 14:C, 15:C, 24:C, 25:C, 26:C, 27:C, 28:?

Similar:

Descriptors:

Floristics/Dominants : Pinus cembroides, Juniperus deppeana

Lifeform : Evergreen Sclerophyllous Shrub

Lifeform : Xeromorphic Shrub

Lifeform :	Broad-Leaved Evergreen Tree
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Soil Depth :	Shallow Soil
Bioclimate :	Tropical/Subtropical
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3026: Madrean Upper Montane Conifer-Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4213 EVT_fuel: 2026

ESP: 1026 NatureServe Id: CES305.798

BioGeographical Division : Sierra Madre

NVC MacroGroup: M011 Madrean Montane Forest & Woodland

NVC Group: G202 Madrean Upper Montane Conifer - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This ecological system occurs at the upper elevations in the Sierra Madre Occidentale and Sierra Madre Orientale of Mexico. In the U.S., it is restricted to north and east aspects at high elevations (1980-2440 m) in the Sky Islands (Chiricahua, Huachuca, Pinaleno, Santa Catalina, and Santa Rita mountains) and along the Nantanes Rim. It is more common in Mexico and does not occur north of the Mogollon Rim. The vegetation is characterized by large- and small-patch forests and woodlands dominated by *Pseudotsuga menziesii, Abies coahuilensis*, or *Abies concolor* and Madrean oaks such as *Quercus arizonica, Quercus emoryi, Quercus grisea, Quercus hypoleucoides, Quercus rugosa*, and *Quercus toumeyi*. If *Quercus gambelii* is prominent in the shrub layer, then other Madrean elements are present. This system may include stands of *Quercus gravesii* woodlands. It is similar to ~Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland (CES306.823)$$ which typically lacks Madrean elements.

Range: This system is found in the Sierra Madre Occidentale and Sierra Madre Orientale of Mexico. In the U.S., it is restricted to north and east aspects at high elevations (1980-2440 m) in the Sky Islands (Chiricahua, Huachuca, Pinaleno, Santa Catalina, and Santa Rita mountains) and along the Nantanes Rim.

States: AZ, NM

Map Zones: 15:C, 24:?, 25:C, 27:?, 28:?

Similar: Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland (CES306.823)

Descriptors:

Floristics/Dominants : Abies coahuilensis, Quercus hypoleucoides, Q. rugosa

Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Long
Soil Moisture (NRCS) :	Xeric
Soil Texture :	Sand
Soil Depth :	Deep
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3027: Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4214 EVT_fuel: 2027

ESP: 1027 NatureServe Id: CES206.916

BioGeographical Division : Mediterranean California

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: These mixed-conifer forests, always with at least two conifer species codominating, occur on all aspects in lower montane zones (600-1800 m elevation in northern California; 1200-2150 m in southern California). This system occurs in a variety of topo-edaphic positions, such as upper slopes at higher elevations, canyon sideslopes, ridgetops, and south- and west-facing slopes which burn relatively frequently. Often, several conifer species co-occur in individual stands. *Pseudotsuga menziesii, Pinus ponderosa*, and *Calocedrus decurrens* are the most common conifers. Other conifers that can occasionally be present include *Pinus jeffreyi, Pinus attenuata*, and *Pinus lambertiana* (not as common in this as in ~Mediterranean California Mesic Mixed Conifer Forest and Woodland (CES206.915)$$). Common subcanopy trees include *Quercus chrysolepis* and *Quercus kelloggii*. *Arbutus menziesii* and *Lithocarpus densiflorus* may be common with the oaks in northern areas. *Pseudotsuga macrocarpa* and *Pinus coulteri* can be present but are not dominant species in this system in the Transverse Ranges of southern California. Codominant *Abies concolor - Calocedrus decurrens* communities in southern California are also included in this system. In the Transverse Ranges, where Great Basin and Mojavean elements are transitioning into the montane zones, *Juniperus californica* and *Pinus monophylla* can be mixed with the other conifers. Understories are variable, except in the Sierra Nevada, where in some stands there can be dense understory mats of *Chamaebatia foliolosa* (and other low, spreading shrubs) which foster relatively high-frequency, low-intensity ground fires. In Oregon, shrubs such as *Holodiscus discolor, Toxicodendron rydbergii, Mahonia nervosa, Mahonia aquifolium*, and *Symphoricarpos mollis* are common in addition to graminoids such as *Festuca californica, Elymus glaucus*, and *Danthonia californica*. In the north, where *Calocedrus decurrens* and *Pinus ponderosa* drop out, this system shifts to ~North Pacific Dry Douglas-fir-(Madrone) Forest and Woodland (CES204.845)$$.

Range: 1200-2150 m in southern California), including the eastern Klamath-Siskiyou, interior Coast Ranges, Transverse Ranges and Sierra Nevada.

States: CA, NV, OR

Map Zones: 2:C, 3:C, 4:C, 6:C, 7:C, 12:P, 13:?

Similar: Sierran-Intermontane Desert Western White Pine-White Fir Woodland (CES204.101)

Descriptors:

Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Low Intensity
Soil Moisture (NRCS) :	Ustic
Bioclimate :	Mediterranean
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3028: Mediterranean California Mesic Mixed Conifer Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4215 EVT_fuel: 2028

ESP: 1028 NatureServe Id: CES206.915

BioGeographical Division : Mediterranean California

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs in cool ravines and north-facing slopes (typically with 100-150 cm annual precipitation; 50% as snow). It is found from 800-1000 m (2400-3000 feet) elevation in the Sierra Nevada and 1250-2200 m (3800-6700 feet) in the Klamath Mountains. The most characteristically co-occurring conifers are *Abies concolor var. lowiana, Calocedrus decurrens*, and *Pinus lambertiana*. *Pinus jeffreyi, Pinus ponderosa*, and *Pseudotsuga menziesii* occur frequently but are not dominant. In limited locations in the central Sierra Nevada, *Sequoiadendron giganteum* dominates, usually with *Abies concolor*, and at the highest elevations also with *Abies magnifica*. *Acer macrophyllum* is common in lower elevation mesic pockets; *Chrysolepis chrysophylla* also occurs in the western Klamaths. Common understory species include *Corylus cornuta, Cornus nuttallii*, and at higher elevations *Chrysolepis sempervirens*. In areas of recent fire or other disturbance, *Arctostaphylos patula, Ceanothus integerrimus, Ceanothus cordulatus, Ceanothus parvifolius*, and *Ribes* spp. are more common. Fire of highly variable patch size and return interval maintains the structure of these woodlands

Range: This system is found from 800-1000 m (2400-3000 feet) elevation in the Sierra Nevada and 1250-2200 m (3800-6700 feet) in the Klamath Mountains.

States: CA, NV, OR

Map Zones: 2:C, 3:C, 4:?, 6:C, 7:C, 12:?

Similar: Sierran-Intermontane Desert Western White Pine-White Fir Woodland (CES204.101)

Descriptors:

Temporal Persistence : Long (> 500 yrs)

Floristics/Dominants : Sequoiadendron giganteum

Fire Intensity/Spatial Character :	Patch/Low Intensity
Soil Moisture (NRCS) :	Udic
Bioclimate :	Mediterranean
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3029: Mediterranean California Mixed Oak Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4216 EVT_fuel: 2029

ESP: 1029 NatureServe Id: CES206.909

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This ecological system is found throughout the Sierra Nevada and Coast Range foothills and lower montane elevations from 600-1600 m (1800-4850 feet) on steep, rocky slopes where snow and cold temperatures occur. Fire frequency and intensity drive composition of this system, with *Quercus chrysolepis* dominant with less frequent fires. With frequent annual burning (at lower elevations and on warmer sites), this system is an open to dense woodland of large oaks with well-developed grassy understories of native perennial bunchgrass. The predominant oaks with the higher frequency fires include *Quercus kelloggii* and *Quercus garryana*, with *Quercus garryana var. garryana* codominant in the central and northern Coast Ranges and *Quercus garryana var. breweri* often codominant in the northwestern Coast Ranges as well as portions of the Sierra Nevada. *Quercus chrysolepis* becomes dominant with less frequent fires (but in Oregon this species is not important and occurs in a different system, either ~Mediterranean California Mixed Evergreen Forest (CES206.919)$$ or ~Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland (CES206.916)$$). The perennial bunchgrass component includes *Festuca idahoensis, Festuca californica, Elymus glaucus*, and *Danthonia californica* (close to the coast). A variety of native forbs also occur. Other characteristic species include *Toxicodendron diversilobum, Juniperus occidentalis*, and *Ceanothus cuneatus*. This system is similar to ~North Pacific Oak Woodland (CES204.852)$$ but does not include a conifer component, and *Quercus garryana* is not the only oak.

Range: This system is found throughout the Sierra Nevada and Coast Range foothills and lower montane of California and Oregon at elevations from 600-1600 m (1800-4850 feet).

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:C, 6:C, 7:C, 13:?

Similar: North Pacific Oak Woodland (CES204.852)

Descriptors:

Floristics/Dominants :	Quercus garryana var. breweri
Floristics/Dominants :	Quercus kellogii
Lifeform :	Broad-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Soil Depth :	Shallow Soil
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3030: Mediterranean California Lower Montane Conifer Forest and Woodland

Match Confidence: Good Match

Suggested Match: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woo

Codes: ESLF: 4217 EVT_fuel: 2030

ESP: 1030 NatureServe Id: CES206.923

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This is the coniferous dominated expression of this ecological system. This ecological system is found throughout California's middle and inner North Coast Ranges, as well as the southern and eastern Klamath Mountains from 600-1600 m (1800-4850 feet) elevation, and the lower slopes of the western Sierra Nevada. It occurs in valleys and lower slopes on a variety of parent materials, including granitics, metamorphic and Franciscan metasedimentary parent material and deep, well-developed soils. It is characterized by woodlands or forests of *Pinus ponderosa* with one or more oaks, including *Quercus kelloggii, Quercus garryana, Quercus wislizeni*, or *Quercus chrysolepis*. *Pseudotsuga menziesii* may co-occur with *Pinus ponderosa*, particularly in the North Coast Ranges and Klamath Mountains. On most sites, the oaks are dominant, forming a dense subcanopy under a more open canopy of the conifers. On many sites, *Quercus kelloggii* is the dominant; in late-seral stands on more mesic sites, conifers such as *Pinus ponderosa* or *Pseudotsuga menziesii* will form a persistent emergent canopy over the oak. Stands may have shrubby understories (in the Klamath Mountains and Sierra Nevada) and, more rarely, grassy understories (in North Coast Ranges). Common shrubs include *Arctostaphylos viscida, Arctostaphylos manzanita, Ceanothus integerrimus*, and *Toxicodendron diversilobum*. Grasses can include *Festuca californica, Festuca idahoensis*, and *Melica* spp. Historical fire in this system was likely high frequency but of low intensity. Conifer species, such as *Pseudotsuga menziesii*, become more abundant with wildfire suppression.

Range: This system is found throughout California's middle and inner North Coast Ranges, as well as the Klamath Mountains from 600-1600 m (1800-4850 feet) elevation, and the lower slopes of the western Sierra Nevada.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:P, 6:C, 7:C, 13:?

Similar: California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna (CES206.936), Mediterranean California Mixed Evergreen Forest (CES206.919)

Descriptors:

Floristics/Dominants :	Quercus kellogii
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Depth :	Deep
Specialized Substrates :	Franciscan-formation Soils
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3031: California Montane Jeffrey Pine(-Ponderosa Pine) Woodland

Match Confidence: Solid Match

Suggested Match: California Montane Jeffrey Pine-(Ponderosa Pine) Woodland

Codes: ESLF: 4218 EVT_fuel: 2031

ESP: 1031 NatureServe Id: CES206.918

BioGeographical Division : Mediterranean California

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: These forests are found on relatively xeric sites in mountains and plateaus from southern Oregon (600-1830 m [1800-5000 feet] elevation) south into the Sierra Nevada, throughout the Transverse Ranges of California, and into northern Baja California (1200-2740 m [4000-8300 feet]), Mexico. While the two dominant pines tend to segregate by soil fertility and temperature regimes, they may co-occur in certain areas (e.g., Modoc Plateau). These stands are more common on the east side of the Sierra Nevada, although they do occur on the west side. Stands are pure *Pinus jeffreyi, Pinus ponderosa*, or a mix of the two. Ponderosa pine and/or Jeffrey pine on the west slope of the Sierras with other conifer species are part of ~Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland (CES206.916)$$. This system includes sites where *Pinus ponderosa* and/or *Pinus jeffreyi* are the predominant conifers and other tree species do not occur in high abundance, if at all. The exception to this is in southern California on the edges of the Mojave Desert where *Pinus monophylla* or *Juniperus californica* might occur in a subcanopy under *Pinus ponderosa* or *Pinus jeffreyi*. *Pinus jeffreyi* is more tolerant of colder, drier and poorer sites and replaces *Pinus ponderosa* as the dominant at higher elevations. In the north, *Pinus jeffreyi* may be replaced by *Pinus washoensis* (Carson Range and Warner Mountains). Throughout California, pure stands of ponderosa pine are relatively uncommon. Only on the Modoc Plateau do these pines co-occur in mixed stands. *Juniperus occidentalis* (both *var. australis* [in the south] and *var. occidentalis*) can co-occur in these stands but typically is not dominant. On moister and cooler sites, *Abies concolor* can be present in some stands. There can be well-developed shrub understories with strong Great Basin affinities; species can include *Artemisia tridentata, Purshia tridentata, Symphoricarpos rotundifolius var. parishii (= Symphoricarpos parishii), Arctostaphylos patula, Ceanothus cordulatus, Ceanothus prostratus, Ceanothus integerrimus, Chrysolepis sempervirens, Eriogonum wrightii, Quercus vacciniifolia*, and *Lupinus elatus*. *Cercocarpus ledifolius* is common on steeper slopes

throughout the range. Historically, frequent localized ground fires maintained these systems. Stands of ponderosa pine on the east side of the Cascades transition into ~East Cascades Oak-Ponderosa Pine Forest and Woodland (CES204.085)$$, or ~Northern Rocky Mountain Ponderosa Pine Woodland and Savanna (CES306.030)$$ north of the Warm Springs Reservation of central Oregon.

Range: This system occurs in foothills and mountains from southern Oregon south into the Sierra Nevada, throughout the Transverse Ranges of California and into northern Baja California, Mexico.

States: CA, MXBC, NV, OR

Map Zones: 2:C, 3:P, 4:C, 5:P, 6:C, 7:C, 12:C, 13:?

Similar:

Descriptors:

Floristics/Dominants :	Pinus jefferyi
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Evergreen Shrub
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Low Intensity
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil pH :	Acidic
Bioclimate :	Mediterranean
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3032: Mediterranean California Red Fir Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4219 EVT_fuel: 2032

ESP: 1032 NatureServe Id: CES206.913

BioGeographical Division : Mediterranean California

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G749 Sierra-Cascade Red Fir - Mountain Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system includes high-elevation (1600-2700 m [4850-9000 feet]) forests and woodlands dominated by *Abies magnifica (= var. magnifica), Abies X shastensis (= Abies magnifica var. shastensis)*, and/or *Abies procera*. This system is typically found on deep, well-drained soils throughout this elevation zone from the central Sierra Nevada north and west into southern Oregon. Heavy snowpack is a major source of soil moisture throughout the growing season. The limiting factors can be either cold-air drainages or ponding, or coarser soils (pumice versus ash, for example). Other conifers that can occur in varying mixtures with *Abies magnifica* include *Pinus contorta var. murrayana, Pinus monticola, Tsuga mertensiana, Pinus jeffreyi*, and *Abies concolor*. At warmer and lower sites of the North Coast Ranges and Sierra Nevada, *Abies concolor* can codominate with *Abies magnifica*. *Pinus contorta* in Oregon indicates lower productivity where it intergrades with *Abies X shastensis*. This system ranges from dry to moist, and some sites have mesic indicator species, such as *Ligusticum grayi* or *Thalictrum fendleri*. Common understory species include *Quercus vacciniifolia, Ribes viscosissimum, Chrysolepis sempervirens, Ceanothus cordulatus* (in seral stands), *Vaccinium membranaceum, Symphoricarpos mollis*, and *Symphoricarpos rotundifolius*. Characteristic forbs include *Eucephalus breweri, Pedicularis semibarbata*, and *Hieracium albiflorum*. This system commonly occurs above mixed conifer forests with *Abies concolor* and overlaps in elevation with forests and woodlands of *Pinus contorta var. murrayana*. On volcanic sites of lower productivity, stands may be more open woodland in structure and with poor-site understory species such as *Wyethia mollis*. Driving ecological processes include occasional blow-down, insect outbreaks and stand-replacing fire.

Range: This system is typically found on deep, well-drained soils throughout the high-elevation zone (1600-2700 m [4850-8200 feet]) from the central Sierra Nevada north and west into southern

Oregon.

States: CA, NV, OR

Map Zones: 2:C, 3:C, 6:C, 7:C, 12:?

Similar:

Descriptors:

Floristics/Dominants :	Abies magnifica var. magnifica
Wind Intensity/Spatial Character :	Patch/High Intensity
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Long
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Soil Depth :	Deep
Bioclimate :	Mediterranean
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3033: Mediterranean California Subalpine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4220 EVT_fuel: 2033

ESP: 1033 NatureServe Id: CES206.910

BioGeographical Division : Mediterranean California

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G243 Sierra-Cascade Cold-Dry Subalpine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs on ridges and rocky slopes around timberline at 2900 m (9500 feet) elevation in the southern Sierra Nevada and Transverse and Peninsular ranges, up to 3500 m (11,500 feet) in the Sierra Nevada, and 2450 m (8000 feet) in the southern Cascades. Tree species often occur as krummholz growth forms with a wind-pruned, prostrate, and/or shrublike appearance, but in more protected sites they form true woodland physiognomy. Stands are dominated by *Pinus albicaulis* and/or *Pinus contorta var. murrayana*; other important conifers and locally dominant species include *Pinus balfouriana* (only in the Klamath Mountains and southern Sierra Nevada where it may replace *Pinus albicaulis*), *Pinus flexilis* (but only in small patches on the eastern flank of the Sierra Nevada escarpment when it does occur), *Pinus monticola* (not in Transverse or Peninsular ranges), and *Juniperus occidentalis var. australis* (mostly in the central and southern Sierra Nevada but not in the Klamath Mountains). Important shrubs include *Arctostaphylos nevadensis, Chrysolepis sempervirens*, and *Holodiscus discolor (= Holodiscus microphyllus)*. Grasses and forbs include *Carex rossii, Carex filifolia, Poa wheeleri, Eriogonum incanum, Penstemon newberryi*, and *Penstemon davidsonii*. Due to landscape position and very thin soils, these are harsh sites exposed to desiccating winds with ice and snow blasts, and rocky substrates. In addition, a short growing season limits plant growth. The highest tree diversity occurs in the Klamath Mountains, with sometimes five or more conifers sharing codominance in one stand.

Range: This system occurs on ridges and rocky slopes around timberline at 2900 m (9500 feet) elevation in the southern Sierra Nevada and Transverse and Peninsular ranges and 2450 m (8000 feet) in the southern Cascades.

States: CA, MXBC, NV, OR

Map Zones: 2:C, 3:C, 4:C, 6:C, 7:C, 12:C, 13:P

Similar: Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland (CES206.912)

Descriptors:

Lifeform :	Krummholz
Wind Intensity/Spatial Character :	Landscape/High Intensity
Soil Depth :	Very Shallow
Bioclimate :	Temperate
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3034: Mediterranean California Mesic Serpentine Woodland and Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4221 EVT_fuel: 2034

ESP: 1034 NatureServe Id: CES206.928

BioGeographical Division : Mediterranean California

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs in Mediterranean California in the north and south Coast Ranges and the northern Sierra Nevada, on cool northerly and concave slopes and toeslopes with thin, rocky, ultramafic (gabbro, peridotite, serpentinite) soils. Not all ultramafic outcrops support distinct vegetation; only those with very low Ca:Mg ratios impact biotic composition. These systems are highly variable and spotty in distribution, and the composition of individual stands can be very diverse, especially the shrubs (often individual species have low cover). *Cupressus sargentii, Pinus sabiniana, Garrya congdonii, Quercus durata, Umbellularia californica*, and *Frangula californica ssp. tomentella (= Rhamnus tomentella ssp. tomentella)* are characteristic. Common associates include *Heteromeles arbutifolia, Adenostoma fasciculatum*, and the California endemics *Arctostaphylos viscida ssp. pulchella* and *Ceanothus jepsonii*. In some settings *Arctostaphylos glauca, Styrax rediviva (= Styrax officinalis)*, or *Cercocarpus montanus var. glaber (= Cercocarpus betuloides)* can be common. Occasionally, *Chamaecyparis lawsoniana* may be present. Common grasses and forbs can include *Melica torreyana, Festuca idahoensis, Iris* spp., and locally endemic serpentine forbs (*Senecio* spp. and others). Structurally, this system is sometimes woodland in character, but it can also be an arborescent chaparral, depending on fire history. Herbaceous-dominated serpentine fens (and bogs) are treated in ~Mediterranean California Serpentine Fen (CES206.953)$$.

Range: This system occurs throughout Mediterranean California except in the Klamath Mountains and possibly into Oregon.

States: CA, OR?

Map Zones: 2:C, 3:C, 4:C, 6:C, 7:P

Similar:

Descriptors:

Floristics/Dominants :	Cupressus sargentii
Lifeform :	Broad-Leaved Evergreen Shrub
Soil Moisture (NRCS) :	Udic
Soil Depth :	Shallow Soil
Specialized Substrate Chemistry :	Ultramafic with low Ca:Mg ratio
Bioclimate :	Mediterranean
Specialized Substrates :	Serpentine
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3035: North Pacific Dry Douglas-fir(-Madrone) Forest and Woodland

Match Confidence: Solid Match

Suggested Match: North Pacific Dry Douglas-fir-(Madrone) Forest and Woodland

Codes: ESLF: 4222 EVT_fuel: 2035

ESP: 1035 NatureServe Id: CES204.845

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G800 Southern Vancouverian Dry Douglas-fir - Madrone Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This system is most common in the Puget Trough - Willamette Valley ecoregion but also occurs in adjacent ecoregions. It occupies small patches associated with dry sites or larger areas in prairie landscapes. This system historically had moderate- to low-severity fires moderately frequently. Historically, these communities were either part of larger forested landscapes or occupied sheltered topographic positions in prairie-dominated landscapes. They now also occur on some sites that formerly supported prairies or tall shrublands (*Corylus cornuta*) with scattered trees. In the mountains, this type occurs locally on dry sites within dry to mesic (for the coastal areas) climates up to about 1220 m (4000 feet) elevation. This is a forest or woodland primarily dominated by the long-lived conifer *Pseudotsuga menziesii*. The evergreen broadleaf *Arbutus menziesii*, the short-lived conifer *Pinus contorta*, the broadleaf deciduous *Acer macrophyllum*, and the shade-tolerant conifer *Abies grandis* are local dominant or codominant species. These sites are too dry and warm or have been too frequently and extensively burned for anything more than small amounts of *Tsuga heterophylla* or *Thuja plicata* to be present as regeneration. *Arbutus menziesii* dominance is favored by high-severity fires on sites where it occurs, and *Pseudotsuga menziesii* can be locally eliminated by logging and hot fire or repeated high-severity fires. *Calocedrus decurrens* is absent. *Abies grandis* can be an important subcanopy or sapling tree, especially in and around the Willamette Valley and in the driest portions of the Georgia Basin (Coastal Douglas-fir Zone).

Range: This system is limited to the foothill transition zone of the Puget Trough - Willamette Valley - Georgia Basin ecoregion.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar:

Descriptors:

Floristics/Dominants :	Arbutus menziesii
Floristics/Dominants :	Pseudotsuga menziesii
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3036: North Pacific Hypermaritime Seasonal Sitka Spruce Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4223 EVT_fuel: 2036

ESP: 1036 NatureServe Id: CES204.841

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G751 North Pacific Western Hemlock - Sitka Spruce - Western Red-cedar S

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system is restricted to the hypermaritime climatic areas near the Pacific Coast, along a fog belt from Point Arena, California, north to northern Vancouver Island, British Columbia. These forests are restricted to areas within 25 km of saltwater and are most abundant along the coast of Vancouver Island, southern portions of coastal British Columbia, and the Olympic Peninsula of Washington. Sites include the outermost coastal fringe where salt spray is prominent, riparian terraces and valley bottoms near the coast where there is major fog accumulation, and in the northern half of its range starting in central British Columbia, steep, well-drained productive slopes not directly adjacent to the outer coast but within the hypermaritime zone. Annual precipitation ranges from 65 to 550 cm, with the majority falling as rain. Winter rains can be heavy. In the southern portion of its range, summer drought does occur, but it is typically short in duration and ameliorated by frequent, dense coastal fog and cloud cover. This forest type also dominates lower elevations (to 350 m) on the leeward side of the Queen Charlotte Islands in British Columbia. In Washington and Oregon, it is found mostly below 300 m elevation. It also occurs as a very narrow strip or localized patches along the southern Washington, Oregon and northern California coasts. Stands are typically dominated or codominated by *Picea sitchensis* but often have a mixture of other conifers present, such as *Tsuga heterophylla, Thuja plicata*, or *Chamaecyparis nootkatensis*. *Tsuga heterophylla* is very often codominant. In the southern extent (in Oregon, but not in California), *Chamaecyparis lawsoniana, Abies grandis, Pseudotsuga menziesii, Acer circinatum, Alnus rubra, Acer macrophyllum*, and *Frangula purshiana (= Rhamnus purshiana)* are occasional associates, while *Chamaecyparis nootkatensis* is completely absent. Wet coastal environments that support stands of *Chamaecyparis lawsoniana* in the absence of *Picea sitchensis* are also part of this system. The understory is rich with shade-tolerant shrubs and ferns, including *Gaultheria shallon, Vaccinium ovatum, Polystichum munitum, Dryopteris* spp., and

Blechnum spicant, as well as a high diversity of mosses and lichens. The disturbance regime is mostly small-scale windthrow or other gap mortality processes (though there are occasional widespread intense windstorms) and very few fires, the latter mainly in Oregon. This type differs from ~Alaskan Pacific Maritime Sitka Spruce Forest (CES204.151)$$ by having *Pseudotsuga menziesii* and *Thuja plicata* in addition to *Picea sitchensis* and *Tsuga heterophylla*. The climate has more seasonal rainfall than coastal areas to the north, with a pronounced drought in summer months.

Range: This system is restricted to the outer fringe of the Pacific Coast, along a fog belt from Point Arena, California, north to the northern end of Vancouver Island, British Columbia.

States: BC, CA, OR, WA

Map Zones: 1:C, 2:C, 3:C

Similar: North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest (CES204.842)

Descriptors:

Floristics/Dominants :	Picea sitchensis
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland

3037: North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4224 EVT_fuel: 2037

ESP: 1037 NatureServe Id: CES204.001

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G240 North Pacific Maritime Douglas-fir - Western Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system comprises much of the major lowland forests of western Washington, northwestern Oregon, eastern Vancouver Island, and the southern Coast Ranges in British Columbia. In southwestern Oregon, it becomes local and more small-patch in nature. It occurs throughout low-elevation western Washington, except on extremely dry or moist to very wet sites. In Oregon, it occurs on the western slopes of the Cascades, around the margins of the Willamette Valley, and in the Coast Ranges. These forests occur on the drier to intermediate moisture habitats and microhabitats within the Western Hemlock Zone of the Pacific Northwest. Climate is relatively mild and moist to wet. Mean annual precipitation is mostly 90-254 cm (35-100 inches) (but as low as 20 inches in the extreme rainshadow) falling predominantly as winter rain. Snowfall ranges from rare to regular, and summers are relatively dry. Elevation ranges from sea level to 610 m (2000 feet) in northern Washington to 1067 m (3500 feet) in Oregon. Topography ranges from relatively flat glacial tillplains to steep mountainous terrain. This is generally the most extensive forest in the lowlands on the west side of the Cascades and forms the matrix within which other systems occur as patches. Throughout its range it occurs in a mosaic with ~North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest (CES204.002)$$; in dry areas it occurs adjacent to or in a mosaic with ~North Pacific Dry Douglas-fir-(Madrone) Forest and Woodland (CES204.845)$$, and at higher elevations it intermingles with either ~North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest (CES204.098)$$ or ~North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097)$$.

Overstory canopy is dominated by*Pseudotsuga menziesii*, with *Tsuga heterophylla* generally present in the subcanopy or as a canopy dominant in old-growth stands. *Abies grandis, Thuja plicata*, and *Acer macrophyllum* codominants are also represented. In the driest climatic areas,

Tsuga heterophylla may be absent, and *Thuja plicata* takes its place as a late-seral or subcanopy tree species. *Gaultheria shallon, Mahonia nervosa, Rhododendron macrophyllum, Linnaea borealis, Achlys triphylla*, and *Vaccinium ovatum* typify the poorly to well-developed shrub layer. *Acer circinatum* is a common codominant with one or more of these other species. The fern *Polystichum munitum* can be codominant with one or more of the evergreen shrubs on sites with intermediate moisture availability (mesic). If *Polystichum munitum* is thoroughly dominant or greater than about 40-50% cover, then the stand is probably in the more moist ~North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest (CES204.002)$$. Young stands may lack *Tsuga heterophylla* or *Thuja plicata*, especially in the Puget Lowland. *Tsuga heterophylla* is generally the dominant regenerating tree species. Other common associates include *Acer macrophyllum, Abies grandis*, and *Pinus monticola*. In southwestern Oregon, *Pinus lambertiana, Calocedrus decurrens*, and occasionally *Pinus ponderosa* may occur in these forests. Soils are generally well-drained and are mesic to dry for much of the year. This is in contrast to ~North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest (CES204.002)$$, which occurs on sites where soils remain moist to subirrigated for much of the year and fires were less frequent. Fire is (or was) the major natural disturbance. In the past (pre-1880), fires were less commonly high-severity, typically mixed-severity or moderate-severity, with natural return intervals of 100 years or less in the driest areas, to a few hundred years in areas with more moderate to wet climates. In the drier climatic areas (central Oregon Cascades, Puget Lowlands, Georgia Basin), this system was typified by a (mixed) moderate-severity fire regime involving occasional stand-replacing fires and more frequent moderate-severity fires. This fire regime would create a complex mosaic of stand structures across the landscape.

Range: This system comprises the major lowland and low montane forests of western Washington, northwestern Oregon, and southwestern British Columbia. In British Columbia and Washington, it is uncommon to absent on the windward side of the coastal mountains where fire is rare. It also occurs locally in far southwestern Oregon (Klamath ecoregion) as small to large patches.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 7:C

Similar: North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest (CES204.002)

Descriptors:

Floristics/Dominants :	Tsuga heterophylla and Psuedotsuga menziesii
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3038: North Pacific Maritime Mesic Subalpine Parkland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4225 EVT_fuel: 2038

ESP: 1038 NatureServe Id: CES204.837

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G245 North Pacific Mountain Hemlock - Silver Fir Forest & Tree Island

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs throughout the mountains of the Pacific Northwest, from the southern Cascades of Oregon to the mountains of southeastern Alaska bordering British Columbia. It occurs at the transition zone of forest to alpine, forming a subalpine forest-meadow ecotone. Mountain hemlock forests, as they approach treeline, become open patches of mature-height trees surrounded by mesic and wet meadows rich in dwarf-shrubs and forbs. Clumps of trees to small patches of forest interspersed with low shrublands and meadows characterize this system. Krummholz often occurs near the upper elevational limit of this system where it grades into alpine vegetation. Associations include woodlands, forested, and subalpine meadow types. It occurs on the west side of the Cascade Mountains and is a transitional open forest into the true alpine on the interior side of the Coastal Mountains of British Columbia where deep, late-lying snowpack is the primary environmental factor. Major tree species are *Tsuga mertensiana, Abies amabilis, Chamaecyparis nootkatensis*, and *Abies lasiocarpa*. This system includes British Columbia Hypermaritime and Maritime Parkland (*Tsuga mertensiana*). Dominant dwarf-shrubs include *Phyllodoce empetriformis, Cassiope mertensiana*, and *Vaccinium deliciosum*. Dominant herbaceous species include *Lupinus arcticus ssp. subalpinus, Valeriana sitchensis, Carex spectabilis*, and *Polygonum bistortoides*. There is very little disturbance, either windthrow or fire. The major process controlling vegetation is the very deep long-lasting snowpacks (deepest in the North Pacific region) limiting tree regeneration. Trees get established only in favorable microsites (mostly adjacent to existing trees) or during drought years with low snowpack. It is distinguished from more interior dry parkland primarily by the presence of *Tsuga mertensiana* or *Abies amabilis* and absence or paucity of *Pinus albicaulis* and *Larix lyallii*.

Range: This system occurs throughout the mountains of the Pacific Northwest, from the central Oregon

Cascades (Diamond Peak, 30 miles north of Crater Lake National Park), north to the Coast Ranges of British Columbia, where it can occur on the east side, facing the interior of British Columbia, as well as north to the mountains along the border of Alaska.

States: AK, BC, OR, WA

Map Zones: 1:C, 7:P, 78:C

Similar:

Descriptors:

Microclimate :	Late-lying snowpack
Floristics/Dominants :	Tsuga mertensiana
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3039: North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4226 EVT_fuel: 2039

ESP: 1039 NatureServe Id: CES204.002

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G240 North Pacific Maritime Douglas-fir - Western Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system is a significant component of the lowland and low montane forests of western Washington, northwestern Oregon, and southwestern British Columbia. It occurs throughout low-elevation western Washington, except on extremely dry sites and in the hypermaritime zone near the outer coast where it is rare. In Oregon, it occurs on the western slopes of the Cascades, around the margins of the Willamette Valley, and on the west side of the Coast Ranges, and is reduced to locally small patches in southwestern Oregon. In British Columbia, it occurs on the eastern (leeward) side of Vancouver Island, commonly and rarely on the windward side, and in the southern Coast Ranges. These forests occur on moist habitats and microhabitats, mainly lower slopes or valley landforms, within the Western Hemlock Zone of the Pacific Northwest. They differ from ~North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest (CES204.001)$$ primarily in having more hydrophilic undergrowth species, moist to subirrigated soils, high abundance of shade- and moisture-tolerant canopy trees, as well as higher stand productivity, due to higher soil moisture and lower fire frequency. Climate is relatively mild and moist to wet. Mean annual precipitation is mostly 90-254 cm (35-100 inches) (but as low as 20 inches in the extreme rainshadow) predominantly as winter rain. Snowfall ranges from rare to regular (but consistent winter snowpacks are absent or minimal), and summers are relatively dry. Elevation ranges from sea level to 610 m (2000 feet) in northern Washington to 1067 m (3500 feet) in Oregon. Topography ranges from relatively flat glacial tillplains to steep mountainous terrain. This is an extensive forest in the lowlands on the west side of the Cascades. In some wetter climatic areas, it forms the matrix within which other systems occur as patches, especially riparian wetlands. In many rather drier climatic areas, it occurs as small to large patches within a matrix of ~North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest (CES204.001)$$; in dry areas, it can occur adjacent to or in a mosaic with ~North Pacific Dry Douglas-fir-(Madrone) Forest

and Woodland (CES204.845)$$, and at higher elevations it intermingles with either ~North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest (CES204.098)$$ or ~North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097)$$.

Overstory canopy is dominated by*Pseudotsuga menziesii, Tsuga heterophylla*, and/or *Thuja plicata*, as well as *Chamaecyparis lawsoniana* in western Oregon, away from the coast. *Pseudotsuga menziesii* is usually at least present to more typically codominant or dominant. *Acer macrophyllum* and *Alnus rubra* (the latter primarily where there has been historic logging disturbance) are commonly found as canopy or subcanopy codominants, especially at lower elevations. In a natural landscape, small patches can be dominated in the canopy by these broadleaf trees for several decades after a severe fire. *Polystichum munitum, Oxalis oregana, Rubus spectabilis*, and *Oplopanax horridus* typify the poorly to well-developed herb and shrub layers. *Gaultheria shallon, Mahonia nervosa, Rhododendron macrophyllum*, and *Vaccinium ovatum* are often present but are generally not as abundant as the aforementioned indicators; except where *Chamaecyparis lawsoniana* is a canopy codominant, they may be the dominant understory. *Acer circinatum* is a very common codominant as a tall shrub. Forested stands with abundant *Lysichiton americanus*, an indicator of seasonally flooded or saturated soils, belong in ~North Pacific Coniferous Swamp (CES204.867)$$. Stands included are best represented on lower mountain slopes of the coastal ranges with high precipitation, long frost-free periods, and low fire frequencies. Young stands may lack *Tsuga heterophylla* or *Thuja plicata*, especially in the Puget Lowland. *Tsuga heterophylla* is generally the dominant regenerating tree species. Other common associates include *Abies grandis*, which can be a codominant especially in the Willamette Valley - Puget Trough - Georgia Basin ecoregion. Soils are moist to somewhat wet but not saturated for much of the year and are well-drained to somewhat poorly drained. Typical soils for *Polystichum* sites would be deep, fine- to moderately coarse-textured, and for *Oplopanax* sites, soils typically have an impermeable layer at a moderate depth. Both types of soils are well-watered from upslope sources, seeps, or hyperheic sources. This is in contrast to ~North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest (CES204.001)$$, which occurs on well-drained soils, south-facing slopes, and dry ridges and slopes where soils remain mesic to dry for much of the year. Fire is (or was) the major natural disturbance in all but the wettest climatic areas. In the past (pre-1880), fires were less commonly high-severity, typically mixed-severity or moderate-severity, with natural return intervals of a few hundred to several hundred years. This system was formerly supported by occasional, stand-replacing fires. More frequent moderate-severity fires would generally not burn these moister microsites.

Range: This system is a significant component of the lowland and low montane forests of western Washington, northwestern Oregon, and southwestern British Columbia. This system may also occur as very small patches in northern California, in the northern Coast Ranges.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar: North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest (CES204.001)

Descriptors:

Floristics/Dominants :	Tsuga heterophylla and Psuedotsuga menziesii
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3041: North Pacific Mountain Hemlock Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4228 EVT_fuel: 2041

ESP: 1041 NatureServe Id: CES204.838

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G245 North Pacific Mountain Hemlock - Silver Fir Forest & Tree Island

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This forested ecological system occurs throughout the mountains of the North Pacific, from the southern Cascades of Oregon north to southwestern British Columbia. It is the predominant forest of subalpine elevations in the coastal mountains of British Columbia, western Washington and western Oregon. It also occurs on mountain slopes on the outer coastal islands of British Columbia. It lies between the Western Hemlock, Pacific Silver Fir, or Shasta Red Fir zones and the Subalpine Parkland or Alpine Tundra Zone, at elevations ranging from 300 to 2300 m (1000-7500 feet). The lower and upper elevational limits decrease from south to north and from east to west. The climate is generally characterized by short, cool summers, rainy autumns and long, cool, wet winters with heavy snow cover for 5-9 months. The heavy snowpack is ubiquitous, but at least in southern Oregon and perhaps the eastern Cascades, summer drought is more significant. Fire is very rare or absent across the majority of the range of the system. *Tsuga mertensiana* is one of the dominant tree species throughout, and *Abies amabilis* becomes an important associated species in the southern portion of the range (British Columbia, Washington, and northwestern Oregon). *Tsuga heterophylla* often occurs at lower elevations in this system but is much less abundant than *Tsuga mertensiana*. *Chamaecyparis nootkatensis* occurs in the more coastal portions, while *Abies lasiocarpa* is found inland and becomes increasingly common near the transition to the Subalpine Fir-Engelmann Spruce Zone in the Cascades and British Columbia. On the leeward side of the Cascades, this is usually a dense canopy composed of *Abies lasiocarpa* and *Tsuga mertensiana*, with some *Picea engelmannii* or *Abies amabilis*. In the Cascades of central to southern Oregon, *Abies X shastensis* is typically present and often codominant. *Picea sitchensis* and *Thuja plicata* are occasionally present. Deciduous trees are rare. Common understory species include *Vaccinium ovalifolium, Menziesia ferruginea, Elliottia pyroliflorus*, and *Blechnum spicant*. Parklands (open woodlands or sparse trees with dwarf-shrub or herbaceous vegetation) are not part of this system

but of ~North Pacific Maritime Mesic Subalpine Parkland (CES204.837)$$ or ~Alaskan Pacific Maritime Subalpine Mountain Hemlock Woodland (CES204.143)$$.

Range: This system occurs from coastal British Columbia to the southern Cascades of Oregon.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar: Alaskan Pacific Maritime Mountain Hemlock Forest (CES204.142), Alaskan Pacific Maritime Sitka Spruce Forest (CES204.151), Alaskan Pacific Maritime Subalpine Mountain Hemlock Woodland (CES204.143)

Descriptors:

Floristics/Dominants :	Tsuga mertensiana
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3042: North Pacific Mesic Western Hemlock-Silver Fir Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4229 EVT_fuel: 2042

ESP: 1042 NatureServe Id: CES204.097

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G241 North Pacific Maritime Silver Fir - Western Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This forested system occurs only in the Pacific Northwest mountains entirely west of the Cascade Crest from coastal British Columbia to Washington, and probably occurs in southeastern Alaska. It generally occurs in an elevational band between *Pseudotsuga menziesii - Tsuga heterophylla* or hypermaritime zone forests and *Tsuga mertensiana* forests. It dominates mid-montane maritime climatic zones on the windward side of Vancouver Island, the Olympic Peninsula, and the wettest portions of the North Cascades in Washington (north of Snoqualmie River). A somewhat variable winter snowpack that typically lasts for 2-6 months is characteristic. The climatic zone within which it occurs is sometimes referred to as the "rain-on-snow" zone because of the common occurrence of major winter rainfall on an established snowpack. *Tsuga heterophylla* and/or *Abies amabilis* dominate the canopy of late-seral stands, and *Chamaecyparis nootkatensis* can be codominant, especially at higher elevations. *Thuja plicata* is also common and sometimes codominates in British Columbia. In Alaska, *Abies amabilis* occurs in nearly pure stands and in mixture with *Picea sitchensis* and *Tsuga heterophylla*. *Pseudotsuga menziesii* is relatively rare to absent in this system, as opposed to the similar but drier ~North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest (CES204.098)$$. The major understory dominant species is *Vaccinium ovalifolium*. Understory species that help distinguish this system from the drier silver fir system (they are much more common here) include *Oxalis oregana, Blechnum spicant*, and *Rubus pedatus*. Windthrow is a common small-scale disturbance in this system, and gap creation and succession are important processes.

Range: This system occurs only in the Pacific Northwest mountains (Coastal and westside Cascades). It occurs on the windward side of coastal mountains in both British Columbia and in the Olympic Mountains and north Cascade Range of Washington. It may also extend north to about 56 degrees

north latitude in southeastern Alaska. *Abies amabilis* has a limited distribution in Alaska, apparently confined to the extreme southern mainland and a few islands south of 56 degrees north latitude.

States: AK?, BC, WA

Map Zones: 1:C, 2:C, 3:?, 7:C, 78:C

Similar: Alaskan Pacific Maritime Western Hemlock Forest (CES204.840), North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest (CES204.098), North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest (CES204.842)

Descriptors:

Floristics/Dominants :	Tsuga heterophylla-Abies amabilis
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3043: Mediterranean California Mixed Evergreen Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4230 EVT_fuel: 2043

ESP: 1043 NatureServe Id: CES206.919

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G208 California Moist Coastal Mixed Evergreen Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This ecological system occurs from the Santa Cruz Mountains (and locally in the Santa Lucia Mountains), California, north into southwestern Oregon throughout the outer and middle Coast Ranges on Franciscan Formation soils (metasedimentary sandstones, schists, and shales) with moderate to high rainfall. This system occurs just inland from the redwood belt of this region. It also occurs in southern California in more mesic, protected, cooler sites of the Transverse and Peninsular ranges. Historic fire frequency in this system was higher than for redwood-dominated systems (every 50-100 years). It is characterized by mixes of coniferous and broad-leaved evergreen trees. Characteristic trees include *Pseudotsuga menziesii, Quercus chrysolepis, Lithocarpus densiflorus, Arbutus menziesii, Umbellularia californica*, and *Chrysolepis chrysophylla*. On the eastern fringe of this system, in the western Siskiyous, other conifers occur such as *Pinus ponderosa* and *Chamaecyparis lawsoniana*. In southern California (Transverse and Peninsular ranges), *Pseudotsuga macrocarpa* replaces *Pseudotsuga menziesii* but co-occurs with *Quercus chrysolepis* and sometimes *Quercus agrifolia*. *Calocedrus decurrens* is occasional. In the southern portion of the range, *Lithocarpus densiflorus, Arbutus menziesii, Umbellularia californica*, and *Chrysolepis chrysophylla* become less important or are absent. In the Santa Lucia Mountains, stands of *Abies bracteata* are included in this system and are an unusual and unique component. These stands are a mixture of *Abies bracteata* and *Quercus chrysolepis*. The more northerly stands tend to have dense or diverse shrub understories, with *Corylus cornuta, Vaccinium ovatum, Rhododendron macrophyllum, Gaultheria shallon, Quercus sadleriana, Mahonia nervosa*, and *Toxicodendron diversilobum* being common. Southern stands are less diverse and more sparse; *Toxicodendron diversilobum* is the most constant shrub, with *Ribes* spp. occasionally present, along with much *Polystichum munitum*. Especially in the south, stands are restricted to fire-protected sites (extremely steep, northerly, mesic slopes and coves) where fires from adjacent chaparral

systems do not carry.

Range: This system occurs from the Santa Lucia and Santa Cruz mountains of California north into southwestern Oregon throughout the outer and middle Coast Ranges and in southern California (Transverse and Peninsular ranges). It occurs in localized areas of the central to northern Sierra Nevada and southern and eastern Klamath Mountains.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:?, 6:C, 7:C

Similar: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)

Descriptors:

Lifeform :	Broad-Leaved Evergreen Tree
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Low Intensity
Soil Moisture (NRCS) :	Ustic
Specialized Substrates :	Franciscan-formation Soils
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3044: Northern California Mesic Subalpine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4231 EVT_fuel: 2044

ESP: 1044 NatureServe Id: CES206.911

BioGeographical Division : Mediterranean California

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G749 Sierra-Cascade Red Fir - Mountain Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs on ridges and rocky slopes around timberline at 2600 m (7900 feet) elevation in the central Sierra Nevada and 2450 m (8000 feet) in the southern Cascades. These woodlands are found on concave or mesic slopes in areas with long-lasting snowpack and better soil development than other drier and more exposed subalpine woodlands. The tree canopy is characterized by *Tsuga mertensiana* and may include *Abies magnifica, Abies procera, Pinus albicaulis*, and *Pinus monticola*. Mesic-site shrubs will include *Cassiope mertensiana, Phyllodoce breweri, Phyllodoce empetriformis, Vaccinium membranaceum*, and others. *Juniperus communis* is found in most stands of the northern Sierra Nevada. *Penstemon davidsonii*, as well as patches of grasses, sedges, and forbs grade into adjacent meadows.

Range: This system occurs on ridges and rocky slopes around timberline at 2600 m (7900 feet) elevation in the central Sierra Nevada and 2450 m (8000 feet) in the southern Cascades.

States: CA, NV, OR

Map Zones: 6:C, 7:C

Similar: Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland (CES206.912)

Descriptors:

Soil Moisture (NRCS) :	Udic
Bioclimate :	Temperate
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3045: Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4232 EVT_fuel: 2045

ESP: 1045 NatureServe Id: CES306.805

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G210 Central Rocky Mountain Douglas-fir - Pine Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system is composed of highly variable montane coniferous forests found in the interior Pacific Northwest, from southernmost interior British Columbia, eastern Washington, eastern Oregon, northern Idaho, western and north-central Montana, and south along the east slope of the Cascades in Washington and Oregon. In central Montana it occurs on mountain islands (the Snowy Mountains). This system is associated with a submesic climate regime with annual precipitation ranging from 50 to 100 cm, with a maximum in winter or late spring. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from 460 to 1920 m. Most occurrences of this system are dominated by a mix of *Pseudotsuga menziesii* and *Pinus ponderosa* (but there can be one without the other) and other typically seral species, including *Pinus contorta, Pinus monticola* (not in central Montana), and *Larix occidentalis* (not in central Montana). *Picea engelmannii* (or *Picea glauca* or their hybrid) becomes increasingly common towards the eastern edge of the range. The nature of this forest system is a matrix of large patches dominated or codominated by one or combinations of the above species; *Abies grandis* (a fire-sensitive, shade-tolerant species not occurring in central Montana) has increased on many sites once dominated by *Pseudotsuga menziesii* and *Pinus ponderosa*, which were formerly maintained by low-severity wildfire. Presettlement fire regimes may have been characterized by frequent, low-intensity ground fires that maintained relatively open stands of a mix of fire-resistant species. Under present conditions the fire regime is mixed severity and more variable, with stand-replacing fires more common, and the forests are more homogeneous. With vigorous fire suppression, longer fire-return intervals are now the rule, and multi-layered stands of *Pseudotsuga menziesii, Pinus ponderosa*, and/or *Abies grandis* provide fuel "ladders," making these forests more susceptible to high-intensity, stand-replacing fires. They are very productive forests which have been priorities for timber production. They rarely form either upper or lower timberline forests.

Understories are dominated by graminoids, such as *Pseudoroegneria spicata, Calamagrostis rubescens, Carex geyeri*, and *Carex rossii*, that may be associated with a variety of shrubs, such as *Acer glabrum, Juniperus communis, Physocarpus malvaceus, Symphoricarpos albus, Spiraea betulifolia*, or *Vaccinium membranaceum* on mesic sites. *Abies concolor* and *Abies grandis X concolor* hybrids in central Idaho (the Salmon Mountains) are included here but have very restricted range in this area. *Abies concolor* and *Abies grandis* in the Blue Mountains of Oregon are probably hybrids of the two and mostly *Abies grandis*.

Range: This system is found in the interior Pacific Northwest, from southern interior British Columbia south and east into Oregon, Idaho (including north and central Idaho, down to the Boise Mountains), and western Montana, and south along the east slope of the Cascades in Washington and Oregon.

States: BC, ID, MT, OR, WA

Map Zones: 7:C, 8:C, 9:C, 10:C, 16:?, 17:?, 18:P, 19:C, 20:C

Similar: East Cascades Mesic Montane Mixed-Conifer Forest and Woodland (CES204.086), North Pacific Interior Dry-Mesic Mixed Conifer Forest [Provisional] (CES207.152), Northern Rocky Mountain Western Larch Savanna (CES306.837), Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland (CES306.828), Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland (CES306.830), Sierran-Intermontane Desert Western White Pine-White Fir Woodland (CES204.101)

Descriptors:

Temporal Persistence :	Moderate (100-500 yrs)
Floristics/Dominants :	Abies grandis-mixed
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Ustic
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3046: Northern Rocky Mountain Subalpine Woodland and Parkland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4233 EVT_fuel: 2046

ESP: 1046 NatureServe Id: CES306.807

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G223 Northern Rocky Mountain Whitebark Pine - Subalpine Larch Woodla

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This system of the northern Rockies, Cascade Mountains, and northeastern Olympic Mountains is typically a high-elevation mosaic of stunted tree clumps, open woodlands, and herb- or dwarf-shrub-dominated openings, occurring above closed forest ecosystems and below alpine communities. It includes open areas with clumps of *Pinus albicaulis*, as well as woodlands dominated by *Pinus albicaulis* or *Larix lyallii*. In the Cascade Mountains and northeastern Olympic Mountains, the tree clump pattern is one manifestation, but these are also woodlands with an open canopy, without a tree clump/opening patchiness to them; in fact, that is quite common with *Pinus albicaulis*. The climate is typically very cold in winter and dry in summer. In the Cascades and Olympic Mountains, the climate is more maritime in nature and wind is not as extreme. The upper and lower elevational limits, due to climatic variability and differing topography, vary considerably; in interior British Columbia, this system occurs between 1000 and 2100 m elevation, and in northwestern Montana it occurs up to 2380 m. Landforms include ridgetops, mountain slopes, glacial trough walls and moraines, talus slopes, landslides and rockslides, and cirque headwalls and basins. Some sites have little snow accumulation because of high winds and sublimation. *Larix lyallii* stands generally occur at or near upper treeline on north-facing cirques or slopes where snowfields persist until June or July. In this harsh, often wind-swept environment, trees are often stunted and flagged from damage associated with wind and blowing snow and ice crystals, especially at the upper elevations of the type. The stands or patches often originate when *Picea engelmannii, Larix lyallii*, or *Pinus albicaulis* colonize a sheltered site such as the lee side of a rock. *Abies lasiocarpa* can then colonize in the shelter of the *Picea engelmannii* and may form a dense canopy by branch layering. Major disturbances are windthrow and snow avalanches. Fire is known to occur infrequently in this system, at least where woodlands are present; lightning damage to individual trees is common, but sparse canopies and rocky terrain limit the spread of fire. These

high-elevation coniferous woodlands are dominated by *Pinus albicaulis, Abies lasiocarpa*, and/or *Larix lyallii*, with occasional *Picea engelmannii*. In the Cascades and Olympics, *Abies lasiocarpa* sometimes dominates the tree layer without *Pinus albicaulis*, though in this dry parkland *Tsuga mertensiana* and *Abies amabilis* are largely absent. The undergrowth is usually somewhat depauperate, but some stands support a near sward of heath plants, such as *Phyllodoce glanduliflora, Phyllodoce empetriformis, Empetrum nigrum, Cassiope mertensiana*, and *Kalmia polifolia*, and can include a slightly taller layer of *Ribes montigenum, Salix brachycarpa, Salix glauca, Salix planifolia, Vaccinium membranaceum, Vaccinium myrtillus*, or *Vaccinium scoparium* that may be present to codominant. The herbaceous layer is sparse under dense shrub canopies or may be dense where the shrub canopy is open or absent. *Vahlodea atropurpurea (= Deschampsia atropurpurea), Luzula glabrata var. hitchcockii*, and *Juncus parryi* are the most commonly associated graminoids.

Range: This system occurs in the northern Rocky Mountains, west into the Cascade Mountains and northeastern Olympic Mountains, and east into the mountain "islands" of central Montana.

States: AB, BC, ID, MT, WA, WY

Map Zones: 1:C, 7:?, 9:P, 10:C, 16:?, 18:C, 19:C, 20:C, 21:C, 22:?, 29:?

Similar:

Descriptors:

Soil Fertility	Oligotrophic
Major Physiognomy	Forest and Woodland (Tree)
Landforms	Glaciated uplands
Landforms	Moraine
Landforms	Mountainside
Landforms	Cirque headwall
Topography	High Ridge/Upper Slope
Bioclimate	Temperate
Life Zones	Montane
Soil Fertility	Mesotrophic Soil
Temporal Persistence	Long (> 500 yrs)
Soil Depth	Shallow Soil
Soil Moisture (NRCS)	Ustic
Disturbance Return Interval	Very Short
Wind Intensity/Spatial Character	Patch/High Intensity
Wind Intensity/Spatial Character	Patch/Medium Intensity
Wind Intensity/Spatial Character	Landscape/Medium Intensity
Floristics/Dominants	Larix lyallii
Landform/Topography/Special Substrates	Upper tree line
Glacial History	Glaciated

3047: Northern Rocky Mountain Mesic Montane Mixed Conifer Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4234 EVT_fuel: 2047

ESP: 1047 NatureServe Id: CES306.802

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G211 Central Rocky Mountain Mesic Grand Fir - Douglas-fir Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs in the northern Rockies of western Montana west into northeastern Washington and southern British Columbia. These are vegetation types dominated by *Tsuga heterophylla* and *Thuja plicata* in most cases, found in areas influenced by incursions of mild, wet, Pacific maritime air masses. Much of the annual precipitation occurs as rain, but where snow does occur, it can generally be melted by rain during warm winter storms. Occurrences generally are found on all slopes and aspects but grow best on sites with high soil moisture, such as toeslopes and bottomlands. At the periphery of its distribution, this system is confined to moist canyons and cooler, moister aspects. Generally these are moist, non-flooded or upland sites that are not saturated yearlong. Along with *Tsuga heterophylla* and *Thuja plicata, Pseudotsuga menziesii* commonly shares the canopy, and *Pinus monticola, Pinus contorta, Abies grandis, Taxus brevifolia*, and *Larix occidentalis* are major associates. Mesic *Abies grandis* associations are included in this system, and *Abies grandis* is often the dominant in these situations; *Tsuga heterophylla* and *Thuja plicata* can both be absent. *Cornus nuttallii* may be present in some situations. *Picea engelmannii, Abies lasiocarpa*, and *Pinus ponderosa* may be present but only on the coldest or warmest and driest sites. *Linnaea borealis, Paxistima myrsinites, Alnus incana, Acer glabrum, Spiraea betulifolia, Symphoricarpos hesperius (= Symphoricarpos mollis ssp. hesperius), Cornus canadensis, Rubus parviflorus, Menziesia ferruginea*, and *Vaccinium membranaceum* are common shrub species. The composition of the herbaceous layer reflects local climate and degree of canopy closure; it is typically highly diverse in all but closed-canopy conditions. Important forbs and ferns include *Actaea rubra, Anemone piperi, Aralia nudicaulis, Asarum caudatum, Clintonia uniflora, Coptis occidentalis, Thalictrum occidentale, Tiarella trifoliata, Trientalis borealis, Trillium ovatum, Viola glabella, Gymnocarpium dryopteris, Polystichum munitum*, and *Adiantum pedatum*. Typically, stand-replacement, fire-return intervals are 150-500 years, with moderate-severity fire intervals of

50-100 years.

Range: This system occurs in the northern Rockies of western Montana west into northeastern Washington and southern British Columbia.

States: BC, ID, MT, OR, WA

Map Zones: 8:P, 9:C, 10:C, 19:C

Similar: North Pacific Interior Dry-Mesic Mixed Conifer Forest [Provisional] (CES207.152)

Descriptors:

Temporal Persistence :	Long (> 500 yrs)
Floristics/Dominants :	Tsuga heterophylla and Thuja plicata dominants
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Disturbance Return Interval :	Very Long
Soil Moisture (NRCS) :	Udic
Soil Fertility :	Mesotrophic Soil
Glacial History :	Glaciated
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane
Life Zones :	Montane

3048: Northwestern Great Plains Highland White Spruce Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4235 EVT_fuel: 2048

ESP: 1048 NatureServe Id: CES303.957

BioGeographical Division : Western Great Plains

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G345 Central Rocky Mountain Montane White Spruce Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This uncommon system is limited to relatively high-elevation outliers of montane environments in the northwestern Great Plains. Best known areas of this system are small portions of the Black Hills of Wyoming and South Dakota and the Cypress Upland of southern Alberta and Saskatchewan. These highland areas have a cooler climate than surrounding mixedgrass prairie. In the Black Hills, these woodlands occur as small or large patches within the ponderosa pine matrix, from about 1740 to 2135 m (5700-7000 feet); at lower elevations, they are restricted to north-facing slopes. At the higher elevations, they are found on level or gently sloping areas. In other locations, this woodland system is limited to sideslopes and depressions, likely adjoining riparian zones, where snow is well-retained. Soils vary widely from deep to quite shallow. *Picea glauca* is the characteristic conifer, but other trees can include *Pinus ponderosa, Populus tremuloides*, and *Betula papyrifera*. Undergrowth shrubs typically include *Arctostaphylos uva-ursi, Juniperus communis, Linnaea borealis, Symphoricarpos albus*, and *Vaccinium scoparium*. Disturbance regimes are not well-documented for this system, but likely include periodic windthrow as well as fire spreading from adjacent, lower elevation woodlands and grasslands.

Range: This system is limited to relatively high-elevation outliers of montane environments in the northwestern Great Plains. Best known areas of this system are small portions of the Black Hills of Wyoming and South Dakota and the Cypress Upland of southern Alberta and Saskatchewan. It may also occur in very small stands of the Bighorn Mountains of north-central Wyoming and south-central Montana.

States: AB, MT?, SD, SK, WY

Map Zones: 29:C, 30:?, 31:?

Similar:

Descriptors:

Floristics/Dominants :	Picea glauca
Lifeform :	Needle-Leaved Tree
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3049: Rocky Mountain Foothill Limber Pine-Juniper Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4236 EVT_fuel: 2049

ESP: 1049 NatureServe Id: CES306.955

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G209 Rocky Mountain Foothill-Rock Outcrop Limber Pine - Juniper Woodl

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs in foothill and lower montane zones in the Rocky Mountains from northern Montana south to central Colorado and on escarpments across Wyoming extending out into the western Great Plains. Elevation ranges from 1000-2400 m. It occurs generally below continuous forests of *Pseudotsuga menziesii* or *Pinus ponderosa* and can occur in large stands well within the zone of continuous forests in the northeastern Rocky Mountains. It is restricted to shallow soils and fractured bedrock derived from a variety of parent material, including limestone, sandstone, dolomite, granite and colluvium. Soils have a high rock component (typically over 50% cover) and are coarse- to fine-textured, often gravelly and calcareous. Slopes are typically moderately steep to steep. At higher elevations, it is limited to the most xeric aspects on rock outcrops, and at lower elevations to the relatively mesic north aspects. Fire is infrequent and spotty because rocky substrates prevent a continuous vegetation canopy needed to spread. Vegetation is characterized by an open-tree canopy or patchy woodland that is dominated by either *Pinus flexilis, Juniperus osteosperma*, or *Juniperus scopulorum*. *Pinus edulis* is not present. A sparse to moderately dense short-shrub layer, if present, may include a variety of shrubs, such as *Arctostaphylos uva-ursi, Artemisia nova, Artemisia tridentata, Cercocarpus ledifolius, Cercocarpus montanus, Dasiphora fruticosa ssp. floribunda, Ericameria nauseosa, Juniperus horizontalis, Purshia tridentata, Rhus trilobata, Rosa woodsii, Shepherdia canadensis* (important in Montana stands), *Symphoricarpos albus*, or *Symphoricarpos oreophilus*. Herbaceous layers are generally sparse, but range to moderately dense, and are typically dominated by perennial graminoids such as *Bouteloua gracilis, Festuca idahoensis, Festuca campestris, Danthonia intermedia, Leucopoa kingii, Hesperostipa comata, Koeleria macrantha, Piptatherum micranthum, Poa secunda*, or *Pseudoroegneria spicata*. Within this ecological system, there may be small patches of grassland or shrubland composed of some of the above species. In Wyoming, some limber pine stands are

found up to 2440 m (8000 feet) elevation and are still included in this system.

Range: This system occurs in foothill and lower montane zones in the Rocky Mountains from northern Montana south to central Colorado and on escarpments across Wyoming, extending out into the western Great Plains. Elevation ranges from 1000-2400 m. This system may also occur in southeastern Idaho, though it would not be common there. It is also very likely to occur north into Canada along the Front Range of Alberta, in similar ecological settings.

States: AB?, CO, MT, ND, SD, WY

Map Zones: 16:C, 19:C, 20:C, 21:P, 22:C, 28:C, 29:C, 30:C, 31:?, 33:C, 40:?

Similar:

Descriptors:

Soil Depth :	Very Shallow
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Landforms :	Escarpment
Landforms :	Hillslope bedrock outcrop
Landforms :	Ridgetop bedrock outcrop
Topography :	High Ridge/Upper Slope
Life Zones :	Montane
Bioclimate :	Temperate
Floristics/Dominants :	Pinus flexilis, Juniperus scopulorum, J. osteosperma
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Texture :	Loam
Soil Texture :	Sand
Soil Moisture (NRCS) :	Aridic
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Patch/High Intensity
Lifeform :	Needle-Leaved Tree
Topography :	High-Low Slope

3050: Rocky Mountain Lodgepole Pine Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4237 EVT_fuel: 2050

ESP: 1050 NatureServe Id: CES306.820

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G220 Rocky Mountain Lodgepole Pine Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system is widespread in upper montane to subalpine elevations of the Rocky Mountains, Intermountain West region, north into the Canadian Rockies and east into mountain "islands" of north-central Montana. These are subalpine forests where the dominance of *Pinus contorta* is related to fire history and topo-edaphic conditions. Following stand-replacing fires, *Pinus contorta* will rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early- to mid-successional forests which developed following fires. This system includes *Pinus contorta*-dominated stands that, while typically persistent for >100-year time frames, may succeed to spruce-fir; in the southern and central Rocky Mountains it is seral to ~Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland (CES306.828)$$. More northern occurrences are seral to ~Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland (CES306.830)$$. Soils supporting these forests are typically well-drained, gravelly, coarse-textured, acidic, and rarely formed from calcareous parent materials. These forests are dominated by *Pinus contorta* with shrub, grass, or barren understories. Sometimes there are intermingled mixed conifer/*Populus tremuloides* stands, with the latter occurring with inclusions of deeper, typically fine-textured soils. The shrub stratum may be conspicuous to absent; common species include *Arctostaphylos uva-ursi, Ceanothus velutinus, Linnaea borealis, Mahonia repens, Purshia tridentata, Spiraea betulifolia, Spiraea douglasii, Shepherdia canadensis, Vaccinium caespitosum, Vaccinium scoparium, Vaccinium membranaceum, Symphoricarpos albus*, and *Ribes* spp. In southern interior British Columbia, this system is usually an open lodgepole pine forest found extensively between 500 and 1600 m elevation in the Columbia Range. In the Interior Cedar Hemlock and Interior Douglas-fir zones, *Tsuga heterophylla* or *Pseudotsuga menziesii* may present.

Range: This system occurs at upper montane to subalpine elevations of the Rocky Mountains,

Intermountain West region, north into the Canadian Rockies, and east onto mountain "islands" of north-central Montana. In Washington, this system occurs mostly on the east side of the Cascade Crest. In Oregon, this system only occurs in the Blue Mountains; all Oregon Cascades lodgepole pine forests are included in other systems.

States: AB, BC, CO, ID, MT, NV, OR, UT, WA, WY

Map Zones: 1:C, 8:?, 9:C, 10:C, 16:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:?, 28:C, 29:C, 33:?

Similar:

Descriptors:

Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High-Low Slope
Topography :	Toeslope/Bottom/Valley
Bioclimate :	Temperate
Life Zones :	Montane
Soil Depth :	Very Shallow
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Ustic
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Patch/High Intensity
Fire Intensity/Spatial Character :	Landscape/High Intensity
Lifeform :	Needle-Leaved Tree
Floristics/Dominants :	Pinus contorta
Soil pH :	Acidic

3051: Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodl

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4238 EVT_fuel: 2051

ESP: 1051 NatureServe Id: CES306.823

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M022 Southern Rocky Mountain Lower Montane Forest

NVC Group: G226 Southern Rocky Mountain White Fir - Douglas-fir Dry Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This is a highly variable ecological system of the montane zone of the Rocky Mountains. It occurs throughout the southern Rockies, north and west into Utah, Nevada, Wyoming and Idaho. These are mixed-conifer forests occurring on all aspects at elevations ranging from 1200 to 3300 m. Rainfall averages less than 75 cm per year (40-60 cm), with summer "monsoons" during the growing season contributing substantial moisture. The composition and structure of the overstory are dependent upon the temperature and moisture relationships of the site and the successional status of the occurrence. *Pseudotsuga menziesii* and *Abies concolor* are most frequent, but *Pinus ponderosa* may be present to codominant. *Pinus flexilis* is common in Nevada. *Pseudotsuga menziesii* forests occupy drier sites, and *Pinus ponderosa* is a common codominant. *Abies concolor*-dominated forests occupy cooler sites, such as upper slopes at higher elevations, canyon sideslopes, ridgetops, and north- and east-facing slopes which burn somewhat infrequently. *Picea pungens* is most often found in cool, moist locations, often occurring as smaller patches within a matrix of other associations. As many as seven conifers can be found growing in the same occurrence, and there are a number of cold-deciduous shrub and graminoid species common, including *Arctostaphylos uva-ursi, Mahonia repens, Paxistima myrsinites, Symphoricarpos oreophilus, Jamesia americana, Quercus gambelii*, and *Festuca arizonica*. This system was undoubtedly characterized by a mixed-severity fire regime in its "natural condition," characterized by a high degree of variability in lethality and return interval.

Range: This system occurs throughout the southern Rockies, north and west into Utah, Nevada, eastern Wyoming (very southern in the Laramie Range and possibly on Sheep Mountain) and Idaho. Although not common, it does occur in southeastern Oregon but does not extend farther west into the Cascades.

States: AZ, CO, ID, NM, NV, OR, UT, WY

Map Zones: 6:P, 9:?, 12:C, 13:C, 15:C, 16:C, 17:C, 18:C, 21:?, 22:C, 23:C, 24:P, 25:C, 27:C, 28:C, 29:C, 33:?

Similar: Madrean Upper Montane Conifer-Oak Forest and Woodland (CES305.798), Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland (CES306.825)

Descriptors:

Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High Ridge/Upper Slope
Topography :	High-Low Slope
Bioclimate :	Temperate
Life Zones :	Montane
Soil Depth :	Shallow Soil
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Aridic
Disturbance Return Interval :	Intermediate
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Lifeform :	Needle-Leaved Tree
Juxtaposition :	RM Montane Mesic Mixed Conifer
Soil Fertility :	Mesotrophic Soil

3052: Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4239 EVT_fuel: 2052

ESP: 1052 NatureServe Id: CES306.825

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M022 Southern Rocky Mountain Lower Montane Forest

NVC Group: G225 Rocky Mountain Douglas-fir - White Fir - Blue Spruce Mesic Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: These are mixed conifer forests of the Rocky Mountains west into the ranges of the Great Basin, occurring predominantly in cool ravines and on north-facing slopes. Elevations range from 1200 to 3300 m. Occurrences of this system are found on cooler and more mesic sites than ~Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland (CES306.823)$$. Such sites include lower and middle slopes of ravines, along stream terraces, moist, concave topographic positions and north- and east-facing slopes which burn somewhat infrequently. *Pseudotsuga menziesii* and *Abies concolor* are most common canopy dominants, but *Picea engelmannii, Picea pungens*, or *Pinus ponderosa* may be present. This system includes mixed conifer/*Populus tremuloides* stands. A number of cold-deciduous shrub species can occur, including *Acer glabrum, Acer grandidentatum, Alnus incana, Betula occidentalis, Cornus sericea, Jamesia americana, Physocarpus malvaceus, Robinia neomexicana, Vaccinium membranaceum*, and *Vaccinium myrtillus*. Herbaceous species include *Bromus ciliatus, Carex geyeri, Carex rossii, Carex siccata, Muhlenbergia virescens, Pseudoroegneria spicata, Erigeron eximius, Fragaria virginiana, Luzula parviflora, Osmorhiza berteroi, Packera cardamine, Thalictrum occidentale*, and *Thalictrum fendleri*. Naturally occurring fires are of variable return intervals and mostly light, erratic, and infrequent due to the cool, moist conditions.

Range: This system is found in the southern Rocky Mountains of Arizona and New Mexico north and west into the ranges of the Great Basin, Wyoming and southeastern Idaho, occurring predominantly in cool ravines and on north-facing slopes.

States: AZ, CO, ID, NM, NV, OR?, UT, WY

Map Zones: 6:?, 9:?, 12:P, 13:C, 15:C, 16:C, 17:P, 18:C, 21:?, 22:P, 23:C, 24:P, 25:C, 27:C, 28:C, 29:P

Similar: Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland (CES306.823)

Descriptors:

Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Landforms :	Ravine
Landforms :	Stream terrace (undifferentiated)
Landforms :	Toeslope
Bioclimate :	Temperate
Life Zones :	Montane
Soil Depth :	Shallow Soil
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Ustic
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Patch/Low Intensity
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Lifeform :	Needle-Leaved Tree
Juxtaposition :	RM Montane Dry-mesic Mixed Conifer
Soil Fertility :	Mesotrophic Soil

3053: Northern Rocky Mountain Ponderosa Pine Woodland and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4240 EVT_fuel: 2053

ESP: 1053 NatureServe Id: CES306.030

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G213 Central Rocky Mountain Ponderosa Pine Woodland & Savanna

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This inland Pacific Northwest ecological system occurs in the foothills of the northern Rocky Mountains in the Columbia Plateau region and west along the foothills of the Modoc Plateau and eastern Cascades into southern interior British Columbia. These woodlands and savannas occur at the lower treeline/ecotone between grasslands or shrublands and more mesic coniferous forests typically in warm, dry, exposed sites. Elevations range from less than 500 m in British Columbia to 1600 m in the central Idaho mountains. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. This ecological system generally occurs on glacial till, glacio-fluvial sand and gravel, dune, basaltic rubble, colluvium, to deep loess or volcanic ash-derived soils, with characteristic features of good aeration and drainage, coarse textures, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. In the Oregon "pumice zone" this system occurs as matrix-forming, extensive woodlands on rolling pumice plateaus and other volcanic deposits. These woodlands in the eastern Cascades, Okanagan and northern Rockies regions receive winter and spring rains, and thus have a greater spring "green-up" than the drier woodlands in the central Rockies. *Pinus ponderosa* (primarily *var. ponderosa*) is the predominant conifer; *Pseudotsuga menziesii* may be present in the tree canopy but is usually absent. In southern interior British Columbia, *Pseudotsuga menziesii* or *Pinus flexilis* may form woodlands or fire-maintained savannas with and without *Pinus ponderosa var. ponderosa* at the lower treeline transition into grassland or shrub-steppe. The understory can be shrubby, with *Artemisia tridentata, Arctostaphylos patula, Arctostaphylos uva-ursi, Cercocarpus ledifolius, Physocarpus malvaceus, Purshia tridentata, Symphoricarpos oreophilus* or *Symphoricarpos albus, Prunus virginiana, Amelanchier alnifolia*, and *Rosa* spp. common species. Understory vegetation in the true savanna occurrences is predominantly fire-resistant grasses and forbs that resprout following

surface fires; shrubs, understory trees and downed logs are uncommon. These more open stands support grasses such as *Pseudoroegneria spicata, Hesperostipa* spp., *Achnatherum* spp., dry *Carex* species (*Carex inops*), *Festuca idahoensis*, or *Festuca campestris*. The more mesic portions of this system may include *Calamagrostis rubescens* or *Carex geyeri*, species more typical of ~Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest (CES306.805)$$. Mixed fire regimes and ground fires of variable return intervals maintain these woodlands typically with a shrub-dominated or patchy shrub layer, depending on climate, degree of soil development, and understory density. This includes the northern race of Interior Ponderosa Pine old-growth (USFS Region 6, USFS Region 1). Historically, many of these woodlands and savannas lacked the shrub component as a result of 3- to 7-year fire-return intervals.

Range: This system is found in the Fraser River drainage of southern British Columbia south along the Cascades and northern Rocky Mountains of Washington, Oregon and California. In the northeastern part of its range, it extends across the northern Rocky Mountains west of the Continental Divide into northwestern Montana, south to the Snake River Plain in Idaho, and east into the foothills of western Montana.

States: BC, ID, MT, NV?, OR, WA

Map Zones: 1:C, 2:C, 7:C, 8:C, 9:C, 10:C, 18:P, 19:C, 20:?, 30:?

Similar: Northwestern Great Plains-Black Hills Ponderosa Pine Woodland and Savanna (CES303.650), Southern Rocky Mountain Ponderosa Pine Savanna (CES306.649), Southern Rocky Mountain Ponderosa Pine Woodland (CES306.648)

Descriptors:

Soil Moisture (NRCS) :	Aridic
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High Ridge/Upper Slope
Bioclimate :	Temperate
Soil pH :	Circumneutral
Soil Depth :	Very Shallow
Life Zones :	Montane
Soil Texture :	Sand
Temporal Persistence :	Short (50-100 yrs)
Disturbance Return Interval :	Intermediate
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Graminoid
Floristics/Dominants :	Pinus ponderosa with grassy understory
Floristics/Dominants :	Pinus ponderosa with shrubby understory
Soil Organic Matter :	Mineral: W/A Horizon <10 cm

3054: Southern Rocky Mountain Ponderosa Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4241 EVT_fuel: 2054

ESP: 1054 NatureServe Id: CES306.648

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M022 Southern Rocky Mountain Lower Montane Forest

NVC Group: G228 Southern Rocky Mountain Ponderosa Pine Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This very widespread ecological system is most common throughout the cordillera of the Rocky Mountains, from the Greater Yellowstone region south. It is also found in the Colorado Plateau region, west into scattered locations of the Great Basin. Its easternmost extent in Wyoming is in the Bighorn Mountains. These woodlands occur at the lower treeline/ecotone between grassland or shrubland and more mesic coniferous forests typically in warm, dry, exposed sites. Elevations range from less than 1900 m in northern Wyoming to 2800 m in the New Mexico mountains. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. This ecological system generally occurs on soils derived from igneous, metamorphic, and sedimentary material, with characteristic features of good aeration and drainage, coarse textures, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. ~Northern Rocky Mountain Ponderosa Pine Woodland and Savanna (CES306.030)$$ in the eastern Cascades, Okanogan, and northern Rockies regions receives winter and spring rains, and thus has a greater spring "green-up" than the drier woodlands in the central Rockies. *Pinus ponderosa* (primarily var. *scopulorum* and var. *brachyptera*) is the predominant conifer; *Pseudotsuga menziesii, Pinus edulis, Pinus contorta, Populus tremuloides*, and *Juniperus* spp. may be present in the tree canopy. The understory is usually shrubby, with *Artemisia nova, Artemisia tridentata, Arctostaphylos patula, Arctostaphylos uva-ursi, Cercocarpus montanus, Purshia stansburiana, Purshia tridentata, Quercus gambelii, Symphoricarpos* spp., *Prunus virginiana, Amelanchier alnifolia* (less so in Montana), and *Rosa* spp. common species. *Pseudoroegneria spicata, Pascopyrum smithii*, and species of *Hesperostipa, Achnatherum, Festuca, Muhlenbergia*, and *Bouteloua* are some of the common grasses. Mixed fire regimes and ground fires of variable return intervals maintain these woodlands, depending on climate, degree of soil development, and understory density.

Range: This system is found throughout much of the Rocky Mountains cordillera, from northwestern Wyoming, south through the Rocky Mountains of Colorado and into New Mexico. In Arizona, it occurs on the Mogollon Rim north into the Colorado Plateau region and west into scattered locations of the Great Basin.

States: AZ, CO, ID?, NM, NV, UT, WY

Map Zones: 12:?, 14:?, 15:C, 16:C, 17:?, 22:C, 23:C, 24:C, 25:C, 26:?, 27:C, 28:C, 29:C, 33:P

Similar: North Pacific Interior Dry-Mesic Mixed Conifer Forest [Provisional] (CES207.152), Northern Rocky Mountain Ponderosa Pine Woodland and Savanna (CES306.030), Northwestern Great Plains-Black Hills Ponderosa Pine Woodland and Savanna (CES303.650), Southern Rocky Mountain Ponderosa Pine Savanna (CES306.649)

Descriptors:

Floristics/Dominants :	Pinus ponderosa with shrubby understory
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil Texture :	Sand
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Very Shallow
Topography :	High Ridge/Upper Slope

3055: Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4242 EVT_fuel: 2055

ESP: 1055 NatureServe Id: CES306.828

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G219 Rocky Mountain Subalpine Dry-Mesic Spruce - Fir Forest & Woodlan

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: Engelmann spruce and subalpine fir forests comprise a substantial part of the subalpine forests of the Cascades and Rocky Mountains from southern British Columbia east into Alberta, and south into New Mexico and the Intermountain region. They also occur on mountain "islands" of north-central Montana. They are the matrix forests of the subalpine zone, with elevations ranging from 1275 m in its northern distribution to 3355 m in the south (4100-11,000 feet). They often represent the highest elevation forests in an area. Sites within this system are cold year-round, and precipitation is predominantly in the form of snow, which may persist until late summer. Snowpacks are deep and late-lying, and summers are cool. Frost is possible almost all summer and may be common in restricted topographic basins and benches. Despite their wide distribution, the tree canopy characteristics are remarkably similar, with *Picea engelmannii* and *Abies lasiocarpa* dominating either mixed or alone. *Pseudotsuga menziesii* may persist in occurrences of this system for long periods without regeneration. *Pinus contorta* is common in many occurrences, and patches of pure *Pinus contorta* are not uncommon, as well as mixed conifer/*Populus tremuloides* stands. In some areas, such as Wyoming, *Picea engelmannii*-dominated forests are on limestone or dolomite, while nearby codominated spruce-fir forests are on granitic or volcanic rocks. Upper elevation examples may have more woodland physiognomy, and *Pinus albicaulis* can be a seral component. What have been called "ribbon forests" or "tree islands" by some authors are included here; they can be found at upper treeline in many areas of the Rockies, including the central and northern ranges in Colorado and the Medicine Bow and Bighorn ranges of Wyoming. These are more typically islands or ribbons of trees, sometimes with a krummholz form, with open-meadow areas in a mosaic. These patterns are controlled by snow deposition and wind-blown ice. Xeric species may include *Juniperus communis, Linnaea borealis, Mahonia repens*, or *Vaccinium scoparium*. In the Bighorn Mountains, *Artemisia tridentata* is a common shrub. More northern

occurrences often have taller, more mesic shrub and herbaceous species, such as *Empetrum nigrum, Rhododendron albiflorum*, and *Vaccinium membranaceum*. Disturbance includes occasional blowdown, insect outbreaks and stand-replacing fire. Mean return interval for stand-replacing fire is 222 years as estimated in southeastern British Columbia.

Range: This system is found in the Cascades and Rocky Mountains from southern interior British Columbia east into Alberta, south into New Mexico and the Intermountain region. This type tends to be very limited in the northern Oregon Cascades.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 1:C, 6:?, 7:C, 9:C, 10:C, 12:C, 15:C, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:P, 24:P, 25:C, 27:C, 28:C, 29:C

Similar: Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest (CES306.805), Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland (CES306.830)

Descriptors:

Soil Moisture (NRCS) :	Ustic
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High Ridge/Upper Slope
Topography :	High-Low Slope
Bioclimate :	Temperate
Soil Fertility :	Mesotrophic Soil
Soil pH :	Acidic
Life Zones :	Montane
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Temporal Persistence :	Long (> 500 yrs)
Disturbance Return Interval :	Very Long
Fire Intensity/Spatial Character :	Patch/High Intensity
Fire Intensity/Spatial Character :	Landscape/High Intensity
Wind Intensity/Spatial Character :	Patch/Medium Intensity
Wind Intensity/Spatial Character :	Landscape/Low Intensity
Lifeform :	Needle-Leaved Tree
Floristics/Dominants :	Abies lasiocarpa - Picea engelmannii
Juxtaposition :	RM Subalpine Mesic Spruce-Fir
Soil Depth :	Shallow Soil

3056: Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4243 EVT_fuel: 2056

ESP: 1056 NatureServe Id: CES306.830

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G218 Rocky Mountain Subalpine Moist Spruce - Fir Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This is a high-elevation system of the Rocky Mountains, dry eastern Cascades and eastern Olympic Mountains dominated by *Picea engelmannii* and *Abies lasiocarpa*. It extends westward into the northeastern Olympic Mountains and the northeastern side of Mount Rainier in Washington, and as far east as mountain "islands" of north-central Montana. *Picea engelmannii* is generally more important in southern forests than those in the Pacific Northwest. Occurrences are typically found in locations with cold-air drainage or ponding, or where snowpacks linger late into the summer, such as north-facing slopes and high-elevation ravines. They can extend down in elevation below the subalpine zone in places where cold-air ponding occurs; northerly and easterly aspects predominate. These forests are found on gentle to very steep mountain slopes, high-elevation ridgetops and upper slopes, plateau-like surfaces, basins, alluvial terraces, well-drained benches, and inactive stream terraces. In the northern Rocky Mountains of northern Idaho and Montana, *Tsuga mertensiana* occurs as small to large patches within the matrix of this mesic spruce-fir system and only in the most maritime of environments (the coldest and wettest of the more Continental subalpine fir forests). In the Olympics and northern Cascades, the climate is more maritime than typical for this system, but due to the lower snowfall in these rainshadow areas, summer drought may be more significant than snowpack in limiting tree regeneration in burned areas. *Picea engelmannii* is rare in these areas. Mesic understory shrubs include *Menziesia ferruginea, Vaccinium membranaceum, Rhododendron albiflorum, Amelanchier alnifolia, Rubus parviflorus, Ledum glandulosum, Phyllodoce empetriformis*, and *Salix* spp. Herbaceous species include *Actaea rubra, Maianthemum stellatum, Cornus canadensis, Erigeron eximius, Gymnocarpium dryopteris, Rubus pedatus, Saxifraga bronchialis, Tiarella* spp., *Lupinus arcticus ssp. subalpinus, Valeriana sitchensis*, and graminoids *Luzula glabrata var. hitchcockii* or *Calamagrostis canadensis*. Disturbances include occasional blowdown, insect outbreaks (30-50 years), mixed-

severity fire, and stand-replacing fire (every 150-500 years). The more summer-dry climatic areas also have occasional high-severity fires.

Range: This system is found at high elevations of the Rocky Mountains, extending west into the northeastern Olympic Mountains and the northeastern side of Mount Rainier in Washington, and as far east as mountain "islands" of north-central Montana.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 1:C, 6:?, 7:C, 8:?, 9:C, 10:C, 12:C, 15:C, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:P, 23:P, 24:P, 25:C, 27:C, 28:C, 29:C

Similar: Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest (CES306.805), Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland (CES306.828)

Descriptors:

Soil Organic Matter	Mineral: W/A Horizon >10 cm
Life Zones	Montane
Major Physiognomy	Forest and Woodland (Tree)
Topography	High-Low Slope
Topography	Toeslope/Bottom/Valley
Bioclimate	Temperate
Soil Fertility	Mesotrophic Soil
Life Zones	Montane
Soil Depth	Shallow Soil
Temporal Persistence	Long (> 500 yrs)
Soil Moisture (NRCS)	Udic
Disturbance Return Interval	Very Long
Fire Intensity/Spatial Character	Patch/High Intensity
Fire Intensity/Spatial Character	Landscape/Medium Intensity
Floristics/Dominants	Abies lasiocarpa - Picea engelmannii
Juxtaposition	RM Subalpine Dry-Mesic Spruce-Fir
Soil pH	Acidic

3057: Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4244 EVT_fuel: 2057

ESP: 1057 NatureServe Id: CES306.819

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G221 Rocky Mountain Subalpine-Montane Limber Pine - Bristlecone Pine

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs throughout the Rocky Mountains, south of Montana, on dry, rocky ridges and slopes near upper treeline above the matrix spruce-fir forest. It extends down to the lower montane in the northeastern Great Basin mountains where dominated by *Pinus flexilis*. Sites are harsh, exposed to desiccating winds, with rocky substrates and a short growing season that limit plant growth. Higher-elevation occurrences are found well into the subalpine-alpine transition on wind-blasted, mostly west-facing slopes and exposed ridges. Calcareous substrates are important for *Pinus flexilis*-dominated communities in the northern Rocky Mountains and possibly elsewhere. The open tree canopy is often patchy and is strongly dominated by *Pinus flexilis* or *Pinus aristata* with the latter restricted to southern Colorado, northern New Mexico and the San Francisco Mountains in Arizona. In the Wyoming Rockies and northern Great Basin, *Pinus albicaulis* is found in some occurrences, but is a minor component. Other trees such as *Juniperus* spp., *Pinus contorta, Pinus ponderosa*, or *Pseudotsuga menziesii* are occasionally present. *Arctostaphylos uva-ursi, Cercocarpus ledifolius, Juniperus communis, Mahonia repens, Purshia tridentata, Ribes montigenum*, or *Vaccinium* spp. may form an open shrub layer in some stands. The herbaceous layer, if present, is generally sparse and composed of xeric graminoids, such as *Calamagrostis purpurascens, Festuca arizonica, Festuca idahoensis, Festuca thurberi*, or *Pseudoroegneria spicata*, or more alpine plants.

Range: This system occurs throughout the Rocky Mountains south of Montana on dry, rocky ridges and slopes near upper treeline, including the Uinta and northern Wasatch mountains, and the Jarbridge Mountains in northeastern Nevada. It also occurs farther east, in the Bighorn Range of north-central Wyoming, although it is not common there.

States: CO, ID?, MT?, NM, NV, OR?, UT, WA?, WY

Map Zones: 9:C, 12:P, 15:P, 16:C, 18:C, 23:P, 24:C, 25:C, 27:C, 28:C, 29:C

Similar:

Descriptors:

Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Life Zones :	Montane
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High Ridge/Upper Slope
Bioclimate :	Temperate
Soil pH :	Alkaline
Life Zones :	Montane
Soil Depth :	Very Shallow
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Aridic
Wind Intensity/Spatial Character :	Patch/High Intensity
Wind Intensity/Spatial Character :	Landscape/High Intensity
Lifeform :	Needle-Leaved Tree
Floristics/Dominants :	Pinus flexilis, P. aristata
Landform/Topography/Special Substrates :	Upper tree line
Specialized Substrate Chemistry :	Calcareous

3058: Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4245 EVT_fuel: 2058

ESP: 1058 NatureServe Id: CES206.912

BioGeographical Division : Mediterranean California

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G243 Sierra-Cascade Cold-Dry Subalpine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system is widespread in glacial basins at upper montane to subalpine elevations of the central and northern Sierra Nevada and Transverse and Peninsular ranges where cold-dry conditions exist (1800-2450 m [6000-8000 feet] in the north and 2450-3600 m [8000-12,000 feet] in the south). It also occurs on extensive broad ridges and pumice plateaus of the southern Cascades in Oregon (the broad ridges that form the Cascade crest in southern Oregon tend to be dominated by extensive stands of lodgepole pine). These forests and woodlands are dominated by *Pinus contorta var. murrayana* with shrub, grass or barren understories. Soils are often shallow and coarse-textured. Avalanche as well as tree mortality from insect outbreak and disease, drought and associated wildfire are drivers of community structure and composition. Understories are open, with scattered shrubs and herbaceous species, which do not carry fire should one get started. Trees can be very large and old and can attain diameters of 1.2 m (4 feet). Associated plant species include *Arctostaphylos nevadensis, Ceanothus cordulatus, Cercocarpus ledifolius* (although not that common, just occasional in drier sites), *Chrysolepis sempervirens, Phyllodoce breweri*, and *Ribes montigenum*. Common graminoids include *Poa wheeleri, Carex filifolia, Carex rossii*, and *Carex exserta*. Fire-return intervals are many hundreds of years. This system occurs in less severe settings than ~Mediterranean California Subalpine Woodland (CES206.910)$$ and ~Northern California Mesic Subalpine Woodland (CES206.911)$$ and is made up of trees that are not usually krummholz. Avalanches are less of a factor except in association with the volcanic peaks. Low-elevation stands of *Pinus contorta* in the pumice zone of Oregon are included in ~Rocky Mountain Poor-Site Lodgepole Pine Forest (CES306.960)$$.

Range: This system occurs in glacial basins at upper montane to subalpine elevations of the central and northern Sierra Nevada and Transverse and Peninsular ranges where cold-dry conditions exist

(1800-2450 m [6000-8000 feet] in the north and 2450-3600 m [8000-12,000 feet] in the south). It also extends south into Baja California, Mexico, in the San Pedro Martir Mountains.

If present in Oregon, the most likely location is the southern Oregon Cascades. The broad ridges that form the Cascade Crest in southern Oregon tend to be dominated by extensive stands of lodgepole pine (south of Crater Lake and north maybe to Mount Bachelor). There are also relatively large areas of lodgepole pine along the broad crest from Mt. Jefferson to a little ways north of Olallie Butte that may also fit this type better than the Rocky Mountain lodgepole pine type, as these stands are more likely dominated by*Pinus contorta var. murrayana* than var. *latifolia*. Understory species are probably different from those listed, however.

States: CA, MXBC, NV, OR

Map Zones: 4:C, 6:C, 7:C, 12:C

Similar: Mediterranean California Subalpine Woodland (CES206.910), Northern California Mesic Subalpine Woodland (CES206.911)

Descriptors:

Floristics/Dominants :	Pinus contorta
Lifeform :	Needle-Leaved Tree
Mass Movement Type :	Avalanche
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Xeric
Soil Texture :	Sand
Soil Depth :	Shallow Soil
Soil pH :	Acidic
Bioclimate :	Mediterranean
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3059: Southern Rocky Mountain Pinyon-Juniper Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4246 EVT_fuel: 2059

ESP: 1059 NatureServe Id: CES306.835

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M027 Southern Rocky Mountain Two-needle Pinyon - One-seed Juniper W

NVC Group: G253 Southern Rocky Mountain Pinyon - Juniper Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This southern Rocky Mountain ecological system occurs on dry mountains and foothills in southern Colorado east of the Continental Divide, in mountains and plateaus of north-central New Mexico, and extends out onto limestone breaks in the southeastern Great Plains. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Soils supporting this system vary in texture ranging from stony, cobbly, gravelly sandy loams to clay loam or clay. *Pinus edulis* and/or *Juniperus monosperma* dominate the tree canopy. *Juniperus scopulorum* may codominate or replace *Juniperus monosperma* at higher elevations. Stands with *Juniperus osteosperma* are representative the Colorado Plateau and are not included in this system. In southern transitional areas between ~Madrean Pinyon-Juniper Woodland (CES305.797)$$ and ~Southern Rocky Mountain Pinyon-Juniper Woodland (CES306.835)$$ in central New Mexico, *Juniperus deppeana* becomes common. Understory layers are variable and may be dominated by shrubs, graminoids, or be absent. Associated species are more typical of southern Rocky Mountains than the Colorado Plateau and include *Artemisia bigelovii, Cercocarpus montanus, Quercus gambelii, Achnatherum scribneri, Bouteloua gracilis, Festuca arizonica*, or *Pleuraphis jamesii*.

Range: This system occurs on dry mountains and foothills in southern Colorado, in mountains and plateaus of northern New Mexico and Arizona, and extends out onto breaks in the Great Plains. It extends south to the Sacramento Mountains, especially the eastern side. The western side has Madrean elements (*Quercus grisea*) and may be classified as Madrean woodland.

States: CO, NM

Map Zones: 14:?, 15:P, 24:?, 25:C, 27:C, 28:C, 34:P

Similar:

Descriptors:

Soil Depth :	Very Shallow
Major Physiognomy :	Forest and Woodland (Tree)
Landforms :	Escarpment
Landforms :	Foothill(s)
Landforms :	Midslope
Landforms :	Ridge
Landforms :	Butte
Life Zones :	Lowland
Glacial History :	Unglaciated
Floristics/Dominants :	Pinus edulis, Juniperus monosperma
Soil Depth :	Shallow Soil
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Moisture (NRCS) :	Aridic
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Lifeform :	Needle-Leaved Tree
Bioclimate :	Temperate

3060: East Cascades Ponderosa Pine Forest and Woodland

Match Confidence: Poor Match

Suggested Match: East Cascades Oak-Ponderosa Pine Forest and Woodland

Codes: ESLF: 4301 EVT_fuel: 2060

ESP: 1060 NatureServe Id: CES204.085

BioGeographical Division :

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G206 Cascadian Oregon White Oak - Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: **This map unit is the coniferout expression of this forest and woodland system**. This narrowly restricted ecological system appears at or near lower treeline in foothills of the eastern Cascades in Washington and Oregon within 65 km (40 miles) of the Columbia River Gorge. It also appears in the adjacent Columbia Plateau ecoregion. Elevations range from 460 to 1920 m. Most occurrences of this system are dominated by a mix of *Quercus garryana* and *Pinus ponderosa* or *Pseudotsuga menziesii*. Isolated, taller *Pinus ponderosa* or *Pseudotsuga menziesii* over *Quercus garryana* trees characterize parts of this system. Clonal *Quercus garryana* can create dense patches across a grassy landscape or can dominate open woodlands or savannas. The understory may include dense stands of shrubs or, more often, be dominated by grasses, sedges or forbs. Shrub-steppe shrubs may be prominent in some stands and create a distinct tree / shrub / sparse grassland habitat, including *Purshia tridentata, Artemisia tridentata, Artemisia nova*, and *Chrysothamnus viscidiflorus*. Understories are generally dominated by herbaceous species, especially graminoids. Mesic sites have an open to closed sodgrass understory dominated by *Calamagrostis rubescens, Carex geyeri, Carex rossii, Carex inops*, or *Elymus glaucus*. Drier savanna and woodland understories typically contain bunchgrass steppe species such as *Festuca idahoensis* or *Pseudoroegneria spicata*. Common exotic grasses that often appear in high abundance are *Bromus tectorum* and *Poa bulbosa*. These woodlands occur at the lower treeline/ecotone between *Artemisia* spp. or *Purshia tridentata* steppe or shrubland and *Pinus ponderosa* and/or *Pseudotsuga menziesii* forests or woodlands. In the Columbia River Gorge, this system appears as small to large patches in transitional areas in the Little White Salmon and White Salmon river drainages in Washington and Hood River, Rock Creek, Moiser Creek, Mill Creek, Threemile Creek, Fifteen Mile Creek, and White River drainages in Oregon. *Quercus garryana* can create dense patches often associated with grassland or shrubland balds within a closed *Pseudotsuga menziesii* forest

landscape. Commonly the understory is shrubby and composed of *Ceanothus integerrimus, Holodiscus discolor, Symphoricarpos albus*, and *Toxicodendron diversilobum*. Fire plays an important role in creating vegetation structure and composition in this habitat. Decades of fire suppression have led to invasion by *Pinus ponderosa* along lower treeline and by *Pseudotsuga menziesii* in the gorge and other oak patches on xeric sites in the east Cascade foothills. In the past, most of the habitat experienced frequent low-severity fires that maintained woodland or savanna conditions. The mean fire-return interval is 20 years, although variable. Soil drought plays a role, maintaining an open tree canopy in part of this dry woodland habitat.

Range: This narrowly restricted ecological system appears at or near lower treeline in foothills of the eastern Cascades in Washington and Oregon within 65 km (40 miles) of the Columbia River Gorge. It also appears in the adjacent Columbia Plateau ecoregion. Disjunct occurrences in Klamath and Siskiyou counties, Oregon, have more sagebrush and bitterbrush in the understory, along with other shrubs.

States: BC, OR, WA

Map Zones: 1:C, 7:C, 8:C

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Very Shallow
Soil pH :	Circumneutral
Bioclimate :	Temperate
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3061: Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4302 EVT_fuel: 2061

ESP: 1061 NatureServe Id: CES304.776

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G222 Rocky Mountain Subalpine-Montane Aspen Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs on montane slopes and plateaus in Utah, western Colorado, northern Arizona, eastern Nevada, southern Idaho, western Wyoming, and in north-central Montana in the Big Snowy Mountains. It also occurs in localized settings in the Klamath Mountains of California, as well as in the Sierra Nevada and adjacent Great Basin mountains (Inyo, White, Warner, and Modoc Plateau). Elevations range from 1700 to 2800 m. Occurrences are typically on gentle to steep slopes on any aspect but are often found on clay-rich soils in intermontane valleys. Soils are derived from alluvium, colluvium and residuum from a variety of parent materials but most typically occur on sedimentary rocks. The tree canopy is composed of a mix of deciduous and coniferous species, codominated by *Populus tremuloides* and conifers, including *Pseudotsuga menziesii, Abies concolor, Abies lasiocarpa, Abies magnifica, Picea engelmannii, Picea glauca X engelmannii, Picea pungens, Pinus contorta, Pinus flexilis, Pinus jeffreyi, Pinus contorta var. murrayana*, and *Pinus ponderosa*. As the occurrences age, *Populus tremuloides* is slowly reduced until the conifer species become dominant. Common shrubs include *Amelanchier alnifolia, Prunus virginiana, Acer grandidentatum, Symphoricarpos oreophilus, Juniperus communis, Paxistima myrsinites, Rosa woodsii, Spiraea betulifolia, Symphoricarpos albus*, or *Mahonia repens*. Herbaceous species include *Bromus carinatus, Calamagrostis rubescens, Carex geyeri, Elymus glaucus, Poa* spp., and *Achnatherum, Hesperostipa, Nassella*, and/or *Piptochaetium* spp. (= *Stipa* spp.), *Achillea millefolium, Arnica cordifolia*, Asteraceae spp., *Erigeron* spp., *Galium boreale, Geranium viscosissimum, Lathyrus* spp., *Lupinus argenteus, Mertensia arizonica, Mertensia lanceolata, Maianthemum stellatum, Osmorhiza berteroi (= Osmorhiza chilensis)*, and *Thalictrum fendleri*. Most occurrences at present represent a late-seral stage of aspen changing to a pure conifer occurrence. Nearly a hundred years of fire suppression and livestock grazing have converted much of the pure aspen occurrences to the present-day aspen-conifer forest and

woodland ecological system. This is the typical meadow edge aspen-conifer setting in the Sierra Nevada where frequently, due to fire suppression, the conifers are replacing aspens.

Range: This system occurs on montane slopes and plateaus in Utah, eastern Nevada, southern Idaho, western and central Wyoming (in the Bighorn Mountains), and in north-central Montana in the Big Snowy Mountains. Elevations range from 1700 to 2800 m.

States: AZ, CO, ID, MT, NV, UT, WY

Map Zones: 3:C, 6:C, 8:?, 9:C, 10:C, 12:C, 15:C, 16:C, 17:P, 18:C, 19:C, 20:C, 21:C, 22:P, 23:C, 24:C, 25:?, 27:P, 28:C, 29:C

Similar:

Descriptors:

Floristics/Dominants :	Aspen - Conifer Mix
Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane
Life Zones :	Montane

3062: Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland

Match Confidence: Solid Match

Suggested Match: Inter-Mountain Basins Curl-leaf Mountain-mahogany Woodland and Shrubla

Codes: ESLF: 4303 EVT_fuel: 2062

ESP: 1062 NatureServe Id: CES304.772

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G249 Intermountain Basins Curl-leaf Mountain-mahogany Scrub & Woodl

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This ecological system occurs in hills and mountain ranges of the Intermountain West basins from the eastern foothills of the Sierra Nevada northeast to the foothills of the Bighorn Mountains. It typically occurs from 600 m to over 2650 m in elevation on rocky outcrops or escarpments and forms small- to large-patch stands in forested areas. Most stands occur as shrublands on ridges and steep rimrock slopes, but they may be composed of small trees in steppe areas. Scattered junipers or pines may also occur. This system includes both woodlands and shrublands dominated by *Cercocarpus ledifolius*. *Artemisia tridentata ssp. vaseyana, Purshia tridentata*, with species of *Arctostaphylos, Ribes*, or *Symphoricarpos* are often present. Undergrowth is often very sparse and dominated by bunch grasses, usually *Pseudoroegneria spicata* and *Festuca idahoensis*. *Cercocarpus ledifolius* is a slow-growing, drought-tolerant species that generally does not resprout after burning and needs the protection from fire that rocky sites provide.

Range: This system occurs in hills and mountain ranges of the Intermountain West basins from the eastern foothills of the Sierra Nevada northeast to the foothills of the Bighorn Mountains.

States: CA, CO, ID, MT, NV, OR, UT, WY

Map Zones: 6:P, 7:C, 8:C, 9:C, 10:C, 12:C, 16:C, 17:C, 18:C, 19:C, 21:C, 22:C, 23:?, 29:C, 30:?

Similar:

Descriptors:

Floristics/Dominants : Cercocarpus ledifolius

Fire Intensity/Spatial Character : Patch/Medium Intensity

Disturbance Return Interval : Long

Soil Moisture (NRCS) :	Aridic
Bioclimate :	Temperate
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Landforms :	Plateau
Landforms :	Piedmont
Landforms :	Foothill(s)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3063: North Pacific Broadleaf Landslide Forest and Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4304 EVT_fuel: 2063

ESP: 1063 NatureServe Id: CES204.846

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G237 North Pacific Red Alder - Bigleaf Maple - Douglas-fir Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: These forests and shrublands occur throughout the northern Pacific mountains and lowlands, becoming less prominent in the northern half of this region. They occur on steep slopes and bluffs that are subject to mass movements on a periodic basis. They are found in patches of differing age associated with different landslide events. The vegetation is deciduous broadleaf forests, woodlands, or shrublands, sometimes with varying components of conifers. *Alnus rubra* and *Acer macrophyllum* are the major tree species. *Rubus spectabilis, Rubus parviflorus, Ribes bracteosum*, and *Oplopanax horridus* are some of the major shrub species. Shrublands tend to be smaller in extent than woodlands or forests. Small patches of sparsely vegetated areas or herbaceous-dominated vegetation (especially *Petasites frigidus*) also often occur as part of this system. On earthflows, once stable, vegetation may succeed to dominance by conifers.

Range: This system occurs throughout the northern Pacific mountains and lowlands (latter especially adjacent to coastlines), becoming less prominent in the northern half of this region.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar:

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Bioclimate : Temperate

Major Physiognomy : Forest and Woodland (Tree)

Life Zones : Lowland

Life Zones : Lowland
Life Zones : Montane

3064: Colorado Plateau Mixed Low Sagebrush Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5201 EVT_fuel: 2064

ESP: 1064 NatureServe Id: CES304.762

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M170 Great Basin & Intermountain Dwarf Sagebrush Shrubland & Steppe

NVC Group: G308 Intermountain Low & Black Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system occurs in the Colorado Plateau, Tavaputs Plateau and Uinta Basin in canyons, gravelly draws, hilltops, and dry flats at elevations generally below 1800 m. Soils are often rocky, shallow, and alkaline. This type extends across northern New Mexico into the southern Great Plains on limestone hills. It includes open shrublands and steppe dominated by *Artemisia nova* or *Artemisia bigelovii* sometimes with *Artemisia tridentata ssp. wyomingensis* codominant. Semi-arid grasses such as *Achnatherum hymenoides, Aristida purpurea, Bouteloua gracilis, Hesperostipa comata, Pleuraphis jamesii*, or *Poa fendleriana* are often present and may form a graminoid layer with over 25% cover.

Range: Occurs in the Colorado Plateau, Tavaputs Plateau and Uinta Basin in canyons, gravelly draws, hilltops, and dry flats at elevations generally below 1800 m.

States: AZ, CO, NM, UT

Map Zones: 15:P, 16:C, 17:P, 23:C, 24:C, 25:C, 27:C, 28:C, 34:P

Similar:

Descriptors:

Soil Moisture (NRCS) : Aridic

Soil pH : Alkaline

Bioclimate : Temperate

Topography : High Ridge/Upper Slope

Major Physiognomy : Shrubland (Shrub)

Life Zones : Lowland

3065: Columbia Plateau Scabland Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5202 EVT_fuel: 2065

ESP: 1065 NatureServe Id: CES304.770

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M170 Great Basin & Intermountain Dwarf Sagebrush Shrubland & Steppe

NVC Group: G307 Columbia Plateau Scabland Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system is found in the Columbia Plateau region and forms extensive low shrublands. These xeric shrublands occur under relatively extreme soil-moisture conditions. Substrates are typically shallow lithic soils with limited water-holding capacity over fractured basalt. Because of poor drainage through basalt, these soils are often saturated from fall to spring by winter precipitation but typically dry out completely to bedrock by midsummer. Total vegetation cover is typically low, generally less than 50% and often much less than that. Vegetation is characterized by an open dwarf-shrub canopy dominated by *Artemisia rigida* along with other shrub and dwarf-shrub species, particularly *Eriogonum* spp. Other shrubs are uncommon in this system; mixes of *Artemisia rigida* and other *Artemisia* species typically belong to different ecological systems than this. Low cover of perennial bunch grasses, such as *Danthonia unispicata, Elymus elymoides, Festuca idahoensis*, or primarily *Poa secunda*, as well as scattered forbs, including species of *Allium, Antennaria, Balsamorhiza, Lomatium, Phlox*, and *Sedum*, characterize these sites. Individual sites can be dominated by grasses and semi-woody forbs, such as *Stenotus stenophyllus*. Annuals may be seasonally abundant, and cover of moss and lichen is often high in undisturbed areas (1-60% cover).

Range: This system occurs in the Columbia Plateau region of southern Idaho, eastern Oregon and eastern Washington, and extreme northern Nevada.

States: CA?, ID, NV, OR, UT?, WA

Map Zones: 1:C, 7:C, 8:C, 9:C, 12:?, 17:?, 18:P

Similar:

Descriptors:

Soil Moisture (NRCS) :	Aridic
Soil Depth :	Shallow Soil
Bioclimate :	Temperate
Specialized Substrates :	Basalt
Topography :	Toeslope/Bottom/Valley
Landforms :	Plateau
Landforms :	Plain
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3066: Inter-Mountain Basins Mat Saltbush Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5203 EVT_fuel: 2066

ESP: 1066 NatureServe Id: CES304.783

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M093 Great Basin Saltbush Scrub

NVC Group: G301 Intermountain Dwarf Saltbush - Sagebrush Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system occurs on gentle slopes and rolling plains in the northern Colorado Plateau and Uinta Basin on Mancos shale and arid, windswept basins and plains across parts of Wyoming. It is also found in eastern Wyoming in Great Plains areas, and may extend north into Montana and Canada. Substrates are shallow, typically saline, alkaline, fine-textured soils developed from shale or alluvium and may be associated with shale badlands. Infiltration rate is typically low. These landscapes typically support dwarf-shrublands composed of relatively pure stands of *Atriplex* spp., such as *Atriplex corrugata* (in Colorado and Utah) or *Atriplex gardneri* (Wyoming and Montana into Canada). Other dominant or codominant dwarf-shrubs may include *Artemisia longifolia, Artemisia pedatifida* (very important in Wyoming, rare in Colorado stands), or *Picrothamnus desertorum*, sometimes with a mix of other low shrubs, such as *Krascheninnikovia lanata* or *Tetradymia spinosa*. *Atriplex confertifolia* or *Atriplex canescens* may be present but do not codominate. *Artemisia tridentata ssp. wyomingensis* can occur in patches within this system. The herbaceous layer is typically sparse. Scattered perennial forbs occur, such as *Xylorhiza glabriuscula* and *Sphaeralcea grossulariifolia*; perennial grasses *Achnatherum hymenoides, Bouteloua gracilis* (not in Wyoming), *Elymus elymoides, Elymus lanceolatus ssp. lanceolatus, Pascopyrum smithii, Poa secunda*, or *Sporobolus airoides* may dominate the herbaceous layer. In less saline areas, there may be inclusions of grasslands dominated by *Hesperostipa comata, Leymus salinus, Pascopyrum smithii*, or *Pseudoroegneria spicata*. In Wyoming and possibly elsewhere, inclusions of non-saline, gravelly barrens or rock outcrops dominated by cushion plants such as *Arenaria hookeri* and *Phlox hoodii* without dwarf-shrubs may be present (these are not restricted to this system). Annuals are seasonally present and may include *Eriogonum inflatum, Plantago tweedyi, Monolepis nuttalliana*, and the introduced annual grass *Bromus tectorum*. In Montana, *Atriplex gardneri* also occurs associated with badlands, and determining which system it falls into may be difficult.

Range: This system occurs on gentle slopes and rolling plains in the northern Colorado Plateau and Uinta Basin on Mancos shale and arid, windswept basins and plains across parts of Wyoming, and possibly into Montana and Canada.

States: AZ, CO, MT, NM, UT, WY

Map Zones: 13:?, 15:?, 16:P, 22:C, 23:C, 24:P, 28:P, 29:C

Similar:

Descriptors:

Floristics/Dominants :	Atriplex spp.
Lifeform :	Dwarf-Shrub
Soil Texture :	Clay
Soil Texture :	Silt
Specialized Substrate Chemistry :	Calcareous
Specialized Substrate Chemistry :	Saline
Soil pH :	Alkaline
Soil Fertility :	Oligotrophic
Bioclimate :	Temperate
Landforms :	Basin floor
Landforms :	Alluvial plain
Landforms :	Alluvial flat
Landforms :	Plain
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3067: Mediterranean California Alpine Fell-Field

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5204 EVT_fuel: 2067

ESP: 1067 NatureServe Id: CES206.900

BioGeographical Division : Mediterranean California

NVC MacroGroup: M099 Rocky Mountain & Sierran Alpine Scrub, Forb Meadow & Grassland

NVC Group: G314 Rocky Mountain & Sierran Alpine Turf & Fell-Field

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Mixed evergreen-deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This ecological system occurs in limited alpine environments mostly concentrated in the Sierra Nevada but also on Mount Shasta and as far south as the Peninsular Ranges and White Mountains. Alpine elevations begin around 3500 m (10,600 feet) in the southern mountain ranges and 2700 m (8200 feet) in the southern Cascades. Wind scours fell-fields free of snow in the winter, exposing the plants to severe environmental stress. These systems typically have immature soils. Most fell-field plants are cushioned or matted, frequently succulent, flat to the ground in rosettes, and often densely hairy and thickly cutinized. Common species include *Ribes cereum, Leptodactylon pungens, Ericameria discoidea, Castilleja nana, Minuartia nuttallii (= Arenaria nuttallii), Phlox condensata, Draba densifolia, Oxyria digyna*, and *Aquilegia pubescens*. Plants cover 15-50%, while exposed rock makes up the rest. Fell-fields are usually nested within or adjacent to alpine tundra dry meadows.

Range: This system occurs in limited alpine environments mostly concentrated in the Sierra Nevada but also on Mount Shasta and as far south as the Peninsular Ranges and White Mountains.

States: CA, MXBC, NV, OR

Map Zones: 3:?, 4:P, 6:C, 7:C

Similar:

Descriptors:

Specialized Substrates : Talus

Major Physiognomy : Shrubland (Shrub)

Major Physiognomy : Herbaceous

Major Physiognomy : Moss/Lichen (Non-Vascular)

Landforms	:	Avalanche chute
Landforms	:	Cirque
Landforms	:	Colluvial slope
Landforms	:	Talus
Life Zones	:	Alpine
Topography	:	High-Low Slope
Juxtaposition	:	Alpine mosaic
Bioclimate	:	Temperate
Glacial History	:	Glaciated
Soil Depth	:	Very Shallow
Wind Intensity/Spatial Character	:	Landscape/High Intensity
Lifeform	:	Dwarf-Shrub
Lifeform	:	Nonvascular
Floristics/Dominants	:	Cushion plants
Topography	:	High Ridge/Upper Slope

3068: North Pacific Dry and Mesic Alpine Dwarf-Shrubland or Fell-field or Meadow

Match Confidence: Solid Match

Suggested Match: North Pacific Dry and Mesic Alpine Dwarf-Shrubland, Fell-Field and Meadow

Codes: ESLF: 5205 EVT_fuel: 2068

ESP: 1068 NatureServe Id: CES204.862

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G317 North Pacific Alpine-Subalpine Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Mixed evergreen-deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This system occurs above the environmental limit of trees, at the highest elevations of the mountain regions of the Pacific Northwest Coast. It is confined to the coldest, wind-blown areas above treeline and above the subalpine parkland. This system is found at elevations above 2350 m (7200 feet) in the Klamath Mountains and Cascades north into the Cascade and Coastal mountains of British Columbia. It is commonly comprised of a mosaic of plant communities with characteristic species including *Cassiope mertensiana, Phyllodoce empetriformis, Phyllodoce glanduliflora, Luetkea pectinata, Saxifraga tolmiei*, and *Carex* spp. It occurs on slopes and depressions where snow lingers, the soil has become relatively stabilized, and the water supply is more or less constant. Vegetation in these areas is controlled by snow retention, wind desiccation, permafrost, and a short growing season. This system includes all vegetated areas in the alpine zone of the North Pacific. Typically it is a mosaic of dwarf-shrublands, fell-fields, tundra (sedge turfs), and sparsely vegetated snowbed communities. Small patches of krummholz (shrub-form trees) are also part of this system and occur at the lower elevations. Communities are dominated by graminoids, foliose lichens, dwarf-shrubs, and/or forbs. Vegetation cover ranges from about 5 or 10% (snowbeds) to nearly 100%. The alpine tundra of the northern Cascades has floristic affinities with many mountain regions in western North America. The strongest relationships are with the Arctic and Cordilleran regions to the north and east.

Range: This system occurs above the environmental limit of trees, at the highest elevations of the mountain regions of the Pacific Northwest Coast. Alpine systems in Alaska are placed into different types than this.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 7:C

Similar:

Descriptors:

Temporal Persistence :	Long (> 500 yrs)
Wind Intensity/Spatial Character :	Landscape/High Intensity
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Alpine

3070: Rocky Mountain Alpine Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5207 EVT_fuel: 2070

ESP: 1070 NatureServe Id: CES306.810

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M099 Rocky Mountain & Sierran Alpine Scrub, Forb Meadow & Grassland

NVC Group: G316 Rocky Mountain & Sierran Alpine Dwarf-Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This widespread ecological system occurs above upper timberline throughout the Rocky Mountain cordillera, including alpine areas of ranges in Utah and Nevada, and north into Canada. Elevations are above 3360 m in the Colorado Rockies but drop to less than 2100 m in northwestern Montana and in the mountains of Alberta. This system occurs in areas of level or concave glacial topography, with late-lying snow and subirrigation from surrounding slopes. Soils have become relatively stabilized in these sites, are moist but well-drained, strongly acidic, and often with substantial peat layers. Vegetation in these areas is controlled by snow retention, wind desiccation, permafrost, and a short growing season. This ecological system is characterized by a semi-continuous layer of ericaceous dwarf-shrubs or dwarf willows which form a heath type ground cover less than 0.5 m in height. Dense tuffs of graminoids and scattered forbs occur. *Dryas octopetala* or *Dryas integrifolia* communities are not included here, except for one very moist association, because they occur on more windswept and drier sites than the heath communities. Within these communities. *Cassiope mertensiana, Salix arctica, Salix reticulata, Salix vestita*, or *Phyllodoce empetriformis* can be dominant shrubs. *Vaccinium* spp., *Ledum glandulosum, Phyllodoce glanduliflora*, and *Kalmia microphylla* may also be shrub associates. The herbaceous layer is a mixture of forbs and graminoids, especially sedges, including, *Erigeron* spp., *Luetkea pectinata, Antennaria lanata, Oreostemma alpigenum (= Aster alpigenus), Pedicularis* spp., *Castilleja* spp., *Deschampsia caespitosa, Caltha leptosepala, Erythronium* spp., *Juncus parryi, Luzula piperi, Carex spectabilis, Carex nigricans*, and *Polygonum bistortoides*. Fellfields often intermingle with the alpine dwarf-shrubland.

Range: This system occurs above upper timberline throughout the Rocky Mountain cordillera, including alpine areas of ranges in Utah and Nevada, and north into Canada. Elevations are above 3360 m in

the Colorado Rockies but drop to less than 2100 m in northwestern Montana.

States: AB, BC, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 1:P, 9:P, 10:C, 16:C, 17:C, 18:?, 19:C, 21:C, 22:?, 23:P, 24:P, 25:C, 28:C, 29:?

Similar:

Descriptors:

Landform/Topography/Special Substrates :	Alpine Slopes
Lifeform :	Bryophyte
Lifeform :	Dwarf-Shrub
Disturbance Return Interval :	Very Long
Soil Moisture (NRCS) :	Udic
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil pH :	Acidic
Glacial History :	Glaciated
Bioclimate :	Temperate
Landforms :	Patterned ground (undifferentiated)
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Alpine

3071: Sierra Nevada Alpine Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5208 EVT_fuel: 2071

ESP: 1071 NatureServe Id: CES206.924

BioGeographical Division : Mediterranean California

NVC MacroGroup: M099 Rocky Mountain & Sierran Alpine Scrub, Forb Meadow & Grassland

NVC Group: G316 Rocky Mountain & Sierran Alpine Dwarf-Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This ecological system is found only at the highest elevations, usually above 2800 m (8500 feet), throughout the Sierra Nevada and surrounding high mountain ranges. The system is commonly comprised of a mosaic of plant communities that include *Arenaria kingii, Cassiope mertensiana, Ericameria discoidea, Artemisia arbuscula, Phlox covillei, Eriogonum incanum, Eriogonum ovalifolium, Eriogonum roseum, Kalmia microphylla, Polygonum shastense, Leptodactylon pungens, Phyllodoce breweri, Salix arctica, Salix nivalis, Salix reticulata*, and *Vaccinium caespitosum*. Floristically, communities within this system have desert affinities, rather than cordilleran affinities. Vegetation in these areas is controlled by the absence of persistent snow, wind desiccation, permafrost, and a short growing season.

Range: This system is found only at the highest elevations, usually above 2800 m (8500 feet), throughout the Sierra Nevada and surrounding high mountain ranges.

States: CA, NV

Map Zones: 4:?, 6:C, 7:C, 12:C, 13:C

Similar:

Descriptors:

Juxtaposition :	Alpine mosaic
Lifeform :	Dwarf-Shrub
Wind Intensity/Spatial Character :	Patch/High Intensity
Soil Depth :	Shallow Soil
Bioclimate :	Temperate

Topography	: High Ridge/Upper Slope
Major Physiognomy	: Herbaceous
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Alpine

3072: Wyoming Basins Dwarf Sagebrush Shrubland and Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5209 EVT_fuel: 2072

ESP: 1072 NatureServe Id: CES304.794

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M170 Great Basin & Intermountain Dwarf Sagebrush Shrubland & Steppe

NVC Group: G308 Intermountain Low & Black Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This windswept ecological system is composed of dwarf sagebrush shrubland and shrub-steppe that forms matrix vegetation and large patches on the margins of high-elevation basins in central and southern Wyoming. Typical sites are gently rolling hills and long, gently sloping pediments and fans. These sites are very windy and have shallow, often rocky soils. The distinguishing feature of this system is a short-shrub stratum in which dwarf-shrubs (≤30 cm tall) contribute at least two-thirds of the woody canopy. Four sagebrush taxa may dominate the shrub stratum: *Artemisia tripartita ssp. rupicola, Artemisia nova, Artemisia arbuscula ssp. longiloba*, and wind-dwarfed *Artemisia tridentata ssp. wyomingensis*. Two or more of these sagebrushes often codominate, but any of them may occur alone. Where graminoids are common and tall, the vegetation often has the appearance of grassland without shrubs; the shrubs are obvious only when the vegetation is viewed from up close. Where graminoids contribute less cover, the vegetation is a compact shrubland. The herbaceous component of the vegetation includes both rhizomatous and bunch-form graminoids, cushion plants, and other low-growing forbs. *Bouteloua gracilis*, a common species of ~Inter-Mountain Basins Big Sagebrush Steppe (CES304.778)$$ in Wyoming, is absent.

Range: This system occurs throughout the basins of central and southern Wyoming, extending south into adjacent portions of Colorado. It also occurs on the eastern side of the Continental Divide in Montana, where *Artemisia nova* shrublands are found on calcareous substrates.

States: CO, MT, WY

Map Zones: 16:?, 21:C, 22:C, 23:C, 29:C

Similar:

Descriptors:

Floristics/Dominants :	Low Artemisia spp.
Lifeform :	Dwarf-Shrub
Wind Intensity/Spatial Character :	Landscape/High Intensity
Soil Moisture (NRCS) :	Aridic
Soil Texture :	Clay
Soil Texture :	Silt
Soil Depth :	Shallow Soil
Soil pH :	Alkaline
Bioclimate :	Temperate
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Landforms :	Hill(s)
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland

3074: Chihuahuan Creosotebush Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5251 EVT_fuel: 2074

ESP: 1074 NatureServe Id: CES302.731

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M086 Chihuahuan Desert Scrub

NVC Group: G288 Chihuahuan Creosotebush - Mixed Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system is the common lower elevation desert scrub that occurs throughout much of the Chihuahuan Desert and has recently expanded into former desert grasslands in the northern portion of its range. Stands typically occur in flat to gently sloping desert basins and on alluvial plains, extending up into lower to mid positions of piedmont slopes (bajada). Substrates range from coarse-textured loams on gravelly plains to finer-textured silty and clayey soils in basins. Soils are alluvial, typically loamy and non-saline, and frequently calcareous as they are often derived from limestone, and to a lesser degree igneous rocks. The vegetation is characterized by a moderate to sparse shrub layer (<10% cover on extremely xeric sites) that is typically strongly dominated by >*Larrea tridentata* with *Flourensia cernua* often present to codominant. A few scattered shrubs or succulents may also be present, such as *Agave lechuguilla, Parthenium incanum, Jatropha dioica, Koeberlinia spinosa, Lycium* spp., and *Yucca* spp. Additionally, *Flourensia cernua* will often strongly dominate in silty basins that are included in this ecological system. In general, shrub diversity is low as this ecological system lacks codominant thornscrub and other mixed desert scrub species that are common on the gravelly mid to upper piedmont slopes. However, shrub diversity and cover may increase locally where soils are deeper and along minor drainages with occasional *Atriplex canescens, Gutierrezia sarothrae*, or *Prosopis glandulosa*. Herbaceous cover is usually low and composed of grasses. Common species may include *Bouteloua eriopoda, Dasyochloa pulchella (= Erioneuron pulchellum), Muhlenbergia porteri, Pleuraphis mutica, Scleropogon brevifolius*, and *Sporobolus airoides*. Included in this ecological system are *Larrea tridentata*-dominated shrublands with a sparse understory that occur on gravelly to silty, upper basin floors and alluvial plains. A pebbly desert pavement may be present on the soil surface.

Range: broad desert basins and alluvial plains extending up into the lower bajada.

States: AZ, MXCH, MXSO?, NM, TX

Map Zones: 14:C, 15:P, 24:?, 25:C, 26:C

Similar:

Descriptors:

Lifeform :	Xeromorphic Shrub
Soil Moisture (NRCS) :	Aridic
Soil pH :	Alkaline
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3075: Chihuahuan Mixed Salt Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5252 EVT_fuel: 2075

ESP: 1075 NatureServe Id: CES302.017

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M086 Chihuahuan Desert Scrub

NVC Group: G299 Chihuahuan Desert Lowland Basin Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system includes extensive open-canopied shrublands of typically saline basins in the Chihuahuan Desert. Stands often occur on alluvial flats and around playas, as well as in floodplains along the Rio Grande and Pecos rivers, possibly also extending into the San Simon of Southeastern Arizona. Substrates are generally fine-textured, saline soils. Vegetation is typically composed of one or more *Atriplex* species such as *Atriplex canescens, Atriplex obovata*, or *Atriplex polycarpa* along with species of *Allenrolfea, Flourensia, Salicornia, Suaeda*, or other halophytic plants. Graminoid species may include *Sporobolus airoides, Pleuraphis mutica*, or *Distichlis spicata* at varying densities.

Range: This ecological system occurs in saline basins in the Chihuahuan Desert. Stands often occur around playas and on alluvial flats, as well as in floodplains along the Rio Grande and Pecos rivers, possibly also extending into the San Simon of southeastern Arizona.

States: AZ, MXCH, MXCO, MXDU, MXNU, MXSO, NM, TX

Map Zones: 14:C, 15:P, 24:?, 25:C, 26:C, 27:P, 34:?, 35:?, 36:P

Similar:

Descriptors:

Floristics/Dominants : Atriplex spp.
Bioclimate : Temperate
Bioclimate : Tropical/Subtropical
Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3076: Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5253 EVT_fuel: 2076

ESP: 1076 NatureServe Id: CES302.737

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M086 Chihuahuan Desert Scrub

NVC Group: G287 Chihuahuan Desert Sand Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system includes the open desert scrub of vegetated coppice dunes and sandsheets found in the Chihuahuan Desert. Stands are usually dominated by *Prosopis glandulosa* or *Artemisia filifolia* but also include *Atriplex canescens, Ephedra torreyana, Ephedra trifurca, Poliomintha incana*, and *Rhus microphylla* coppice and sand flat scrub usually with 10-30% total vegetation cover. *Yucca elata, Gutierrezia sarothrae, Bouteloua eriopoda*, and *Sporobolus flexuosus* are commonly present. In northern stands, *Artemisia filifolia* dominates and *Prosopis glandulosa* become less uncommon or absent. This system include degraded sandy desert plains grasslands now dominated by *Artemisia filifolia*.

Range: This system occurs on dunes and sandsheets found in the Chihuahuan Desert.

States: MXCH, NM, TX

Map Zones: 14:P, 15:P, 25:C, 26:C, 27:P

Similar: Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733)

Descriptors:

Floristics/Dominants :	Prosopis spp. dominates
Lifeform :	Thorn Shrub
Wind Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Very Short
Soil Moisture (NRCS) :	Aridic
Soil Texture :	Sand
Bioclimate :	Temperate

Bioclimate	: Tropical/Subtropical
Landforms	: Plain
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland

3077: Chihuahuan Succulent Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5254 EVT_fuel: 2077

ESP: 1077 NatureServe Id: CES302.738

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M086 Chihuahuan Desert Scrub

NVC Group: G286 Chihuahuan Desert Succulent Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system is found in the Chihuahuan Desert on colluvial slopes, upper bajadas, sideslopes, ridges, canyons, hills and mesas. Sites are hot and dry, typically with southerly aspects. Gravel and rock are often abundant on the ground surface. The vegetation is characterized by the relatively high cover of succulent species such as *Agave lechuguilla, Euphorbia antisyphilitica, Fouquieria splendens, Ferocactus* spp., *Opuntia engelmannii, Opuntia imbricata, Opuntia spinosior, Yucca baccata*, and many others. Perennial grass cover is generally low. The abundance of succulents is diagnostic of this desert scrub system, but desert shrubs are usually present. Stands in rolling topography may form a mosaic with more mesic desert scrub or desert grassland ecological systems that would occur on less xeric northerly slopes. *Agave lechuguilla* is more abundant in stands in the southern part of the mapzone. This system does not include loamy plains desert grasslands or shrub-steppe with a strong cacti component such as cholla grasslands.

Range: This Chihuahuan Desert ecological system occurs on colluvial slopes, upper bajadas, sideslopes and mesas. It extends east to the Devils River in Texas.

States: AZ, MXCH, NM, TX

Map Zones: 14:C, 15:C, 24:P, 25:C, 26:C

Similar:

Descriptors:

Floristics/Dominants : Cacti dominated

Lifeform : Succulent Shrub

Soil Moisture (NRCS) : Aridic

Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland

3078: Colorado Plateau Blackbrush-Mormon-tea Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5255 EVT_fuel: 2078

ESP: 1078 NatureServe Id: CES304.763

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G312 Colorado Plateau Blackbrush - Mormon-tea Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system occurs in the Colorado Plateau on benchlands, colluvial slopes, pediments or bajadas. Elevation ranges from 560-1650 m. Substrates are shallow, typically calcareous, non-saline and gravelly or sandy soils over sandstone or limestone bedrock, caliche or limestone alluvium. It also occurs in deeper soils on sandy plains where it may have invaded desert grasslands. The vegetation is characterized by extensive open shrublands dominated by *Coleogyne ramosissima* often with *Ephedra viridis, Ephedra torreyana*, or *Grayia spinosa*. Sandy portions may include *Artemisia filifolia* as codominant. The herbaceous layer is sparse and composed of graminoids such as *Achnatherum hymenoides, Pleuraphis jamesii*, or *Sporobolus cryptandrus*.

Range: Occurs in the Colorado Plateau on benchlands, colluvial slopes, pediments or bajadas. Elevation ranges from 560-1600 m.

States: AZ, CO, NM, UT

Map Zones: 13:C, 14:?, 15:C, 16:P, 17:C, 23:C, 24:C, 28:?

Similar:

Descriptors:

Fire Intensity/Spatial Character : Patch/High Intensity

Disturbance Return Interval : Very Long

Soil Moisture (NRCS) : Aridic

Soil Texture : Sand

Soil pH : Alkaline

Bioclimate : Temperate

Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland

3079: Great Basin Xeric Mixed Sagebrush Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5256 EVT_fuel: 2079

ESP: 1079 NatureServe Id: CES304.774

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M169 Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe

NVC Group: G303 Intermountain Dry Tall Sagebrush Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system occurs in the Great Basin on dry flats and plains, alluvial fans, rolling hills, rocky hillslopes, saddles and ridges at elevations between 1000 and 2600 m. Sites are dry, often exposed to desiccating winds, with typically shallow, rocky, non-saline soils. Shrublands are dominated by *Artemisia nova* (mid and low elevations), *Artemisia arbuscula ssp. longicaulis*, or *Artemisia arbuscula ssp. longiloba* (higher elevation) and may be codominated by *Artemisia tridentata ssp. wyomingensis* or *Chrysothamnus viscidiflorus*. Other shrubs that may be present include *Atriplex confertifolia, Ephedra* spp., *Ericameria* spp., *Grayia spinosa, Lycium shockleyi, Picrothamnus desertorum, Sarcobatus vermiculatus*, and *Tetradymia* spp. The herbaceous layer is likely sparse and composed of perennial bunch grasses, such as *Achnatherum hymenoides, Achnatherum speciosum, Achnatherum thurberianum, Elymus elymoides*, or *Poa secunda*.

Range: This system occurs in the Great Basin on dry flats and plains, alluvial fans, rolling hills, rocky hillslopes, saddles and ridges at elevations between 1000 and 2600 m.

States: CA, ID?, NV, OR, UT

Map Zones: 4:?, 6:P, 7:?, 9:C, 10:C, 12:C, 13:P, 16:C, 17:C, 18:C

Similar:

Descriptors:

Landforms : Alluvial fan

Life Zones : Montane

Life Zones : Lowland

Major Physiognomy : Shrubland (Shrub)

Landforms	: Foothill(s)
Landforms	: Hill(s)
Landforms	: Piedmont
Life Zones	: Montane
Landforms	: Plateau
Floristics/Dominants	: Low Artemisia spp.
Landforms	: Alluvial plain
Topography	: High Ridge/Upper Slope
Topography	: High-Low Slope
Bioclimate	: Temperate
Soil pH	: Alkaline
Soil Depth	: Shallow Soil
Soil Moisture (NRCS)	: Aridic
Landforms	: Plain

3080: Inter-Mountain Basins Big Sagebrush Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5257 EVT_fuel: 2080

ESP: 1080 NatureServe Id: CES304.777

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M169 Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe

NVC Group: G302 Intermountain Mesic Tall Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system occurs throughout much of the western U.S., typically in broad basins between mountain ranges, plains and foothills between 1500 and 2300 m elevation. Soils are typically deep, well-drained and non-saline. These shrublands are dominated by *Artemisia tridentata ssp. tridentata* (not as common in Wyoming or Montana but possibly on stabilized part of Killpecker Dunes in Wyoming) and/or *Artemisia tridentata ssp. wyomingensis* (predominant in Wyoming and Montana). Scattered *Juniperus* spp., *Sarcobatus vermiculatus*, and *Atriplex* spp. may be present in some stands. *Ericameria nauseosa, Chrysothamnus viscidiflorus, Purshia tridentata* (not commonly in Montana or Wyoming), or *Symphoricarpos oreophilus* may codominate disturbed stands (e.g., in burned stands, these may become more predominant). Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species can include *Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus, Festuca idahoensis* (not in Montana or Wyoming), *Hesperostipa comata, Leymus cinereus, Pleuraphis jamesii* (not present in northeastern portions of the range), *Pascopyrum smithii, Poa secunda*, or *Pseudoroegneria spicata* (not in Wyoming). Some semi-natural communities are included that often originate on abandoned agricultural land or on other disturbed sites. In these locations, *Bromus tectorum* or other annual bromes and invasive weeds can be abundant. Most *Artemisia tridentata ssp. wyomingensis* communities in Wyoming are placed in ~Inter-Mountain Basins Big Sagebrush Steppe (CES304.778)$$; the shrubland system is more restricted in environmental setting than the steppe. Dunes in the Red Desert have areas of large basin big sage with very dense canopies. In Wyoming, this system is likely to only contain *Artemisia tridentata ssp. tridentata*.

Range: This system occurs throughout much of the western U.S., typically in broad basins between mountain ranges, plains and foothills between 1500-2300 m elevation. It occurs as far east as

central and eastern Montana, although much of the sagebrush in this region is more steppe in physiognomy.

States: CA, CO, ID, MT, NV, OR, UT, WA, WY

Map Zones: 6:P, 7:C, 8:C, 9:C, 10:C, 12:C, 13:C, 15:C, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:P, 27:?, 28:C, 29:C, 30:P, 31:?, 33:?

Similar:

Descriptors:

Floristics/Dominants :	Artemisia tridentata ssp. tridentata
Lifeform :	Xeromorphic Shrub
Soil Moisture (NRCS) :	Aridic
Soil Depth :	Deep
Soil pH :	Alkaline
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Landforms :	Alluvial plain
Landforms :	Plain
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3081: Inter-Mountain Basins Mixed Salt Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5258 EVT_fuel: 2081

ESP: 1081 NatureServe Id: CES304.784

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M093 Great Basin Saltbush Scrub

NVC Group: G300 Intermountain Shadscale - Saltbush Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This extensive ecological system includes open-canopied shrublands of typically saline basins, alluvial slopes and plains across the Intermountain western U.S. This type also extends in limited distribution into the southern Great Plains. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more *Atriplex* species, such as *Atriplex confertifolia, Atriplex canescens, Atriplex polycarpa*, or *Atriplex spinifera*. *Grayia spinosa* tends to occur on coppice dunes that may have a silty component to them. Northern occurrences lack *Atriplex* species and are typically dominated by *Grayia spinosa, Krascheninnikovia lanata*, and/or *Artemisia tridentata*. Other shrubs present to codominant may include *Artemisia tridentata ssp. wyomingensis, Chrysothamnus viscidiflorus, Ericameria nauseosa, Ephedra nevadensis, Grayia spinosa, Krascheninnikovia lanata, Lycium* spp., *Picrothamnus desertorum*, or *Tetradymia* spp. In Wyoming, occurrences are typically a mix of *Atriplex confertifolia, Grayia spinosa, Artemisia tridentata ssp. wyomingensis, Sarcobatus vermiculatus, Krascheninnikovia lanata*, and various *Ericameria* or *Chrysothamnus* species. Some places are a mix of *Atriplex confertifolia* and *Artemisia tridentata ssp. wyomingensis*. In the Great Basin, *Sarcobatus vermiculatus* is generally absent but, if present, does not codominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as *Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus ssp. lanceolatus, Pascopyrum smithii, Pleuraphis jamesii, Pleuraphis rigida, Poa secunda*, or *Sporobolus airoides*. Various forbs are also present

Range: This system occurs in the Intermountain western U.S., extending in limited distribution into the southern Great Plains. In Wyoming, this system occurs in the Great Divide and Bighorn basins.

States: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 6:P, 7:C, 8:P, 9:C, 10:C, 12:C, 13:C, 15:C, 16:C, 17:C, 18:C, 19:C, 21:?, 22:C, 23:C, 24:C, 25:C, 27:P, 28:C, 29:C, 30:?, 33:?, 34:P

Similar: Inter-Mountain Basins Active and Stabilized Dune (CES304.775)

Descriptors:

Soil pH :	Alkaline
Major Physiognomy :	Shrubland (Shrub)
Landforms :	Plain
Landforms :	Alluvial flat
Landforms :	Alluvial plain
Landforms :	Basin floor
Life Zones :	Lowland
Soil Fertility :	Oligotrophic
Floristics/Dominants :	Atriplex spp.
Specialized Substrate Chemistry :	Saline
Specialized Substrate Chemistry :	Calcareous
Soil Texture :	Silt
Soil Texture :	Clay
Lifeform :	Xeromorphic Shrub
Lifeform :	Dwarf-Shrub
Bioclimate :	Temperate

3082: Mojave Mid-Elevation Mixed Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5259 EVT_fuel: 2082

ESP: 1082 NatureServe Id: CES302.742

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G296 Mojave Mid-Elevation Mixed Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system represents the extensive desert scrub in the transition zone above *Larrea tridentata - Ambrosia dumosa* desert scrub and below the lower montane woodlands (700-1800 m elevations) that occur in the eastern and central Mojave Desert. It is also common on lower piedmont slopes in the transition zone into the southern Great Basin. The vegetation in this ecological system is quite variable. Codominants and diagnostic species include *Coleogyne ramosissima, Eriogonum fasciculatum, Ephedra nevadensis, Grayia spinosa, Lycium* spp., *Menodora spinescens, Nolina* spp., *Opuntia acanthocarpa, Salazaria mexicana, Viguiera parishii, Yucca brevifolia*, or *Yucca schidigera*. Less common are stands with scattered Joshua trees and a saltbush short-shrub layer dominated by *Atriplex canescens, Atriplex confertifolia*, or *Atriplex polycarpa*, or occasionally *Hymenoclea salsola*. In some areas in the western Mojave, *Juniperus californica* is common with the yuccas. Desert grasses, including *Achnatherum hymenoides, Achnatherum speciosum, Muhlenbergia porteri, Pleuraphis jamesii, Pleuraphis rigida*, or *Poa secunda*, may form an herbaceous layer. Scattered *Juniperus osteosperma* or desert scrub species may also be present.

Range: This system is found in the eastern and central Mojave Desert and on lower piedmont slopes in the transition zone into the southern Great Basin.

States: AZ, CA, NV, UT

Map Zones: 4:C, 6:?, 12:C, 13:C, 14:C, 15:C, 16:?, 17:C, 23:P, 24:?

Similar:

Descriptors:

Lifeform : Succulent Shrub

Lifeform	: Xeromorphic Shrub
Lifeform	: Evergreen Sclerophyllous Tree
Soil Moisture (NRCS)	: Aridic
Bioclimate	: Temperate
Topography	: High-Low Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland

3083: North Pacific Avalanche Chute Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5260 EVT_fuel: 2083

ESP: 1083 NatureServe Id: CES204.854

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M073 Vancouverian Lowland Wet Shrubland, Wet Meadow & Marsh

NVC Group: G322 Vancouverian Wet Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

Summary: This tall shrubland system occurs throughout mountainous regions of the Pacific Northwest, from the southern Cascades and Coast Ranges north into the mountains of British Columbia. This system occurs on sideslopes of mountains on glacial till or colluvium. These habitats range from moderately xeric to wet and occur on snow avalanche chutes at montane elevations. In the mountains of Washington, talus sites and snow avalanche chutes very often coincide spatially. On the west side of the Cascades, the major dominant species are *Acer circinatum, Alnus viridis ssp. sinuata, Rubus parviflorus*, and small trees, especially *Chamaecyparis nootkatensis*. Forbs, grasses, or other shrubs can also be locally dominant. *Prunus virginiana, Amelanchier alnifolia, Vaccinium membranaceum* or *Vaccinium scoparium*, and *Fragaria* spp. are common species on drier avalanche tracks on the east side of the Cascades. The main feature of this system is that it occurs on steep, frequently disturbed (snow avalanches) slopes. Avalanche chutes can be quite long, extending from the subalpine into the montane and foothill toeslopes.

Range: This system occurs throughout mountainous regions of the Pacific Northwest, from the southern Cascades and Coast Ranges north to the mountains of British Columbia.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 6:?, 7:C

Similar: Alaskan Pacific Maritime Avalanche Slope Shrubland (CES204.162)

Descriptors:

Mass Movement Type : Avalanche

Bioclimate : Temperate

Major Physiognomy : Shrubland (Shrub)
Life Zones : Montane
Life Zones : Montane
Life Zones : Montane

3084: North Pacific Montane Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5261 EVT_fuel: 2084

ESP: 1084 NatureServe Id: CES204.087

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G305 Central Rocky Mountain High Montane Mesic Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This system occurs as small to large patches scattered throughout the North Pacific region, but it is largely absent from the windward sides of the coastal mountains where fires are rare due to very wet climates. It is defined as long-lived seral shrublands that persist for several decades or more after major wildfires, or smaller patches of shrubland on dry sites that are marginal for tree growth and that have typically also experienced fire. This system occurs on ridgetops and upper to middle mountain slopes and is more common on sunny southern aspects. It occurs from about 152 m (500 feet) elevation up to the lower limits of subalpine parkland. Vegetation is mostly deciduous broadleaf shrubs, sometimes mixed with shrub-statured trees or sparse evergreen needleleaf trees. It can also be dominated by evergreen shrubs, especially *Xerophyllum tenax* (usually considered a forb). Species composition is highly variable; some of most common species include *Acer circinatum, Arctostaphylos nevadensis, Acer glabrum, Vaccinium membranaceum, Ceanothus velutinus, Holodiscus discolor, Shepherdia canadensis, Sorbus* spp., and *Rubus parviflorus*. On the west side of the Cascades, *Gaultheria shallon* is an important dominant.

Range: This system occurs as small to large patches scattered throughout mountainous regions of the Pacific Northwest, from the southern Cascade and Coast ranges north to southern British Columbia. Its northernmost distribution is not clear, but it does not appear to occur in Alaska.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 7:C

Similar:

Descriptors:

Major Physiognomy : Shrubland (Shrub)

3085: Northwestern Great Plains Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5262 EVT_fuel: 2085

ESP: 1085 NatureServe Id: CES303.662

BioGeographical Division : Western Great Plains

NVC MacroGroup: M051 Great Plains Mixedgrass & Fescue Prairie

NVC Group: G141 Northern Great Plains Mixedgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This ecological system ranges from South Dakota into southern Canada on moderately shallow to deep, fine to sandy loam soils. These sites are typically more mesic than most of the surrounding area. This system may be located along upper terraces of rivers and streams, gently inclined slopes near breaklands, and upland sandy loam areas throughout its range. This system is dominated by shrub species such as *Amelanchier alnifolia, Rhus trilobata, Symphoricarpos* spp., *Shepherdia argentea, Crataegus douglasii, Elaeagnus commutata, Dasiphora fruticosa ssp. floribunda*, and dwarf-shrubs such as *Juniperus horizontalis*. Midgrasses such as *Festuca* spp., *Koeleria macrantha*, and *Pseudoroegneria spicata* and species such as *Carex filifolia* can co-occur. This system differs from ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$ in that it contains greater than 10% cover in conjunction with topographic relief (breaks) of natural shrub species. Fire and grazing constitute the primary dynamics affecting this system; drought can also impact this system. This system may include areas of ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$ where fire suppression has allowed for a greater cover of shrub species. This system is similar to ~Northern Rocky Mountain Montane-Foothill Deciduous Shrubland (CES306.994)$$ but occurs in the grassland matrix of the Great Plains, whereas the Rocky Mountain system occurs adjacent to the lower treeline of generally forested mountains and highlands. Floristically their shrub composition is similar, but associated grasses and forbs will differ somewhat given their respective adjacent vegetation types.

Range: This system extends from South Dakota into southern Canada, west into the foothills of north-central Montana. The U.S. range corresponds to Bailey et al. (1994) sections Northeast Glaciated Plains (332A), Western Glaciated Plains (332B), North Central Glaciated Plains - extreme western part (251B), and in Canada to the Moist Mixed Grassland and Fescue Grassland.

States: AB?, MB, MT, ND, SD, SK, WY?

Map Zones: 20:C, 29:C, 30:C, 31:C, 39:C, 40:C

Similar: Northwestern Great Plains Mixedgrass Prairie (CES303.674), Southwestern Great Plains Canyon (CES303.664)

Descriptors:

Grazing Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)

3086: Rocky Mountain Lower Montane-Foothill Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5263 EVT_fuel: 2086

ESP: 1086 NatureServe Id: CES306.822

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M049 Southern Rocky Mountain Montane Shrubland

NVC Group: G276 Southern Rocky Mountain Mountain-mahogany - Mixed Foothill Shr

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system is found in the foothills, canyon slopes and lower mountains of the Rocky Mountains and on outcrops and canyon slopes in the western Great Plains. It ranges from southern New Mexico, extending north into Wyoming, and west into the Intermountain West region. These shrublands occur between 1500 and 2900 m elevation and are usually associated with exposed sites, rocky substrates, and dry conditions, which limit tree growth. It is common where *Quercus gambelii* is absent, such as the northern Colorado Front Range and in drier foothills and prairie hills. This system is generally drier than ~Rocky Mountain Gambel Oak-Mixed Montane Shrubland (CES306.818)$$ but may include mesic montane shrublands where *Quercus gambelii* does not occur. *Cercocarpus montanus* dominates pure stands in parts of Wyoming and Colorado. Scattered trees or inclusions of grassland patches or steppe may be present, but the vegetation is typically dominated by a variety of shrubs, including *Amelanchier utahensis, Cercocarpus montanus, Purshia tridentata, Rhus trilobata, Ribes cereum, Symphoricarpos oreophilus*, or *Yucca glauca*. Grasses are represented as species of *Muhlenbergia, Bouteloua, Hesperostipa*, and *Pseudoroegneria spicata*. Fires play an important role in this system as the dominant shrubs usually have a severe die-back, although some plants will stump sprout. *Cercocarpus montanus* requires a disturbance such as fire to reproduce, either by seed sprout or root-crown sprouting. Fire suppression may have allowed an invasion of trees into some of these shrublands, but in many cases sites are too xeric for tree growth. In Wyoming, stands where *Cercocarpus montanus* is a component of mixed shrublands are placed in ~Northern Rocky Mountain Montane-Foothill Deciduous Shrubland (CES306.994)$$.

Range: This system is found in the foothills, canyon slopes and lower mountains of the Rocky Mountains and on outcrops and canyon slopes in the western Great Plains. It ranges from southern New

Mexico, extending north into Wyoming, and west into the Intermountain West region.

States: CO, MT, NE?, NM, SD, WY

Map Zones: 15:C, 16:C, 18:C, 21:P, 22:C, 23:C, 25:C, 26:C, 27:C, 28:C, 29:C, 30:?, 31:P, 33:C, 34:P

Similar: Rocky Mountain Gambel Oak-Mixed Montane Shrubland (CES306.818)

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Very Shallow
Bioclimate :	Temperate
Landforms :	Colluvial slope
Landforms :	Canyon
Landforms :	Ridge
Landforms :	Midslope
Landforms :	Gulch
Landforms :	Foothill(s)
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane

3087: Sonora-Mojave Creosotebush-White Bursage Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5264 EVT_fuel: 2087

ESP: 1087 NatureServe Id: CES302.756

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M088 Mojave-Sonoran Semi-Desert Scrub

NVC Group: G295 Mojave-Sonoran Bajada & Valley Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system forms the vegetation matrix in broad valleys, lower bajadas, plains and low hills in the Mojave and lower Sonoran deserts. This desert scrub is characterized by a sparse to moderately dense layer (2-50% cover) of xeromorphic microphyllous and broad-leaved shrubs. *Larrea tridentata* and *Ambrosia dumosa* are typically dominants, but many different shrubs, dwarf-shrubs, and cacti may codominate or form typically sparse understories. Associated species may include *Atriplex canescens, Atriplex hymenelytra, Encelia farinosa, Ephedra nevadensis, Fouquieria splendens, Lycium andersonii*, and *Opuntia basilaris*. The herbaceous layer is typically sparse, but may be seasonally abundant with ephemerals. Herbaceous species such as *Chamaesyce* spp., *Eriogonum inflatum, Dasyochloa pulchella, Aristida* spp., *Cryptantha* spp., *Nama* spp., and *Phacelia* spp. are common. This system can often appear as very open sparse vegetation, with the mostly barren ground surface being the predominant feature.

Range: This system occupies broad valleys, lower bajadas, plains and low hills in the Mojave and lower Sonoran deserts.

States: AZ, CA, MXBC, MXSO, NV, UT

Map Zones: 12:C, 13:C, 14:C, 15:C, 16:?, 17:P, 23:C, 24:?, 25:C

Similar:

Descriptors:

Lifeform : Xeromorphic Shrub

Wind Intensity/Spatial Character : Landscape/Medium Intensity

Soil Moisture (NRCS) : Aridic

Soil pH	: Alkaline
Bioclimate	: Temperate
Bioclimate	: Tropical/Subtropical
Topography	: Toeslope/Bottom/Valley
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland

3088: Sonora-Mojave Mixed Salt Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5265 EVT_fuel: 2088

ESP: 1088 NatureServe Id: CES302.749

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M093 Great Basin Saltbush Scrub

NVC Group: G300 Intermountain Shadscale - Saltbush Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system includes extensive open-canopied shrublands of typically saline basins in the Mojave and Sonoran deserts. Stands most often occur around playas and in valley bottoms or basins where evapotranspiration results in saline soils. Substrates are generally fine-textured, saline soils. Vegetation is typically composed of one or more *Atriplex* species, such as *Atriplex canescens* or *Atriplex polycarpa*, along with other species of *Atriplex*. Species of *Allenrolfea, Salicornia, Suaeda, Krascheninnikovia lanata*, or other halophytic plants are often present to codominant. In some locations, scattered *Yucca brevifolia* may occur, but other Mojavean taxa are typically not present. Graminoid species may include *Sporobolus airoides* or *Distichlis spicata* at varying densities.

Range: This system is found in saline basins of the Mojave and Sonoran deserts.

States: AZ, CA, MXBC, MXSO, NV, UT

Map Zones: 4:C, 5:P, 6:P, 12:C, 13:C, 14:C, 15:?, 17:P, 25:C

Similar:

Descriptors:

Floristics/Dominants :	Atriplex spp.
Soil Moisture (NRCS) :	Aridic
Specialized Substrate Chemistry :	Saline
Soil pH :	Alkaline
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical

Topography	: Toeslope/Bottom/Valley
Landforms	: Basin floor
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland

3090: Sonoran Granite Outcrop Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5267 EVT_fuel: 2090

ESP: 1090 NatureServe Id: CES302.760

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M088 Mojave-Sonoran Semi-Desert Scrub

NVC Group: G292 Sonoran Sarcocaulescent Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system occurs in foothills and mountains of Sonora, Mexico, and extends north across the border into southern Arizona. It is found on low- to mid-elevation granitic outcrops. Tropical genera of *Jatropha* and *Bursera* become codominants in dense to sparse vegetation transitioning upslope from ~Sonoran Paloverde-Mixed Cacti Desert Scrub (CES302.761)$$. Diagnostic species are *Bursera microphylla, Jatropha cuneata, Nolina bigelovii, Parkinsonia microphylla*, or *Rhus kearneyi*.

Range: Occurs in foothills and mountains of Sonora, Mexico, and extends north across the border into southern Arizona.

States: AZ, CA, MXBC, MXSO, NV

Map Zones: 14:C

Similar:

Descriptors:

Landforms : Cliff
Life Zones : Montane
Life Zones : Montane
Life Zones : Lowland
Major Physiognomy : Shrubland (Shrub)
Major Physiognomy : Woody-Herbaceous
Life Zones : Montane
Landforms : Canyon

Soil Moisture (NRCS)	:	Aridic
Topography	:	High Ridge/Upper Slope
Topography	:	High-Low Slope
Specialized Substrates	:	Granitic Rock
Bioclimate	:	Tropical/Subtropical
Bioclimate	:	Temperate
Soil Texture	:	Sand
Landforms	:	Ridge

3091: Sonoran Mid-Elevation Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5268 EVT_fuel: 2091

ESP: 1091 NatureServe Id: CES302.035

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M088 Mojave-Sonoran Semi-Desert Scrub

NVC Group: G295 Mojave-Sonoran Bajada & Valley Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This transitional desert scrub system occurs along the northern edge of the Sonoran Desert in an elevational band along the lower slopes of the Mogollon Rim/Central Highlands region between 750 and 1300 m. Stands occur in the Bradshaw, Hualapai, and Superstition mountains, among other desert ranges, and are found above ~Sonoran Paloverde-Mixed Cacti Desert Scrub (CES302.761)$$ and below ~Mogollon Chaparral (CES302.741)$$. Sites range from a narrow strip on steep slopes to very broad areas such as the Verde Valley. Climate is too dry for chaparral species to be abundant, and freezing temperatures during winter are too frequent and prolonged for many of the frost-sensitive species that are characteristic of ~Sonoran Paloverde-Mixed Cacti Desert Scrub (CES302.761)$$, such as *Carnegia gigantea, Parkinsonia microphylla, Prosopis* spp., *Olneya tesota, Ferocactus* sp., and *Opuntia bigelovii*. Substrates are generally rocky soils derived from parent materials such as limestone, granitic rocks or rhyolite. The vegetation is typically composed of an open shrub layer of *Larrea tridentata, Ericameria linearifolia*, or *Eriogonum fasciculatum* with taller shrub such as *Canotia holacantha* (limestone or granite) or *Simmondsia chinensis* (rhyolite). The herbaceous layer is generally sparse.

Range: This system occurs along the northern edge of the Sonoran Desert in an elevational band along the lower slopes of the Mogollon Rim/Central Highlands region between 750 and 1300 m.

States: AZ, MXSO

Map Zones: 13:C, 14:C, 15:C, 25:C

Similar:

Descriptors:

Soil pH : Alkaline

Bioclimate	: Temperate
Topography	: High-Low Slope
Landforms	: Alluvial fan
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Montane

3092: Southern California Coastal Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5269 EVT_fuel: 2092

ESP: 1092 NatureServe Id: CES206.933

BioGeographical Division : Mediterranean California

NVC MacroGroup: M044 California Coastal Scrub

NVC Group: G264 Central & Southern California Coastal Sage Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system includes mixed coastal shrublands from Monterey, California, south into Baja Norte, Mexico. It is dominated by drought-deciduous shrubs but at times can have characteristic (constant but not dominant) resprouting, deep-rooted sclerophyllous shrubs. It occurs below 1000 m (3000 feet) elevation and may extend inland from the maritime zone in hotter, drier conditions than northern (less fog-drenched) shrublands (e.g., areas with 10-60 cm of annual precipitation). Soils vary from coarse gravels to clays but typically only support plant-available moisture with winter and spring rain. Most predominant shrubs include *Artemisia californica, Salvia mellifera, Salvia apiana, Salvia leucophylla, Encelia californica, Eriogonum fasciculatum, Eriogonum cinereum, Opuntia littoralis, Diplacus aurantiacus (= Mimulus aurantiacus), Lotus scoparius* (early seral after fire), and *Baccharis pilularis* (in moister, disturbed sites). Characteristic (constant but not dominant) resprouting, deep-rooted sclerophyllous shrubs include *Malosma laurina, Rhus integrifolia*, and *Rhamnus crocea*. Fire frequency was historically low, but in recent years with adjacency to urban and suburban areas, the fire frequency has increased (a result of arson or cigarette ignition) resulting in type conversion to non-native and ruderal annual grasslands. *Malosma laurina* and *Rhus integrifolia* are also increasing in abundance because they can continually resprout after repeated fires. In places, *Opuntia littoralis* may proliferate and cover entire slopes in dry rocky areas with repeated fires that have killed the scrub taxa, while *Opuntia littoralis* can resprout and spread to cover large patches.

Range: This system is found from Monterey, California, south into Baja Norte, Mexico. It occurs below 1000 m (3000 feet) elevation and may extend inland from the maritime zone.

States: CA, MXBC

Map Zones: 4:C, 5:?, 6:?

Similar: Northern California Coastal Scrub (CES206.932)

Descriptors:

Floristics/Dominants :	Artemisia californica, Salvia mellifera
Lifeform :	Semi-Shrub
Lifeform :	Evergreen Sclerophyllous Shrub
Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland

3093: Southern Colorado Plateau Sand Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5270 EVT_fuel: 2093

ESP: 1093 NatureServe Id: CES304.793

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G312 Colorado Plateau Blackbrush - Mormon-tea Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This large-patch ecological system is found on the south-central Colorado Plateau in northeastern Arizona extending into southern and central Utah. It occurs on windswept mesas, broad basins and plains at low to moderate elevations (1300-1800 m). Substrates are stabilized sandsheets or shallow to moderately deep sandy soils that may form small hummocks or small coppice dunes. This semi-arid, open shrubland is typically dominated by short shrubs (10-30 % cover) with a sparse graminoid layer. The woody layer is often a mixture of shrubs and dwarf-shrubs. Characteristic species include *Ephedra cutleri, Ephedra torreyana, Ephedra viridis*, and *Artemisia filifolia*. *Coleogyne ramosissima* is typically not present. *Poliomintha incana, Parryella filifolia, Quercus havardii var. tuckeri*, or *Ericameria nauseosa* may be present to dominant locally. *Ephedra cutleri* and *Ephedra viridis* often assume a distinctive matty growth form. Characteristic grasses include *Achnatherum hymenoides, Bouteloua gracilis, Hesperostipa comata*, and *Pleuraphis jamesii*. The general aspect of occurrences is an open low shrubland but may include small blowouts and dunes. Occasionally grasses may be moderately abundant locally and form a distinct layer. Disturbance may be important in maintaining the woody component. Eolian processes are evident, such as pediceled plants, occasional blowouts or small dunes, but the generally higher vegetative cover and less prominent geomorphic features distinguish this system from ~Inter-Mountain Basins Active and Stabilized Dune (CES304.775)$$.

Range: This system occurs in sandy plains and mesas on the south-central Colorado Plateau in northeastern Arizona extending into southern and central Utah.

States: AZ, CO?, NM?, UT

Map Zones: 15:?, 16:?, 23:C, 24:C, 28:C

Similar: Inter-Mountain Basins Active and Stabilized Dune (CES304.775)

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Lifeform :	Xeromorphic Shrub
Other Disturbance :	Mechanical Disturbance
Grazing Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Very Short
Soil Moisture (NRCS) :	Aridic
Soil pH :	Alkaline
Bioclimate :	Temperate
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3094: Western Great Plains Sandhill Shrubland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Sandhill Steppe

Codes: ESLF: 5271 EVT_fuel: 2094

ESP: 1094 NatureServe Id: CES303.671

BioGeographical Division :

NVC MacroGroup: M052 Great Plains Sand Grassland & Shrubland

NVC Group: G069 Great Plains Sand Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found mostly in south-central areas of the Western Great Plains Division ranging from southwestern Wyoming and southwestern Nebraska up into the Nebraska Sandhill region, south though eastern Colorado, and New Mexico to central Texas, although some examples may reach as far north as the Badlands of South Dakota. The climate is semi-arid to arid for much of the region in which this system occurs. This system is found on somewhat excessively to excessively well-drained, deep sandy soils that are often associated with dune systems and ancient floodplains. In some areas, this system may actually occur as a result of overgrazing in ~Western Great Plains Tallgrass Prairie (CES303.673)$$ or ~Western Great Plains Sand Prairie (CES303.670)$$. Typically, this system is characterized by a sparse to moderately dense woody layer dominated by *Artemisia filifolia*, but other characteristic species may be present, including *Amorpha canescens, Prosopis glandulosa* (southern stands), *Prunus angustifolia, Prunus pumila var. besseyi* (northern stands), *Rhus trilobata*, and *Yucca glauca*. Associated herbaceous species can vary with geography, amount and season of precipitation, disturbance, and soil texture. The herbaceous layer typically has a moderate to dense canopy but may include stands with sparse understory. Several mid- to tallgrass species characteristic of sand substrates are usually present to dominant, such as *Andropogon hallii, Calamovilfa gigantea, Calamovilfa longifolia, Schizachyrium scoparium, Sporobolus cryptandrus, Sporobolus giganteus*, or *Hesperostipa comata*.

In the southern range of this system,*Quercus havardii* may also be present to dominant and represents one succession pathway that develops over time following a disturbance. *Quercus havardii* is able to resprout following a fire and thus may persist for long periods of time once established forming extensive clones. Edaphic and climatic factors are the most important dynamic processes for this type, with drought and extreme winds impacting this system significantly in

some areas. Because *Quercus havardii* is able to resprout rapidly following fire, fire tends to cause structural changes in the vegetation, and compositional shifts are less significant in most cases. Overgrazing can lead to decreasing dominance of some of the grass species such as *Andropogon hallii, Calamovilfa gigantea*, and *Schizachyrium scoparium*. In the western extent of this system in the shortgrass prairie, more xeric mid- and shortgrass species such as *Hesperostipa comata, Sporobolus cryptandrus* and *Bouteloua gracilis* often dominate the herbaceous layer.

Range: This system is found primarily within the south-central areas of the Western Great Plains Division ranging from the Nebraska Sandhills south into central Texas. However, examples of this system can be found as far north as the Badlands in South Dakota.

States: CO, KS, NE, NM, OK, SD?, TX

Map Zones: 25:?, 26:C, 27:C, 28:?, 31:C, 33:C, 34:C, 38:C

Similar: East-Central Texas Plains Xeric Sandyland (CES205.897), Western Great Plains Sand Prairie (CES303.670), Western Great Plains Tallgrass Prairie (CES303.673)

Descriptors:

Grazing Intensity/Spatial Character :	Landscape/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Major Physiognomy :	Shrubland (Shrub)

3095: Apacherian-Chihuahuan Mesquite Upland Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5301 EVT_fuel: 2095

ESP: 1095 NatureServe Id: CES302.733

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M086 Chihuahuan Desert Scrub

NVC Group: G289 Chihuahuan Mesquite Upland Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system often occurs as invasive upland shrublands that are concentrated in the extensive desert grassland in foothills and piedmonts of the Chihuahuan Desert, extending into the Sky Island region to the west. Substrates are typically derived from alluvium, often gravelly without a well-developed argillic or calcic soil horizon that would limit infiltration and storage of winter precipitation in deeper soil layers. *Prosopis* spp. and other deep-rooted shrubs exploit this deep-soil moisture that is unavailable to grasses and cacti. Vegetation is typically dominated by *Prosopis glandulosa* or *Prosopis velutina* and succulents. Other desert scrub species that may codominate include *Acacia neovernicosa, Acacia constricta, Juniperus monosperma*, or *Juniperus coahuilensis*. *Larrea tridentata* is typically absent or has low cover. Grass cover is typically low and composed of desert grasses such as *Dasyochloa pulchella (= Erioneuron pulchellum), Muhlenbergia porteri, Muhlenbergia setifolia*, and *Pleuraphis mutica*. During the last century, the area occupied by this system has increased through conversion of desert grasslands as a result of drought, overgrazing by livestock, and/or decreases in fire frequency. It is similar to ~Chihuahuan Mixed Desert and Thorn Scrub (CES302.734)$$ but is generally found at higher elevations where *Larrea tridentata* and other desert scrub are not codominant. It is also similar to ~Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub (CES302.737)$$ but does not occur on eolian-deposited substrates (sandsheets), although some stands may have evidence of wind erosion and deposition.

Range: This system is found on foothills and piedmont in the Chihuahuan Desert, extending into the Sky Island region and into the lower Mogollon Rim to the west.

States: AZ, MXCH, MXSO, NM, TX

Map Zones: 13:P, 14:C, 15:C, 24:C, 25:C, 26:C, 27:C, 35:?, 36:?

Similar: Apacherian-Chihuahuan Semi-Desert Grassland and Steppe (CES302.735), Chihuahuan Mixed Desert and Thornscrub (CES302.734), Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub (CES302.737), Tamaulipan Mesquite Upland Scrub (CES301.984)

Descriptors:

Floristics/Dominants :	Prosopis spp. dominates
Lifeform :	Thorn Shrub
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland

3096: California Maritime Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5302 EVT_fuel: 2096

ESP: 1096 NatureServe Id: CES206.929

BioGeographical Division : Mediterranean California

NVC MacroGroup: M043 California Chaparral

NVC Group: G258 California Maritime Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system includes chaparral in patches restricted by edaphic conditions (sands, sandstones, other marine sediments, and stabilized sand dunes) within the fog belt throughout the central and northern California coast. This system is characterized by a combination of locally endemic species of *Arctostaphylos* and *Ceanothus*, species that primarily reproduce by seed rather than resprouting. Shrubs vary in height (up to 3 m tall) and occur in variable densities. More open patches support herbaceous vegetation, while occurrences of high shrub density have no understory. Characteristic species include *Arctostaphylos tomentosa, Arctostaphylos nummularia (= Arctostaphylos sensitiva), Arctostaphylos tomentosa ssp. crustacea (= Arctostaphylos crustacea), Arctostaphylos hookeri, Arctostaphylos pajaroensis, Arctostaphylos montaraensis* (and others), *Ceanothus masonii, Ceanothus griseus*, and *Ceanothus verrucosus*. In occurrences in southern Oregon, *Arctostaphylos hispidula* is the predominant chaparral shrub. Southernmost stands (San Diego County) can include *Cneoridium* spp. and *Comarostaphylis diversifolia*. Other common widespread woody taxa can include *Adenostoma fasciculatum, Eriogonum fasciculatum, Salvia mellifera, Frangula californica (= Rhamnus californica), Rhamnus crocea*, and *Quercus agrifolia*. Controlled burns have resulted in poor survivorship of the *Arctostaphylos* spp., and current theories are that they need long fire-free intervals to develop a viable seedbank that can reproduce following fire (Keeley and Davis 2005). This system often co-occurs with ~California Coastal Closed-Cone Conifer Forest and Woodland (CES206.922)$$.

Range: This systems occurs within the fog belt from southern California to the Mendocino coast of northern California. It extends north into coastal Oregon in very small patches.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 13:?

Similar:

Descriptors:

Lifeform :	Evergreen Sclerophyllous Shrub
Soil Moisture (NRCS) :	Udic
Soil Texture :	Sand
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3097: California Mesic Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5303 EVT_fuel: 2097

ESP: 1097 NatureServe Id: CES206.926

BioGeographical Division : Mediterranean California

NVC MacroGroup: M043 California Chaparral

NVC Group: G261 California Mesic & Pre-montane Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system occurs in mesic site conditions, such as north-facing slopes, concavities, or toeslopes, with well-drained soils throughout Mediterranean California away from the coastal fog belt. It occurs most commonly on north-facing slopes up to 1500 m (4550 feet) in elevation and up to 1830 m (6000 feet) in southern California. This system tends to be dominated by a variety of mixed or single-species, evergreen, sclerophyllous shrubs that resprout from lignotubers following fire. Common species include *Quercus berberidifolia, Quercus wislizeni var. frutescens, Cercocarpus montanus var. glaber (= Cercocarpus betuloides), Fraxinus dipetala, Garrya flavescens, Garrya elliptica, Heteromeles arbutifolia, Lonicera* spp., *Prunus ilicifolia, Rhamnus crocea, Rhamnus ilicifolia, Toxicodendron diversilobum, Ribes* spp., and *Sambucus* spp. Weakly re-sprouting or obligate seeders that also commonly occur in this system include arborescent *Ceanothus* spp., such as *Ceanothus spinosus, Ceanothus oliganthus, Ceanothus tomentosus*, and *Ceanothus leucodermis*. *Umbellularia californica* and *Aesculus californica* can also occur as shrubs and, lacking disturbance, can grow to tree size, as do some of the other chaparral shrubs (some old-growth stands can reach 10.6 m [35 feet] in height!). Most chaparral species are fire-adapted, resprouting vigorously after burning or producing fire-resistant seeds. This is not a system that requires frequent fire for perpetuation.

Range: This system occurs throughout Mediterranean California away from the coastal fog belt. It may occur as very small patches in southwestern Oregon, but it isn't clearly documented from there.

States: CA

Map Zones: 3:C, 4:C, 5:C, 6:C

Similar:

Descriptors:

Floristics/Dominants :	Quercus berberidifolia
Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Soil Moisture (NRCS) :	Udic
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3098: California Montane Woodland and Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5304 EVT_fuel: 2098

ESP: 1098 NatureServe Id: CES206.925

BioGeographical Division : Mediterranean California

NVC MacroGroup: M094 Cool Interior Chaparral

NVC Group: G282 Western North American Montane Sclerophyll Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd Western North American Interior Sclerophyllous Chaparral

Summary: This ecological system includes chaparral or open shrubby woodlands found among montane forests above 1500 m (4550 feet) elevation from the southern Cascades of Oregon to the Peninsular Ranges of California into Baja California, Mexico, where much annual precipitation occurs as snow. These are often locations with steep, exposed slopes with rocky and/or shallow soils, often glaciated. Stands are not found in the foothills but rather occur commonly above 1524 m (5000 feet) in elevation. These are mosaics of woodlands with chaparral understories, shrub-dominated chaparral, or short-lived chaparral with conifer species invading, if good seed source is available. Shrubs will often have higher densities than the trees, which are more limited due to the rocky/thin soils. These can also be short-duration chaparrals in previously forested areas that have experienced crownfires. Trees tend to have a scattered open canopy or can be clustered, over a usually continuous dense shrub layer. Trees can include *Pinus jeffreyi, Abies concolor, Abies magnifica, Pinus monticola, Pinus lambertiana, Pinus coulteri, Pinus attenuata, Cupressus forbesii, Cupressus arizonica ssp. stephensonii*, and *Cupressus arizonica ssp. nevadensis (= Cupressus nevadensis)*. Typical sclerophyllous chaparral shrubs include *Arctostaphylos nevadensis, Arctostaphylos patula, Arctostaphylos glandulosa, Ceanothus cordulatus, Ceanothus diversifolius, Ceanothus pinetorum, Ceanothus velutinus*, and *Chrysolepis sempervirens (= Castanopsis sempervirens)*. Some stands can be dominated by winter deciduous shrubs, such as *Prunus emarginata, Prunus subcordata* and *Ceanothus sanguineus* (in Oregon), *Prunus virginiana, Ceanothus integerrimus, Holodiscus discolor (= Holodiscus microphyllus)*, and *Quercus garryana var. breweri*. Most chaparral species are fire-adapted, resprouting vigorously after burning or producing fire-resistant seeds. Occurrences of this system likely shift across montane forested landscapes with catastrophic fire events.

Range: the Klamath Mountains and Peninsular Ranges of California into Baja California, Mexico.

States: CA, MXBC, OR

Map Zones: 2:C, 3:C, 4:C, 6:C, 7:C, 12:P, 13:?

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Xeric
Soil Depth :	Shallow Soil
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane

3099: California Xeric Serpentine Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5305 EVT_fuel: 2099

ESP: 1099 NatureServe Id: CES206.927

BioGeographical Division : Mediterranean California

NVC MacroGroup: M043 California Chaparral

NVC Group: G257 California Xeric Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system occurs throughout Mediterranean California (excluding far southern California) on thin, rocky, ultramafic (gabbro, peridotite, serpentinite) soils and in areas below winter snow accumulations that typically experience hot and dry summers. Not all ultramafic outcrops support distinct vegetation; only those with very low Ca:Mg ratios impact biotic composition. This system is highly variable and spotty in distribution. Characteristic plant species include *Cupressus macnabiana, Quercus durata, Arctostaphylos viscida, Arctostaphylos pungens*, and *Arctostaphylos glauca*. Common associates include *Adenostoma fasciculatum, Ceanothus cuneatus, Fremontodendron californicum, Quercus sadleriana, Quercus vacciniifolia, Garrya* spp., *Umbellularia californica, Ceanothus pumilus, Frangula californica (= Rhamnus californica)*, and *Arctostaphylos nevadensis*. California endemics such as *Ceanothus jepsonii* also occur. *Pinus sabiniana* can occur at varying cover from trace to more abundant. Many locally endemic and often rare forbs can occur, such as *Streptanthus* spp., *Hesperolinon* spp., *Eriogonum* spp., *Madia* spp., *Mimulus* spp., *Allium* spp., and *Asclepias solanoana*. This chaparral type tends to have fewer trees than mesic chaparral.

Range: This system occurs throughout Mediterranean California (excluding far southern California) into Oregon, on thin, rocky, ultramafic soils.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:C, 6:C, 7:?

Similar:

Descriptors:

Floristics/Dominants : Cupressus macnabiana

Lifeform :	Broad-Leaved Evergreen Shrub
Substrate Consolidation :	Consolidated
Soil Moisture (NRCS) :	Xeric
Soil Depth :	Very Shallow
Specialized Substrate Chemistry :	Ultramafic with low Ca:Mg ratio
Bioclimate :	Mediterranean
Specialized Substrates :	Serpentine
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane

3100: Chihuahuan Mixed Desert and Thornscrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5306 EVT_fuel: 2100

ESP: 1100 NatureServe Id: CES302.734

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M086 Chihuahuan Desert Scrub

NVC Group: G288 Chihuahuan Creosotebush - Mixed Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system is the widespread desert scrub that occurs on gravelly mid to upper bajadas, foothills and dissected gravelly alluvial fans in the Chihuahuan Desert and has recently expanded into former desert grasslands in the northern portion of its range. It generally occurs on mid to upper piedmonts above the desert plains ~Chihuahuan Creosotebush Desert Scrub (CES302.731)$$ and extends up to the chaparral zone. Soils are typically well-drained, non-saline, gravelly loams often with a petrocalic layer. Substrates are frequently derived from limestone although igneous rocks are common in some areas. Vegetation is characterized by the presence of *Larrea tridentata*, typically mixed with thornscrub or other desert scrub such as *Agave lechuguilla, Aloysia wrightii, Baccharis pteronioides, Dasylirion leiophyllum, Flourensia cernua* (not bottomland), *Fouquieria splendens, Koeberlinia spinosa, Krameria erecta, Leucophyllum minus, Mimosa aculeaticarpa var. biuncifera, Mortonia scabrella (= Mortonia sempervirens ssp. scabrella), Opuntia engelmannii, Parthenium incanum, Prosopis glandulosa*, and *Rhus microphylla* (in drainages). Stands of *Acacia constricta*-, *Acacia neovernicosa*- or *Acacia greggii*-dominated thornscrub are included in this system, and limestone substrates appear important for at least these species. If present, *Prosopis glandulosa* has relatively low cover and does not dominate the shrub layer. This system also includes upper piedmont stands of desert scrub that are strongly dominated by *Larrea tridentata*. Grasses are common but generally have lower cover than shrubs. Common species may include *Bouteloua curtipendula, Bouteloua eriopoda, Bouteloua gracilis, Bouteloua hirsuta, Bouteloua ramosa, Dasyochloa pulchella*, and *Muhlenbergia porteri*. Also included in this ecological system are shrublands with a sparse understory of *Larrea tridentata* that occur on gravelly piedmont slopes that may extend down gravelly upper basins. A pebbly desert pavement may be present on the soil surface. This may indicate remnant erosional surfaces from the early Holocene that are thought to be some of the historic distribution of *Larrea tridentata* desert scrub in the Chihuahuan

Desert. Historically, much of this desert scrub was thought to be a steppe characterized by perennial desert grasses (typically *Bouteloua eriopoda)* with an open creosotebush - mixed desert shrub layer.

Range: This system occurs in the Chihuahuan Desert.

States: AZ, MXCH, MXSO, NM, TX

Map Zones: 14:C, 15:C, 24:P, 25:C, 26:C, 27:C

Similar: Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733)

Descriptors:

Lifeform :	Thorn Shrub
Lifeform :	Xeromorphic Shrub
Soil Moisture (NRCS) :	Aridic
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland

3101: Madrean Oriental Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5307 EVT_fuel: 2101

ESP: 1101 NatureServe Id: CES302.031

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M091 Warm Interior Chaparral

NVC Group: G280 Eastern Madrean Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd Western North American Interior Sclerophyllous Chaparral

Summary: This ecological system occurs in mountains across southeastern New Mexico (Guadalupe Mountains), Trans-Pecos Texas (Chisos and Davis mountains) and Madrean Oriental in northern Mexico. It often dominants along the mid-elevation transition from the Chihuahuan Desert into mountains (1700-2500 m). It occurs on foothills, mountain slopes and canyons in drier habitats below the encinal and pine woodlands, and is often associated with more xeric and coarse-textured substrates such as limestone, basalt or alluvium, especially in transition areas with more mesic woodlands. The moderate to dense shrub canopy includes many shrub oak species, such as *Quercus emoryi, Quercus grisea, Quercus intricata, Quercus invaginata, Quercus laceyi, Quercus mohriana, Quercus pringlei, Quercus pungens*, and *Quercus vaseyana*, and several widespread chaparral species, such as *Arctostaphylos pungens, Ceanothus greggii, Cercocarpus montanus, Fallugia paradoxa*, and *Garrya wrightii*; other species characteristic of this system include *Arbutus xalapensis (= Arbutus texana), Fraxinus greggii, Fendlera rigida (= Fendlera linearis), Garrya ovata, Purshia mexicana, Rhus virens var. choriophylla (= Rhus choriophylla), Salvia lycioides (= Salvia ramosissima), Salvia roemeriana*, and *Salvia regla*. In the Trans-Pecos of Texas, disjunct *Quercus gambelii* may occur as a significant component of this shrubland. Most chaparral species are fire-adapted, resprouting vigorously after burning or producing fire-resistant seeds. Stands occurring within montane woodlands are seral and a result of recent fires. Grass cover may be significant. Dominant grasses often include *Bouteloua curtipendula, Bouteloua hirsuta*, and *Muhlenbergia emersleyi*.

Range: This system is found on mountains across southeastern New Mexico, Trans-Pecos Texas and northern Mexico. It often dominants along the mid-elevation transition from the Chihuahuan Desert into mountains (1700-2500 m elevation).

States: MXCH, MXCO, NM, TX

Map Zones: 25:C, 26:C, 27:P

Similar:

Descriptors:

Fire Intensity/Spatial Character :	Patch/High Intensity
Soil Moisture (NRCS) :	Xeric
Soil Depth :	Shallow Soil
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane

3103: Great Basin Semi-Desert Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5309 EVT_fuel: 2103

ESP: 1103 NatureServe Id: CES304.001

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M094 Cool Interior Chaparral

NVC Group: G282 Western North American Montane Sclerophyll Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd Western North American Interior Sclerophyllous Chaparral

Summary: This system includes chaparral on sideslopes transitioning from low-elevation desert landscapes up into pinyon-juniper woodlands of the western and central Great Basin. There are limited occurrences extending as far west as the inner Coast Ranges in central California. These are typically fairly open-canopy shrublands with open spaces either bare or supporting patchy grasses and forbs. Characteristic species may include *Arctostaphylos patula, Arctostaphylos pungens, Ceanothus greggii, Ceanothus velutinus, Cercocarpus montanus var. glaber, Cercocarpus intricatus, Eriogonum fasciculatum, Garrya flavescens, Quercus turbinella, Purshia stansburiana*, and *Rhus trilobata*. *Cercocarpus ledifolius* is generally absent. Typical fire regime in these systems varies with the amount of organic accumulation.

Range: Western and central Great Basin.

States: CA, NV

Map Zones: 4:?, 6:C, 7:P, 9:C, 12:C, 13:C, 15:C, 16:?, 17:C, 18:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Evergreen Shrub
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane

3104: Mogollon Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5310 EVT_fuel: 2104

ESP: 1104 NatureServe Id: CES302.741

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M091 Warm Interior Chaparral

NVC Group: G281 Western Madrean Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd Western North American Interior Sclerophyllous Chaparral

Summary: This ecological system occurs across central Arizona (Mogollon Rim), western New Mexico, and southern Utah and Nevada. It often dominants along the mid-elevation transition from the Mojave, Sonoran, and northern Chihuahuan deserts into mountains (1000-2200 m). It occurs on foothills, mountain slopes and canyons in hotter and drier habitats below the encinal and *Pinus ponderosa* woodlands. Stands are often associated with more xeric and coarse-textured substrates such as limestone, basalt or alluvium, especially in transition areas with more mesic woodlands. The moderate to dense shrub canopy includes species such as *Quercus turbinella, Quercus toumeyi, Cercocarpus montanus var. paucidentatus, Canotia holacantha, Ceanothus greggii, Garrya wrightii, Purshia stansburiana, Rhus ovata, Rhus trilobata*, and *Arctostaphylos pungens* and *Arctostaphylos pringlei* at higher elevations. Scattered remnant pinyon and juniper trees may be present. Most chaparral species are fire-adapted, resprouting vigorously after burning or producing fire-resistant seeds. Stands occurring within montane woodlands are seral and a result of recent fires.

Range: This system occurs across central Arizona (Mogollon Rim), western New Mexico and southern Utah. It often dominates along the mid-elevation transition from the Mojave, Sonoran, and northern Chihuahuan deserts into mountains (1000-2200 m elevation). It does not occur as far west as California.

States: AZ, MXSO?, NM, NV, UT

Map Zones: 12:?, 13:P, 14:C, 15:C, 16:P, 17:C, 23:C, 24:C, 25:C, 26:C, 27:P, 28:?

Similar:

Descriptors:

Lifeform :	Evergreen Sclerophyllous Shrub
Lifeform :	Broad-Leaved Evergreen Shrub
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil Moisture (NRCS) :	Xeric
Bioclimate :	Temperate
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane
Life Zones :	Montane

3105: Northern and Central California Dry-Mesic Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5311 EVT_fuel: 2105

ESP: 1105 NatureServe Id: CES206.931

BioGeographical Division : Mediterranean California

NVC MacroGroup: M043 California Chaparral

NVC Group: G257 California Xeric Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system includes chaparral typically located inland from maritime chaparral up to 1500 m (4550 feet) elevation in central and northern California through the northern end of the Central Valley and north into Oregon. This system includes extensive areas on coarse-grained soils with annual precipitation up to 75 cm (winter rain but not snow). Adjacent fine-textured soils support savanna under similar climatic regimes. These areas have supported extensive stand-replacing wildfires. This system is made up of a mixture of mostly obligate seeders. Characteristic species include *Adenostoma fasciculatum, Ceanothus cuneatus, Arctostaphylos viscida, Arctostaphylos manzanita, Arctostaphylos glauca, Arctostaphylos glandulosa, Arctostaphylos stanfordiana, Fremontodendron californicum, Malacothamnus fasciculatus, Dendromecon rigida*, and *Pickeringia montana*. Common shrubs in Oregon include *Arctostaphylos viscida, Cercocarpus montanus var. glaber*, and *Ceanothus cordulatus*. Fire regimes are intense, stand-replacing crownfires. Scattered and young trees may occur, such as *Pinus ponderosa, Pinus sabiniana, Pseudotsuga menziesii*, and *Quercus wislizeni*.

Range: This system is located inland from maritime chaparral up to 1500 m (4550 feet) elevation in central and northern California, and southwestern Oregon, through the north end of the California Central Valley.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:C, 6:C, 7:C

Similar:

Descriptors:

Floristics/Dominants : Ceanothus cuneatus, Adenostema fasciculata

Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland
Life Zones :	Montane

3106: Northern Rocky Mountain Montane-Foothill Deciduous Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5312 EVT_fuel: 2106

ESP: 1106 NatureServe Id: CES306.994

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G272 Central Rocky Mountain Montane-Foothill Deciduous Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This shrubland ecological system is found in the lower montane and foothill regions around the Columbia Basin, and north and east into the northern Rockies. These shrublands typically occur below treeline, within the matrix of surrounding low-elevation grasslands and sagebrush shrublands. They also occur in the ponderosa pine and Douglas-fir zones, but rarely up into the subalpine zone (on dry sites). The shrublands are usually found on steep slopes of canyons and in areas with some soil development, either loess deposits or volcanic clays; they occur on all aspects. Fire, flooding and erosion all impact these shrublands, but they typically will persist on sites for long periods. These communities develop near talus slopes as garlands, at the heads of dry drainages, and toeslopes in the moist shrub-steppe and steppe zones. *Physocarpus malvaceus, Prunus emarginata, Prunus virginiana, Rosa* spp., *Rhus glabra, Acer glabrum, Amelanchier alnifolia, Symphoricarpos albus, Symphoricarpos oreophilus*, and *Holodiscus discolor* are the most common dominant shrubs, occurring alone or any combination. *Rubus parviflorus* and *Ceanothus velutinus* are other important shrubs in this system, being more common in montane occurrences than in subalpine situations. Occurrences in central and eastern Wyoming can include *Artemisia tridentata ssp. vaseyana* and *Cercocarpus montanus*, but neither of these are dominant, and where they occur, the stands are truly mixes of shrubs, often with *Amelanchier alnifolia, Prunus virginiana*, and others being the predominant taxa. In moist areas, *Crataegus douglasii* can be common. *Shepherdia canadensis* and *Spiraea betulifolia* can be abundant in some cases but also occur in ~Northern Rocky Mountain Subalpine Deciduous Shrubland (CES306.961)$$. *Festuca idahoensis, Festuca campestris, Calamagrostis rubescens, Carex geyeri, Koeleria macrantha, Pseudoroegneria spicata*, and *Poa secunda* are the most important grasses. *Achnatherum thurberianum* and *Leymus cinereus* can be locally important. *Poa pratensis* and *Phleum pratense* are common introduced grasses. *Geum triflorum, Potentilla gracilis, Lomatium triternatum, Balsamorhiza sagittata*, and

species of *Eriogonum, Phlox*, and *Erigeron* are important forbs.

Range: This system is found in the lower montane and foothill regions around the Columbia Basin, and north and east into the northern Rockies, including east into central Montana around the "Sky Island" ranges. It also occurs farther south into central and eastern Wyoming, where it forms compositionally diverse shrublands.

States: AB, BC, ID, MT, OR, WA, WY

Map Zones: 1:C, 7:C, 8:C, 9:C, 10:C, 16:?, 17:?, 18:C, 19:C, 20:C, 21:C, 22:C, 29:C

Similar:

Descriptors:

Temporal Persistence :	Moderate (100-500 yrs)
Lifeform :	Broad-Leaved Deciduous Shrub
Soil Moisture (NRCS) :	Ustic
Soil Depth :	Very Shallow
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane

3107: Rocky Mountain Gambel Oak-Mixed Montane Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5313 EVT_fuel: 2107

ESP: 1107 NatureServe Id: CES306.818

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M049 Southern Rocky Mountain Montane Shrubland

NVC Group: G277 Southern Rocky Mountain Gambel Oak - Mixed Montane Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system occurs in the mountains, plateaus and foothills of the southern Rocky Mountains and Colorado Plateau, including the Uinta and Wasatch ranges and the Mogollon Rim. These shrublands are most commonly found along dry foothills, lower mountain slopes, and at the edge of the western Great Plains from approximately 2000 to 2900 m in elevation, and are often situated above pinyon-juniper woodlands. Substrates are variable and include soil types ranging from calcareous, heavy, fine-grained loams to sandy loams, gravelly loams, clay loams, deep alluvial sand, or coarse gravel. The vegetation is typically dominated by *Quercus gambelii* alone or codominant with *Amelanchier alnifolia, Amelanchier utahensis, Artemisia tridentata, Cercocarpus montanus, Prunus virginiana, Purshia stansburiana, Purshia tridentata, Robinia neomexicana, Symphoricarpos oreophilus*, or *Symphoricarpos rotundifolius*. There may be inclusions of other mesic montane shrublands with *Quercus gambelii* absent or as a relatively minor component. This ecological system intergrades with the lower montane-foothills shrubland system and shares many of the same site characteristics. Density and cover of *Quercus gambelii* and *Amelanchier* spp. often increase after fire.

Range: This system occurs in the mountains, plateaus and foothills of the southern Rocky Mountains and Colorado Plateau, including the Uinta and Wasatch ranges and the Mogollon Rim.

States: AZ, CO, NM, UT, WY

Map Zones: 12:?, 15:C, 16:C, 17:C, 22:C, 23:C, 24:C, 25:C, 27:C, 28:C, 33:?

Similar: Rocky Mountain Lower Montane-Foothill Shrubland (CES306.822)

Descriptors:

Soil Texture : Loam

Life Zones :	Montane
Life Zones :	Lowland
Major Physiognomy :	Shrubland (Shrub)
Topography :	High Ridge/Upper Slope
Topography :	High-Low Slope
Bioclimate :	Temperate
Life Zones :	Montane
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Temporal Persistence :	Short (50-100 yrs)
Soil Texture :	Sand
Soil Moisture (NRCS) :	Ustic
Substrate Consolidation :	Unconsolidated
Disturbance Return Interval :	Intermediate
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Lifeform :	Broad-Leaved Deciduous Shrub
Soil Depth :	Shallow Soil

3108: Sonora-Mojave Semi-Desert Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5314 EVT_fuel: 2108

ESP: 1108 NatureServe Id: CES302.757

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M091 Warm Interior Chaparral

NVC Group: G281 Western Madrean Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd Western North American Interior Sclerophyllous Chaparral

Summary: This ecological system is composed of evergreen shrublands or dwarf-woodlands on sideslopes transitioning from low-elevation desert landscapes up into woodlands of the western Mojave and Sonoran deserts. It extends from northeast Kern County, California, into Baja Norte, Mexico. Associated species include *Quercus john-tuckeri, Quercus cornelius-mulleri, Quercus berberidifolia, Arctostaphylos patula, Arctostaphylos pungens, Arctostaphylos glauca, Rhus ovata, Cercocarpus montanus var. glaber (= Cercocarpus betuloides), Ceanothus greggii, Garrya flavescens, Juniperus californica*, and *Nolina parryi*. Sometimes *Juniperus californica* forms an open, shrubby tree layer over the evergreen oaks and other shrubs.

Range: This system occurs in the western Mojave and Sonoran deserts, from northeast Kern County, California, into Baja Norte, Mexico.

States: AZ, CA, MXBC, MXSO, NV

Map Zones: 4:C, 6:P, 13:C, 14:C

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Lifeform :	Evergreen Sclerophyllous Shrub
Lifeform :	Broad-Leaved Evergreen Shrub
Lifeform :	Broad-Leaved Deciduous Shrub
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Intermediate

Soil Moisture (NRCS)	: Aridic
Bioclimate	: Temperate
Bioclimate	: Tropical/Subtropical
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland
Life Zones	: Montane

3109: Sonoran Paloverde-Mixed Cacti Desert Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5315 EVT_fuel: 2109

ESP: 1109 NatureServe Id: CES302.761

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M088 Mojave-Sonoran Semi-Desert Scrub

NVC Group: G293 Sonoran Paloverde - Mixed Cacti Desert Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system occurs on hillsides, mesas and upper bajadas in southern Arizona and extreme southeastern California. The vegetation is characterized by a diagnostic sparse, emergent tree layer of *Carnegia gigantea* (3-16 m tall) and/or a sparse to moderately dense canopy codominated by xeromorphic deciduous and evergreen tall shrubs *Parkinsonia microphylla* and *Larrea tridentata*, with *Prosopis* sp., *Olneya tesota*, and *Fouquieria splendens* less prominent. Other common shrubs and dwarf-shrubs include *Acacia greggii, Ambrosia deltoidea, Ambrosia dumosa* (in drier sites), *Calliandra eriophylla, Jatropha cardiophylla, Krameria erecta, Lycium* spp., *Menodora scabra, Simmondsia chinensis*, and many cacti, including *Ferocactus* spp., *Echinocereus* spp., and *Opuntia* spp. (both cholla and prickly-pear). The sparse herbaceous layer is composed of perennial grasses and forbs with annuals seasonally present and occasionally abundant. On slopes, plants are often distributed in patches around rock outcrops where suitable habitat is present. Outliers of this succulent-dominated ecological system occur as "Cholla Gardens" in the western Mojave in California. In this area, the system is characterized by *Opuntia bigelovii, Fouquieria splendens, Senna armata*, and other succulents, but it lacks the *Carnegia gigantea* and *Parkinsonia microphylla* which are typical farther east.

Range: This system is found in southern Arizona and southeastern California.

States: AZ, CA, MXBC, MXSO, NV?

Map Zones: 13:C, 14:C, 15:C, 25:C

Similar:

Descriptors:

Floristics/Dominants : Cacti dominated

Lifeform	: Succulent Forb
Lifeform	: Succulent Shrub
Lifeform	: Xeromorphic Shrub
Lifeform	: Broad-Leaved Deciduous Shrub
Soil Moisture (NRCS)	: Aridic
Soil Texture	: Sand
Soil pH	: Alkaline
Bioclimate	: Temperate
Bioclimate	: Tropical/Subtropical
Topography	: Toeslope/Bottom/Valley
Topography	: High-Low Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland
Life Zones	: Lowland

3110: Southern California Dry-Mesic Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5316 EVT_fuel: 2110

ESP: 1110 NatureServe Id: CES206.930

BioGeographical Division : Mediterranean California

NVC MacroGroup: M043 California Chaparral

NVC Group: G257 California Xeric Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system includes chaparral from sea level up to 1500 m (4550 feet) elevation throughout central and southern California and inland portions of Baja Norte, Mexico. It is found in dry-mesic to mesic site conditions analogous to mesic chaparral. Santa Ana winds drive late-summer, stand-replacing fires in these systems. Characteristic species include *Ceanothus megacarpus, Ceanothus crassifolius, Ceanothus leucodermis, Ceanothus greggii, Adenostoma fasciculatum, Adenostoma sparsifolium, Arctostaphylos glauca, Cercocarpus montanus var. glaber (= Cercocarpus betuloides), Cercocarpus montanus var. minutiflorus (= Cercocarpus minutiflorus), Rhus ovata*, and *Xylococcus bicolor*.

Range: This system includes chaparral from sea level up to 1500 m (4550 feet) elevation throughout central and southern California and inland portions of Baja Norte, Mexico.

States: CA, MXBC

Map Zones: 4:C, 5:C

Similar:

Descriptors:

Lifeform :	Evergreen Sclerophyllous Shrub
Lifeform :	Broad-Leaved Shrub
Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Soil Depth :	Deep

Bioclimate	: Mediterranean
Topography	: High-Low Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland
Life Zones	: Lowland

3111: Western Great Plains Mesquite Woodland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Mesquite Woodland and Shrubland

Codes: ESLF: 5317 EVT_fuel: 2111

ESP: 1111 NatureServe Id: CES303.668

BioGeographical Division :

NVC MacroGroup: M053 Great Plains Shortgrass Prairie

NVC Group: G144 Great Plains Shortgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily in the southern portion of the Western Great Plains Division, primarily in Texas, Oklahoma and eastern New Mexico. It is dominated by *Prosopis glandulosa* with shortgrass species in the understory. *Ziziphus obtusifolia* and *Atriplex canescens* can codominate in some examples, as can *Opuntia* species in heavily grazed areas. Shortgrass species *Bouteloua gracilis* or *Buchloe dactyloides* are typically present. Other grasses may include *Aristida purpurea, Bouteloua curtipendula, Bouteloua eriopoda, Bouteloua hirsuta, Muhlenbergia torreyi, Pleuraphis jamesii, Sporobolus airoides*, and *Sporobolus cryptandrus*. Historically this system probably occurred as a natural component on more fertile soils and along drainages, but it has expanded its range into prairie uplands in recent decades.

Range: This system is primarily found in the southern portion of the Western Great Plains division, particularly in Texas, Oklahoma and eastern New Mexico.

States: NM, OK, TX

Map Zones: 26:C, 27:C, 34:C, 35:C, 38:P

Similar: Central Mixedgrass Prairie (CES303.659), Western Great Plains Shortgrass Prairie (CES303.672)

Descriptors:

Grazing Intensity/Spatial Character : Patch/Medium Intensity
Fire Intensity/Spatial Character : Patch/Medium Intensity
Major Physiognomy : Shrubland (Shrub)

3112: California Central Valley Mixed Oak Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5401 EVT_fuel: 2112

ESP: 1112 NatureServe Id: CES206.935

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: Historically, these savannas occurred on alluvial terraces and flat plains, often with deep, fertile soils, throughout the California Central Valley from Lake Shasta south to Los Angeles County. This system is found from 10-1200 m (30-3600 feet) elevation; receiving on average 50 cm (range 25-100 cm) of precipitation per year, mainly as winter rain. Variable canopy densities in existing occurrences are likely due to variation in soil moisture regime, natural patch dynamics of fire, and land use (fire suppression, livestock grazing, herbivory, etc.). *Quercus lobata* was the characteristic oak species of these savannas, though other species were present, including *Quercus wislizeni, Quercus agrifolia, Quercus douglasii, Aesculus californica, Cercis canadensis var. texensis (= Cercis occidentalis), Juniperus californica*, and *Nassella pulchra*. There is some evidence that much of the understory prior to the invasion by non-native annual grasses and forbs was composed of native annual herbs such as *Hemizonia, Eriogonum, Trifolium, Gilia, Navarretia, Lupinus, Calycadenia, Lessingia, Lotus, Daucus*, and *Holocarpha* spp. There is considerable seasonal and annual variation in cover of understory species due to phenology and intra-annual precipitation and temperature variation.

Range: Historically, this system was found throughout the California Central Valley from Lake Shasta south to Los Angeles County.

States: CA

Map Zones: 3:C, 4:C, 5:C, 6:C

Similar:

Descriptors:

Floristics/Dominants : Quercus lobata, Quercus douglasii

Fire Intensity/Spatial Character :	Landscape/Low Intensity
Soil Moisture (NRCS) :	Xeric
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Depth :	Deep
Soil Fertility :	Eutrophic
Bioclimate :	Mediterranean
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Landforms :	Alluvial terrace
Landforms :	Alluvial plain
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland

3113: California Coastal Live Oak Woodland and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5402 EVT_fuel: 2113

ESP: 1113 NatureServe Id: CES206.937

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: These *Quercus agrifolia*-dominated woodlands occur throughout the Pacific coastal areas from Sonoma County, California, south to Baja California. Occurrences vary in canopy cover from dense conditions that support sparse understory vegetation of *Rubus ursinus, Symphoricarpos mollis, Heteromeles arbutifolia,* and *Toxicodendron diversilobum*, to more open conditions with perennial bunchgrass understory. The latter typically occur on south-facing slopes with soils of variable depth. Variable canopy densities in existing occurrences are likely due to variation in soil moisture regime, natural patch dynamics of fire, and land use (fire suppression, livestock grazing, herbivory, etc.).

Range: Pacific coastal areas from Sonoma County, California, south to Baja California.

States: CA, MXBC

Map Zones: 3:C, 4:C, 5:?

Similar:

Descriptors:

Floristics/Dominants :	Quercus agrifolia
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Evergreen Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Soil Moisture (NRCS) :	Ustic

Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland

3114: California Lower Montane Foothill Pine Woodland and Savanna

Match Confidence: Good Match

Suggested Match: California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna

Codes: ESLF: 5403 EVT_fuel: 2114

ESP: 1114 NatureServe Id: CES206.936

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This is the pine dominated exression of this system. This ecological system is primarily found in the valley margins and foothills of the Sierra Nevada and Coast Ranges of California from approximately 120-1200 m (360-3600 feet) in elevation on rolling plains or dry slopes. Over a century of anthropogenic changes (especially cutting of oak) have altered the density and distribution of woody vegetation. A high-quality occurrence often consists of open park-like stands of *Pinus sabiniana*, with oaks and other various broadleaf tree and shrub species, including *Quercus douglasii, Quercus wislizeni, Quercus agrifolia* (primarily central and southern Coast Ranges), *Quercus lobata, Aesculus californica, Arctostaphylos* spp., *Cercis canadensis var. texensis (= Cercis occidentalis), Ceanothus cuneatus, Frangula californica (= Rhamnus californica), Ribes quercetorum, Juniperus californica*, and *Pinus coulteri* (central and southern Coast Ranges). *Pinus sabiniana* tends to drop out all together in the driest and more southerly sites, which are often dominated by *Quercus douglasii*. The California central coast region may have open stands of just *Juniperus californica*, with a grassy understory. These stands belong here due to proximity to other blue oak and gray pine stands or chaparral, and due to the heavy native or non-native grass cover. This is distinguished from Great Basin pinyon-juniper stands, which have little herbaceous understory, and *Pinus monophylla* rather than *Pinus sabiniana*. These stands of only juniper are caused by repeated removal of the oaks by humans and feral pig populations. Northern extensions of this system include *Quercus garryana* as the dominant oak, where it becomes successional to ~Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)$$. *Pinus sabiniana* density also varies based on intensity or frequency of fire, being less abundant in areas of higher intensity or frequency, hence it is often more abundant on steep, rocky or more mesic north-facing slope exposures. Historically, understory vegetation included mixed chaparral to perennial bunchgrass. Currently, most occurrences have understories

dominated by dense cover of annual species, both native and non-native. Variable canopy densities in existing occurrences are likely due to variation in soil moisture regime, natural patch dynamics of fire, and land use (fire suppression, livestock grazing, herbivory, etc.).

Range: This system occurs primarily in the valley margins and foothills of the Sierra Nevada and Coast Ranges from approximately 120-1200 m (360-3600 feet) elevation, from Shasta County to Kern and northern Los Angeles counties, California. It is unlikely to occur in the southern portion of zone 7 (Modoc Plateau), but this needs to be confirmed with California ecologists.

States: CA

Map Zones: 2:P, 3:C, 4:C, 5:C, 6:C, 7:P

Similar: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)

Descriptors:

Soil Moisture (NRCS) :	Ustic
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Woody-Herbaceous
Landforms :	Alluvial plain
Landforms :	Alluvial terrace
Topography :	High-Low Slope
Topography :	Toeslope/Bottom/Valley
Life Zones :	Montane
Soil Texture :	Sand
Juxtaposition :	Savanna-Woodland mosaic
Disturbance Return Interval :	Short
Fire Intensity/Spatial Character :	Patch/Low Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Broad-Leaved Evergreen Tree
Lifeform :	Graminoid
Floristics/Dominants :	Pinus sabiniana, Quercus douglasii
Bioclimate :	Mediterranean

3115: Inter-Mountain Basins Juniper Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5404 EVT_fuel: 2115

ESP: 1115 NatureServe Id: CES304.782

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G246 Colorado Plateau - Great Basin Juniper Woodland & Savanna

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Evergreen sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This widespread ecological system occupies dry foothills and sandsheets of western Colorado, northwestern New Mexico, northern Arizona, Utah, and west into the Great Basin of Nevada and southern Idaho. It is typically found at lower elevations ranging from 1500-2300 m. This system is generally found at lower elevations and more xeric sites than ~Great Basin Pinyon-Juniper Woodland (CES304.773)$$ or ~Colorado Plateau Pinyon-Juniper Woodland (CES304.767)$$. These occurrences are found on lower mountain slopes, hills, plateaus, basins and flats often where juniper is expanding into semi-desert grasslands and steppe. The vegetation is typically open savanna, although there may be inclusions of more dense juniper woodlands. This savanna is typically dominated by *Juniperus osteosperma* trees with high cover of perennial bunch grasses and forbs, with *Bouteloua gracilis, Hesperostipa comata*, and *Pleuraphis jamesii* being most common. In the southern Colorado Plateau, *Juniperus monosperma* or juniper hybrids may dominate the tree layer. Pinyon trees are typically not present because sites are outside the ecological or geographic range of *Pinus edulis* and *Pinus monophylla*. It has been suggested that all *Juniperus osteosperma* stands in Wyoming be placed in ~Colorado Plateau Pinyon-Juniper Woodland (CES304.767)$$. This savanna system does not occur in Wyoming.

Range: This juniper savanna occurs from northwestern New Mexico, northern Arizona, western Colorado, Utah, west into the Great Basin of Nevada and southern Idaho. Where it occurs in California, it is found only in the far eastern edges of the state adjacent to other Great Basin systems.

States: AZ, CA, CO, ID, NM, NV, OR, UT

Map Zones: 7:?, 9:C, 12:P, 13:P, 14:P, 15:C, 16:P, 17:P, 18:C, 19:P, 21:?, 22:?, 23:C, 24:C, 25:C, 28:P

Similar: Colorado Plateau Pinyon-Juniper Woodland (CES304.767), Great Basin Pinyon-Juniper

Woodland (CES304.773)

Descriptors:

Lifeform :	Graminoid
Lifeform :	Evergreen Sclerophyllous Tree
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Disturbance Return Interval :	Intermediate
Specialized Substrate Chemistry :	Calcareous
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3116: Madrean Juniper Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5405 EVT_fuel: 2116

ESP: 1116 NatureServe Id: CES301.730

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M010 Madrean Lowland Evergreen Woodland

NVC Group: G487 Madrean Juniper Savanna & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Evergreen sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This Madrean ecological system occurs in lower foothills and plains of southeastern Arizona, southern New Mexico extending into west Texas and Mexico. These savannas have widely spaced mature juniper trees and moderate to high cover of graminoids (>25% cover). The presence of Madrean *Juniperus* spp. such as *Juniperus coahuilensis, Juniperus pinchotii*, and/or *Juniperus deppeana* is diagnostic. *Juniperus monosperma* may be present in some stands; *Juniperus deppeana* has a broader range than this Madrean system and extends north into southern stands of ~Southern Rocky Mountain Juniper Woodland and Savanna (CES306.834)$$. Stands of *Juniperus pinchotii* may be short and resemble a shrubland. Graminoid species are a mix of those found in ~Western Great Plains Shortgrass Prairie (CES303.672)$$ and ~Apacherian-Chihuahuan Semi-Desert Grassland and Steppe (CES302.735)$$, with *Bouteloua gracilis* and *Pleuraphis jamesii* being most common. In addition, these areas include succulents such as species of *Yucca, Opuntia*, and *Agave*. Juniper savanna expansion into grasslands has been documented in the last century.

Range: This system is found in southeastern Arizona, southern New Mexico, and extending into west Texas and Mexico. It likely occurs on the west side of the Sacramento and Guadalupe mountains.

States: AZ, NM, TX

Map Zones: 14:P, 15:C, 24:C, 25:C, 26:C, 27:C, 28:?

Similar: Apacherian-Chihuahuan Semi-Desert Grassland and Steppe (CES302.735), Western Great Plains Shortgrass Prairie (CES303.672)

Descriptors:

Floristics/Dominants : Juniperus coahuilensis, J. deppeana, J. pinchotii

Lifeform : Graminoid

Lifeform	: Succulent Shrub
Lifeform	: Evergreen Sclerophyllous Tree
Fire Intensity/Spatial Character	: Patch/Low Intensity
Soil Texture	: Sand
Bioclimate	: Tropical/Subtropical
Topography	: Toeslope/Bottom/Valley
Topography	: High-Low Slope
Landforms	: Alluvial terrace
Landforms	: Alluvial plain
Landforms	: Alluvial flat
Major Physiognomy	: Woody-Herbaceous
Life Zones	: Montane

3117: Southern Rocky Mountain Ponderosa Pine Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5406 EVT_fuel: 2117

ESP: 1117 NatureServe Id: CES306.649

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M022 Southern Rocky Mountain Lower Montane Forest

NVC Group: G229 Southern Rocky Mountain Ponderosa Pine Savanna

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Evergreen sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system is found predominantly in the Colorado Plateau region, west into scattered locations in the Great Basin, and north along the eastern front of the southern Rocky Mountains into southeastern Wyoming. These savannas occur at the lower treeline/ecotone between grassland or shrubland and more mesic coniferous forests typically in warm, dry, exposed sites. Elevations range from less than 1900 m in central and northern Wyoming to 2800 m in the New Mexico mountains to well over 2700 m on the higher plateaus of the Southwest. It is found on rolling plains, plateaus, or dry slopes usually on more southerly aspects. This system is best described as a savanna that has widely spaced (<25% tree canopy cover) (>150 years old) *Pinus ponderosa* (primarily var. *scopulorum* and var. *brachyptera*) as the predominant conifer. It is maintained by a fire regime of frequent, low-intensity surface fires. A healthy occurrence often consists of open and park-like stands dominated by *Pinus ponderosa*. Understory vegetation in the true savanna occurrences is predominantly fire-resistant grasses and forbs that resprout following surface fires; shrubs, understory trees and downed logs are uncommon. Important species include *Festuca arizonica, Muhlenbergia virescens, Pseudoroegneria spicata, Andropogon gerardii, Schizachyrium scoparium, Festuca idahoensis, Piptatherum micranthum*, and *Bouteloua gracilis*. A century of anthropogenic disturbance and fire suppression has resulted in a higher density of *Pinus ponderosa* trees, altering the fire regime and species composition. Presently, many stands contain understories of more shade-tolerant species, such as *Pseudotsuga menziesii* and/or *Abies* spp., as well as younger cohorts of *Pinus ponderosa*. ~Northern Rocky Mountain Ponderosa Pine Woodland and Savanna (CES306.030)$$ in the eastern Cascades, Okanogan, and northern Rockies regions receives winter and spring rains, and thus has a greater spring "green-up" than the drier woodlands in the central Rockies.

Range: locations of the Great Basin, and north along the eastern front of the Rocky Mountains of Colorado and Wyoming. Pine woodlands and savannas of the Black Hills and central Montana are now included in ~Northwestern Great Plains - Black Hills Ponderosa Pine Woodland and Savanna (CES303.650)$$, as are woodlands and savannas in Nebraska and northeastern Colorado.

States: AZ, CO, NM, NV, UT, WY

Map Zones: 15:C, 16:?, 22:C, 23:C, 24:C, 25:C, 26:C, 27:C, 28:P, 29:C, 33:P

Similar: Northern Rocky Mountain Ponderosa Pine Woodland and Savanna (CES306.030), Northwestern Great Plains-Black Hills Ponderosa Pine Woodland and Savanna (CES303.650), Southern Rocky Mountain Ponderosa Pine Woodland (CES306.648)

Descriptors:

Floristics/Dominants :	Pinus ponderosa with grassy understory
Lifeform :	Graminoid
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Aridic
Soil Depth :	Shallow Soil
Major Physiognomy :	Woody-Herbaceous

3118: Southern California Oak Woodland and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5407 EVT_fuel: 2118

ESP: 1118 NatureServe Id: CES206.938

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: These oak woodlands and savannas occur in coastal plains, intermountain valleys, and low mountains (such as the San Jacinto Mountains) from Ventura County, California, south into Baja California, Mexico. *Quercus agrifolia, Quercus wislizeni, Quercus engelmannii, Quercus kelloggii*, and/or *Juglans californica* dominate a mixed closed or open canopy. Southern chaparral species such as *Adenostoma fasciculatum, Artemisia californica, Rhus integrifolia, Rhus ovata, Rhus trilobata, Ceanothus* spp., *Ribes* spp., and *Arctostaphylos* spp. are also characteristic. These woodlands may occur as remnant patches on offshore islands, where they include endemic species such as *Quercus tomentella* and *Lyonothamnus floribundus*. The California central coast region may have open stands of just *Juniperus californica*, with a grassy understory. These stands belong here due to proximity to other oak stands or chaparral, and due to the heavy native or non-native grass cover. This is distinguished from Great Basin pinyon-juniper stands, which have little herbaceous understory, and *Pinus monophylla* mixed with *Juniperus californica*. These stands of only juniper are caused by repeated removal of the oaks by humans and feral pig populations. Variable canopy densities in existing occurrences are likely due to variation in soil moisture regime, natural patch dynamics of fire, and land use (fire suppression, livestock grazing, herbivory, etc.). Most of these woodlands and savannas have been heavily altered through urban and agricultural development throughout southern California.

Range: This system occurs in coastal plains and intermountain valleys from Ventura County, California, south into Baja California, Mexico.

States: CA, MXBC

Map Zones: 4:C, 5:C

Similar:

Descriptors:

Floristics/Dominants :	Quercus agrifolia, Q. wizlizenii, Q. englemannii
Lifeform :	Evergreen Sclerophyllous Shrub
Lifeform :	Broad-Leaved Evergreen Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Bioclimate :	Mediterranean
Topography :	High-Low Slope
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3119: Southern Rocky Mountain Juniper Woodland and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5408 EVT_fuel: 2119

ESP: 1119 NatureServe Id: CES306.834

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M027 Southern Rocky Mountain Two-needle Pinyon - One-seed Juniper W

NVC Group: G252 Southern Rocky Mountain Juniper Woodland & Savanna

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Evergreen sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This ecological system occupies the lower and warmest elevations, growing from 1370 to 1830 m in a semi-arid climate, primarily along the east and south slopes of the southern Rockies and Arizona-New Mexico mountains. It is best represented just below the lower elevational range of ponderosa pine and often intermingles with grasslands and shrublands. This system is best described as a savanna that has widely spaced, mature (>150 years old) juniper trees and occasionally *Pinus edulis*. *Juniperus monosperma* and *Juniperus scopulorum* (at higher elevations) are the dominant tall shrubs or short trees. These savannas may have inclusions of more dense juniper woodlands and have expanded into adjacent grasslands during the last century. Graminoid species are similar to those found in ~Western Great Plains Shortgrass Prairie (CES303.672)$$, with *Bouteloua gracilis* and *Pleuraphis jamesii* being most common. In addition, succulents such as species of *Yucca* and *Opuntia* are typically present.

Range: This system occupies the lower and warmest elevations, growing from 1370 to 1830 m elevation in a semi-arid climate, primarily along the east and south slopes of the southern Rockies and Arizona-New Mexico mountains. This includes the Sacramento Mountains. especially the east side; the west side has Madrean elements but is mostly southern Rocky Mountains.

States: CO, NM

Map Zones: 24:P, 25:C, 26:?, 27:C, 28:C, 34:P

Similar: Western Great Plains Shortgrass Prairie (CES303.672)

Descriptors:

Temporal Persistence : Moderate (100-500 yrs)

Floristics/Dominants : Juniperus monosperma and grasses

Lifeform :	Graminoid
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Shallow Soil
Glacial History :	Unglaciated
Bioclimate :	Temperate
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3120: Willamette Valley Upland Prairie and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5409 EVT_fuel: 2120

ESP: 1120 NatureServe Id: CES204.858

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M050 Southern Vancouverian Lowland Grassland & Shrubland

NVC Group: G488 Southern Vancouverian Shrub & Herbaceous Bald, Bluff & Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This grassland system is endemic to the Puget Trough and Willamette Valley. It formed a complex mosaic of varying patch sizes with wet prairies and riparian forests over much of the Willamette Valley during the pre-European settlement era. In parts of the Puget Trough, it occurred as large patches in more forested landscapes, usually associated with deep, coarse outwash deposits. Historically, it also occurred as large patches on glacially associated soils of variable texture in localized portions of the Georgia Basin in both Washington and British Columbia. It occurs on well-drained deep soils and was maintained historically by frequent anthropogenic burning. Landforms are usually flat, rolling, or gently sloping, and often part of extensive plains. Dominant vegetation is perennial bunch grasses, especially *Festuca roemeri (= Festuca idahoensis var. roemeri)* and, to a lesser degree, *Danthonia californica*, with abundant and diverse forbs. Scattered deciduous (*Quercus garryana*) and/or coniferous (*Pseudotsuga menziesii, Pinus ponderosa*) trees are rarely found now, but such savannas historically covered about one-third of the total acreage. In the absence of disturbance, many of them have succeeded to forest and others continue to do so.

Range: This system is endemic to the Puget Trough and Willamette Valley.

States: OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar:

Descriptors:

Fire Intensity/Spatial Character : Landscape/Low Intensity

Disturbance Return Interval : Short

Bioclimate : Temperate
Major Physiognomy : Woody-Herbaceous
Life Zones : Lowland

3121: Apacherian-Chihuahuan Semi-Desert Shrubland

Match Confidence: Poor Match

Suggested Match: Apacherian-Chihuahuan Semi-Desert Grassland and Steppe

Codes: ESLF: 5450 EVT_fuel: 2121

ESP: 1121 NatureServe Id: CES302.735

BioGeographical Division :

NVC MacroGroup: M087 Chihuahuan Semi-Desert Grassland

NVC Group: G490 Chihuahuan Desert Foothill-Piedmont & Lower Montane Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system is a broadly defined desert grassland, mixed shrub-succulent or xeromorphic oak savanna that is typical of the Borderlands of Arizona, New Mexico and northern Mexico (Apacherian region) but extends west to the Sonoran Desert, north into the Mogollon Rim and throughout much of the Chihuahuan Desert. It is found on gently sloping bajadas that support frequent fire throughout the Sky Islands and on mesas and steeper piedmont, foothill and desert mountain slopes up to 1670 m elevation in the Chihuahuan Desert. It is characterized by typically diverse perennial grasses. Common species include grasses *Bouteloua eriopoda, Bouteloua hirsuta, Bouteloua ramosa, Bouteloua rothrockii, Bouteloua curtipendula, Bouteloua gracilis, Eragrostis intermedia, Muhlenbergia emersleyi, Muhlenbergia porteri, Muhlenbergia setifolia*, and *Pleuraphis jamesii*, succulent species of *Agave, Dasylirion*, and *Yucca*, short-shrub species of *Calliandra, Mimosa*, and *Parthenium*, and tall-shrub/short-tree species of *Acacia, Prosopis*, and various oaks (e.g., *Quercus grisea, Quercus emoryi, Quercus arizonica, Quercus oblongifolia*). *Pleuraphis mutica*-dominated semi-desert grasslands often with *Bouteloua eriopoda* or *Bouteloua gracilis* occurring on lowlands and loamy plains in the Chihuahuan Desert are classified as ~Chihuahuan Loamy Plains Desert Grassland (CES302.061)$$. Many of the historical desert grassland and savanna areas have been converted through intensive grazing and other land uses, some to ~Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733)$$ (*Prosopis* spp.-dominated).

Range: This system is found in the Borderlands of Arizona, New Mexico and northern Mexico (Apacherian region), extending to the Sonoran Desert and throughout much of the northern Chihuahuan Desert.

States: AZ, MXCH, NM, TX

Map Zones: 13:C, 14:C, 15:C, 24:C, 25:C, 26:C, 27:C, 28:?, 34:?

Similar: Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733), Madrean Encinal (CES305.795), Madrean Juniper Savanna (CES301.730)

Descriptors:

Lifeform :	Graminoid
Lifeform :	Succulent Shrub
Lifeform :	Thorn Shrub
Lifeform :	Xeromorphic Shrub
Lifeform :	Xeromorphic Tree
Lifeform :	Broad-Leaved Evergreen Tree
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Aridic
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3122: Chihuahuan Gypsophilous Grassland and Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5451 EVT_fuel: 2122

ESP: 1122 NatureServe Id: CES302.732

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M087 Chihuahuan Semi-Desert Grassland

NVC Group: G492 Chihuahuan Gypsophilous Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system is restricted to gypsum outcrops or sandy gypsiferous and/or often alkaline soils that occur in basins and slopes in the Chihuahuan Desert. Elevation range is from 1100-2000 m. These typically sparse grasslands, steppes or dwarf-shrublands are dominated by a variety of gypsophilous plants, many of which are endemic to these habitats. Characteristic species include *Tiquilia hispidissima, Atriplex canescens, Calylophus hartwegii, Ephedra torreyana, Frankenia jamesii, Bouteloua breviseta, Mentzelia perennis, Nama carnosum, Calylophus hartwegii (= Oenothera hartwegii), Selinocarpus lanceolatus, Sporobolus nealleyi, Sporobolus airoides*, and *Sartwellia flaveriae*. This system does not include the sparsely vegetated gypsum dunes that are included in ~North American Warm Desert Active and Stabilized Dune (CES302.744)$$.

Range: This system is found on basins and slopes in the Chihuahuan Desert at elevations ranging from 1100-2000 m.

States: AZ, MXCH, NM, TX

Map Zones: 25:C, 26:C, 27:P, 28:?

Similar: North American Warm Desert Active and Stabilized Dune (CES302.744)

Descriptors:

Lifeform	Graminoid
Lifeform	Dwarf-Shrub
Soil Moisture (NRCS)	Aridic
Specialized Substrate Chemistry	Gypsiferous
Soil pH	Alkaline

Soil Fertility :	Oligotrophic
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3123: Columbia Plateau Steppe and Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5452 EVT_fuel: 2123

ESP: 1123 NatureServe Id: CES304.083

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M169 Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe

NVC Group: G302 Intermountain Mesic Tall Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: These grasslands are similar floristically to ~Inter-Mountain Basins Big Sagebrush Steppe (CES304.778)$$ but are defined by a more frequent fire regime and the absence or low cover of shrubs over large areas, occasionally entire landforms. These are extensive grasslands, not grass-dominated patches within the sagebrush shrub-steppe ecological system. This system occurs throughout much of the Columbia Plateau and is found at slightly higher elevations farther south. Soils are variable, ranging from relatively deep, fine-textured often with coarse fragments, and non-saline often with a microphytic crust, to stony volcanic-derived clays to alluvial sands. This grassland is dominated by perennial bunch grasses and forbs (>25% cover), sometimes with a sparse (<10% cover) shrub layer; >*Chrysothamnus viscidiflorus, Ericameria nauseosa, Tetradymia* spp., or *Artemisia* spp. may be present in disturbed stands. Associated graminoids include *Achnatherum hymenoides, Elymus elymoides, Elymus lanceolatus ssp. lanceolatus, Hesperostipa comata, Festuca idahoensis, Koeleria macrantha, Poa secunda*, and *Pseudoroegneria spicata*. Common forbs are *Phlox hoodii, Arenaria* spp., and *Astragalus* spp. Areas with deeper soils are rare because of conversion to other land uses. The rapid fire-return regime of this ecological system maintains a grassland by retarding shrub invasion, and landscape isolation and fragmentation limit seed dispersal of native shrub species. Fire frequency is presumed to be less than 20 years. Through isolation from a seed source, combined with repeated burning, these are "permanently" (more than 50 years) converted to grassland.

Range: This system occurs throughout the Columbia Plateau region, from north-central Idaho, south and west into Washington, Oregon, southern Idaho, and northern Nevada. Whether it also occurs in northeastern California, in the western ranges of Wyoming, or the central Wyoming Basins is unclear.

States: CA?, ID, MT?, NV, OR, UT?, WA

Map Zones: 7:?, 8:C, 9:C, 10:C, 12:P, 17:?, 18:C

Similar: Inter-Mountain Basins Big Sagebrush Steppe (CES304.778), Inter-Mountain Basins Semi-Desert Grassland (CES304.787)

Descriptors:

Lifeform :	Graminoid
Lifeform :	Xeromorphic Shrub
Mass Movement Type :	Landslide
Soil Depth :	Very Shallow
Topography :	High-Low Slope
Life Zones :	Lowland
Life Zones :	Lowland

3124: Columbia Plateau Low Sagebrush Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5453 EVT_fuel: 2124

ESP: 1124 NatureServe Id: CES304.080

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M170 Great Basin & Intermountain Dwarf Sagebrush Shrubland & Steppe

NVC Group: G308 Intermountain Low & Black Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This matrix ecological system is composed of sagebrush dwarf-shrub-steppe that occurs in a variety of shallow-soil habitats throughout eastern Oregon, northern Nevada and southern Idaho. *Artemisia arbuscula ssp. arbuscula* and close relatives (*Artemisia arbuscula ssp. longiloba* and occasionally *Artemisia nova*) form stands that typically occur on mountain ridges and flanks and broad terraces, ranging from 1000 to 3000 m in elevation. Substrates are shallow, fine-textured soils, poorly drained clays, shallow-soiled areas, almost always very stony, characterized by recent rhyolite or basalt. Other shrubs and dwarf-shrubs present may include *Purshia tridentata, Eriogonum* spp., and other species of *Artemisia*. Common graminoids include *Festuca idahoensis, Koeleria macrantha, Pseudoroegneria spicata*, and *Poa secunda*. Many forbs also occur and may dominate the herbaceous vegetation, especially at the higher elevations. Isolated individuals of *Juniperus occidentalis* (western juniper) and *Cercocarpus ledifolius* (mountain-mahogany) can often be found in this system.

Range: This system is found throughout the basins of eastern Oregon and southern Idaho, south into northern Nevada and northeastern California.

States: CA, ID, MT?, NV, OR, WY?

Map Zones: 1:?, 7:C, 8:C, 9:C, 10:C, 17:?, 18:C, 19:C, 21:P

Similar:

Descriptors:

Floristics/Dominants : Low Artemisia spp.

Lifeform : Dwarf-Shrub

Wind Intensity/Spatial Character	: Landscape/High Intensity
Soil Moisture (NRCS)	: Aridic
Soil Texture	: Clay
Soil Texture	: Silt
Soil Depth	: Shallow Soil
Soil pH	: Alkaline
Bioclimate	: Temperate
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland
Life Zones	: Lowland

3125: Inter-Mountain Basins Big Sagebrush Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5454 EVT_fuel: 2125

ESP: 1125 NatureServe Id: CES304.778

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M169 Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe

NVC Group: G303 Intermountain Dry Tall Sagebrush Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This widespread matrix-forming ecological system occurs throughout much of the Columbia Plateau and northern Great Basin, east into the Wyoming Basins, central Montana, and north and east onto the western fringe of the Great Plains in Montana and South Dakota. It is found at slightly higher elevations farther south. In central Montana, this system differs slightly, with more summer rain than winter precipitation, more precipitation annually, and it occurs on glaciated landscapes. Soils are typically deep and non-saline, often with a microphytic crust. This shrub-steppe is dominated by perennial grasses and forbs (>25% cover) with *Artemisia tridentata ssp. tridentata* (this is not at all important in Wyoming occurrences), *Artemisia tridentata ssp. xericensis, Artemisia tridentata ssp. wyomingensis, Artemisia tripartita ssp. tripartita* (Snake River valley in Wyoming), *Artemisia cana ssp. cana*, and/or *Purshia tridentata* dominating or codominating the open to moderately dense (10-40% cover) shrub layer. *Atriplex confertifolia, Chrysothamnus viscidiflorus, Ericameria nauseosa, Sarcobatus vermiculatus, Tetradymia* spp., or *Artemisia frigida* may be common especially in disturbed stands. In Montana and Wyoming, stands are more mesic, with more biomass of grass, have less shrub diversity than stands farther west, and 50 to 90% of the occurrences are dominated by *Artemisia tridentata ssp. wyomingensis* with *Pascopyrum smithii*. In addition, *Bromus japonicus* and *Bromus tectorum* are indicators of disturbance, and *Bromus tectorum* is typically not as abundant as in the Intermountain West, possibly due to a colder climate. Associated graminoids can include *Achnatherum hymenoides, Calamagrostis montanensis, Elymus lanceolatus ssp. lanceolatus, Koeleria macrantha, Poa secunda, Pascopyrum smithii, Hesperostipa comata, Nassella viridula, Bouteloua gracilis*, and *Pseudoroegneria spicata*. Important rhizomatous species include *Carex filifolia* and *Carex duriuscula*, which are very common and important in the eastern distribution of this system in both Wyoming and Montana. *Festuca idahoensis* is uncommon in this system, although it does

occur in areas of higher elevations/precipitation; *Festuca campestris* is also uncommon. In Wyoming, both *Nassella viridula* and *Pseudoroegneria spicata* rarely occur, with the latter typically found in eastern Wyoming on ridgetops and rocky slopes outside of this system. In Montana, there is an absence of *Festuca* spp., except *Vulpia octoflora*. Common forbs are *Phlox hoodii, Arenaria* spp., *Opuntia* spp., *Sphaeralcea coccinea, Dalea purpurea, Liatris punctata*, and *Astragalus* spp. Areas with deeper soils more commonly support *Artemisia tridentata ssp. tridentata* but have largely been converted for other land uses. The natural fire regime of this ecological system likely maintains a patchy distribution of shrubs, so the general aspect of the vegetation is a grassland. Shrubs may increase following heavy grazing and/or with fire suppression, particularly in moist portions of the northern Columbia Plateau where it forms a landscape mosaic pattern with shallow-soil scabland shrublands. Where fire frequency has allowed for shifts to a native grassland condition, maintained without significant shrub invasion over a 50- to 70-year interval, the area would be considered ~Columbia Basin Foothill and Canyon Dry Grassland (CES304.993)$$.

Range: This system occurs throughout much of the Columbia Plateau, the northern Great Basin, central and southeastern Montana, and Wyoming, and is found at slightly higher elevations farther south.

States: BC, CA, CO, ID, MT, NV, OR, UT, WA, WY

Map Zones: 1:C, 6:?, 7:C, 8:C, 9:C, 10:C, 12:C, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 28:P, 29:C, 30:?, 33:P

Similar: Columbia Basin Foothill and Canyon Dry Grassland (CES304.993), Columbia Plateau Steppe and Grassland (CES304.083), Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland (CES306.040)

Descriptors:

Floristics/Dominants :	Artemisia tridentata ssp. tridentata
Floristics/Dominants :	Bunchgrasses
Lifeform :	Graminoid
Lifeform :	Forb
Lifeform :	Xeromorphic Shrub
Soil Moisture (NRCS) :	Aridic
Soil Depth :	Deep
Soil pH :	Alkaline
Bioclimate :	Temperate
Topography :	High-Low Slope
Landforms :	Plateau
Landforms :	Plain
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3126: Inter-Mountain Basins Montane Sagebrush Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5455 EVT_fuel: 2126

ESP: 1126 NatureServe Id: CES304.785

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M169 Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe

NVC Group: G304 Intermountain Mountain Big Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system includes sagebrush communities occurring at foothills (in Wyoming) to montane and subalpine elevations across the western U.S. from 1000 m in eastern Oregon and Washington to over 3000 m in the southern Rockies. In Montana, it occurs on mountain "islands" in the north-central portion of the state and possibly along the Boulder River south of Absarokee and at higher elevations. In British Columbia, it occurs between 450 and 1650 m in the southern Fraser Plateau and the Thompson and Okanagan basins. Climate is cool, semi-arid to subhumid. This system primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. In general, this system shows an affinity for mild topography, fine soils, some source of subsurface moisture or more mesic sites, zones of higher precipitation and areas of snow accumulation. Across its range of distribution, this is a compositionally diverse system. It is composed primarily of *Artemisia tridentata ssp. vaseyana, Artemisia cana ssp. viscidula*, and related taxa such as *Artemisia tridentata ssp. spiciformis (= Artemisia spiciformis)*. *Purshia tridentata* may codominate or even dominate some stands. *Artemisia arbuscula ssp. arbuscula*-dominated shrublands commonly occur within this system on rocky or windblown sites. Other common shrubs include *Symphoricarpos* spp., *Amelanchier* spp., *Ericameria nauseosa, Peraphyllum ramosissimum, Ribes cereum*, and *Chrysothamnus viscidiflorus*. *Artemisia tridentata ssp. wyomingensis* may be present to codominant if the stand is clearly montane as indicated by montane indicator species such as *Festuca idahoensis, Leucopoa kingii*, or *Danthonia intermedia*. Most stands have an abundant perennial herbaceous layer (over 25% cover, in many cases over 50% cover), but this system also includes *Artemisia tridentata ssp. vaseyana* shrublands. Common graminoids include *Danthonia intermedia, Festuca arizonica, Festuca idahoensis, Hesperostipa comata, Poa fendleriana, Elymus trachycaulus, Bromus carinatus, Poa secunda, Leucopoa kingii, Deschampsia caespitosa, Calamagrostis rubescens*, and *Pseudoroegneria spicata*. Species of

Achnatherum are common, including *Achnatherum nelsonii ssp. dorei, Achnatherum nelsonii ssp. nelsonii, Achnatherum hymenoides*, and others. In many areas, wildfires can maintain an open herbaceous-rich steppe condition, although at most sites, shrub cover can be unusually high for a steppe system (>40%), with the moisture providing equally high grass and forb cover.

Range: This system is found at montane and subalpine elevations across the western U.S. from 1000 m in eastern Oregon and Washington to over 3000 m in the southern Rockies. In British Columbia, it occurs in the southern Fraser Plateau and the Thompson and Okanagan basins. This system occurs in mapzone 20 on the Rocky Mountain island ranges and on the western edge with mapzone 19.

States: AZ?, BC, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 1:C, 3:?, 4:P, 6:C, 7:C, 8:C, 9:C, 10:C, 12:C, 13:P, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:?, 25:C, 27:?, 28:C, 29:C

Similar:

Descriptors:

Topography	Toeslope/Bottom/Valley
Life Zones	Montane
Life Zones	Montane
Major Physiognomy	Woody-Herbaceous
Landforms	Mountainside
Landforms	Mountain valley
Life Zones	Montane
Topography	High-Low Slope
Floristics/Dominants	Artemisia tridentata ssp. vaseyana
Bioclimate	Temperate
Disturbance Return Interval	Long
Fire Intensity/Spatial Character	Patch/Medium Intensity
Lifeform	Broad-Leaved Evergreen Shrub
Lifeform	Graminoid
Floristics/Dominants	Bunchgrasses
Landforms	Plateau

3127: Inter-Mountain Basins Semi-Desert Shrub-Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5456 EVT_fuel: 2127

ESP: 1127 NatureServe Id: CES304.788

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G310 Intermountain Semi-Desert Shrubland & Steppe

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This ecological system occurs throughout the intermountain western U.S., typically at lower elevations on alluvial fans and flats with moderate to deep soils, and extends into south-central Montana between the Pryor and Beartooth ranges where a distinct rainshadow effect occurs. This semi-arid shrub-steppe is typically dominated by graminoids (>25% cover) with an open shrub to moderately dense woody layer with a typically strong graminoid layer. The most widespread (but not dominant) species is *Pseudoroegneria spicata*, which occurs from the Columbia Basin to the northern Rockies. Characteristic grasses include *Achnatherum hymenoides, Bouteloua gracilis, Distichlis spicata, Poa secunda, Poa fendleriana, Sporobolus airoides , Hesperostipa comata, Pleuraphis jamesii*, and *Leymus salinus*. The woody layer is often a mixture of shrubs and dwarf-shrubs, although it may be dominated by a single species. Characteristic species include *Atriplex canescens, Artemisia tridentata, Chrysothamnus greenei, Chrysothamnus viscidiflorus, Ephedra* spp., *Ericameria nauseosa, Gutierrezia sarothrae*, and *Krascheninnikovia lanata*. *Artemisia tridentata* or *Atriplex canescens* may be present but does not dominate. Annual grasses, especially the exotics *Bromus japonicus* and *Bromus tectorum*, may be present to abundant. Forbs are generally of low importance and are highly variable across the range but may be diverse in some occurrences. The general aspect of occurrences may be either open shrubland with patchy grasses or patchy open herbaceous layers. Disturbance may be important in maintaining the woody component. Microphytic crust is very important in some stands.

Range: This system occurs throughout the intermountain western U.S., typically at lower elevations, and extends into Wyoming and Montana across the Great Divide Basin. It barely gets as far north into north-central Montana (mapzone 20) but is unlikely to be mapped.

States: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WY

Map Zones: 6:P, 7:P, 8:C, 9:C, 12:C, 13:C, 14:C, 15:C, 16:C, 17:C, 18:C, 19:?, 22:C, 23:C, 24:C, 25:C, 27:C, 28:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Evergreen Shrub
Life Zones :	Lowland
Major Physiognomy :	Woody-Herbaceous
Bioclimate :	Temperate
Soil pH :	Alkaline
Soil Moisture (NRCS) :	Aridic
Disturbance Return Interval :	Very Short
Life Zones :	Lowland
Other Disturbance :	Mechanical Disturbance
Temporal Persistence :	Short (50-100 yrs)
Lifeform :	Xeromorphic Shrub
Lifeform :	Thorn Shrub
Lifeform :	Evergreen Sclerophyllous Shrub
Lifeform :	Succulent Shrub
Lifeform :	Dwarf-Shrub
Lifeform :	Forb
Lifeform :	Graminoid
Grazing Intensity/Spatial Character :	Landscape/High Intensity

3128: Northern California Coastal Scrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5457 EVT_fuel: 2128

ESP: 1128 NatureServe Id: CES206.932

BioGeographical Division : Mediterranean California

NVC MacroGroup: M044 California Coastal Scrub

NVC Group: G662 California North Coastal & Mesic Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: This ecological system includes a variety of mixed and single-species-dominated shrublands along a narrow coastal strip with maritime and summer fog influences, on marine sediments, coastal bluffs, terraces, stabilized dunes, and hills below 500 m (1500 feet) elevation from southern Oregon south through central California. It is restricted to coastal plateaus and lower slopes of the Coast Ranges where precipitation ranges from 50-200 cm annually. These are dominated by evergreen, microphyllous-leaved or hemi-sclerophyllous shrub taxa; drought-deciduous species are unimportant or absent in this system. Dense shrublands typically include a well-developed woody and herbaceous understory. Characteristic species include *Baccharis pilularis, Lupinus arboreus, Ceanothus thyrsiflorus, Eriophyllum stoechadifolium, Diplacus aurantiacus (= Mimulus aurantiacus), Toxicodendron diversilobum, Rubus ursinus, Rubus parviflorus, Rubus spectabilis, Frangula californica (= Rhamnus californica), Holodiscus discolor, Gaultheria shallon, Heracleum maximum (= Heracleum lanatum)*, and *Polystichum munitum*. These areas have supported extensive stand-replacing wildfires. This system has direct seral relationships with ~California Northern Coastal Grassland (CES206.941)$$ as, in the absence of fire and grazing, the grassland will usually succeed to this system. In the absence of fire in this system, conifers (*Abies grandis, Pseudotsuga menziesii*) can invade and become prominent.

Range: This system occurs along a narrow coastal strip below 500 m (1500 feet) elevation from southern Oregon south through central California.

States: CA, OR

Map Zones: 2:P, 3:C, 4:C

Similar: Southern California Coastal Scrub (CES206.933)

Descriptors:

Floristics/Dominants :	Bacharris pilularis
Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Intermediate
Bioclimate :	Mediterranean
Specialized Substrates :	marine sedimentary
Topography :	High-Low Slope
Landforms :	Terrace
Landforms :	Bluff
Landforms :	Dune
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Lowland

3129: California Central Valley and Southern Coastal Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7101 EVT_fuel: 2129

ESP: 1129 NatureServe Id: CES206.942

BioGeographical Division : Mediterranean California

NVC MacroGroup: M045 California Annual & Perennial Grassland

NVC Group: G496 California Native Perennial Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Nb Californian Grassland & Meadow

Summary: This system is found from 10-1200 m (30-3600 feet) elevation; receiving on average 50 cm (range 25-100 cm) of precipitation per year, mainly as winter rain. It is found with fine-textured soils, moist or even waterlogged in winter, but very dry in summer. Historically, these grasslands were common among oak savanna and woodland and probably experienced similar frequent fire regimes. Characteristic plant species include *Nassella pulchra, Aristida* spp., *Achillea millefolium var. borealis (= Achillea borealis), Achyrachaena mollis, Agoseris heterophylla, Bloomeria crocea, Triteleia ixioides (= Brodiaea lutea), Chlorogalum pomeridianum, Clarkia purpurea, Dodecatheon jeffreyi, Elymus glaucus, Leymus triticoides, Festuca californica, Melica californica, Castilleja attenuata (= Orthocarpus attenuatus)*, and *Poa secunda (= Poa scabrella)*.

Range: Found from in California from 10-1200 m (30-3600 feet) elevation.

States: CA

Map Zones: 4:C, 5:C

Similar:

Descriptors:

Topography : Toeslope/Bottom/Valley

Life Zones : Lowland

Major Physiognomy : Woody-Herbaceous

Major Physiognomy : Herbaceous

Landforms : Plateau

Landforms : Alluvial plain

Landforms :	Coastal plain
Landforms :	Valley
Landforms :	Valley bottom
Life Zones :	Lowland
Landforms :	Valley side
Floristics/Dominants :	Nassela pulchra
Bioclimate :	Mediterranean
Soil Fertility :	Eutrophic
Soil Depth :	Deep
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Texture :	Clay
Soil Moisture (NRCS) :	Udic
Disturbance Return Interval :	Short
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Lifeform :	Graminoid
Landforms :	Valley floor

3130: California Mesic Serpentine Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7102 EVT_fuel: 2130

ESP: 1130 NatureServe Id: CES206.943

BioGeographical Division : Mediterranean California

NVC MacroGroup: M045 California Annual & Perennial Grassland

NVC Group: G496 California Native Perennial Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Nb Californian Grassland & Meadow

Summary: These grasslands are of very limited distribution in California within the Coast Ranges, Sierra Nevada, and Transverse Ranges on deep soils with serpentine-rich parent material. Not all serpentinite outcrops support distinct vegetation; only those with very low Ca:Mg ratios impact biotic composition. In this system, native bunchgrass dominates, though typically in less dense cover than other perennial bunchgrass types. Characteristic species include *Calamagrostis ophitidis, Eschscholzia californica, Vulpia microstachys var. ciliata (= Festuca grayi), Poa secunda (= Poa scabrella), Hemizonia congesta ssp. luzulifolia (= Hemizonia luzulifolia), Nassella cernua*, and *Nassella pulchra*. Historic fire regimes in this system are not well known.

Range: This system is found in the Coast Ranges, Sierra Nevada, and Transverse Ranges of California on deep soils with serpentine-rich parent material. It may also occur on serpentine in the Klamath Mountains of southern Oregon.

States: CA

Map Zones: 1:?, 2:?, 3:C, 4:C, 6:C, 7:P

Similar:

Descriptors:

Floristics/Dominants :	Calamagrostis ophitidis
Soil Moisture (NRCS) :	Udic
Soil Depth :	Deep
Specialized Substrate Chemistry :	Ultramafic with low Ca:Mg ratio
Bioclimate :	Mediterranean

Specialized Substrates :	Serpentine
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland
Life Zones :	Montane

3131: California Northern Coastal Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7103 EVT_fuel: 2131

ESP: 1131 NatureServe Id: CES206.941

BioGeographical Division : Mediterranean California

NVC MacroGroup: M050 Southern Vancouverian Lowland Grassland & Shrubland

NVC Group: G488 Southern Vancouverian Shrub & Herbaceous Bald, Bluff & Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system is found in discontinuous patches below 300 m (1000 feet) elevation from San Francisco Bay north into Oregon, on coastal terraces and ridgeline balds in the Coast Ranges and Klamath Mountains. Small patches have been documented as far south as Santa Barbara and San Luis Obispo counties. It has a similar distribution to coastal shrublands (~Northern California Coastal Scrub (CES206.932)$$) in areas that receive more rainfall than other California grasslands of the interior or southern coastal California. In recent centuries, these were fire-dominated systems, and there is a known history of Native American use of fire in these areas. While still present, annual grasses and forbs are not as prevalent in these grasslands as elsewhere in California. With fire suppression, *Baccharis pilularis* and other shrub components of north coastal scrub often invade and can replace these grasslands with scrub-dominated systems. *Agrostis* spp., *Bromus carinatus, Calamagrostis nutkaensis, Danthonia californica, Festuca rubra, Festuca idahoensis, Deschampsia caespitosa, Koeleria macrantha, Trisetum canescens*, and perennial forbs such as *Iris douglasiana, Sisyrinchium bellum, Grindelia hirsutula*, and *Sanicula arctopoides* are characteristic.

Range: This system is found below 300 m (1000 feet) elevation from San Francisco Bay (and possibly farther south) north into Oregon, on coastal terraces and ridgeline balds in the Coast Ranges and Klamath Mountains.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C

Similar: North Pacific Hypermaritime Shrub and Herbaceous Headland (CES204.088)

Descriptors:

Lifeform :	Graminoid
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Very Short
Bioclimate :	Mediterranean
Landforms :	Terrace
Landforms :	Hillslope bedrock outcrop
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Life Zones :	Lowland

3132: Central Mixedgrass Prairie Grassland

Match Confidence: Unmatched

Suggested Match: Central Mixedgrass Prairie

Codes: ESLF: 7104 EVT_fuel: 2132

ESP: 1132 NatureServe Id: CES303.659

BioGeographical Division :

NVC MacroGroup: M051 Great Plains Mixedgrass & Fescue Prairie

NVC Group: G133 Central Great Plains Mixedgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This mixedgrass prairie system ranges from South Dakota into the Rolling Plains and the western Edwards Plateau of Texas. It is bordered by the shortgrass prairie on its western edge and the tallgrass prairie to the east. The loessal regions in west-central Kansas and central Nebraska, the Red Hills region of south-central Kansas and northern Oklahoma are all located within this system. Because of its proximity to other ecoregions, this system contains elements from both shortgrass and tallgrass prairies, which combine to form the mixedgrass prairie ecological system throughout its range. The distribution, species richness and productivity of plant species within the mixedgrass ecological system is controlled primarily by environmental conditions, in particular soil moisture and topography. Grazing and fire are important dynamic processes in this system. The relative dominance of the various grass and forb species within different associations in the system also can strongly depend on the degree of natural or human disturbance. This system can contain grass species such as *Bouteloua curtipendula, Schizachyrium scoparium, Andropogon gerardii, Hesperostipa comata, Sporobolus heterolepis*, and *Bouteloua gracilis*, although the majority of the associations within the region are dominated by *Pascopyrum smithii* or *Schizachyrium scoparium*. Numerous forb and sedge species (*Carex* spp.) can also occur within the mixedgrass system in the Western Great Plains. Although forbs do not always significantly contribute to the canopy, they can be very important. Some dominant forb species include *Ambrosia psilostachya, Echinacea angustifolia*, and *Lygodesmia juncea*. Oak species such as *Quercus macrocarpa* can occur also in areas protected from fire due to topographic position. This can cause an almost oak savanna situation in certain areas, although fire suppression may allow for a more closed canopy and expansion of bur oak beyond those sheltered areas. In those situations, further information will be needed to determine if those larger areas with a more closed canopy of bur oak should be considered part of ~Western Great Plains Dry Bur Oak Forest and Woodland (CES303.667)$$.

Likewise, within the mixedgrass system, small seeps may occur, especially during the wettest years. Although these are not considered a separate system, the suppression of fire within the region has enabled the invasion of both exotics and some shrub species such as *Juniperus virginiana* and also allowed for the establishment of *Pinus ponderosa* in some northern areas.

Range: This system is found throughout the central and southern areas of the western Great Plains ranging from southern South Dakota into the Rolling Plains and western Edwards Plateau of Texas.

States: CO, KS, ND, NE, OK, SD, TX

Map Zones: 27:P, 30:C, 31:C, 32:C, 33:C, 34:C, 35:C, 38:C, 39:P, 43:P

Similar: Northwestern Great Plains Mixedgrass Prairie (CES303.674), Western Great Plains Dry Bur Oak Forest and Woodland (CES303.667), Western Great Plains Mesquite Woodland and Shrubland (CES303.668), Western Great Plains Sand Prairie (CES303.670)

Descriptors:

Lifeform :	Graminoid
Grazing Intensity/Spatial Character :	Landscape/High Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Silt
Soil Texture :	Loam
Soil Depth :	Shallow Soil
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3133: Chihuahuan Sandy Plains Semi-Desert Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7105 EVT_fuel: 2133

ESP: 1133 NatureServe Id: CES302.736

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M087 Chihuahuan Semi-Desert Grassland

NVC Group: G491 Chihuahuan Sandy Plains Semi-Desert Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system occurs across the Chihuahuan Desert and extends into the southern Great Plains where soils have a high sand content. These dry grasslands or steppe are found on sandy plains and sandstone mesas. The graminoid layer is typically dominated or codominated by *Bouteloua eriopoda* and *Sporobolus flexuosus* with characteristic Chihuahuan species. Other common species are *Achnatherum hymenoides, Aristida purpurea, Bouteloua gracilis, Hesperostipa neomexicana* (minor), *Muhlenbergia arenicola, Pleuraphis jamesii, Sporobolus airoides, Sporobolus constrictus*, and *Sporobolus cryptandrus*. Typically, there are scattered desert shrubs and stem succulents present, such as *Ephedra torreyana, Ephedra trifurca, Opuntia imbricata, Yucca baccata, Yucca elata*, and *Yucca torreyi*, that are characteristic of the Chihuahuan Desert. The widespread shrub *Artemisia filifolia* is also frequently present, especially in the northern extent.

Range: This Chihuahuan Desert ecological system extends into the southern Great Plains where soils have a high sand content.

States: AZ, MXCH, NM, TX

Map Zones: 15:?, 24:C, 25:C, 26:C, 27:C, 34:?

Similar:

Descriptors:

Lifeform : Graminoid

Lifeform : Succulent Shrub

Lifeform : Xeromorphic Shrub

Soil Moisture (NRCS) : Aridic

Soil Texture	: Sand
Bioclimate	: Temperate
Bioclimate	: Temperate
Bioclimate	: Tropical/Subtropical
Topography	: Toeslope/Bottom/Valley
Landforms	: Plain
Landforms	: Mesa
Major Physiognomy	: Herbaceous
Life Zones	: Lowland
Life Zones	: Lowland

3134: Columbia Basin Foothill and Canyon Dry Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7106 EVT_fuel: 2134

ESP: 1134 NatureServe Id: CES304.993

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G311 Intermountain Semi-Desert Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: These grasslands are similar floristically to ~Columbia Basin Palouse Prairie (CES304.792)$$ but are distinguished by landform, soil, and process characteristics. They occur in the canyons and valleys of the Columbia Basin, particularly along the Snake River canyon, the lower foothill slopes of the Blue Mountains, and along the main stem of the Columbia River in eastern Washington. Occurrences are found on steep open slopes, from 90 to 1525 m (300-5000 feet) elevation. Annual precipitation is low, ranging from 4 to 10 cm. Settings are primarily long, steep slopes of 100 m to well over 400 m, with soils derived from residuum and having patchy, thin, wind-blown surface deposits. Slope failures are a common process. Fire frequency is presumed to be less than 20 years. The vegetation is dominated by patchy graminoid cover, cacti, and some forbs. *Pseudoroegneria spicata, Festuca idahoensis*, and *Opuntia polyacantha* are common species. Deciduous shrubs *Symphoricarpos* spp., *Physocarpus malvaceus, Holodiscus discolor*, and *Ribes* spp. are infrequent native species that may increase with fire exclusion.

Range: Occurs in the canyons and valleys of the Columbia Basin, particularly along the Snake River canyon, the lower foothill slopes of the Blue Mountains, and along the main stem of the Columbia River in eastern Washington, on steep open slopes, from 90 to 1525 m (300-5000 feet) elevation.

States: ID, OR, WA

Map Zones: 1:P, 8:C, 9:C, 10:C, 16:?, 17:?, 18:C

Similar: Columbia Basin Palouse Prairie (CES304.792), Inter-Mountain Basins Big Sagebrush Steppe (CES304.778), Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland (CES306.040)

Descriptors:

Lifeform :	Graminoid
Lifeform :	Succulent Shrub
Mass Movement Type :	Landslide
Substrate Consolidation :	Unconsolidated
Soil Depth :	Very Shallow
Bioclimate :	Temperate
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3135: Inter-Mountain Basins Semi-Desert Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7107 EVT_fuel: 2135

ESP: 1135 NatureServe Id: CES304.787

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G311 Intermountain Semi-Desert Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This widespread ecological system includes the driest grasslands throughout the intermountain western U.S. It occurs on xeric sites over an elevation range of approximately 1450 to 2320 m (4750-7610 feet) on a variety of landforms, including swales, playas, mesas, alluvial flats, and plains. This system may constitute the matrix over large areas of intermountain basins, and also may occur as large patches in mosaics with shrubland systems dominated by *Artemisia tridentata ssp. tridentata, Artemisia tridentata ssp. wyomingensis, Atriplex* spp., *Coleogyne* spp., *Ephedra* spp., *Gutierrezia sarothrae*, or *Krascheninnikovia lanata*. Grasslands in areas of higher precipitation, at higher elevation, typically belong to other systems. Substrates are often well-drained sandy or loam soils derived from sedimentary parent materials but are quite variable and may include fine-textured soils derived from igneous and metamorphic rocks. The dominant perennial bunch grasses and shrubs within this system are all drought-resistant plants. Dominant or codominant species are *Achnatherum hymenoides, Aristida* spp., *Bouteloua gracilis, Hesperostipa comata, Muhlenbergia* spp., or *Pleuraphis jamesii*. Scattered shrubs and dwarf-shrubs often are present, especially *Artemisia tridentata ssp. tridentata, Artemisia tridentata ssp. wyomingensis, Atriplex* spp., *Coleogyne* spp., *Ephedra* spp., *Gutierrezia sarothrae*, and *Krascheninnikovia lanata*. Grasslands in the basins of south-central and southwestern Wyoming, dominated by *Pseudoroegneria spicata* and *Poa secunda* and containing cushion-form forbs and other species typical of dry basins, are included in this system.

Range: This system occurs throughout the intermountain western U.S. on dry plains and mesas, at approximately 1450 to 2320 m (4750-7610 feet) elevation. In the Bighorn Basin of north-central Wyoming, there may be some desert grasslands, but this is uncertain.

States: AZ, CA, CO, ID, MT?, NM, NV, OR, UT, WA, WY

Map Zones: 6:P, 7:C, 8:C, 9:C, 12:C, 13:C, 14:P, 15:C, 16:C, 17:C, 18:C, 22:C, 23:C, 24:C, 25:C, 26:?, 28:C, 29:?

Similar: Columbia Plateau Steppe and Grassland (CES304.083), Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland (CES306.040)

Descriptors:

Temporal Persistence :	Moderate (100-500 yrs)
Lifeform :	Graminoid
Lifeform :	Forb
Grazing Intensity/Spatial Character :	Landscape/Low Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil pH :	Alkaline
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3136: Mediterranean California Alpine Dry Tundra

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7108 EVT_fuel: 2136

ESP: 1136 NatureServe Id: CES206.939

BioGeographical Division : Mediterranean California

NVC MacroGroup: M099 Rocky Mountain & Sierran Alpine Scrub, Forb Meadow & Grassland

NVC Group: G314 Rocky Mountain & Sierran Alpine Turf & Fell-Field

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: These dry meadows typically occur between 3200 and 4500 m (9700-13,600 feet) elevation in the northern Sierra Nevada, Klamath Mountains and Cascade Mountains. They are typically found on gentle to steep slopes, flat ridges and upper basins where the soil is thin and the water supply is constant and strongly regulated by snowpatch patterns. These sites are generally very well-drained and xeric once the snow melts. The system is commonly comprised of a mosaic of small-patch plant communities that are dominated by sedges, grasses and forbs. Characteristic species include *Phlox diffusa, Phlox covillei, Erigeron pygmaeus, Podistera nevadensis, Carex congdonii, Calamagrostis purpurascens, Eriogonum incanum, Raillardiopsis muirii (= Raillardella muirii), Castilleja nana, Erigeron compositus, Eriogonum ovalifolium, Eriogonum gracilipes*, etc. There is a rocky mesic version of this system with *Hulsea algida, Saxifraga tolmiei, Carex helleri, Ranunculus eschscholtzii, Polemonium eximium, Salix reticulata* (rarely), *Oxyria digyna, Sibbaldia procumbens*, etc. that could be found near snowmelt patches generally on sheltered, steep, rocky slopes. Alpine dry tundra typically intermingles with alpine bedrock and scree, ice field, fell-field, alpine dwarf-shrubland, and alpine/subalpine wet meadows.

Range: This system occurs between 3200 and 4500 m (9700-13,600 feet) elevation in the northern Sierra Nevada, Klamath Mountains, and Cascade Mountains of California, Nevada and Oregon.

States: CA, NV, OR

Map Zones: 3:?, 6:C, 7:C

Similar:

Descriptors:

Juxtaposition : Alpine mosaic

Microclimate	: Late-lying snowpack
Lifeform	: Graminoid
Lifeform	: Forb
Wind Intensity/Spatial Character	: Landscape/High Intensity
Soil Moisture (NRCS)	: Udic
Soil Depth	: Shallow Soil
Glacial History	: Glaciated
Bioclimate	: Temperate
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Herbaceous
Life Zones	: Alpine

3137: Mediterranean California Subalpine Meadow

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7109 EVT_fuel: 2137

ESP: 1137 NatureServe Id: CES206.940

BioGeographical Division : Mediterranean California

NVC MacroGroup: M168 Rocky Mountain & Vancouverian Subalpine-High Montane Mesic M

NVC Group: G271 Rocky Mountain Subalpine-Montane Mesic Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system occurs at subalpine and montane elevations where finely textured soils, snow deposition, or windswept dry conditions limit tree establishment. It is typically found above 3000 m (9100 feet) elevation in California, western Nevada and Oregon. The soils in these sites can be seasonally moist to saturated in the spring but, if so, will dry out later in the growing season, and overall these are mesic to dry meadows, not wet. Characteristic plant species include *Achillea millefolium var. occidentalis (= Achillea lanulosa), Artemisia rothrockii, Oreostemma alpigenum (= Aster alpigenus), Calamagrostis breweri, Cistanthe umbellata (= Calyptridium umbellatum), Carex exserta, Eriogonum incanum, Horkeliella purpurascens (= Ivesia purpurascens)*, and *Trisetum spicatum*. Burrowing mammals can increase the forb diversity. Herbs can include *Carex subnigricans, Carex vernacula, Calamagrostis breweri, Antennaria media, Potentilla drummondii, Lewisia pygmaea, Erigeron algidus, Lupinus lepidus, Dodecatheon alpinum*, and *Solidago multiradiata*. Wet meadows of *Carex, Calamagrostis, Camassia, Eleocharis, Juncus, Veratrum*, etc. from montane to subalpine are treated in ~Temperate Pacific Subalpine-Montane Wet Meadow (CES200.998)$$.

Range: This system occurs at subalpine elevations where finely textured soils, snow deposition, or windswept dry conditions limit tree establishment, typically above 3000 m (9100 feet) in elevation in California, Nevada and Oregon.

States: CA, NV, OR

Map Zones: 2:C, 3:C, 4:P, 6:C, 7:C

Similar:

Descriptors:

Juxtaposition :	Alpine mosaic
Microclimate :	Late-lying snowpack
Lifeform :	Graminoid
Lifeform :	Forb
Wind Intensity/Spatial Character :	Landscape/High Intensity
Soil Moisture (NRCS) :	Ustic
Soil Moisture (NRCS) :	Udic
Soil Depth :	Shallow Soil
Bioclimate :	Temperate
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous
Life Zones :	Montane

3138: North Pacific Montane Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7110 EVT_fuel: 2138

ESP: 1138 NatureServe Id: CES204.100

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M168 Rocky Mountain & Vancouverian Subalpine-High Montane Mesic M

NVC Group: G271 Rocky Mountain Subalpine-Montane Mesic Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system includes open dry meadows and grasslands on the west side of the Cascades Mountains and northern Sierra Nevada. They occur in montane elevations up to 3500 m (10,600 feet). Soils tend to be deeper and more well-drained than the surrounding forest soils. Soils can resemble prairie soils in that the A-horizon is dark brown, relatively high in organic matter, slightly acidic, and usually well-drained. Dominant species include *Elymus* spp., *Festuca idahoensis*, and *Nassella cernua*. These large-patch grasslands are intermixed with matrix stands of red fir, lodgepole pine, and dry-mesic mixed conifer forests and woodlands.

Range: This system is found on the west side of the Cascades Mountains and northern Sierra Nevada, in montane elevations up to 3500 m (10,600 feet).

States: CA, NV, OR

Map Zones: 1:C, 2:C, 3:C, 6:C, 7:C, 12:P

Similar:

Descriptors:

Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Soil Depth :	Shallow Soil
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous

Life Zones : Montane

Life Zones : Montane

3139: Northern Rocky Mountain Lower Montane-Foothill-Valley Grassland

Match Confidence: Solid Match

Suggested Match: Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland

Codes: ESLF: 7112 EVT_fuel: 2139

ESP: 1139 NatureServe Id: CES306.040

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G273 Central Rocky Mountain Lower Montane, Foothill & Valley Grasslan

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system of the northern Rocky Mountains is found at lower montane to foothill elevations in the mountains and large valleys of northeastern Wyoming and western Montana, west through Idaho into the Blue Mountains of Oregon, and north into the Okanagan and Fraser plateaus of British Columbia and the Canadian Rockies. They also occur to the east in the central Montana mountain "islands," foothills, as well as the Rocky Mountain Front and Big and Little Belt ranges. These grasslands are floristically similar to ~Inter-Mountain Basins Big Sagebrush Steppe (CES304.778)$$, ~Columbia Basin Foothill and Canyon Dry Grassland (CES304.993)$$, and ~Columbia Basin Palouse Prairie (CES304.792)$$, but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. These northern lower montane and valley grasslands represent a shift in the precipitation regime from summer monsoons and cold snowy winters found in the southern Rockies to predominantly dry summers and winter precipitation. In the eastern portion of its range in Montana, winter precipitation is replaced by a huge spring peak in precipitation. They are found at elevations from 300 to 1650 m, ranging from small meadows to large open parks surrounded by conifers in the lower montane, to extensive foothill and valley grasslands below the lower treeline. Many of these valleys may have been primarily sage-steppe with patches of grassland in the past, but because of land-use history post-settlement (herbicide, grazing, fire suppression, pasturing, etc.), they have been converted to grassland-dominated areas. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline, often with a microphytic crust. The most important species are cool-season perennial bunch grasses and forbs (>25% cover), sometimes with a sparse (<10% cover) shrub layer. >*Pseudoroegneria spicata, Festuca campestris, Festuca idahoensis*, or *Hesperostipa comata* commonly dominate sites on all aspects of level to moderate slopes and on certain steep slopes with a variety of other grasses, such as *Achnatherum hymenoides, Achnatherum richardsonii,*

Hesperostipa curtiseta, Koeleria macrantha, Leymus cinereus, Elymus trachycaulus, Bromus inermis ssp. pumpellianus (= Bromus pumpellianus), Achnatherum occidentale (= Stipa occidentalis), Pascopyrum smithii, and other graminoids such as *Carex filifolia* and *Danthonia intermedia*. Other grassland species include *Opuntia fragilis, Artemisia frigida, Carex petasata, Antennaria* spp., and *Selaginella densa*. Important exotic grasses include *Phleum pratense, Bromus inermis*, and *Poa pratensis*. Shrub species may be scattered, including *Amelanchier alnifolia, Rosa* spp., *Symphoricarpos* spp., *Juniperus communis, Artemisia tridentata*, and in Wyoming *Artemisia tripartita ssp. rupicola*. Common associated forbs include *Geum triflorum, Galium boreale, Campanula rotundifolia, Antennaria microphylla, Geranium viscosissimum*, and *Potentilla gracilis*. A soil crust of lichen covers almost all open soil between clumps of grasses; *Cladonia* and *Peltigera* are the most common lichens. Unvegetated mineral soil is commonly found between clumps of grass and the lichen cover. The fire regime of this ecological system maintains a grassland due to rapid fire return that retards shrub invasion or landscape isolation and fragmentation that limits seed dispersal of native shrub species. Fire frequency is presumed to be less than 20 years. These are extensive grasslands, not grass-dominated patches within the sagebrush shrub steppe ecological system. *Festuca campestris* is easily eliminated by grazing and does not occur in all areas of this system.

Range: This lower montane, foothill and valley grassland system occurs throughout the southern interior and southern portion of the Fraser Plateau, as well as the valleys around the Fraser River in the Pavilion Ranges, the Nicola River and the Similkameen River in British Columbia. It also occurs in the mountains and large valleys of northwestern Wyoming and western Montana, east to the central Montana Rocky Mountain Front and mountain "island" ranges, west through Idaho into the Blue Mountains of Oregon.

States: BC, ID, MT, OR, WA, WY

Map Zones: 8:C, 9:C, 10:C, 18:C, 19:C, 20:C, 21:C, 22:C, 29:C

Similar: Columbia Basin Foothill and Canyon Dry Grassland (CES304.993), Columbia Basin Palouse Prairie (CES304.792), Inter-Mountain Basins Big Sagebrush Steppe (CES304.778), Inter-Mountain Basins Semi-Desert Grassland (CES304.787), Northern Rocky Mountain Subalpine-Upper Montane Grassland (CES306.806)

Descriptors:

Floristics/Dominants :	Cool-season bunchgrasses
Lifeform :	Graminoid
Mass Movement Type :	Landslide
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Silt
Soil Texture :	Loam
Soil Depth :	Very Shallow
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3140: Northern Rocky Mountain Subalpine-Upper Montane Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7113 EVT_fuel: 2140

ESP: 1140 NatureServe Id: CES306.806

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G267 Central Rocky Mountain Montane Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This is an upper montane to subalpine, high-elevation, lush grassland system dominated by perennial grasses and forbs on dry sites, particularly south-facing slopes. It is most extensive in the Canadian Rockies portion of the Rocky Mountain cordillera, extending south into western Montana, eastern Oregon, eastern Washington and Idaho. Subalpine dry grasslands are small meadows to large open parks surrounded by conifer trees but lack tree cover within them. In general, soil textures are much finer, and soils are often deeper under grasslands than in the neighboring forests. Grasslands, although composed primarily of tussock-forming species, do exhibit a dense sod that makes root penetration difficult for tree species. Disturbance such as fire also plays a role in maintaining these open grassy areas. Typical dominant species include *Leymus innovatus (= Elymus innovatus), Koeleria macrantha, Festuca campestris, Festuca idahoensis, Festuca viridula, Achnatherum occidentale (= Stipa occidentalis), Achnatherum richardsonii (= Stipa richardsonii), Bromus inermis ssp. pumpellianus (= Bromus pumpellianus), Elymus trachycaulus, Phleum alpinum, Trisetum spicatum*, and a variety of Carices, such as *Carex hoodii, Carex obtusata*, and *Carex scirpoidea*. Important forbs include *Lupinus argenteus var. laxiflorus, Potentilla diversifolia, Potentilla flabellifolia, Fragaria virginiana*, and *Chamerion angustifolium (= Epilobium angustifolium)*. This system is similar to ~Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland (CES306.040)$$ but is found at higher elevations and is more often composed of species of *Festuca, Achnatherum*, and/or *Hesperostipa* with additional floristic components of more subalpine taxa. Occurrences of this system are often more forb-rich than ~Southern Rocky Mountain Montane-Subalpine Grassland (CES306.824)$$.

Range: This system is most extensive in the Canadian Rockies portion of the Rocky Mountain cordillera, extending south into western Montana, central and eastern Oregon, eastern Washington and

Idaho. It also occurs in the "island" ranges of central Montana, though it is not common, and is also found in the Bighorn Range of north-central Wyoming.

States: AB, BC, ID, MT, OR, WA, WY

Map Zones: 9:C, 10:C, 18:C, 19:C, 20:C, 21:C, 29:C

Similar: North Pacific Alpine and Subalpine Dry Grassland (CES204.099), Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland (CES306.040)

Descriptors:

Floristics/Dominants :	Tussock forming grasses
Lifeform :	Graminoid
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Deep
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Montane

3141: Northwestern Great Plains Mixedgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7114 EVT_fuel: 2141

ESP: 1141 NatureServe Id: CES303.674

BioGeographical Division : Western Great Plains

NVC MacroGroup: M051 Great Plains Mixedgrass & Fescue Prairie

NVC Group: G141 Northern Great Plains Mixedgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system extends from northern Nebraska into southern Canada and westward through the Dakotas to the Rocky Mountain Front in Montana and probably Wyoming, on both glaciated and non-glaciated substrates. Soil texture (which ultimately effects water available to plants) is the defining environmental descriptor; soils are primarily fine and medium-textured and do not include sands, sandy soils, or sandy loams. This system occurs on a wide variety of landforms (e.g., mesatops, stream terraces) and in proximity to a diversity of other systems. Most usually it is found in association with ~Western Great Plains Sand Prairie (CES303.670)$$ which occupies the coarser-textured substrates. In various locales the topography where this system occurs is broken by many glacial pothole lakes, and this system may be proximate to ~Great Plains Prairie Pothole (CES303.661)$$. On the eastern Montana plains, mixedgrass prairie is by far the predominant system. Here it occurs continuously for hundreds of square kilometers, interrupted only by riparian areas or sand prairies, which are associated with gentle rises, eroded ridges or mesas derived from sandstone. Historically, this system covered approximately 38 million ha in Nebraska, North and South Dakota, and Canada; now it covers approximately 270,000 square km in this region. The growing season and rainfall are intermediate to drier units to the southwest and mesic tallgrass regions to the east. Graminoids typically comprising the greatest canopy cover include *Pascopyrum smithii, Nassella viridula*, and *Festuca* spp. In Montana these include *Festuca campestris* and *Festuca idahoensis*. Other commonly dominant species in Montana are *Bouteloua gracilis, Hesperostipa comata*, and *Carex filifolia*, while *Festuca campestris* and *Festuca idahoensis* may be more abundant in the north and foothill/montane grassland transition areas. Remnants of *Hesperostipa curtiseta*-dominated vegetation are found in northernmost Montana and North Dakota associated with the most productive sites (largely plowed to cereal grains); this species, usually in association with *Pascopyrum smithii*, is much more abundant in Canada. Sites with a

strong component of *Nassella viridula* indicate a more favorable moisture balance and perhaps a favorable grazing regime as well because this is one of the most palatable of the mid-grasses. *Hesperostipa comata* is also an important component and becomes increasingly so as improper grazing regimes favor it at the expense of (usually) *Pascopyrum smithii*; progressively more destructive grazing can result in the loss of *Pascopyrum smithii* from the system followed by drastic reduction in *Hesperostipa comata* and ultimately the dominance of *Bouteloua gracilis* (or *Poa secunda* and other short graminoids) and/or a lawn of *Selaginella densa*. *Koeleria macrantha*, at least in Montana and southern Canada, is the most pervasive grass; if it has high cover, past intensive grazing is the presumed reason. Shrub species such as *Symphoricarpos* spp. and *Artemisia frigida* and *Artemisia cana* also occur. Fire and grazing constitute the primary dynamics affecting this system. Drought can also impact this system, in general favoring the shortgrass component at the expense of the mid-grasses. With intensive grazing, cool-season exotics such as *Poa pratensis, Bromus inermis*, and *Bromus japonicus* can increase in dominance; both of the rhizomatous grasses have been shown to markedly depress species diversity. Shrub species such as *Juniperus virginiana* can also increase in dominance with fire suppression. This system is one of the most disturbed grassland systems in Nebraska, North and South Dakota, and Canada.

Range: This system extends from northern Nebraska into southern Canada, and west to central Montana. The U.S. range corresponds to Bailey et al. (1994) sections 331D, 331E, 331F (mostly), 331G, 332A, 332B, and perhaps minor extensions into 251B, and in Canada to the Moist Mixed Grassland and Fescue Grassland.

States: AB, MB, MT, ND, NE, SD, SK, WY

Map Zones: 20:C, 22:C, 29:C, 30:C, 31:C, 39:C, 40:C

Similar: Central Mixedgrass Prairie (CES303.659), Northwestern Great Plains Shrubland (CES303.662)

Descriptors:

Soil Texture :	Loam
Soil Depth :	Shallow Soil
Glacial History :	Glaciated
Major Physiognomy :	Herbaceous

3142: Columbia Basin Palouse Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7115 EVT_fuel: 2142

ESP: 1142 NatureServe Id: CES304.792

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G273 Central Rocky Mountain Lower Montane, Foothill & Valley Grasslan

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This once-extensive grassland system occurs in eastern Washington and Oregon, and west-central Idaho, though in very small patches there. In much of its range it is characterized by rolling topography composed of loess hills and plains over basalt plains. The climate of this region has warm-hot, dry summers and cool, wet winters. Annual precipitation is high, 38-76 cm (15-30 inches). The soils are typically deep, well-developed, and old. The cool-season bunch grasses that dominate the vegetation are adapted to this winter precipitation. Characteristic species are *Pseudoroegneria spicata* and *Festuca idahoensis* with *Hesperostipa comata, Achnatherum scribneri, Leymus condensatus, Leymus cinereus, Koeleria macrantha, Pascopyrum smithii*, or *Poa secunda*. Shrubs commonly found include *Amelanchier alnifolia, Rosa* spp., *Eriogonum* spp., *Symphoricarpos albus*, and *Crataegus douglasii*. Excessive grazing, past land use and invasion by introduced annual species have resulted in a massive conversion to agriculture or shrub-steppe and annual grasslands dominated by *Artemisia* spp. and *Bromus tectorum* or *Poa pratensis*. Remnant grasslands are now typically associated with steep and rocky sites or small and isolated sites within an agricultural landscape.

Range: This system occurs in eastern Washington and Oregon, and west-central Idaho.

States: BC?, ID, OR, WA

Map Zones: 8:C, 9:C, 10:P

Similar: Columbia Basin Foothill and Canyon Dry Grassland (CES304.993), Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland (CES306.040)

Descriptors:

Temporal Persistence : Long (> 500 yrs)

Floristics/Dominants :	Cool-season bunchgrasses
Lifeform :	Graminoid
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Depth :	Deep
Glacial History :	Glaciated
Bioclimate :	Temperate
Landforms :	Loess deposit (undifferentiated)
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3143: Rocky Mountain Alpine Fell-Field

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7116 EVT_fuel: 2143

ESP: 1143 NatureServe Id: CES306.811

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M099 Rocky Mountain & Sierran Alpine Scrub, Forb Meadow & Grassland

NVC Group: G314 Rocky Mountain & Sierran Alpine Turf & Fell-Field

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This ecological system is found discontinuously at alpine elevations throughout the Rocky Mountains, west into the mountainous areas of the Great Basin, and north into the Canadian Rockies. Small areas are represented in the west side of the Okanagan Ecoregion in the eastern Cascades. These are wind-scoured fell-fields that are free of snow in the winter, such as ridgetops and exposed saddles, exposing the plants to severe environmental stress. Soils on these windy unproductive sites are shallow, stony, low in organic matter, and poorly developed; wind deflation often results in a gravelly pavement. Most fell-field plants are cushioned or matted, frequently succulent, flat to the ground in rosettes and often densely haired and thickly cutinized. Plant cover is 15-50%, while exposed rocks make up the rest. Fell-fields are usually within or adjacent to alpine tundra dry meadows. Common species include *Arenaria capillaris, Geum rossii, Kobresia myosuroides, Minuartia obtusiloba, Myosotis asiatica, Paronychia pulvinata, Phlox pulvinata, Sibbaldia procumbens, Silene acaulis, Trifolium dasyphyllum*, and *Trifolium parryi*.

Range: This system is found discontinuously at alpine elevations throughout the Rocky Mountains, west into the mountainous areas of the Great Basin. Outlier sites occur in the northeastern Cascades and on Mount Rainier in Washington.

States: AB, BC, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 1:P, 9:P, 10:C, 12:?, 16:C, 17:C, 19:C, 20:?, 21:C, 23:P, 24:P, 25:C, 28:C

Similar:

Descriptors:

Soil Depth : Very Shallow

Major Physiognomy : Herbaceous

Landforms	:	Patterned ground (undifferentiated)
Landforms	:	Saddle
Topography	:	High Ridge/Upper Slope
Bioclimate	:	Temperate
Life Zones	:	Alpine
Soil Fertility	:	Oligotrophic
Landform/Topography/Special Substrates	:	Alpine Slopes
Soil Organic Matter	:	Mineral: W/A Horizon <10 cm
Soil Moisture (NRCS)	:	Ustic
Disturbance Return Interval	:	Very Short
Wind Intensity/Spatial Character	:	Patch/High Intensity
Wind Intensity/Spatial Character	:	Landscape/Medium Intensity
Floristics/Dominants	:	Cushion plants
Glacial History	:	Glaciated

3144: Rocky Mountain Alpine Turf

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7117 EVT_fuel: 2144

ESP: 1144 NatureServe Id: CES306.816

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M099 Rocky Mountain & Sierran Alpine Scrub, Forb Meadow & Grassland

NVC Group: G314 Rocky Mountain & Sierran Alpine Turf & Fell-Field

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This widespread ecological system occurs above upper treeline throughout the Rocky Mountain cordillera, including alpine areas of ranges in Utah and Nevada, and isolated alpine sites in the northeastern Cascades. It is found on gentle to moderate slopes, flat ridges, valleys, and basins, where the soil has become relatively stabilized and the water supply is more or less constant. Vegetation in these areas is controlled by snow retention, wind desiccation, permafrost, and a short growing season. This system is characterized by a dense cover of low-growing, perennial graminoids and forbs. Rhizomatous, sod-forming sedges are the dominant graminoids, and prostrate and mat-forming plants with thick rootstocks or taproots characterize the forbs. Dominant species include *Artemisia arctica, Carex elynoides, Carex siccata, Carex scirpoidea, Carex nardina, Carex rupestris, Festuca brachyphylla, Festuca idahoensis, Geum rossii, Kobresia myosuroides, Phlox pulvinata*, and *Trifolium dasyphyllum*. Many other graminoids, forbs, and prostrate shrubs can also be found, including *Calamagrostis purpurascens, Deschampsia caespitosa, Dryas octopetala, Leucopoa kingii, Poa arctica, Saxifraga* spp., *Selaginella densa, Sibbaldia procumbens, Silene acaulis, Solidago* spp., and *Trifolium parryi*. Although alpine dry tundra is the matrix of the alpine zone, it typically intermingles with alpine bedrock and scree, ice field, fell-field, alpine dwarf-shrubland, and alpine/subalpine wet meadow systems.

Range: This system occurs above upper treeline throughout the North American Rocky Mountain cordillera, including alpine areas of ranges in Utah and Nevada, central Wyoming, and isolated alpine sites in the northeastern Cascades.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 1:P, 7:P, 9:?, 10:C, 12:P, 16:C, 17:C, 18:?, 19:C, 20:?, 21:C, 22:?, 23:C, 24:C, 25:C, 28:C, 29:C

Similar:

Descriptors:

Temporal Persistence :	Long (> 500 yrs)
Landform/Topography/Special Substrates :	Alpine Slopes
Lifeform :	Graminoid
Disturbance Return Interval :	Very Long
Soil Moisture (NRCS) :	Aridic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Very Shallow
Soil Fertility :	Oligotrophic
Glacial History :	Periglacial
Glacial History :	Glaciated
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Alpine

3145: Rocky Mountain Subalpine-Montane Mesic Meadow

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7118 EVT_fuel: 2145

ESP: 1145 NatureServe Id: CES306.829

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M168 Rocky Mountain & Vancouverian Subalpine-High Montane Mesic M

NVC Group: G271 Rocky Mountain Subalpine-Montane Mesic Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This Rocky Mountain ecological system is restricted to sites from lower montane to subalpine where finely textured soils, snow deposition, or windswept dry conditions limit tree establishment. Many occurrences are small patch in spatial character, and are often found in mosaics with woodlands, more dense shrublands, or just below alpine communities. It is typically found above 2000 m in elevation in the southern part of its range and above 600 m in the northern part. These upland communities occur on gentle to moderate-gradient slopes and relatively moist habitats. The soils are typically seasonally moist to saturated in the spring, but if so will dry out later in the growing season. These sites are not as wet as those found in ~Rocky Mountain Alpine-Montane Wet Meadow (CES306.812)$$. Vegetation is typically forb-rich, with forbs often contributing more to overall herbaceous cover than graminoids. Some stands are comprised of dense grasslands, these often being taxa with relatively broad and soft blades, but where the moist habitat promotes a rich forb component. Important taxa include *Erigeron* spp., Asteraceae spp., *Mertensia* spp., *Penstemon* spp., *Campanula* spp., *Lupinus* spp., *Solidago* spp., *Ligusticum* spp., *Thalictrum occidentale, Valeriana sitchensis, Rudbeckia occidentalis, Balsamorhiza sagittata*, and *Wyethia* spp. Important grasses include *Deschampsia caespitosa, Koeleria macrantha*, perennial *Bromus* spp., and a number of *Carex* species. *Dasiphora fruticosa ssp. floribunda* and *Symphoricarpos* spp. are occasional but not abundant. Burrowing mammals can increase the forb diversity.

Range: This system is very widespread in the Rocky Mountain cordillera from New Mexico north into Canada. It probably occurs in the Black Hills region, as well as the "island ranges" of central Montana.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 8:?, 9:C, 10:C, 12:C, 13:C, 15:C, 16:C, 17:P, 18:C, 19:C, 20:C, 21:C, 22:P, 23:C, 24:C, 25:C, 27:C,

28:C, 29:C

Similar: Rocky Mountain Alpine-Montane Wet Meadow (CES306.812)

Descriptors:

Lifeform :	Forb
Wind Intensity/Spatial Character :	Landscape/Medium Intensity
Wind Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Udic
Soil Texture :	Clay
Soil Texture :	Silt
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Depth :	Shallow Soil
Bioclimate :	Temperate
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous
Life Zones :	Montane

3146: Southern Rocky Mountain Montane-Subalpine Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7119 EVT_fuel: 2146

ESP: 1146 NatureServe Id: CES306.824

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M168 Rocky Mountain & Vancouverian Subalpine-High Montane Mesic M

NVC Group: G268 Southern Rocky Mountain Montane-Subalpine Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This Rocky Mountain ecological system typically occurs between 2200 and 3000 m elevation on flat to rolling plains and parks or on lower sideslopes that are dry, but it may extend up to 3350 m on warm aspects. Soils resemble prairie soils in that the A-horizon is dark brown, relatively high in organic matter, slightly acidic, and usually well-drained. An occurrence usually consists of a mosaic of two or three plant associations with one of the following dominant bunch grasses: *Danthonia intermedia, Danthonia parryi, Festuca idahoensis, Festuca arizonica, Festuca thurberi, Muhlenbergia filiculmis*, or *Pseudoroegneria spicata*. The subdominants include *Muhlenbergia montana, Bouteloua gracilis*, and *Poa secunda*. These large-patch grasslands are intermixed with matrix stands of spruce-fir, lodgepole pine, ponderosa pine, and aspen forests. In limited circumstances (e.g., South Park in Colorado), they form the "matrix" of high-elevation plateaus. Small-patch representations of this system do occur at high elevations of the Trans-Pecos where they present as occurrences of ~*Festuca arizonica - Blepharoneuron tricholepis* Herbaceous Vegetation (CEGL004508)$$. These occurrences often occupy sites adjacent to ~Madrean Oriental Chaparral (CES302.031)$$.

Range: This system occurs between 2200 and 3000 m elevation in the Colorado Rockies. Where it transitions in Wyoming to ~Northern Rocky Mountain Subalpine-Upper Montane Grassland (CES306.806)$$ still needs to be clarified.

States: AZ, CO, NM, UT, WY

Map Zones: 12:C, 15:C, 16:C, 17:P, 21:P, 22:C, 23:C, 24:C, 25:C, 26:C, 27:C, 28:C, 29:C, 33:P

Similar:

Descriptors:

Soil Texture :	Loam
Life Zones :	Montane
Major Physiognomy :	Herbaceous
Topography :	High-Low Slope
Bioclimate :	Temperate
Soil pH :	Acidic
Life Zones :	Montane
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Temporal Persistence :	Moderate (100-500 yrs)
Soil Texture :	Silt
Soil Moisture (NRCS) :	Aridic
Disturbance Return Interval :	Short
Fire Intensity/Spatial Character :	Patch/Low Intensity
Lifeform :	Graminoid
Floristics/Dominants :	Cool-season bunchgrasses
Soil Depth :	Shallow Soil

3147: Western Great Plains Foothill and Piedmont Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7120 EVT_fuel: 2147

ESP: 1147 NatureServe Id: CES303.817

BioGeographical Division : Western Great Plains

NVC MacroGroup: M051 Great Plains Mixedgrass & Fescue Prairie

NVC Group: G141 Northern Great Plains Mixedgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This ecological system typically occurs between 1600 and 2200 m in elevation. It is best characterized as a mixedgrass to tallgrass prairie on mostly moderate to gentle slopes, usually at the base of foothill slopes, e.g., the hogbacks of the Rocky Mountain Front Range where it typically occurs as a relatively narrow elevational band between montane woodlands and shrublands and the shortgrass steppe and mixedgrass prairie, but extends east on the Front Range piedmont alongside the Chalk Bluffs near the Colorado-Wyoming border, out into the Great Plains on the Palmer Divide, and on piedmont slopes below mesas and foothills in northeastern New Mexico. A combination of increased precipitation from orographic rain, temperature, and soils limits this system to the lower elevation zone with approximately 40 cm of precipitation/year. It is maintained by frequent fire and associated with well-drained clay soils. Usually occurrences of this system have multiple plant associations that may be dominated by *Andropogon gerardii, Schizachyrium scoparium, Muhlenbergia montana, Nassella viridula, Pascopyrum smithii, Sporobolus cryptandrus, Bouteloua gracilis, Hesperostipa comata*, or *Hesperostipa neomexicana*. In Wyoming, typical grasses found in this system include *Pseudoroegneria spicata, Schizachyrium scoparium, Hesperostipa neomexicana, Hesperostipa comata*, and species of *Poa*. Typical adjacent ecological systems include foothill shrublands, ponderosa pine savannas, juniper savannas, as well as shortgrass prairie.

Range: This mixedgrass prairie ecological system occurs in the narrow to broad transition band between the Rocky Mountains and the Shortgrass Steppe where increased soil moisture from orographic lifting and local topography favor tall and mid-height grasses. The band is restricted to the Rocky Mountain foothills and piedmont and adjacent plains, extending farther east on the Palmer Divide, north alongside the Chalk Bluffs near the Colorado-Wyoming border, and south on and below

mesas and escarpments in southeastern Colorado, northeastern New Mexico, and the panhandles of Oklahoma and Texas. These grassland also occur around the edges of the Black Hills uplift, where *Schizachyrium scoparium* is the dominant grass.

States: AZ?, CO, NM, OK, SD, TX, WY

Map Zones: 19:?, 21:?, 22:C, 24:?, 25:C, 26:P, 27:C, 28:C, 29:C, 30:P, 31:P, 33:C, 34:?

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Lifeform :	Graminoid
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Aridic
Soil Texture :	Clay
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3148: Western Great Plains Sand Prairie Grassland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Sand Prairie

Codes: ESLF: 7121 EVT_fuel: 2148

ESP: 1148 NatureServe Id: CES303.670

BioGeographical Division :

NVC MacroGroup: M052 Great Plains Sand Grassland & Shrubland

NVC Group: G068 Great Plains Sand Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: The sand prairies constitute a very unique system within the western Great Plains. These sand prairies are often considered part of the tallgrass or mixedgrass regions in the western Great Plains but can contain elements from ~Western Great Plains Shortgrass Prairie (CES303.672)$$, ~Central Mixedgrass Prairie (CES303.659)$$, and ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$. The largest expanse of sand prairies (approximately 5 million ha) can be found in the Sandhills of north-central Nebraska and southwestern South Dakota. These areas are relatively intact. The primary use of this system has been grazing (not cultivation), and areas such as the Nebraska Sandhills can experience less degeneration than other prairie systems. Although greater than 90% of the Sandhills region is privately owned, the known fragility of the soils and the cautions used by ranchers to avoid poor grazing practices have allowed for fewer significant changes in the vegetation of the Sandhills compared to other grassland systems. The unifying and controlling feature for this system is that coarse-textured soils predominate and the dominant grasses are well-adapted to this condition. Soils in the sand prairies can be relatively undeveloped and are highly permeable. Soil texture and drainage along with a species' rooting morphology, photosynthetic physiology, and mechanisms to avoid transpiration loss are highly important in determining the composition of the sand prairies. In the northwestern portion of its range, stand size corresponds to the area of exposed caprock sandstone, and small patches predominate, but large patches are also found embedded in the encompassing ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$. Another important feature is their susceptibility to wind erosion. Blowouts and sand draws are some of the unique wind-driven disturbances in the sand prairies, particularly the Nebraska Sandhills. In most of eastern Montana, substrates supporting this system have weathered in place from sandstone caprock; thus the solum is relatively thin, and the wind-sculpted features present further east, particularly in Nebraska, do not develop.

Graminoid species dominate the sand prairies, although relative dominance can change due to impacts of wind disturbance. *Andropogon hallii* and *Calamovilfa longifolia* are the most common species, but other grass and forb species such as *Hesperostipa comata, Carex inops ssp. heliophila*, and *Panicum virgatum* may be present. Apparently only *Calamovilfa longifolia* functions as a dominant throughout the range of the system. In the western extent, *Hesperostipa comata* becomes more dominant, and *Andropogon hallii* is less abundant but still present. Communities of *Artemisia cana ssp. cana* are included here in central and eastern Montana. Patches of *Quercus havardii* can also occur within this system in the southern Great Plains. Fire and grazing constitute the other major dynamic processes that can influence this system.

Range: This system is found throughout the Western Great Plains Division. The largest and most intact example of this system is found within the Sandhills region of Nebraska and South Dakota. However, it is also common (though occurring in predominantly small patches) farther west into central and eastern Montana. Its western extent in Wyoming is still to be determined, but it does occur in mapzone 29 on weathered-in-place sandy soils, where *Calamovilfa longifolia* is found, along with *Artemisia cana*.

States: CO, KS, MT, ND, NE, NM?, OK, SD, TX?, WY

Map Zones: 20:C, 27:P, 29:C, 30:C, 31:C, 33:C, 34:C, 38:C, 39:C, 40:C

Similar: Central Mixedgrass Prairie (CES303.659), Western Great Plains Sandhill Steppe (CES303.671), Western Great Plains Shortgrass Prairie (CES303.672), Western Great Plains Tallgrass Prairie (CES303.673)

Descriptors:

Wind Intensity/Spatial Character :	Patch/High Intensity
Grazing Intensity/Spatial Character :	Landscape/Low Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3149: Western Great Plains Shortgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7122 EVT_fuel: 2149

ESP: 1149 NatureServe Id: CES303.672

BioGeographical Division : Western Great Plains

NVC MacroGroup: M053 Great Plains Shortgrass Prairie

NVC Group: G144 Great Plains Shortgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily in the western half of the Western Great Plains Division in the rainshadow of the Rocky Mountains and ranges from the Nebraska Panhandle south into Texas and New Mexico, although grazing-impacted examples may reach as far north as southern Canada where it grades into ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$. This system occurs primarily on flat to rolling uplands with loamy, ustic soils ranging from sandy to clayey. In much of its range, this system forms the matrix system with *Bouteloua gracilis* dominating this system. Associated graminoids may include *Aristida purpurea, Bouteloua curtipendula, Bouteloua hirsuta, Buchloe dactyloides, Hesperostipa comata, Koeleria macrantha (= Koeleria cristata), Pascopyrum smithii (= Agropyron smithii), Pleuraphis jamesii, Sporobolus airoides*, and *Sporobolus cryptandrus*. Although mid-height grass species may be present, especially on more mesic land positions and soils, they are secondary in importance to the sod-forming short grasses. Sandy soils have higher cover of *Hesperostipa comata, Sporobolus cryptandrus*, and *Yucca elata*. Scattered shrub and dwarf-dwarf species such as *Artemisia filifolia, Artemisia frigida, Artemisia tridentata, Atriplex canescens, Eriogonum effusum, Gutierrezia sarothrae*, and *Lycium pallidum* may also be present. Also, because this system spans a wide range, there can be some differences in the relative dominance of some species from north to south and from east to west. Large-scale processes such as climate, fire and grazing influence this system. High variation in amount and timing of annual precipitation impacts the relative cover of cool- and warm-season herbaceous species.

In contrast to other prairie systems, fire is less important, especially in the western range of this system, because the often dry and xeric climate conditions can decrease the fuel load and thus the relative fire frequency within the system. However, historically, fires that did occur were often

very expansive. Currently, fire suppression and more extensive grazing in the region have likely decreased the fire frequency even more, and it is unlikely that these processes could occur at a natural scale. A large part of the range for this system (especially in the east and near rivers) has been converted to agriculture. Areas of the central and western range have been impacted by the unsuccessful attempts to develop dryland cultivation during the Dust Bowl of the 1930s. The short grasses that dominate this system are extremely drought- and grazing-tolerant. These species evolved with drought and large herbivores and, because of their stature, are relatively resistant to overgrazing. This system in combination with the associated wetland systems represents one of the richest areas for mammals and birds. Endemic bird species to the shortgrass system may constitute one of the fastest declining bird populations.

Range: This system is found primarily in the western half of the Western Great Plains Division east of the Rocky Mountains and ranges from the Nebraska Panhandle south into the panhandles of Oklahoma and Texas and New Mexico, although some examples may reach as far north as southern Canada where it grades into ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$.

States: CO, KS, NE, NM, OK, TX, WY

Map Zones: 22:C, 24:?, 25:C, 26:C, 27:C, 28:C, 29:C, 30:C, 31:P, 33:C, 34:C, 35:P, 38:P

Similar: Madrean Juniper Savanna (CES301.730), Southern Rocky Mountain Juniper Woodland and Savanna (CES306.834), Western Great Plains Mesquite Woodland and Shrubland (CES303.668), Western Great Plains Sand Prairie (CES303.670)

Descriptors:

Fire Intensity/Spatial Character :	Landscape/Low Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Loam
Major Physiognomy :	Herbaceous

3150: Western Great Plains Tallgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7123 EVT_fuel: 2150

ESP: 1150 NatureServe Id: CES303.673

BioGeographical Division : Western Great Plains

NVC MacroGroup: M051 Great Plains Mixedgrass & Fescue Prairie

NVC Group: G141 Northern Great Plains Mixedgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system can be found throughout the Western Great Plains Division. It is found primarily in areas where soil characteristics allow for mesic conditions more typical of the Eastern Great Plains Division and thus are able to sustain tallgrass species. This system may be small patches interspersed within ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$ or ~Western Great Plains Shortgrass Prairie (CES303.672)$$ and may also be associated with upland terraces above a floodplain system where these more mesic conditions persist. Soils are primarily loamy Mollisols that are moderately deep and rich. Those areas that contain more sandy soils should be considered part of ~Western Great Plains Sand Prairie (CES303.670)$$. This system is dominated primarily by *Andropogon gerardii* and may also include *Sorghastrum nutans, Schizachyrium scoparium, Pascopyrum smithii, Hesperostipa spartea*, and *Sporobolus heterolepis*. *Andropogon gerardii* often dominates the lowland regions, although *Pascopyrum smithii* can be prolific if conditions are favorable. Forbs in varying density may also be present. The primary dynamics for this system include fire, climate and grazing. Fire suppression in these areas has allowed for the invasion of woody species such as *Juniperus virginiana* and *Prunus* spp. Grazing also has contributed to these changes and likewise led to a decrease of this system as overgrazing favors shortgrass and mixedgrass systems. Conversion to agriculture likewise has probably decreased the range of this system. Thus, this system likely only occurs in small patches and in scattered locations throughout the division. Large-patch occurrences are mostly isolated to slopes and swales of rolling uplands where either grazing or cultivation are more problematic.

Range: This system occurs throughout the Western Great Plains Division, however, grazing and conversion to agriculture have likely decreased its natural range.

States: CO, KS, MT, ND, NE, OK, TX?, WY

Map Zones: 29:C, 30:C, 31:C, 33:C, 34:C, 38:C, 39:C, 40:C

Similar: Western Great Plains Sand Prairie (CES303.670), Western Great Plains Sandhill Steppe (CES303.671)

Descriptors:

Grazing Intensity/Spatial Character :	Patch/Medium Intensity
Fire Intensity/Spatial Character :	Patch/Low Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Loam
Soil Depth :	Deep
Major Physiognomy :	Herbaceous

3151: California Central Valley Riparian Forest and Woodland

Match Confidence: Good Match

Suggested Match: California Central Valley Riparian Woodland and Shrubland

Codes: ESLF: 9101 EVT_fuel: 2151

ESP: 1151 NatureServe Id: CES206.946

BioGeographical Division : Mediterranean California

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G797 Warm Southwest Riparian Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nd Interior Lowland West Flooded & Swamp Forest

Summary: This system occurs in the floodplains of small to mid-sized rivers of California's Central Valley. Alluvial soils and late winter/early spring flooding (usually every year) from snow melt typify this system. Communities are predominantly floodplain woodlands, but also include shrublands, wet meadows and gravel/s and flats. Important trees and shrubs include *Populus fremontii, Platanus racemosa, Quercus lobata, Salix gooddingii, Acer negundo, Cephalanthus occidentalis*, and *Vitis californica*. *Juglans nigra* hybrids and *Ailanthus altissima* are problem invasive trees. *Tamarix* spp. extend as far north as Shasta County. Herbaceous components can include *Carex barbarae, Artemisia douglasiana*, and various marsh species along riverbanks and backwater (*Schoenoplectus californicus (= Scirpus californicus), Typha* spp.). *Arundo donax* is another common invasive and introduced forage species that often invades degraded areas within the floodplains. Periodic flooding and associated sediment scour are necessary to maintain growth and reproduction of vegetation. Flooding regimes have been significantly altered in all but a few tributaries that support this system.

Range: Occurs in the floodplains of small to mid-sized rivers of California's Central Valley.

States: CA

Map Zones: 3:P, 4:C, 5:C, 6:P, 13:P

Similar:

Descriptors:

Hydrogeomorphic Units : Riverine / Alluvial

Life Zones : Lowland

Major Physiognomy	Forest and Woodland (Tree)
Major Physiognomy	Shrubland (Shrub)
Major Physiognomy	Herbaceous
Landforms	Floodplain
Landforms	Fluvial
Life Zones	Lowland
Bioclimate	Mediterranean
Juxtaposition	Riparian mosaic
Soil Depth	Deep
Soil Texture	Silt
Soil Texture	Sand
Soil Moisture (NRCS)	Aquic
Soil Moisture (NRCS)	Udic
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Topography	Toeslope/Bottom/Valley

3152: California Montane Riparian Systems

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9102 EVT_fuel: 2152

ESP: 1152 NatureServe Id: CES206.610

BioGeographical Division : Mediterranean California

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This system group is found throughout Mediterranean California, including the inner North Coast Ranges of California and Sierra Nevada foothills, within a broad elevational range from near sea level up to 300 m (900 feet) in the Coast Ranges and inland to 1500 m (4545 feet). This system often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. The variety of plant associations connected to this system reflects elevation, stream gradient, floodplain width, and flooding events. Dominant species include *Acer macrophyllum* (in central and south coast), *Acer negundo, Alnus rhombifolia, Alnus rubra* (in Coast Ranges), *Cupressus sargentii, Frangula californica ssp. tomentella (= Rhamnus tomentella), Platanus racemosa, Populus fremontii, Pseudotsuga menziesii, Quercus agrifolia, Salix breweri, Salix laevigata, Salix gooddingii, Salix exigua*, and *Salix lasiolepis*. Common herbaceous species are *Ailanthus altissima, Arundo donax, Carex serratodens, Cirsium fontinale, Mimulus glaucescens, Mimulus guttatus, Packera clevelandii (= Senecio clevelandii), Stachys albens, Solidago* spp., and *Umbellularia californica*. Introduced *Eucalyptus* spp. may dominate some sites.

Range: These aggregated systems occur in Oregon, California, and Baja, Mexico.

States: CA, MXBC, OR

Map Zones: 2:C, 3:C, 4:C, 5:P, 6:C, 7:C, 12:C, 13:P

Similar:

Descriptors:

Juxtaposition : Riparian mosaic

Mass Movement Type : Flood Scouring

Disturbance Return Interval :	Very Short
Hydrogeomorphic Units :	Riverine / Alluvial
Hydrogeomorphic Units :	Seepage-Fed Sloping
Bioclimate :	Mediterranean
Specialized Substrates :	Serpentine
Major Physiognomy :	Forest and Woodland (Tree)

3153: Inter-Mountain Basins Greasewood Flat

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9103 EVT_fuel: 2153

ESP: 1153 NatureServe Id: CES304.780

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M082 Warm & Cool Desert Alkali-Saline Wetland

NVC Group: G537 North American Desert Alkaline-Saline Shrub Wetland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.5 Salt Marsh

NVCS Division: 2.C.5.Nd North American Western Interior Brackish Marsh

Summary: This ecological system occurs throughout much of the western U.S. in Intermountain basins and extends onto the western Great Plains and into central Montana. It typically occurs near drainages on stream terraces and flats or may form rings around more sparsely vegetated playas. Sites typically have saline soils, a shallow water table and flood intermittently, but remain dry for most growing seasons. The water table remains high enough to maintain vegetation, despite salt accumulations. This system usually occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominated or codominated by *Sarcobatus vermiculatus*. Other shrubs that may be present to codominant in some occurrences include *Atriplex canescens, Atriplex confertifolia, Atriplex gardneri, Artemisia tridentata ssp. wyomingensis, Artemisia tridentata ssp. tridentata, Artemisia cana ssp. cana*, or *Krascheninnikovia lanata*. Occurrences are often surrounded by mixed salt desert scrub or big sagebrush shrublands. The herbaceous layer, if present, is usually dominated by graminoids. There may be inclusions of *Sporobolus airoides, Pascopyrum smithii, Distichlis spicata* (where water remains ponded the longest), *Calamovilfa longifolia, Poa pratensis, Puccinellia nuttalliana*, or *Eleocharis palustris* herbaceous types.

Range: This system occurs throughout much of the western U.S. in Intermountain basins and extends onto the western Great Plains.

States: AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Map Zones: 6:P, 7:C, 8:C, 9:C, 10:?, 12:C, 13:C, 15:?, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:C, 27:C, 28:C, 29:C, 30:P, 33:?

Similar: Inter-Mountain Basins Wash (CES304.781)

Descriptors:

Water Depth :	Deep (>15 cm)
Floristics/Dominants :	Sarcobatus vermiculatus
Lifeform :	Xeromorphic Shrub
Soil Depth :	Deep
Specialized Substrate Chemistry :	Saline
Soil pH :	Alkaline
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Landforms :	Alluvial terrace
Landforms :	Alluvial plain
Landforms :	Alluvial flat
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3154: Inter-Mountain Basins Montane Riparian Forest and Woodland

Match Confidence: Good Match

Suggested Match: Inter-Mountain Basins Montane Riparian Systems

Codes: ESLF: 9104 EVT_fuel: 2154

ESP: 1154 NatureServe Id: CES304.611

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M034 Rocky Mountain & Great Basin Montane Riparian Forest

NVC Group: G506 Rocky Mountain & Great Basin Montane Riparian Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nc Rocky Mountain & Great Basin Montane Flooded & Swamp Forest

Summary: This montane riparian system group is found on the periphery of the northern Rockies in the Columbia River Basin, along major tributaries and the main stem of the Columbia at relatively low elevations and at higher elevations in mountain ranges of the Great Basin and along the eastern slope of the Sierra Nevada within a broad elevation range from about 1220 m to over 2135 m (4000-7000 feet). This system group often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. The variety of plant associations connected to this system reflects elevation, stream gradient, floodplain width, and flooding events. Important and diagnostic trees include *Abies concolor, Pseudotsuga menziesii, Alnus incana, Betula occidentalis, Populus angustifolia, Populus fremontii, Populus balsamifera ssp. trichocarpa, Alnus rhombifolia, Populus tremuloides, Celtis laevigata var. reticulata, Betula occidentalis*, or *Pinus ponderosa*. Important shrubs include *Amelanchier alnifolia, Artemisia cana, Cornus sericea, Crataegus douglasii, Philadelphus lewisii, Prunus virginiana, Rosa nutkana, Rosa woodsii, Salix exigua, Salix gooddingii, Salix eriocephala, Salix lasiolepis, Salix laevigata, Salix lemmonii, Salix lucida ssp. lasiandra, Salix lutea*, and *Symphoricarpos albus*. Herbaceous layers are often dominated by species of *Carex* and *Juncus*, and perennial grasses and mesic forbs, such as *Deschampsia caespitosa, Elymus trachycaulus, Glyceria striata, Iris missouriensis, Maianthemum stellatum*, or *Thalictrum fendleri*. Introduced forage species, such as *Agrostis stolonifera, Poa pratensis, Phleum pratense*, and the weedy annual *Bromus tectorum*, are often present in disturbed stands.

Range: This montane riparian system group occurs in mountains of the Great Basin and eastern slope of the Sierra Nevada north into the Columbia River Basin.

States: BC, CA, ID, MT?, NV, OR, UT, WA

Map Zones: 7:C, 8:C, 9:C, 10:C, 12:C, 13:C, 16:C, 17:C, 18:C, 21:P, 22:?

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Juxtaposition :	Riparian mosaic
Flooding Return Interval :	Short (<5 yrs)
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3155: North American Warm Desert Riparian Forest and Woodland

Match Confidence: Good Match

Suggested Match: North American Warm Desert Riparian Woodland and Shrubland

Codes: ESLF: 9105 EVT_fuel: 2155

ESP: 1155 NatureServe Id: CES302.753

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G797 Warm Southwest Riparian Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nd Interior Lowland West Flooded & Swamp Forest

Summary: This desert riparian systems group occurs along drainages and intermittently flooded basins in the northern Chihuahuan and Sonoran deserts, and extends into limited areas of the southern Great Plains and Edwards Plateau and up into the lower montane zone of Sky Island mountains. The woody riparian stands occur in mountain canyons and valleys of southern Arizona, New Mexico, western Texas and adjacent Mexico, and consist of mid- to low-elevation (1100-1800 m) riparian corridors along perennial and seasonally intermittent streams. The intermittently flooded basins are relatively small depressions on broad mesas, plains and valley bottoms that receive runoff from adjacent areas. The riparian vegetation is a mix of riparian woodlands and shrublands. Characteristic woody species include *Acer negundo, Alnus oblongifolia, Baccharis salicifolia, Celtis laevigata var. reticulata, Fraxinus velutina, Juglans major, Platanus wrightii, Pluchea sericea, Populus angustifolia, Populus deltoides ssp. wislizeni, Populus fremontii, Prosopis glandulosa, Prosopis velutina, Prunus* spp., *Salix exigua, Salix lasiolepis, Salix geyeriana, Salix gooddingii, Sapindus saponaria*, and *Shepherdia argentea*. These systems may have inclusions of herbaceous-dominated vegetation, typically *Pleuraphis mutica, Pascopyrum smithii, Panicum obtusum, Sporobolus airoides*, or *Sporobolus wrightii*.

Range: This systems occurs throughout canyons and desert valleys of the southwestern United States and adjacent Mexico. Major rivers and tributaries include the lower Colorado (up into the lower portions of the Grand Canyon), Gila, Salt, Rio Grande (from Elephant Butte Reservoir to the Gulf Coastal Plain), and the lower Pecos (near its confluence with Rio Hondo in southeastern New Mexico).

States: AZ, CA, MXBC, MXCH, MXSO, NM, NV, TX

Map Zones: 4:?, 13:C, 14:C, 15:C, 16:C, 17:?, 23:C, 24:?, 25:C, 26:C, 27:P, 35:P

Similar: Edwards Plateau Riparian (CES303.652), Southeastern Great Plains Riparian Forest (CES205.709)

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3156: North Pacific Lowland Riparian Forest and Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9106 EVT_fuel: 2156

ESP: 1156 NatureServe Id: CES204.869

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M035 Vancouverian Flooded & Swamp Forest

NVC Group: G254 North Pacific Lowland Riparian Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Ng Vancouverian Flooded & Swamp Forest

Summary: Lowland riparian systems occur throughout the Pacific Northwest. They are the low-elevation, alluvial floodplains that are confined by valleys and inlets and are more abundant in the central and southern portions of the Pacific Northwest Coast. These forests and tall shrublands are linear in character, occurring on floodplains or lower terraces of rivers and streams. Major broadleaf dominant species are *Acer macrophyllum, Alnus rubra, Populus balsamifera ssp. trichocarpa, Salix sitchensis, Salix lucida ssp. lasiandra, Cornus sericea*, and *Fraxinus latifolia*. Conifers tend to increase with succession in the absence of major disturbance. Conifer-dominated types are relatively uncommon and not well-described; *Abies grandis, Picea sitchensis*, and *Thuja plicata* are important. Riverine flooding and the succession that occurs after major flooding events are the major natural processes that drive this system. Very early-successional stages can be sparsely vegetated or dominated by herbaceous vegetation.

Range: This system occurs throughout the Pacific Northwest below the Silver Fir Zone in elevation.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 7:C

Similar: Alaskan Pacific Maritime Floodplain Forest and Shrubland (CES204.154)

Descriptors:

Hydrogeomorphic Units : Riverine / Alluvial
Bioclimate : Temperate
Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Lowland

3157: North Pacific Swamp Systems

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9107 EVT_fuel: 2157

ESP: 1157 NatureServe Id: CES204.613

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This wetland system group occurs from southern coastal Alaska to coastal Washington and Oregon, west of the coastal mountain summits (not interior). These wooded swamps are mostly small-patch size, occurring sporadically in glacial depressions, in river valleys, around the edges of lakes, ponds and marshes, or on slopes with seeps that form subirrigated soils and where water tables fluctuate seasonally (mostly seasonally flooded regime). These areas receive nutrient-rich waters and may have muck or mineral soils. These swamps are dominated by conifer forests and/or deciduous shrubs. Characteristic species are a mix of species which may include *Alnus incana ssp. tenuifolia (= Alnus tenuifolia), Alnus viridis ssp. crispa (= Alnus crispa), Alnus rubra, Alnus viridis ssp. sinuata (= Alnus sinuata), Betula papyrifera, Chamaecyparis nootkatensis, Cornus sericea, Fraxinus latifolia, Malus fusca, Salix* spp., *Spiraea douglasii, Picea sitchensis, Pinus contorta, Tsuga heterophylla*, and *Tsuga mertensiana*. The overstory is often less than 50% cover, but the shrub understory can have high cover.

Range: This wetland system group occurs along coastal Washington to the southern coast of Oregon, and is restricted to the west side of the coastal mountain ranges. It also occurs in British Columbia.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 7:C

Similar:

Descriptors:

Water Nutrient Status : Eutrophic

Floristics/Dominants : Sphagnum spp.

Floristics/Dominants :	Pinus contorta
Lifeform :	Broad-Leaved Shrub
Lifeform :	Broad-Leaved Deciduous Tree
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3158: North Pacific Montane Riparian Woodland and Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9108 EVT_fuel: 2158

ESP: 1158 NatureServe Id: CES204.866

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M035 Vancouverian Flooded & Swamp Forest

NVC Group: G507 North Pacific Montane Riparian Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Ng Vancouverian Flooded & Swamp Forest

Summary: This ecological system occurs throughout mountainous areas of the Pacific Northwest coast, both on the mainland and on larger islands. It occurs on steep streams and narrow floodplains above foothills but below the alpine environments, e.g., above 1500 m (4550 feet) elevation in the Klamath Mountains and western Cascades of Oregon, up as high as 3300 m (10,000 feet) in the southern Cascades, and above 610 m (2000 feet) in northern Washington. Surrounding habitats include subalpine parklands and montane forests. In Washington, they are defined as occurring primarily above the *Tsuga heterophylla* zone, i.e., beginning at or near the lower boundary of the *Abies amabilis* zone. Dominant species include *Pinus contorta var. murrayana, Populus balsamifera ssp. trichocarpa, Abies concolor, Abies magnifica, Populus tremuloides, Alnus incana ssp. tenuifolia (= Alnus tenuifolia), Alnus viridis ssp. crispa (= Alnus crispa), Alnus viridis ssp. sinuata (= Alnus sinuata), Alnus rubra, Rubus spectabilis, Ribes bracteosum, Oplopanax horridus, Acer circinatum*, and several *Salix* species. In western Washington, major species are *Alnus viridis ssp. sinuata, Acer circinatum, Salix, Oplopanax horridus, Alnus rubra, Petasites frigidus, Rubus spectabilis*, and *Ribes bracteosum*. This is a disturbance-driven system that requires flooding, scour and deposition for germination and maintenance. It occurs on streambanks where the vegetation is significantly different than surrounding forests, usually because of its shrubby or deciduous character.

Range: This system occurs throughout mountainous areas of the Pacific Northwest Coast, both on the mainland and on larger islands, above 1500 m (4550 feet) elevation in the Klamath Mountains and western Cascades, up as high as 3300 m (10,000 feet) in the southern Cascades, and above 610 m (2000 feet) in northern Washington.

States: BC, OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar: Alaskan Pacific Maritime Floodplain Forest and Shrubland (CES204.154)

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3159: Rocky Mountain Montane Riparian Forest and Woodland

Match Confidence: Good Match

Suggested Match: Rocky Mountain Montane Riparian Systems

Codes: ESLF: 9109 EVT_fuel: 2159

ESP: 1159 NatureServe Id: CES306.614

BioGeographical Division : Rocky Mountain

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This lower montane riparian systems group is found throughout the Rocky Mountains and Colorado Plateau regions within a broad elevational range from approximately 900 to 2800 m. These systems often occur as mosaics of multiple communities that are tree-dominated with a diverse shrub component. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. They can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. Stands are also found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. Dominant trees may include *Acer negundo, Populus angustifolia, Populus balsamifera, Populus deltoides, Populus fremontii, Pseudotsuga menziesii, Picea pungens, Populus tremuloides, Salix amygdaloides, Juniperus scopulorum, Picea mariana*, and *Picea glauca*. Dominant shrubs include *Acer glabrum, Alnus incana, Betula occidentalis, Betula papyrifera, Cornus sericea, Crataegus rivularis, Forestiera pubescens, Prunus virginiana, Rhus trilobata, Salix monticola, Salix drummondiana, Salix exigua, Salix irrorata, Salix lucida, Shepherdia argentea*, or *Symphoricarpos* spp. Exotic trees *Elaeagnus angustifolia* and *Tamarix* spp. are common in some stands.

Range: This lower montane riparian system group occurs throughout the Rocky Mountains and Colorado Plateau regions.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, SD, UT, WA, WY

Map Zones: 9:C, 10:C, 12:C, 13:C, 15:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:C, 26:C, 27:C, 28:C, 29:C, 33:P

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Flooding Return Interval :	Short (<5 yrs)
Substrate Consolidation :	Unconsolidated
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Hydrogeomorphic Units :	Riverine / Alluvial
Life Zones :	Montane

3160: Rocky Mountain Subalpine/Upper Montane Riparian Forest and Woodland

Match Confidence: Good Match

Suggested Match: Rocky Mountain Subalpine/Upper Montane Riparian Systems

Codes: ESLF: 9110 EVT_fuel: 2160

ESP: 1160 NatureServe Id: CES306.615

BioGeographical Division : Rocky Mountain

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This riparian system group is composed of seasonally flooded forests, woodlands and shrublands found at montane to subalpine elevations of the Rocky Mountain cordillera, from southern New Mexico north into Montana, and west into the Intermountain region and the Colorado Plateau. Elevations range between 1500 and 3300 m; farther north elevation ranges between 900 and 2000 m. Stands are variable, occurring as narrow bands of trees and/or shrubs lining streambanks and alluvial terraces in narrow to wide, low-gradient valley bottoms and floodplains with sinuous stream channels to larger floodplains or terraces of rivers and streams, in V-shaped, narrow valleys and canyons (where there is cold-air drainage). Less frequently, occurrences are found in moderately wide valley bottoms on large floodplains along broad, meandering rivers, and on pond or lake margins. Stands can also be found around seeps, fens, and isolated springs on hillslopes away from valley bottoms. Dominant tree species vary across the latitudinal range, although it usually includes *Abies lasiocarpa* and/or *Picea engelmannii*; other important species include *Pseudotsuga menziesii, Picea pungens, Picea engelmannii X glauca, Populus tremuloides*, and *Juniperus scopulorum*. Other trees possibly present but not usually dominant include *Abies concolor, Abies grandis, Pinus contorta, Populus angustifolia, Populus balsamifera ssp. trichocarpa*, and *Juniperus osteosperma*. The dominant shrubs reflect the large elevational gradient and include *Alnus incana, Betula glandulosa, Betula occidentalis, Cornus sericea, Salix bebbiana, Salix boothii, Salix brachycarpa, Salix drummondiana, Salix eriocephala, Salix geyeriana, Salix monticola, Salix planifolia*, and *Salix wolfii*.

Range: This montane to subalpine riparian system group occurs throughout the Rocky Mountains, Colorado Plateau and Great Basin regions.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, SD, UT, WA, WY

Map Zones: 1:C, 9:C, 10:C, 12:C, 15:?, 16:C, 17:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:C, 27:C, 28:C, 29:C

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Juxtaposition :	RM Subalpine/Montane Riparian Shrubland
Juxtaposition :	RM Subalpine/Montane Riparian Woodland
Flooding Return Interval :	Short (<5 yrs)
Lifeform :	Broad-Leaved Deciduous Shrub
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3161: Northern Rocky Mountain Conifer Swamp

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9111 EVT_fuel: 2161

ESP: 1161 NatureServe Id: CES306.803

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M034 Rocky Mountain & Great Basin Montane Riparian Forest

NVC Group: G505 Rocky Mountain & Great Basin Swamp Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nc Rocky Mountain & Great Basin Montane Flooded & Swamp Forest

Summary: This ecological system occurs in the northern Rocky Mountains from northwestern Wyoming north into the Canadian Rockies and west into eastern Oregon and Washington. It is dominated by conifers on poorly drained soils that are saturated year-round or may have seasonal flooding in the spring. These are primarily on flat to gently sloping lowlands, but also occur up to near the lower limits of continuous forest (below the subalpine parkland). It can occur on steeper slopes where soils are shallow over unfractured bedrock. This system is indicative of poorly drained, mucky areas, and areas are often a mosaic of moving water and stagnant water. Soils can be woody peat, muck or mineral but tend toward mineral. Stands generally occupy sites on benches, toeslopes or valley bottoms along mountain streams. Associations present include wetland phases of *Thuja plicata, Tsuga heterophylla*, and *Picea engelmannii* forests. The wetland types are generally distinguishable from other upland forests and woodlands by shallow water tables and mesic or hydric undergrowth vegetation; some of the most typical species include *Athyrium filix-femina, Dryopteris* spp., *Lysichiton americanus, Equisetum arvense, Senecio triangularis, Mitella breweri, Mitella pentandra, Streptopus amplexifolius, Calamagrostis canadensis*, or *Carex disperma*.

Range: This system occurs in the northern Rocky Mountains from northwestern Wyoming and central Montana, north into the Canadian Rockies and west into eastern Oregon and Washington.

States: AB, BC, ID, MT, OR, WA, WY

Map Zones: 9:C, 10:C, 19:C, 20:C, 21:C, 29:C

Similar:

Descriptors:

Soil Moisture Regime : Saturated

Lifeform :	Needle-Leaved Tree
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Seepage-Fed Sloping
Bioclimate :	Temperate
Landforms :	Valley bottom
Landforms :	Toeslope
Landforms :	Bench
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3162: Western Great Plains Floodplain Forest and Woodland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Floodplain Systems

Codes: ESLF: 9153 EVT_fuel: 2162

ESP: 1162 NatureServe Id: CES303.678

BioGeographical Division :

NVC MacroGroup: M028 Northern & Central Great Plains Floodplain Forest

NVC Group: G147 Northern & Central Great Plains Floodplain Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B.2 Cool Temperate Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This ecological system is found in the floodplains of medium and large rivers of the western Great Plains. It occurs on the lower reaches of the North and South Platte, Platte, Arkansas, and Canadian rivers. Alluvial soils and periodic, intermediate flooding (every 5-25 years) typify this system. These are the perennial big rivers of the region with hydrologic dynamics largely driven by snowmelt in the mountains, instead of local precipitation events. Dominant communities within this system range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Dominant species include *Populus deltoides* and *Salix* spp. Grass cover underneath the trees is an important part of this system and is a mix of tallgrass species, including *Panicum virgatum* and *Andropogon gerardii*. *Tamarix* spp. and less desirable grasses and forbs can invade degraded areas within the floodplains, especially in the western portion of the province. These areas are often subjected to heavy grazing and/or agriculture and can be heavily degraded. Another factor is that groundwater depletion and lack of fire have created additional species changes. In most cases, the majority of the wet meadow and prairie communities may be extremely degraded or extirpated from the system.

Range: This system is found along major river floodplains in the southern and central portions of the Western Great Plains Division. This system occurs on the middle to lower reaches of the North and South Platte, Platte, Arkansas, and Canadian rivers. Major river floodplains of eastern Wyoming and Montana are included in ~Northwestern Great Plains Floodplain (CES303.676)$$ and not this system.

States: CO, KS, NE, OK, SD, TX

Map Zones: 22:C, 25:?, 26:C, 27:C, 28:P, 31:C, 32:C, 33:C, 34:C, 35:C, 36:C, 38:C, 43:C

Similar: Northwestern Great Plains Floodplain (CES303.676), South-Central Interior Large Floodplain (CES202.705), Southeastern Great Plains Floodplain Forest (CES205.710)

Descriptors:

Flooding Return Interval :	Long (>25 yrs)
Water Depth :	Deep (>15 cm)
Hydrogeomorphic Units :	Riverine / Alluvial
Landforms :	Floodplain
Major Physiognomy :	Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3163: Pacific Coastal Marsh Systems

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9201 EVT_fuel: 2163

ESP: 1163 NatureServe Id: CES206.617

BioGeographical Division : Mediterranean California

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This herbaceous wetland system group is found in scattered locations along the Pacific Coast. These salt marshes and mudflats are limited to bays and behind sand spits or other locations protected from wave action. They also include interior edges of coastal bays and estuaries or coastal lagoons adjacent to salt marshes, and sometimes freshwater marshes (inland along rivers). Typically these areas form with a mixture of inputs from freshwater sources into coastal saltwater, so they commonly co-occur with brackish marshes. These systems are exposed to continuously changing levels of salinity through submergence in ocean waters. Summer dry periods result in decreased freshwater inputs from inland. Hypersaline environments within salt marshes occur in "salt pans" where tidal water collects and evaporates. Characteristic plant species include *Atriplex prostrata (= Atriplex triangularis), Distichlis spicata, Batis maritima, Bidens* spp., *Cordylanthus* spp., *Eleocharis obtusa, Eragrostis hypnoides, Juncus balticus, Juncus mexicanus, Lilaeopsis masonii, Limonium californicum, Ludwigia palustris, Jaumea carnosa, Monanthochloe littoralis, Phragmites* spp., *Salicornia virginica, Schoenoplectus* spp., *Suaeda* spp., *Triglochin* spp., and *Typha* spp. Rare plant species include *Cordylanthus maritimus ssp. maritimus, Cirsium* spp., and other Asteraceae.

Range: This herbaceous wetland system group occurs in scattered locations along the Pacific Coast.

States: AK, BC, CA, MXBC, OR, WA

Map Zones: 1:C, 2:C, 3:C, 4:C

Similar:

Descriptors:

Hydroperiod : 30-180 days

Specialized Water Chemistry : Saline

Specialized Water Chemistry :	Saltwater (Polyhaline)
Lifeform :	Graminoid
Hydrogeomorphic Units :	Tidal / Estuarine
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Temperate
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous

3164: Rocky Mountain Wetland-Herbaceous

Match Confidence: Good Match

Suggested Match: Rocky Mountain Alpine-Montane Wet Meadow

Codes: ESLF: 9217 EVT_fuel: 2164

ESP: NatureServe Id: CES306.812

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M075 Western North American Montane-Subalpine Wet Shrubland & Wet

NVC Group: G521 Vancouverian & Rocky Mountain Montane Wet Meadow & Marsh

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

Summary: These are high-elevation communities found throughout the Rocky Mountains and Intermountain regions, dominated by herbaceous species found on wetter sites with very low-velocity surface and subsurface flows. They range in elevation from montane to alpine (1000-3600 m). These types occur as large meadows in montane or subalpine valleys, as narrow strips bordering ponds, lakes, and streams, and along toeslope seeps. They are typically found on flat areas or gentle slopes, but may also occur on sub-irrigated sites with slopes up to 10%. In alpine regions, sites typically are small depressions located below late-melting snow patches or on snowbeds. Soils of this system may be mineral or organic. In either case, soils show typical hydric soil characteristics, including high organic content and/or low chroma and redoximorphic features. This system often occurs as a mosaic of several plant associations, often dominated by graminoids, including *Calamagrostis stricta, Caltha leptosepala, Cardamine cordifolia, Carex illota, Carex microptera, Carex nigricans, Carex scopulorum, Carex utriculata, Carex vernacula, Deschampsia caespitosa, Eleocharis quinqueflora, Juncus drummondii, Phippsia algida, Rorippa alpina, Senecio triangularis, Trifolium parryi*, and *Trollius laxus*. Often alpine dwarf-shrublands, especially those dominated by *Salix*, are immediately adjacent to the wet meadows. Wet meadows are tightly associated with snowmelt and typically not subjected to high disturbance events such as flooding.

Range: This system is found throughout the Rocky Mountains and Intermountain West regions, ranging in elevation from montane to alpine (1000-3600 m).

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, SD, UT, WA, WY

Map Zones: 9:C, 10:C, 12:P, 13:C, 15:?, 16:C, 17:P, 18:P, 19:C, 21:C, 22:P, 23:C, 24:P, 25:C, 27:C, 28:C, 29:P

Similar: Rocky Mountain Subalpine-Montane Mesic Meadow (CES306.829)

Descriptors:

Soil Moisture Regime :	Saturated
Water Nutrient Status :	Mesotrophic Water
Lifeform :	Graminoid
Lifeform :	Forb
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Seepage-Fed Sloping
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Montane
Life Zones :	Montane
Life Zones :	Alpine

3165: Northern Rocky Mountain Foothill Conifer Wooded Steppe

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5426 EVT_fuel: 2165

ESP: 1165 NatureServe Id: CES306.958

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G213 Central Rocky Mountain Ponderosa Pine Woodland & Savanna

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Evergreen sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This inland Pacific Northwest ecological system occurs in the foothills of the northern Rocky Mountains in the Columbia Plateau region and west along the foothills of the Modoc Plateau and eastern Cascades into southern interior British Columbia. It also occurs east across Idaho into the eastern foothills of the Montana Rockies. The system may also occur on the lower treeline slopes of the Wyoming Rockies. These wooded steppes occur at the lower treeline/ecotone between grasslands or shrublands and forests and woodlands, typically on warm, dry, exposed sites too droughty to support a closed tree canopy. This is not a fire-maintained system. The "savanna" character results from a climate-edaphic interaction that results in widely scattered trees over shrubs or grasses, and even in the absence of fire, a "woodland" or "forest" structure will not be obtained. Elevations range from less than 500 m in British Columbia to 1600 m in the central Idaho mountains. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. This system can occur in association with cliff and canyon systems. It generally occurs on glacial till, glacio-fluvial sand and gravel, dune, basaltic rubble, colluvium, to deep loess or volcanic ash-derived soils, with characteristic features of good aeration and drainage, coarse textures, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. These can also occur on areas of sand dunes, scablands, and pumice where the edaphic conditions limit tree abundance. *Pinus ponderosa* (vars. *ponderosa* and *scopulorum*) and *Pseudotsuga menziesii* are the predominant conifers (not always together); *Pinus flexilis* may be present or common in the tree canopy. In interior British Columbia, *Pseudotsuga menziesii* is the characteristic canopy dominant. In transition areas with big sagebrush steppe systems, *Purshia tridentata, Artemisia tridentata ssp. wyomingensis, Artemisia tridentata ssp. tridentata*, and *Artemisia tripartita* may be common in fire-protected sites such as rocky areas. Deciduous shrubs, such as *Physocarpus malvaceus,*

Symphoricarpos albus, or *Spiraea betulifolia*, can be abundant in more northerly sites or more moist climates. Important grass species include *Pseudoroegneria spicata, Poa secunda, Hesperostipa* spp., *Achnatherum* spp., and *Elymus elymoides*.

Range: This system is found in the Fraser River drainage of southern British Columbia south along the Cascades into the Modoc Plateau of California, and the northern Rocky Mountains of Washington and Oregon. In the northeastern part of its range, it extends across the northern Rocky Mountains west of the Continental Divide into northwestern Montana and south to the Snake River Plain in Idaho. In Oregon, it is most common in south-central Oregon, in lands managed by the Lakeview District of the BLM, and by the adjacent Fremont and Deschutes national forests. It also occurs on the marginal lands coming south out of the Blue Mountains, on the edge of the northern Basin and Range.

States: BC, ID, MT, OR, WA, WY

Map Zones: 1:C, 7:C, 8:C, 9:C, 10:C, 12:?, 18:P, 19:C, 20:?, 21:C

Similar: Northwestern Great Plains-Black Hills Ponderosa Pine Woodland and Savanna (CES303.650)

Descriptors:

Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Aridic
Soil Depth :	Shallow Soil
Major Physiognomy :	Woody-Herbaceous

3166: Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4266 EVT_fuel: 2166

ESP: 1166 NatureServe Id: CES306.959

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G215 Middle Rocky Mountain Montane Douglas-fir Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs throughout the middle Rocky Mountains of central and southern Idaho (Lemhi, Beaverhead and Lost River ranges), south and east into the greater Yellowstone region, and south and east into the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, north to about the McDonald Pass area, and also into the Rocky Mountain Front region of Montana. This is a *Pseudotsuga menziesii*-dominated system without the maritime floristic composition; these are forests and woodlands occurring in the central Rockies where the southern monsoon influence is less and maritime climate regime is not important. This system includes extensive *Pseudotsuga menziesii* forests, occasionally with *Pinus flexilis* on calcareous substrates, and *Pinus contorta* at higher elevations. True firs, such as *Abies concolor, Abies grandis*, and *Abies lasiocarpa*, are absent in these occurrences, but *Picea engelmannii* can occur in some stands. Understory components include shrubs such as *Physocarpus malvaceus, Juniperus communis, Symphoricarpos oreophilus*, and *Mahonia repens*, and graminoids such as *Calamagrostis rubescens, Carex rossii*, and *Leucopoa kingii*. The fire regime is of mixed severity with moderate frequency. This system often occurs at the lower treeline immediately above valley grasslands, or sagebrush steppe and shrublands. Sometimes there may be a "bath-tub ring" of *Pinus ponderosa* at lower elevations or *Pinus flexilis* between the valley non-forested and the solid *Pseudotsuga menziesii* forest. In the Wyoming Basins, this system occurs as isolated stands of *Pseudotsuga menziesii*, with *Artemisia tridentata, Pseudoroegneria spicata, Leucopoa kingii*, and *Carex rossii*.

Range: This system occurs throughout the middle Rocky Mountains of central and southern Idaho (Lemhi, Beaverhead and Lost River ranges), south and east into the greater Yellowstone region, and south and east into the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into

Montana on the east side of the Continental Divide to the Rocky Mountain Front and includes all of the Beaverhead Mountains Section (M332E) (Bailey et al. 1994). It may also occur in scattered patches in southeastern Oregon.

States: ID, MT, OR?, WY

Map Zones: 9:?, 10:C, 18:?, 19:C, 20:?, 21:C, 22:C, 29:C

Similar:

Descriptors:

Temporal Persistence :	Moderate (100-500 yrs)
Juxtaposition :	RM Montane Mesic Mixed Conifer
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3167: Rocky Mountain Poor-Site Lodgepole Pine Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4267 EVT_fuel: 2167

ESP: 1167 NatureServe Id: CES306.960

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G220 Rocky Mountain Lodgepole Pine Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system is widespread but patchy in distribution in upper montane to subalpine elevations of the Rocky Mountains and Intermountain region. These are subalpine forests, occasionally found in the montane zone, where the dominance of *Pinus contorta* is related to topo-edaphic conditions and nutrient-poor soils. These include excessively well-drained pumice deposits, glacial till and alluvium on valley floors where there is cold-air accumulation, warm and droughty shallow soils over fractured quartzite bedrock, and shallow moisture-deficient soils with a significant component of volcanic ash. Pumice soils at lower elevations of the pumice zone of Oregon support this system. Soils on these sites are typically well-drained, gravelly, coarse-textured, acidic, and rarely formed from calcareous parent materials. Following stand-replacing fires, *Pinus contorta* will rapidly colonize and develop into dense, even-aged stands and then persist on these sites that are too extreme for other conifers to establish. In some cases, stands are open to dense and may be multi-aged, not just even-aged. These forests are dominated by *Pinus contorta* with shrub, grass, or barren understories. Sometimes there are intermingled mixed conifer/*Populus tremuloides* stands, with the latter occurring with inclusions of deeper, typically fine-textured soils. In central Oregon, *Pseudotsuga menziesii, Pinus ponderosa*, and *Abies concolor* may be present, and *Populus tremuloides* may be present as small patches. The shrub stratum may be conspicuous to absent; common species include *Arctostaphylos uva-ursi, Artemisia tridentata, Juniperus communis, Ceanothus velutinus, Linnaea borealis, Mahonia repens, Purshia tridentata, Spiraea betulifolia, Shepherdia canadensis, Vaccinium scoparium, Symphoricarpos albus*, and *Ribes* spp. Some open stands with very sparse understories can experience a form of mixed-severity burning via cigarette burning along downed logs (insufficient fuels between logs to carry fire). Depending on the arrangement and loading of logs to living trees, either mortality or fire-scarring may occur.

Range: This system is found in the upper montane to subalpine elevations of the Rocky Mountains from north-central Colorado north and west into Wyoming, Montana, Idaho, Oregon and Washington, as well as the Intermountain region (northeastern Nevada and north-central Utah). In north-central Montana (mapzone 20), it may occur on appropriate habitats (intrusive volcanics, very nutrient-poor) within "island" mountain ranges (Big Snowy and Highwood mountains). In central Wyoming, it may occur in the Ferris Mountains and possibly north into the Bighorns.

States: AB, BC?, CO?, ID, MT, NV?, OR, UT, WA, WY

Map Zones: 7:?, 8:?, 9:C, 10:C, 16:P, 19:C, 20:?, 21:C, 22:C, 28:C, 29:P

Similar:

Descriptors:

Temporal Persistence :	Moderate (100-500 yrs)
Floristics/Dominants :	Pinus contorta
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/High Intensity
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Long
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Very Shallow
Soil pH :	Acidic

3168: Northern Rocky Mountain Avalanche Chute Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5327 EVT_fuel: 2168

ESP: 1168 NatureServe Id: CES306.801

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G305 Central Rocky Mountain High Montane Mesic Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system occurs in the mountains throughout the northern Rockies, from Wyoming north and west into British Columbia and Alberta. It is composed of a diverse mix of deciduous shrubs or trees, and conifers found on steep, frequently disturbed slopes in the mountains. Occurrences are found on the lower portions and runout zones of avalanche tracks, and slopes are generally steep, ranging from 15-60%. Aspects vary, but are more common where unstable or heavy snowpack conditions frequently occur. Sites are often mesic to wet because avalanche paths are often in stream gullies, and snow deposition can be heavy in the run-out zones. The vegetation consists of moderately dense, woody canopy characterized by dwarfed and damaged conifers and small, deciduous trees/shrubs. Characteristic species include *Abies lasiocarpa, Acer glabrum, Alnus viridis ssp. sinuata* or *Alnus incana, Populus balsamifera ssp. trichocarpa, Populus tremuloides*, or *Cornus sericea*. Other common woody plants include *Paxistima myrsinites, Sorbus scopulina*, and *Sorbus sitchensis*. The ground cover is moderately dense to dense forb-rich, with *Senecio triangularis, Castilleja* spp., *Athyrium filix-femina, Thalictrum occidentale, Urtica dioica, Erythronium grandiflorum, Myosotis asiatica (= Myosotis alpestris), Veratrum viride, Heracleum maximum (= Heracleum lanatum)*, and *Xerophyllum tenax*. Mosses and ferns are often present.

Range: This ecological system occurs in the mountains throughout the northern Rockies, from Wyoming north and west into British Columbia and Alberta. It is likely to occur in the Colorado Rockies, but no association from that area have been classified as "avalanche chute" communities.

States: AB, BC, CO, MT, OR, WA, WY

Map Zones: 9:C, 10:C, 12:?, 19:C, 21:P, 28:P

Similar:

Descriptors:

Lifeform :	Forb
Mass Movement Type :	Avalanche
Disturbance Return Interval :	Very Short
Hydrogeomorphic Units :	Seepage-Fed Sloping
Bioclimate :	Temperate
Landforms :	Avalanche chute
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane
Life Zones :	Montane

3169: Northern Rocky Mountain Subalpine Deciduous Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5326 EVT_fuel: 2169

ESP: 1169 NatureServe Id: CES306.961

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M048 Central Rocky Mountain Montane-Foothill Grassland & Shrubland

NVC Group: G305 Central Rocky Mountain High Montane Mesic Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This shrubland ecological system is found within the zone of continuous forest in the upper montane and lower subalpine zones of the northern Rocky Mountains. Soils tend to be moist to wet. Stands are typically initiated by fires and will persist on sites for long periods because of repeated burns and changes in the presence of volatile oils in the soil which impedes tree regeneration. *Menziesia ferruginea, Rhamnus alnifolia, Ribes lacustre, Rubus parviflorus, Alnus viridis, Rhododendron albiflorum, Sorbus scopulina, Sorbus sitchensis, Vaccinium myrtillus, Vaccinium scoparium*, and *Vaccinium membranaceum* are the most common dominant shrubs, occurring alone or in any combination. Other shrubs can include *Shepherdia canadensis* and *Ceanothus velutinus*, but these also commonly occur in ~Northern Rocky Mountain Montane-Foothill Deciduous Shrubland (CES306.994)$$. *Rubus parviflorus* and *Ceanothus velutinus* are occasionally present, being more common in montane shrublands than in this subalpine system. Important forbs include *Xerophyllum tenax, Chamerion angustifolium*, and *Pteridium aquilinum*, reflecting the mesic nature of many of these shrublands.

Range: This system is found in the subalpine and upper montane zones in the northern Rockies, south and west around the Columbia Basin.

States: AB, BC, ID, MT, OR, WA, WY

Map Zones: 8:?, 9:C, 10:C, 18:P, 19:C, 20:C, 21:P, 22:?, 29:C

Similar:

Descriptors:

Temporal Persistence : Moderate (100-500 yrs)

Lifeform : Broad-Leaved Deciduous Shrub

Soil Depth : Very Shallow
Major Physiognomy : Shrubland (Shrub)
Life Zones : Montane

3170: Klamath-Siskiyou Xeromorphic Serpentine Savanna and Chaparral

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5425 EVT_fuel: 2170

ESP: 1170 NatureServe Id: CES206.150

BioGeographical Division : Mediterranean California

NVC MacroGroup: M043 California Chaparral

NVC Group: G257 California Xeric Chaparral

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na Californian Scrub

Summary: **Concept Summary:** This ecological system occurs throughout the Klamath-Siskiyou region below 1500 m (4550 feet) on thin rocky soils below winter snow accumulations and typically experiences hot and dry summers. These savannas and shrublands are almost always found on ultramafic soils (gabbro, peridotite, serpentinite), especially on the Josephine Peridotite Formation in the western Klamaths, with very low Ca:Mg ratio. These systems are highly variable and spotty in distribution. This system represents the most xeromorphic of these environments, generally supporting savannas or shrublands in areas with high rainfall amounts (over 130 cm/year) that would usually support closed-canopy forests. Landforms can include rocky ridges and ridgetops, south-facing slopes and river terraces, or gravelly valley bottomlands. These contain mosaics or patches of open-canopy tree-savannas with chaparral understories or shrub-dominated chaparral. Shrubs will often have higher densities than the trees which are more limited due to the rocky/thin soils and are often stunted in growth-form. These can also be short-duration chaparrals in previously forested areas that have experienced crownfires. When present, trees tend to have a scattered, open canopy or can be clustered, over a usually continuous, dense shrub layer, but sometimes with a grassy understory. *Pinus jeffreyi* or occasionally *Pinus attenuata* can form a scattered tree layer over bunch grasses. Dense shrub layers can also be present in some stands, or form their own patches without trees, especially on ridges. *Quercus vacciniifolia, Quercus sadleriana* (coastal and wetter climate but found on xeric sties), *Lithocarpus densiflorus var. echinoides, Quercus garryana var. breweri* (drier, inland), *Ceanothus cuneatus, Ceanothus pumilus, Arctostaphylos viscida, Arctostaphylos X cinerea, Arctostaphylos canescens, Arctostaphylos nevadensis, Frangula californica (= Rhamnus californica)*, and *Garrya buxifolia* represent some of the many chaparral shrubs that can be found in these habitats. Perennial grasses such as *Festuca roemeri, Achnatherum lemmonii, Melica*, and *Danthonia californica* may also be characteristic, although a

diverse and often endemic forb component (including rare serpentine endemics) is usually present. This system tends to have lower diversity within stands than in the other serpentine woodland and shrubland systems. Locally occurring, stunted and open stands of *Pinus contorta* and *Pinus monticola* on serpentine at low elevation are included in this system. The grassy understory savannas tend to have understory burns, while shrub-dense stands will suffer intense, stand-replacing fires.

Range: This system occurs throughout the Klamath - Siskiyou region below 1500 m (4550 feet), but mostly in the western Klamaths on the Josephine peridotite body.

States: CA, OR

Map Zones: 2:C, 3:C, 7:?

Similar: Klamath-Siskiyou Lower Montane Serpentine Mixed Conifer Woodland (CES206.917)

Descriptors:

Specialized Substrate Chemistry :	Ultramafic with low Ca:Mg ratio
Bioclimate :	Mediterranean
Specialized Substrates :	Serpentine

3171: North Pacific Alpine and Subalpine Dry Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7157 EVT_fuel: 2171

ESP: 1171 NatureServe Id: CES204.099

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M168 Rocky Mountain & Vancouverian Subalpine-High Montane Mesic M

NVC Group: G271 Rocky Mountain Subalpine-Montane Mesic Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This high-elevation, grassland system is dominated by perennial grasses and forbs found on dry sites, particularly south-facing slopes, typically imbedded in or above subalpine forests and woodlands. Disturbance such as fire also plays a role in maintaining these open grassy areas, although drought and exposed site locations are primary characteristics limiting tree growth. It is most extensive in the eastern Cascades, although it also occurs in the Olympic Mountains. Alpine and subalpine dry grasslands are small openings to large open ridges above or drier than high-elevation conifer trees. In general, soil textures are much finer, and soils are often deeper under grasslands than in the neighboring forests. These grasslands, although composed primarily of tussock-forming species, do exhibit a dense sod that makes root penetration difficult for tree species. Typical dominant species include *Festuca idahoensis, Festuca viridula*, and *Festuca roemeri* (the latter species occurring only in the Olympic Mountains). This system is similar to ~Northern Rocky Mountain Subalpine-Upper Montane Grassland (CES306.806)$$, differing in its including dry alpine habitats, more North Pacific floristic elements, greater snowpack, and higher precipitation.

Range: This system occurs only in the Pacific Northwest mountains (Coastal and westside Cascadian).

States: BC?, OR?, WA

Map Zones: 1:C, 2:?, 7:C

Similar: Northern Rocky Mountain Subalpine-Upper Montane Grassland (CES306.806)

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Graminoid

Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Deep
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Montane
Life Zones :	Alpine

3172: Sierran-Intermontane Desert Western White Pine-White Fir Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4269 EVT_fuel: 2172

ESP: 1172 NatureServe Id: CES204.101

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This interior Pacific Northwest ecological system occurs on the Modoc Plateau and Warner Mountains of California, north into the Fremont National Forest along the east slope of the southern Cascades in Oregon, and may also occur in isolated high-elevation ranges of northern Nevada. These forests and woodlands range from just above the zone of ponderosa pine in the montane zone, to the upper montane zone. Elevations range from 1370 m to over 2135 m (4500-7000 feet). Occurrences are found on all slopes and aspects, although more frequently on drier areas, including northwest- and southeast-facing slopes, but also occurs on northerly slopes and ridges. This ecological system generally occurs on basalts, andesite, glacial till, basaltic rubble, colluvium, or volcanic ash-derived soils, and sometimes on granitics (Carson Range). These soils have characteristic features of good aeration and drainage, coarse textures, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. Climatically, this system occurs somewhat in the rainshadow of the Sierras and Cascades and has a more continental regime, similar to the northern Great Basin. This system tends to be more woodland than forest in character, and the undergrowth is more open and drier, with little shrub or herbaceous cover. Tree regeneration is less prolific than in other mixed-montane conifer systems of the Cascades, Sierras and California Coast Ranges. *Pinus monticola* is the dominant conifer in most places, but *Abies concolor var. lowiana* is usually present, at least in the understory, and occasionally as the dominant in the canopy, replacing *Pinus monticola*, particularly at lower elevations, and *Pinus ponderosa* is also often present. In the Warner Mountains, the *Abies concolor var. lowiana* stands range from 1675 to 2135 m (5500-7000 feet) in elevation, and the mixed *Pinus monticola - Abies concolor* is usually above 2135 m (7000 feet). Mixed stands with *Pinus contorta*, in moister locations, as well as *Pinus jeffreyi* and sometimes *Populus tremuloides* occasionally occur. Southern stands (around Babbitt Peak and in the Carson

Range) can sometime have *Abies magnifica* in them, sometimes replacing *Abies concolor*. These forests and woodlands are marked by the absence of *Pseudotsuga menziesii, Pinus lambertiana*, and *Calocedrus decurrens*, and the generally drier, continental climatic conditions. In addition, the overall floristic affinities are with the Great Basin rather than Pacific Northwest. Understories are typically open, with moderately low shrub cover and diversity, and include *Arctostaphylos patula, Arctostaphylos nevadensis, Chrysolepis sempervirens, Ceanothus* sp., and *Ribes viscosissimum*. Common herbaceous taxa include *Arnica cordifolia, Festuca* sp., *Poa nervosa, Carex inops, Pyrola picta*, and *Hieracium albiflorum*. In openings, *Wyethia mollis* can be abundant.

Range: This ecological system is found in the transition zone from the northern Sierra Nevada of California and Oregon, east into the Modoc Plateau and Intermountain region of northwestern Nevada. It is found in the Fremont National Forest east of Lake View in Oregon, and in the Modoc Plateau and Warner Mountains of California. It continues farther south in California to the Diamond Mountains south of Honey Lake (a northeast extension of the Sierras), on Babbitt Peak between Lake Tahoe and Sierra Valley, and also in the Carson Range in Nevada east of Lake Tahoe Scattered stands may occur on Hart Mountain and Steens Mountain in Oregon and possibly a few isolated places in the northern Great Basin and the Jarbridge Mountains of Nevada.

States: CA, NV, OR

Map Zones: 7:C, 9:?

Similar: Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland (CES206.916), Mediterranean California Mesic Mixed Conifer Forest and Woodland (CES206.915), Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest (CES306.805)

Descriptors:

Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Low Intensity
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Aridic
Soil Depth :	Very Shallow
Major Physiognomy :	Woody-Herbaceous

3173: North Pacific Wooded Volcanic Flowage

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4329 EVT_fuel: 2173

ESP: 1173 NatureServe Id: CES204.883

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G240 North Pacific Maritime Douglas-fir - Western Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system is found from foothill to subalpine elevations and includes woodland to sparsely vegetated landscapes (generally >10% plant cover) on recent lava flows, excessively well-drained lahars, debris avalanches and pyroclastic flows. The characteristic feature of this system is the substrate limiting characteristic that creates an environment for a more open vegetation than the surrounding closed matrix forest. Examples are recent lava flows (3500-8200 years ago) on the north side of Mount Adams (andecite) and the big lava beds (basalt) south of Indian Heaven west of Mount Adams, Washington, and lahars (200-2000 years old) at Old Maid Flat west of Mount Hood, Oregon. These areas support open to sparse tree cover; characteristic species include *Pseudotsuga menziesii, Pinus contorta, Pinus monticola*, and *Abies lasiocarpa*. Tree cover can range from scattered (5%) up to 70% or occasionally even more. There may be scattered to dense shrubs present, such as *Acer circinatum, Vaccinium membranaceum, Arctostaphylos uva-ursi* (very characteristic), *Mahonia nervosa, Amelanchier alnifolia*, and *Xerophyllum tenax*. Soil development is limited, and mosses and lichens often cover the soil or rock surface.

Range: This uncommon system is found in the east and west Cascades of Washington and Oregon, and may occur in small patches in northern California in the vicinity of Mount Lassen or Mount Shasta.

States: CA?, OR, WA

Map Zones: 1:C, 2:P, 6:P, 7:C

Similar:

Descriptors:

Temporal Persistence : Long (> 500 yrs)

Mass Movement Type : Lava Flow

Soil Depth :	Very Shallow
Bioclimate :	Temperate
Specialized Substrates :	Rock Outcrops/Barrens/Glades
Landforms :	Butte
Landforms :	Escarpment
Life Zones :	Lowland
Life Zones :	Montane
Life Zones :	Montane
Life Zones :	Montane

3174: North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4272 EVT_fuel: 2174

ESP: 1174 NatureServe Id: CES204.098

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G241 North Pacific Maritime Silver Fir - Western Hemlock Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This forested system occurs only in the Pacific Northwest mountains, primarily west of the Cascade Crest. It generally occurs in an elevational band between *Pseudotsuga menziesii - Tsuga heterophylla* forests and *Tsuga mertensiana* forests. It dominates mid-montane dry to mesic maritime and some submaritime climatic zones from northwestern British Columbia to northwestern Oregon. In British Columbia and in the Olympic Mountains, this system occurs on the leeward side of the mountains only. In the Washington Cascades, it occurs on both windward and leeward sides of the mountains (in other words, it laps over the Cascade Crest to the "eastside"). Stand-replacement fires are regular with mean return intervals of about 200-500 years. Fire frequency tends to decrease with increasing elevation and continentality but still remains within this typical range. A somewhat variable winter snowpack that typically lasts for 2-6 months is characteristic. The climatic zone within which it occurs is sometimes referred to as the "rain-on-snow" zone because of the common occurrence of major winter rainfall on an established snowpack. *Tsuga heterophylla* and/or *Abies amabilis* dominate the canopy of late-seral stands, though *Pseudotsuga menziesii* is usually also common because of its long life span, and *Chamaecyparis nootkatensis* can be codominant, especially at higher elevations. *Abies procera* forests (usually mixed with silver fir) are included in this system and occur in the Cascades from central Washington to central Oregon and rarely in the Coast Range of Oregon. *Pseudotsuga menziesii* is a common species (unlike the mesic western hemlock-silver fir forest system) that regenerates after fires and therefore is frequent as a codominant, except at the highest elevations; the prevalence of this species is an important indicator in relation to the related climatically wetter ~North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097)$$. *Abies lasiocarpa* sometimes occurs as a codominant on the east side of the Cascades and in submaritime British Columbia. Understory species that tend to be more common or unique in this type compared to

the wetter ~North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097)$$ include *Achlys triphylla, Mahonia nervosa, Xerophyllum tenax, Vaccinium membranaceum, Rhododendron macrophyllum*, and *Rhododendron albiflorum*. *Vaccinium ovalifolium*, while still common, only dominates on more moist sites within this type, unlike in the related type where it is nearly ubiquitous.

Range: This system only occurs in the Pacific Northwest mountains, on the leeward side of coastal mountains in both British Columbia and in the Olympic Mountains of Washington. It occurs throughout most of the Washington Cascades on both west and east sides (sporadically on the east) and in the western Cascades of northern to central Oregon. It occurs very sporadically in the Willapa Hills of southwestern Washington and in the northern Oregon Coast Range. This type may also occur on the east side of the Oregon Cascades north of 45 degrees North latitude (Mount Hood National Forest - Hood River and Barlow ranger districts, and possibly the northern edge of Warm Springs Reservation in part of the McQuinn Strip).

States: BC, OR, WA

Map Zones: 1:C, 2:C, 3:?, 7:C

Similar: Alaskan Pacific Maritime Western Hemlock Forest (CES204.840), North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097)

Descriptors:

Floristics/Dominants : Tsuga heterophylla-Abies amabilis
Major Physiognomy : Forest and Woodland (Tree)

3177: California Coastal Closed-Cone Conifer Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4268 EVT_fuel: 2177

ESP: 1177 NatureServe Id: CES206.922

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G198 California Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: Small occurrences of this system may be found in scattered locations along California's entire coastline and onto the Channel Islands. They are found on marine sedimentary, non-metamorphosed features, often with podsols on sterile sandstone. These forests and woodlands are limited to coastal areas with moderate maritime climate and likely receive more annual precipitation than nearby coastal chaparral. Highly localized endemic tree species include *Cupressus macrocarpa, Cupressus goveniana*, and *Cupressus abramsiana* in scattered groves along coastal Mendocino, San Mateo, Santa Cruz, and Monterey counties. *Pinus contorta var. contorta, Pinus contorta var. bolanderi, Pinus muricata, Pinus torreyana*, and *Pinus radiata* are dominant or codominant in these and other occurrences. These occurrences can also include pygmy woodland expressions where nearly lateritic subsoil underlies acidic sands (ancient marine terraces). Stunted and twisted *Pinus contorta var. contorta* stands along the Oregon coast (often called pygmy forests) are also part of this system. Other associated plant species include *Arctostaphylos nummularia, Ledum groenlandicum, Vaccinium ovatum, Gaultheria shallon, Rhododendron macrophyllum*, and *Morella californica (= Myrica californica)*. The lichen and moss component of this system is very diverse, includes *Cladonia* spp, and can be abundant in these communities.

Range: This system is found in scattered locations along California's entire coastline and onto the Channel Islands and possibly just into southern Oregon in southern Coos and Curry counties.

States: CA, OR?

Map Zones: 2:C, 3:C, 4:C

Similar:

Descriptors:

Floristics/Dominants :	Cupressus macrocarpa, C. goveniana, C. abramsiana
Soil pH :	Acidic
Specialized Substrates :	marine sedimentary
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3178: North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4271 EVT_fuel: 2178

ESP: 1178 NatureServe Id: CES204.842

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G751 North Pacific Western Hemlock - Sitka Spruce - Western Red-cedar S

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: These forests occupy the outer coastal portions of British Columbia, southeastern Alaska, and northwestern Washington. Their center of distribution is the northern coast of British Columbia, as *Thuja plicata* approaches its northernmost limit in the southern half of southeastern Alaska. These forests occur mainly on islands but also fringe the mainland. They are never more than 25 km from saltwater; elevation ranges from 0 to 600 m, and below 245 m in Alaska (above 200 m, *Chamaecyparis nootkatensis* replaces *Thuja plicata*). The climate is hypermaritime, with cool summers, very wet winters, abundant fog, and without a major snowpack . Fire is absent from this system in Alaska and rare throughout the rest of the range. These forests are more influenced by gap disturbance processes and intense windstorms than by fire. The terrain is mostly gentle to rolling, of low topographic relief, and often rocky. Soils typically have a distinct humus layer overlying mineral horizons or bedrock; where the system is best developed in central British Columbia, the humus layers are very thick (mean 17-35 cm). Soils are often imperfectly drained, but this is not a wetland system. *Thuja plicata* and *Tsuga heterophylla* are the dominant tree species throughout, and *Chamaecyparis nootkatensis* joins them from northern Vancouver Island north. Canopy cover of trees is typically over 60%. *Pinus contorta* and *Tsuga mertensiana* can be present in some locations in the central and northern portion of the range. *Abies amabilis* occurs in British Columbia and northern Washington stands but is not typically found in southeastern Alaska. In Washington, nearly pure stands of *Tsuga heterophylla* are common and seem to be associated with microsites most exposed to intense windstorms. A shrub layer of *Gaultheria shallon, Vaccinium ovalifolium*, and *Menziesia ferruginea* is usually well-developed. The fern *Blechnum spicant* in great abundance is typical of hypermaritime conditions. *Oxalis oregana* (absent in Alaska) is important in the understory of moist sites in Washington. *Polystichum munitum* occurs at the northern end of its range in southeastern Alaska on well-drained sites. The abundance of

Thuja plicata in relation to other conifers is one of the diagnostic characters of these forests; the other is the low abundance of *Pseudotsuga menziesii* (absent in Alaska) and *Picea sitchensis*. Where these forests are best developed, they occur in a mosaic with forested wetlands, bogs, and Sitka spruce forests (the latter in riparian areas and on steep, more productive soils).

Range: This system is found in the outer coastal portions of British Columbia and southern southeast Alaska, as well as northwestern Washington.

States: AK, BC, WA

Map Zones: 1:C, 2:C, 78:C

Similar: North Pacific Hypermaritime Seasonal Sitka Spruce Forest (CES204.841), North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097), North Pacific Mesic Western Hemlock-Yellow-cedar Forest (CES204.843)

Descriptors:

Floristics/Dominants :	Tsuga heterophylla, Thjua plicata
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3179: Northwestern Great Plains-Black Hills Ponderosa Pine Woodland and Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4280 EVT_fuel: 2179

ESP: 1179 NatureServe Id: CES303.650

BioGeographical Division : Western Great Plains

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G216 Northwestern Great Plains-Black Hills Ponderosa Pine Forest & Woo

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This system occurs throughout the Great Plains Division along areas that border the Rocky Mountain Division and into the central Great Plains. The expansion of this system into the central Great Plains may be due to fire suppression. These can be physiognomically variable, ranging from very sparse patches of trees on drier sites, to nearly closed-canopy forest stands on north slopes or in draws where available soil moisture is higher. This system occurs primarily on gentle to steep slopes along escarpments, buttes, canyons, rock outcrops or ravines and can grade into one of the Great Plains canyon systems or the surrounding prairie system. Soils typically range from well-drained loamy sands to sandy loams formed in colluvium, weathered sandstone, limestone, scoria or eolian sand. This system is primarily dominated by *Pinus ponderosa* but may include a sparse to relatively dense understory of *Juniperus scopulorum, Thuja*, or *Cercocarpus* with just a few scattered trees. Deciduous trees are an important component in some areas (western Dakotas, Black Hills) and are sometimes codominant with the pines, including *Fraxinus pennsylvanica, Betula papyrifera, Quercus macrocarpa, Ulmus americana, Acer negundo*, and *Populus tremuloides*. Along the Missouri Breaks in north-central Montana, woodlands dominated by *Pseudotsuga menziesii* are in similar ecological settings as *Pinus ponderosa* in the Great Plains and are included in this system. In the breaks where it occurs, *Pseudotsuga menziesii* has a very open canopy over grassy undergrowth, predominantly composed of *Pseudoroegneria spicata*, with little to no shrubs present. Important or common shrub species with ponderosa pine can include *Arctostaphylos uva-ursi, Mahonia repens, Yucca glauca, Symphoricarpos* spp., *Prunus virginiana, Juniperus communis, Juniperus horizontalis, Amelanchier alnifolia, Rhus trilobata*, and *Physocarpus monogynus*. The herbaceous understory can range from sparse to a dense layer with species typifying the surrounding prairie system, with mixedgrass species common, such as *Andropogon gerardii, Bouteloua curtipendula, Carex inops ssp. heliophila, Carex filifolia, Danthonia intermedia,*

Koeleria macrantha, Nassella viridula, Oryzopsis asperifolia, Pascopyrum smithii, Piptatherum micranthum, and *Schizachyrium scoparium*. Timber cutting and other disturbances have degraded many examples of this system within the Great Plains, however, some good examples may occur along the Pine Ridge escarpment and Pine Ridge district of the Nebraska National Forest in Nebraska.

Range: This system is found in central and eastern Montana, the western Dakotas, eastern Wyoming (east of the Bighorns), the Black Hills, and south into the Sand Hills of Nebraska and northeastern Colorado (north of Pawnee National Grasslands to Cedar Point near Limon and south). In Montana, it occurs along the Missouri River breaks, around the Little Belts and Snowy mountains, in south-central Montana between the Bighorns and the Black Hills (along the Tongue and Powder rivers), and other areas of eastern Montana. In Wyoming, it is found around the Black Hills and Bear Lodge Mountains, and in isolated areas of eastern Wyoming on bluffs and rock outcrops, and along "breaks." Whether this system occurs in Kansas is uncertain.

States: CO, KS?, MT, ND, NE, SD, WY

Map Zones: 20:C, 29:C, 30:C, 31:C, 33:C, 39:?, 40:?

Similar: Northern Rocky Mountain Foothill Conifer Wooded Steppe (CES306.958), Northern Rocky Mountain Ponderosa Pine Woodland and Savanna (CES306.030), Southern Rocky Mountain Ponderosa Pine Savanna (CES306.649), Southern Rocky Mountain Ponderosa Pine Woodland (CES306.648)

Descriptors:

Floristics/Dominants :	Pinus ponderosa with shrubby understory
Floristics/Dominants :	Pinus ponderosa with grassy understory
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Aridic
Soil Texture :	Sand
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Very Shallow
Topography :	High Ridge/Upper Slope

3180: Introduced Riparian Forest and Woodland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2180

ESP: 1180 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3181: Introduced Upland Vegetation-Annual Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2181

ESP: 1181 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced annual and/or biennial forb species such as: Halogeton glomeratum, Kochia scoparia, Salsola spp., or annual grass species such as: Avena spp., Bromus spp., Schismus spp..

Range:

States:

Map Zones:

Similar:

Descriptors:

3182: Introduced Upland Vegetation-Perennial Grassland and Forbland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2182

ESP: 1182 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced perennial forb or grassland species such as: Circium arvense, C. vulgare, Centaurea spp., Euphorbia esula, Isatis tinctora, Lepidium sp., Melilotus albus, M. officinalis, Onopordum acanthium, Agropyron cristatum, Bromus inermis, Eragrostis lehmannianna, Pennisetum spp., Poa bulbosa, P. pratensis, Thinopyrum intermedium.

Range:

States:

Map Zones:

Similar:

Descriptors:

3183: Introduced Upland Vegetation-Annual and Biennial Forbland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2183

ESP: 1183 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced perennial forb or grassland species such as: Circium arvense, C. vulgare, Centaurea spp., Euphorbia esula, Isatis tinctora, Lepidium sp., Melilotus albus, M. officinalis, Onopordum acanthium, Agropyron cristatum, Bromus inermis, Eragrostis lehmannianna, Pennisetum spp., Poa bulbosa, P. pratensis, Thinopyrum intermedium.

Range:

States:

Map Zones:

Similar:

Descriptors:

3184: California Annual Grassland

Match Confidence: Unmatched

Suggested Match: California Central Valley and Southern Coastal Grassland

Codes: ESLF: EVT_fuel: 2184

ESP: 1184 NatureServe Id:

BioGeographical Division :

NVC MacroGroup: M045 California Annual & Perennial Grassland

NVC Group: G766 California Annual Grassland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Nb Californian Grassland & Meadow

Summary: No system described for this. The closest is the California Central Valley and Southern Coastal Grassland (CES206.942; which is a perennial grassland system). This system is found from 10-1200 m (30-3600 feet) elevation, in the Great Central Valley and along the southern coastal regions of California. It receives on average 50 cm (range 25-100 cm) of precipitation per year, mainly as winter rain. It is found with fine-textured soils, moist or even waterlogged in winter, but very dry in summer. Historically, these grasslands were common among oak savanna and woodland and probably experienced similar frequent fire regimes. Characteristic plant species include Nassella pulchra, Aristida spp., Achillea millefolium var. borealis (= Achillea borealis), Achyrachaena mollis, Agoseris heterophylla, Bloomeria crocea, Triteleia ixioides (= Brodiaea lutea), Chlorogalum pomeridianum, Clarkia purpurea, Dodecatheon jeffreyi, Elymus glaucus, Leymus triticoides, Festuca californica, Melica californica, Castilleja attenuata (= Orthocarpus attenuatus), and Poa secunda (= Poa scabrella).

Range:

States: CA

Map Zones:

Similar:

Descriptors:

3185: Introduced Forest Wetland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2185

ESP: 1185 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3186: Introduced Upland Vegetation-Shrub

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2186

ESP: 1186 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced shrub species.

Range:

States:

Map Zones:

Similar:

Descriptors:

3187: Introduced Upland Vegetation-Treed

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2187

ESP: 1187 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced tree species.

Range:

States:

Map Zones:

Similar:

Descriptors:

3191: Recently Logged-Herb and Grass Cover

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2191

ESP: 1191 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas dominated by herbaceous ground cover following tree harvesting.

Range:

States:

Map Zones:

Similar:

Descriptors:

3192: Recently Logged-Shrub Cover

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2192

ESP: 1192 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in early successional stage or trees stunted from environmental conditions following a tree havesting event.

Range:

States:

Map Zones:

Similar:

Descriptors:

3193: Recently Logged-Tree Cover

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2193

ESP: 1193 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that have recently been clear-cut or thinned by 50% or more and are clearly evident in the imagery (images acquired between 1999-2001).

Range:

States:

Map Zones:

Similar:

Descriptors:

3194: Ruderal Upland-Treed

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2194

ESP: 1194 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3195: Recently Burned-Herb and Grass Cover

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2195

ESP: 1195 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas previously dominated by grass or forbs, that have burned in the recent past, and where evidence of fire is visible on the imagery (images acquired between 1999-2001). These areas are currently regenerating with grass and herbaceous species, although species composition may be altered compared to pre-fire conditions.

Range:

States:

Map Zones:

Similar:

Descriptors:

3196: Introduced Shrub Wetland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2196

ESP: 1196 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3199: Introduced Herbaceous Wetland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2199

ESP: 1199 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3200: Coastal Douglas-fir Woodland

Match Confidence: Unmatched

Suggested Match: Abies concolor - Pseudotsuga menziesii Coastal, Cascade & Sierran Forest Alli

Codes: ESLF: EVT_fuel: 2200

ESP: NatureServe Id: A3674

BioGeographical Division :

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This is a forest alliance where the upper tree canopy is a mixed codominance of Abies concolor and Pseudotsuga menziesii. Other tree species often present include Calocedrus decurrens, Chrysolepis chrysophylla, Cornus nuttallii, Pinus lambertiana, Pinus ponderosa, Quercus chrysolepis, and Quercus kelloggii. Pinus lambertiana has less than 5% absolute cover, and less than 2% relative cover. Stands can have well-developed shrub layers or no shrub layer, and stands can have greater diversity of mixed trees in the upper canopy. Understory species are characteristic of the Vancouverian flora which differentiates this alliance from its Rocky Mountain counterpart. Characteristic understory and undergrowth species include Anemone deltoidea, Ceanothus cordulatus, Chrysolepis chrysophylla, Corylus cornuta, Holodiscus discolor, Lithocarpus densiflorus, Mahonia aquifolium, Quercus sadleriana, Quercus vacciniifolia, Rubus nivalis, Taxus brevifolia, Toxicodendron diversilobum, and Whipplea modesta. The alliance occurs throughout the Oregon Coast Ranges, southern Cascades and Klamath Mountains south into the California northern Coast Ranges, California Cascades and Sierra Nevada.

Range: This alliance is found in the Oregon Coast Ranges, Klamath Mountains and southern Cascades, and California northern Coast Ranges, Klamath Mountains, Sierra Nevada, and southern Cascades.

States: OR, CA, WA

Map Zones:

Similar: A3420 Abies concolor Dry Forest & Woodland Alliance

Descriptors:

3201: Quercus garryana Woodland Alliance

Match Confidence: Unmatched

Suggested Match: Quercus garryana - Pinus ponderosa / Carex geyeri Woodland Alliance

Codes: ESLF: EVT_fuel: 2266

ESP: 1201 NatureServe Id: A3327

BioGeographical Division :

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G206 Cascadian Oregon White Oak - Conifer Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: A3327 Quercus garryana - Pseudotsuga menziesii / Toxicodendron diversilobum Forest & Woodland Alliance or A3328 Quercus garryana - Pinus ponderosa / Carex geyeri Woodland Alliance. These two alliances are members of the CES204.085 East Cascades Oak-Ponderosa Pine Forest and Woodland Ecological System.

A3327 This alliance consists of stands dominated by Quercus garryana mixed with Pinus ponderosa and/or Pseudotsuga menziesii. Isolated, taller Pinus ponderosa or Pseudotsuga menziesii over Quercus garryana trees sometimes characterize this alliance. Clonal Quercus garryana stands can create dense patches across a grassy landscape creating open woodlands or savannas. The understory may be dense shrubs or be dominated by grasses, sedges or forbs. Shrubs prominent in some stands include Artemisia nova, Artemisia tridentata, Chrysothamnus viscidiflorus, and Purshia tridentata. Understories are generally dominated by herbaceous species, especially graminoids. Mesic sites have an open to closed sodgrass understory dominated by Calamagrostis rubescens, Carex geyeri, Carex rossii, Carex inops, or Elymus glaucus. Drier savanna and woodland understories typically contain bunchgrass steppe species such as Festuca idahoensis or Pseudoroegneria spicata. Common exotic grasses that often appear in high abundance are Bromus tectorum and Poa bulbosa. This alliance occurs in the foothills of the eastern Cascades in Washington and Oregon within 65 km (40 miles) of the Columbia River Gorge, further east into the Columbia Plateau ecoregion, and there are disjunct occurrences in Klamath County, south-central Oregon and Siskiyou County, north-central California. These woodlands occur at the lower treeline/ecotone between Artemisia spp. or Purshia tridentata steppe or shrubland and Pinus ponderosa and/or Pseudotsuga menziesii forests or woodlands. Fire plays an important role in creating vegetation structure and composition in this habitat. Decades of fire suppression have led to invasion by Pinus ponderosa along lower treeline and by Pseudotsuga menziesii. Soil, fire and drought play roles in maintaining an open tree canopy in part of this dry woodland habitat. It is drier and colder than more maritime stands of ~Quercus garryana - Pseudotsuga menziesii / Toxicodendron diversilobum Forest & Woodland Alliance (A3328)$$.

A3328 This alliance consists of savanna, woodland and forest dominated by Quercus garryana. Codominance by the evergreen coniferPseudotsuga menziesii is common, and Pinus ponderosa is important in some stands with mesic indicator species in the undergrowth. In the south, common associates also include Quercus kelloggii and Arbutus menziesii. The predominant oaks in areas of higher fire frequency include Quercus kelloggii and Quercus garryana, with Quercus garryana var. garryana codominant in the central and northern Coast Ranges. The perennial bunchgrass component includes Festuca idahoensis, Festuca californica, Elymus glaucus, andDanthonia californica (close to the coast). A variety of native forbs also occur. Other characteristic species include Toxicodendron diversilobum, Juniperus occidentalis, and Ceanothus cuneatus. This alliance occurs in southwestern British Columbia, in the Puget Trough and Willamette Valley south into the Klamath Mountains and into northern California, where it is found in the northern portions of the Sierra Nevada and Coast Ranges foothills at lower montane elevations from 600-1600 m (1800-4850 feet) on steep, rocky slopes where snow and cold temperatures occur. This alliance is associated with dry, predominantly low-elevation sites and/or sites that experienced

frequent presettlement fires

Range:

States: CA, OR, WA.

Map Zones:

Similar:

Descriptors:

3202: Juniperus occidentalis Wooded Herbaceous Alliance

Match Confidence: Unmatched

Suggested Match: Juniper occidentalis / Herbaceous Understory Woodland & Savanna Alliance

Codes: ESLF: EVT_fuel: 2203

ESP: 1202 NatureServe Id: A3500

BioGeographical Division :

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G248 Columbia Plateau Western Juniper Woodland & Savanna

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This alliance is a member of the CES304.082 Columbia Plateau Western Juniper Woodland and Savanna Ecologial System. A3500 Juniper occidentalis / Herbaceous Understory Woodland & Savanna Alliance. **Vegetation within this woodland and savanna alliance is characterized by a sparse to open canopy of Juniperus occidentalis and a moderately dense to dense herbaceous layer. Juniperus occidentalis is typically the sole tree species; however, the tree form of Cercocarpus ledifolius may occasionally be present to codominant. Additionally, a sparse to open shrub layer (1-20% cover) may be present. The most common shrub is Artemisia tridentata, but others include Artemisia arbuscula, Artemisia rigida, Cercocarpus ledifolius (shrub form), Chrysothamnus viscidiflorus, Ericameria nauseosa, Purshia tridentata, Ribes cereum, and Symphoricarpos oreophilus. The herbaceous layer is typically dominated by graminoids such as Achnatherum occidentale, Achnatherum thurberianum, Carex geyeri, Carex filifolia, Festuca idahoensis, Koeleria macrantha, Leymus cinereus, Poa secunda, and Pseudoroegneria spicata. Common forbs include Achillea millefolium, Balsamorhiza spp., and Trifolium macrocephalum. This woodland and savanna alliance is found on the Columbia Plateau and extends to the northern and western margins of the Great Basin, from southwestern Idaho to the eastern foothills of the Cascades, and south to the Modoc Plateau of northeastern California. Stands range in elevation from under 200 m along the Columbia River in central Washington to over 1800 m in southwestern Idaho. Generally soils are medium-textured, with abundant coarse fragments derived from volcanic parent materials. In central Oregon, the center of distribution, all aspects and slope positions occur. Where this type grades into relatively mesic forest or grassland habitats, the vegetation becomes restricted to rock outcrops or escarpments with excessively drained soils.**

Range: **This woodland alliance is found largely in the Columbia Plateau and occurs along the northern and western edges of the Great Basin from southern California north to central Washington and east to southwestern Idaho. The areas of broadest distribution are central Oregon and the Modoc Plateau of northeastern California. Both areas lie just east of the Cascade Range and have extensive moderate-elevation terrain with gentle topography. This alliance is found west of the Cascade-Sierra axis in the upper Klamath Basin, where it occurs in the rainshadow of the Klamath Mountains.**

States: CA, ID, NV?, OR, WA

Map Zones:

Similar: A3497 Juniperus osteosperma / Herbaceous Understory Woodland & Savanna Alliance
A3499 Juniperus occidentalis / Shrub Understory Woodland Alliance
A3575 Juniperus monosperma / Herbaceous Understory Woodland & Savanna Alliance

Descriptors:

3203: Juniperus occidentalis Woodland Alliance

Match Confidence: Unmatched

Suggested Match: Juniperus occidentalis / Shrub Understory Woodland Alliance

Codes: ESLF: EVT_fuel: 2203

ESP: 1203 NatureServe Id: A3499

BioGeographical Division :

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G248 Columbia Plateau Western Juniper Woodland & Savanna

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This alliance is a member of the CES304.082 Columbia Plateau Western Juniper Woodland and Savanna Ecologial System. Vegetation of this woodland alliance is characterized by an open to moderately dense canopy of Juniperus occidentalis with a moderately dense to dense shrub layer. Juniperus occidentalis is typically the only tree species, although Pinus ponderosa may be present in some stands. Pinus jeffreyi may occasionally occur in stands of this alliance in extreme northeastern California. The tree form of Cercocarpus ledifolius may occasionally codominate. The shrub layer is dominated by Artemisia tridentata as the most common shrub; others are Cercocarpus ledifolius (shrub form), Chrysothamnus viscidiflorus, Ericameria nauseosa, Purshia tridentata, Ribes cereum, and Symphoricarpos oreophilus. A sparse to moderately dense herbaceous layer may be present that is typically dominated by graminoids such as Carex filifolia, Festuca idahoensis, Poa secunda, and Pseudoroegneria spicata. This woodland alliance is found on the Columbia Plateau and extends to the northern and western margins of the Great Basin, from southwestern Idaho to the eastern foothills of the Cascades, and south to the Modoc Plateau of northeastern California. Stands range in elevation from under 200 m along the Columbia River in central Washington to over 1800 m in southwestern Idaho. Generally soils are medium-textured, with abundant coarse fragments, and derived from volcanic parent materials. In central Oregon, the center of distribution, all aspects and slope positions occur. Where this alliance grades into relatively mesic forest or grassland habitats, these woodlands become restricted to rock outcrops and escarpments having xeric soils.

Range: This woodland alliance is found largely in the Columbia Plateau and occurs along the northern and western edges of the Great Basin from southern California north to central Washington and east to southwestern Idaho. The areas of broadest distribution are central Oregon and the Modoc Plateau of northeastern California. Both areas lie just east of the Cascade Range and have extensive moderate-elevation terrain with gentle topography. This alliance is found west of the Cascade-Sierra axis in the upper Klamath Basin, where it occurs in the rainshadow of the Klamath Mountains.

States: CA, ID, NV?, OR, WA

Map Zones:

Similar: A3500 Juniperus occidentalis / Herbaceous Understory Woodland & Savanna Alliance

Descriptors:

3204: Western Great Plains Mesquite Shrubland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Mesquite Woodland and Shrubland

Codes: ESLF: 5317 EVT_fuel: 2111

ESP: 1111 NatureServe Id: CES303.668

BioGeographical Division :

NVC MacroGroup: M053 Great Plains Shortgrass Prairie

NVC Group: G144 Great Plains Shortgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily in the southern portion of the Western Great Plains Division, primarily in Texas, Oklahoma and eastern New Mexico. It is dominated by Prosopis glandulosa with shortgrass species in the understory. Ziziphus obtusifolia and Atriplex canescens can codominate in some examples, as can Opuntia species in heavily grazed areas. Shortgrass species Bouteloua gracilis or Buchloe dactyloides are typically present. Other grasses may include Aristida purpurea, Bouteloua curtipendula, Bouteloua eriopoda, Bouteloua hirsuta, Muhlenbergia torreyi, Pleuraphis jamesii, Sporobolus airoides, and Sporobolus cryptandrus. Historically this system probably occurred as a natural component on more fertile soils and along drainages, but it has expanded its range into prairie uplands in recent decades.

Classification Comments: With fire suppression and grazing, Prosopis glandulosa has been able to extend its range and become dense in examples of Western Great Plains Shortgrass Prairie (CES303.672) or Central Mixedgrass Prairie (CES303.659). Those areas should still be considered part of the prairie system. In Landfire mapzone 26 BpS modeling workshops, this was modeled in its limited extent along drainages rather than as the pervasive EVT.

Range: This system is primarily found in the southern portion of the Western Great Plains division, particularly in Texas, Oklahoma and eastern New Mexico. Nations

States: NM, OK, TX

Map Zones: 26:C, 27:C, 34:C, 35:C, 38:P

Similar: Central Mixedgrass Prairie (CES303.659), Western Great Plains Shortgrass Prairie (CES303.672)

Descriptors:

Grazing Intensity/Spatial Character : Patch/Medium Intensity

Fire Intensity/Spatial Character : Patch/Medium Intensity
Major Physiognomy : Shrubland (Shrub)

3205: Tsuga mertensiana-Abies amabilis Woodland Alliance

Match Confidence: Unmatched

Suggested Match: Tsuga mertensiana - Abies amabilis Forest & Woodland Alliance

Codes: ESLF: EVT_fuel: 2205

ESP: 1205 NatureServe Id: A3723

BioGeographical Division :

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G245 North Pacific Mountain Hemlock - Silver Fir Forest & Tree Island

1997 Standard

FGDC Division :
FGDC Order :
FGDC Class :
FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland
NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland
NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland
NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: These forests have a closed tree canopy that is dominated by *Tsuga mertensiana* and *Abies amabilis*. Other common trees include *Tsuga heterophylla, Chamaecyparis nootkatensis*, and *Pseudotsuga menziesii*. The undergrowth is often somewhat depauperate because of poor light penetration at the forest floor, but may include a moderately sparse shrub layer composed of *Rubus* spp., *Elliottia pyroliflorus, Rhododendron albiflorum, Menziesia ferruginea, Vaccinium membranaceum*, and *Vaccinium ovalifolium*. Shade-tolerant forbs and ferns may also be present. Stands occur between 1000-1500 m (possibly up to 2000 m). Sites are found on mid to lower slopes, benches and bottoms with typically western and northern aspects. Soils are acidic, coarse-textured and often subirrigated. Stands occur primarily west of the Cascade Crest where maritime influence and deep winter snowpacks are typical. This alliance occurs in southern British Columbia to central Oregon.

Range: This alliance occurs in the Coast Mountains of British Columbia and Cascade Range of Washington and Oregon.

States: BC, WA, OR.

Map Zones:

Similar:

Descriptors:

3206: Pseudotsuga menziesii Giant Forest Alliance

Match Confidence: Unmatched

Suggested Match: Pseudotsuga menziesii - Lithocarpus densiflorus Forest Alliance

Codes: ESLF: EVT_fuel: 2206

ESP: 1206 NatureServe Id: A0106

BioGeographical Division :

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G208 California Moist Coastal Mixed Evergreen Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This alliance is a member of the CES206.919 Mediterranean California Mixed Evergreen Forest Ecological System. A0106 Pseudotsuga menziesii - Lithocarpus densiflorus Forest Alliance. This alliance consists of mixed stands of Pseudotsuga menziesii and Lithocarpus densiflorus, with other conifers or broadleaf evergreen trees, such as Acer macrophyllum, Arbutus menziesii, Calocedrus decurrens, Chamaecyparis lawsoniana, Chrysolepis chrysophylla, Pinus ponderosa, Pinus lambertiana, Quercus chrysolepis, Quercus kelloggii, Taxus brevifolia, Tsuga heterophylla andUmbellularia californica. Conifer cover is significant. Common shrubs include Gaultheria shallon, Mahonia nervosa, Rhododendron macrophyllum, Toxicodendron diversilobum, Vaccinium ovatum, and Vaccinium uliginosum. Trees are >75 m in height and the canopy is intermittent to continuous, two-tiered in older stands. The shrub layer is sparse to intermittent, and the herbaceous layer is sparse or abundant. This forest alliance occurs in the mountains of northern California (as far south as Santa Cruz) and southern Oregon, including the Klamath Mountains and the western portion of the southern Cascades and northern Sierra Nevada at elevations ranging from 100-1500 m. Habitats are raised stream benches, terraces, slopes, and ridges of all aspects. Soils are deep, well-drained, and mostly derived from sandstones and schists. This alliance is characterized by a multi-tiered structure, with a closed canopy of giant (>50 m tall) conifers and a shorter tree canopy of sclerophyllous hardwoods (20-50 m tall). There is a complex shrub layer. The herbaceous understory is usually sparse, but can be diverse and lush in light gaps or mesic sites.

Range: This forest alliance occurs in the maritime-influenced mountains of northern California (as far south as Santa Cruz) and southern Oregon, including the Klamath Mountains and the western portion of the southern Cascades and northern Sierra Nevada.

States: CA, OR.

Map Zones:

Similar: A3357 Lithocarpus densiflorus - Arbutus menziesii Forest Alliance

Descriptors:

3207: Central Mixedgrass Prairie Shrubland

Match Confidence: Unmatched

Suggested Match: Central Mixedgrass Prairie

Codes: ESLF: 7104 EVT_fuel: 2132

ESP: 1132 NatureServe Id: CES303.659

BioGeographical Division :

NVC MacroGroup: M051 Great Plains Mixedgrass & Fescue Prairie

NVC Group: G133 Central Great Plains Mixedgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This mixedgrass prairie system ranges from South Dakota into the Rolling Plains and the western Edwards Plateau of Texas. It is bordered by the shortgrass prairie on its western edge and the tallgrass prairie to the east. The loessal regions in west-central Kansas and central Nebraska, the Red Hills region of south-central Kansas and northern Oklahoma are all located within this system. Because of its proximity to other ecoregions, this system contains elements from both shortgrass and tallgrass prairies, which combine to form the mixedgrass prairie ecological system throughout its range. The distribution, species richness and productivity of plant species within the mixedgrass ecological system is controlled primarily by environmental conditions, in particular soil moisture and topography. Grazing and fire are important dynamic processes in this system. The relative dominance of the various grass and forb species within different associations in the system also can strongly depend on the degree of natural or human disturbance. This system can contain grass species such as *Bouteloua curtipendula, Schizachyrium scoparium, Andropogon gerardii, Hesperostipa comata, Sporobolus heterolepis*, and *Bouteloua gracilis*, although the majority of the associations within the region are dominated by *Pascopyrum smithii* or *Schizachyrium scoparium*. Numerous forb and sedge species (*Carex* spp.) can also occur within the mixedgrass system in the Western Great Plains. Although forbs do not always significantly contribute to the canopy, they can be very important. Some dominant forb species include *Ambrosia psilostachya, Echinacea angustifolia*, and *Lygodesmia juncea*. Oak species such as *Quercus macrocarpa* can occur also in areas protected from fire due to topographic position. This can cause an almost oak savanna situation in certain areas, although fire suppression may allow for a more closed canopy and expansion of bur oak beyond those sheltered areas. In those situations, further information will be needed to determine if those larger areas with a more closed canopy of bur oak should be considered part of ~Western Great Plains Dry Bur Oak Forest and Woodland (CES303.667)$$.

Likewise, within the mixedgrass system, small seeps may occur, especially during the wettest years. Although these are not considered a separate system, the suppression of fire within the region has enabled the invasion of both exotics and some shrub species such as *Juniperus virginiana* and also allowed for the establishment of *Pinus ponderosa* in some northern areas.

Range: This system is found throughout the central and southern areas of the western Great Plains ranging from southern South Dakota into the Rolling Plains and western Edwards Plateau of Texas.

States: CO, KS, ND, NE, OK, SD, TX

Map Zones: 27:P, 30:C, 31:C, 32:C, 33:C, 34:C, 35:C, 38:C, 39:P, 43:P

Similar: Northwestern Great Plains Mixedgrass Prairie (CES303.674), Western Great Plains Dry Bur Oak Forest and Woodland (CES303.667), Western Great Plains Mesquite Woodland and Shrubland (CES303.668), Western Great Plains Sand Prairie (CES303.670).

Descriptors:

Lifeform :	Graminoid
Grazing Intensity/Spatial Character :	Landscape/High Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Silt
Soil Texture :	Loam
Soil Depth :	Shallow Soil
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3208: Abies concolor Forest Alliance

Match Confidence: Unmatched

Suggested Match: Abies concolor Dry Forest & Woodland Alliance

Codes: ESLF: EVT_fuel: 2208

ESP: 1208 NatureServe Id: A3420

BioGeographical Division :

NVC MacroGroup: M022 Southern Rocky Mountain Lower Montane Forest

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: **Two alliances have been recognzied -** A3420 Abies concolor Dry Forest & Woodland Alliance A3369 Abies concolor Mesic Forest & Woodland Alliance representing two different USNVC groups (G225 Rocky Mountain Douglas-fir - White Fir - Blue Spruce Mesic Forest and G226Southern Rocky Mountain White Fir - Douglas-fir Dry Forest and two different Ecological Systems (CES306.823 Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland CES306.825 Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland- A3420 Abies concolor Dry Forest & Woodland Alliance: Forests and woodlands of this alliance occur primarily in the southern Rocky Mountains and extend west into the intermountain ranges of the Great Basin. These mixed conifer forests and woodlands have an open to closed canopy with Abies concolor successfully reproducing and typically codominant in the tree canopy. The composition of other species in the tree canopy varies across the range of the alliance with Pinus ponderosa or Pseudotsuga menziesii being most consistent. Populus tremuloides may codominate in early-seral stands. Other canopy associates that may be present include Abies lasiocarpa, Picea engelmannii, Pinus flexilis, and Pinus strobiformis. The density of the understory varies with the amount of tree canopy shading. Shrub and dwarf-shrub layers may be present and vary in structure and composition. Ericaceous or cold-deciduous shrubs are most common. Common shrub species include Acer glabrum, Amelanchier alnifolia, Arctostaphylos patula, Arctostaphylos uva-ursi, Jamesia americana, Juniperus communis, Mahonia repens, Paxistima myrsinites, Purshia tridentata, Quercus gambelii, Ribes cereum, Rosa woodsii, Rubus parviflorus, Symphoricarpos oreophilus, and Vaccinium myrtillus. The herbaceous layer may be dominated by shade-tolerant forbs, ferns or graminoids. The most common dominant herbaceous species include Carex rossii, Carex siccata, Danthonia parryi, Festuca arizonica, Galium triflorum, Leymus triticoides, and Muhlenbergia virescens. These forests occur at middle to high elevations (1200-3150 m) and occupy a variety of topo-edaphic positions, such as lower and middle slopes of ravines, upper slopes at higher elevations, along stream terraces, ridgetops, and north- and east-facing slopes that burn somewhat infrequently. Parent materials and soils are highly variable and nondefinitive for these forests. Temperature and moisture regimes appear to be the key factors in their distribution.
A3369 Abies concolor Mesic Forest and Woodland Alliance: Forests and woodlands included in this alliance consist of stands dominated by Abies concolor or codominated by Populus tremuloides or Pseudotsuga menziesii. They occur in mountain environments from the southern and central Rocky Mountains and east to the Wyoming basins. In general, these mixed conifer forests have a moderately dense to closed canopy (>60%) with Abies concolor successfully reproducing and typically codominant in the tree canopy. The most common codominant canopy species include Populus tremuloides or Pseudotsuga menziesii. Occasionally these stands occur as woodlands with as little as 10% total canopy cover. Other common canopy associates include Picea pungens, Pinus flexilis, Pinus ponderosa, and Pinus strobiformis. Understories may be shrub-, forb- or graminoid-dominated. The most common dominant shrubs include Acer glabrum, Acer grandidentatum, Holodiscus dumosus, Jamesia americana, Juglans major, Physocarpus malvaceus, Quercus gambelii, and Symphoricarpos oreophilus. Common herbaceous dominants include Erigeron eximius, Lathyrus lanszwertii var. leucanthus, Osmorhiza berteroi, Poa pratensis, and Thalictrum fendleri. These forests occupy a variety of topo-edaphic positions, such

as lower and middle slopes of ravines, upper slopes at higher elevations, along stream terraces, ridgetops, and north- and east-facing slopes that burn somewhat infrequently. Parent materials and soils are highly variable and nondefinitive for these forests. Elevations range from 1800-3000 m.

Range: This alliance (A3420) is known from western Arizona east to the Colorado Plateau and southern Rocky Mountains of Utah, Colorado, New Mexico and Wyoming.
This forest alliance (A3369) occurs mainly in the southern and central Rocky Mountains, but extends west to the Utah Plateaus, south to the Apache Highlands and west into the Wyoming Basins.

States: AZ, CO, UT, NM, WY

Map Zones:

Similar:

Descriptors:

3209: Western Great Plains Sand Prairie Shrubland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Sand Prairie

Codes: ESLF: 7121 EVT_fuel: 2148

ESP: 1148 NatureServe Id: CES303.670

BioGeographical Division :

NVC MacroGroup: M052 Great Plains Sand Grassland & Shrubland

NVC Group: G068 Great Plains Sand Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: The sand prairies constitute a very unique system within the western Great Plains. These sand prairies are often considered part of the tallgrass or mixedgrass regions in the western Great Plains but can contain elements from ~Western Great Plains Shortgrass Prairie (CES303.672)$$, ~Central Mixedgrass Prairie (CES303.659)$$, and ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$. The largest expanse of sand prairies (approximately 5 million ha) can be found in the Sandhills of north-central Nebraska and southwestern South Dakota. These areas are relatively intact. The primary use of this system has been grazing (not cultivation), and areas such as the Nebraska Sandhills can experience less degeneration than other prairie systems. Although greater than 90% of the Sandhills region is privately owned, the known fragility of the soils and the cautions used by ranchers to avoid poor grazing practices have allowed for fewer significant changes in the vegetation of the Sandhills compared to other grassland systems. The unifying and controlling feature for this system is that coarse-textured soils predominate and the dominant grasses are well-adapted to this condition. Soils in the sand prairies can be relatively undeveloped and are highly permeable. Soil texture and drainage along with a species' rooting morphology, photosynthetic physiology, and mechanisms to avoid transpiration loss are highly important in determining the composition of the sand prairies. In the northwestern portion of its range, stand size corresponds to the area of exposed caprock sandstone, and small patches predominate, but large patches are also found embedded in the encompassing ~Northwestern Great Plains Mixedgrass Prairie (CES303.674)$$. Another important feature is their susceptibility to wind erosion. Blowouts and sand draws are some of the unique wind-driven disturbances in the sand prairies, particularly the Nebraska Sandhills. In most of eastern Montana, substrates supporting this system have weathered in place from sandstone caprock; thus the solum is relatively thin, and the wind-sculpted features present further east, particularly in Nebraska, do not develop.

Graminoid species dominate the sand prairies, although relative dominance can change due to impacts of wind disturbance. *Andropogon hallii* and *Calamovilfa longifolia* are the most common species, but other grass and forb species such as *Hesperostipa comata, Carex inops ssp. heliophila*, and *Panicum virgatum* may be present. Apparently only *Calamovilfa longifolia* functions as a dominant throughout the range of the system. In the western extent, *Hesperostipa comata* becomes more dominant, and *Andropogon hallii* is less abundant but still present. Communities of *Artemisia cana ssp. cana* are included here in central and eastern Montana. Patches of *Quercus havardii* can also occur within this system in the southern Great Plains. Fire and grazing constitute the other major dynamic processes that can influence this system.

Range: This system is found throughout the Western Great Plains Division. The largest and most intact example of this system is found within the Sandhills region of Nebraska and South Dakota. However, it is also common (though occurring in predominantly small patches) farther west into central and eastern Montana. Its western extent in Wyoming is still to be determined, but it does occur in mapzone 29 on weathered-in-place sandy soils, where *Calamovilfa longifolia* is found, along with *Artemisia cana*.

States: CO, KS, MT, ND, NE, NM?, OK, SD, TX?, WY

Map Zones: 20:C, 27:P, 29:C, 30:C, 31:C, 33:C, 34:C, 38:C, 39:C, 40:C

Similar: Central Mixedgrass Prairie (CES303.659), Western Great Plains Sandhill Steppe (CES303.671), Western Great Plains Shortgrass Prairie (CES303.672), Western Great Plains Tallgrass Prairie (CES303.673)

Descriptors:

Wind Intensity/Spatial Character :	Patch/High Intensity
Grazing Intensity/Spatial Character :	Landscape/Low Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3210: Coleogyne ramosissima Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Coleogyne ramosissima Colorado Plateau Shrubland Alliance

Codes: ESLF: 5255 EVT_fuel: 2210

ESP: 1078 NatureServe Id: A3220

BioGeographical Division :

NVC MacroGroup: M171 Great Basin & Intermountain Dry Shrubland & Grassland

NVC Group: G312 Colorado Plateau Blackbrush - Mormon-tea Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This alliance is a member of the CES 304.763 Colorado Plateau Blackbrush-Mormon-tea Shrubland Ecological System. It is unclear if the similar alliance - A3144 Coleogyne ramosissima Mojave Desert Shrubland Alliance was treated separately. The shrub layer is characterized by an open to relatively closed canopy of Coleogyne ramosissima. Total vegetation cover ranges from 5 to 70%. Other codominant and associate shrubs may include Ambrosia dumosa, Artemisia filifolia, Atriplex canescens, Atriplex confertifolia, Chrysothamnus viscidiflorus, Ephedra funerea, Ephedra torreyana, Ephedra nevadensis, Ephedra torreyana, Ericameria linearifolia, Ericameria nauseosa, Ericameria teretifolia, Gutierrezia sarothrae, Krascheninnikovia lanata, Lycium spp., Menodora spinescens, Opuntia spp., Purshia stansburiana, and Quercus havardii var. tuckeri. Occasional Juniperus spp., Pinus edulis, or Pinus monophylla trees are present in some stands. The herbaceous layer varies from sparse to moderate (1-30% cover) and composition varies by region, but is always dominated by graminoids. Dominant species include Achnatherum hymenoides, Aristida purpurea, Dasyochloa pulchella (= Erioneuron pulchellum), Muhlenbergia pungens, and Pleuraphis jamesii. Forbs may have high diversity, but do not have high cover. Associate forbs may include Amsonia tomentosa, Astragalus spp., Calochortus nuttallii, Chaenactis spp., Cryptantha spp., Eriogonum inflatum, Eriogonum nutans, Heterotheca villosa, Ipomopsis polycladon, Phacelia spp., Plantago spp., Sphaeralcea leptophylla, Stenotus acaulis (= Haplopappus acaulis), and Streptanthella spp. These shrublands are known from the Colorado Plateau, southern Great Basin, Mojave Desert, and Sierra Nevada foothills. Stands occur on plains, ridges, bajadas, mesatops, canyon rims, escarpments, valley sides, sand dunes, washes, alluvial terraces and benches with flat to steep slopes (up to 45%) with elevations ranging between 1000 and 2200 m.

Range: Occurs in the Colorado Plateau on benchlands, colluvial slopes, pediments or bajadas. Elevation

ranges from 560-1600 m.

States: AZ, CO, NM, UT

Map Zones: 13:C, 14:?, 15:C, 16:P, 17:C, 23:C, 24:C, 28:?

Similar: A3144 Coleogyne ramosissima Mojave Desert Shrubland Alliance

Descriptors:

3211: Grayia spinosa Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Grayia spinosa Shrubland Alliance

Codes: ESLF: EVT_fuel: 2211

ESP: NatureServe Id: A3171

BioGeographical Division :

NVC MacroGroup: M093 Great Basin Saltbush Scrub

NVC Group: G300 Intermountain Shadscale - Saltbush Scrub

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.B Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne Western North American Cool Semi-Desert Scrub & Grassland

Summary: This alliances is a member of the CES304.784 Inter-Mountain Basins Mixed Salt Desert Scrub Ecological System. A3171 Grayia spinosa Shrubland Alliance. (Spiny Hopsage). Vegetation in this alliance occurs throughout the lower to middle elevations (600-1600 m) of the Great Basin and the eastern Mojave Desert. The vegetation is more drought-tolerant than Artemisia tridentata-dominated communities and typically occurs where local climate or salty soils create high moisture stress. This alliance is characterized by a sparse to moderately dense shrub layer of Grayia spinosa. Shrub associates include Artemisia nova, Artemisia tridentata, Atriplex confertifolia, Atriplex canescens, Chrysothamnus spp., Coleogyne ramosissima, Ephedra nevadensis, Ephedra viridis, Larrea tridentata, Menodora spinescens, Picrothamnus desertorum (= Artemisia spinescens), and Prunus andersonii. The herbaceous layer is typically sparse with Achnatherum hymenoides (= Oryzopsis hymenoides), Achnatherum speciosum (= Stipa speciosa), Elymus elymoides, Navarretia spp., Pleuraphis jamesii (= Hilaria jamesii), and Poa secunda being common associates. Stands usually occur on mountain slopes or alluvial fans bordering intermountain basins. Soils are highly variable, but are generally coarse-textured and well-drained, and often alkaline.

Range: This alliance occurs throughout the Great Basin, Columbia Plateau, and eastern Mojave regions of Colorado, Utah, Nevada, Oregon, Washington, and eastern California. It is most extensive in the southwestern portion of the Great Basin.

States: CO, UT, NV, OR, WA, CA

Map Zones:

Similar:

Descriptors:

3212: Western Great Plains Sandhill Grassland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Sandhill Steppe

Codes: ESLF: 5271 EVT_fuel: 2094

ESP: 1094 NatureServe Id: CES303.671

BioGeographical Division :

NVC MacroGroup: M052 Great Plains Sand Grassland & Shrubland

NVC Group: G069 Great Plains Sand Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found mostly in south-central areas of the Western Great Plains Division ranging from southwestern Wyoming and southwestern Nebraska up into the Nebraska Sandhill region, south though eastern Colorado, and New Mexico to central Texas, although some examples may reach as far north as the Badlands of South Dakota. The climate is semi-arid to arid for much of the region in which this system occurs. This system is found on somewhat excessively to excessively well-drained, deep sandy soils that are often associated with dune systems and ancient floodplains. In some areas, this system may actually occur as a result of overgrazing in ~Western Great Plains Tallgrass Prairie (CES303.673)$$ or ~Western Great Plains Sand Prairie (CES303.670)$$. Typically, this system is characterized by a sparse to moderately dense woody layer dominated by *Artemisia filifolia*, but other characteristic species may be present, including *Amorpha canescens, Prosopis glandulosa* (southern stands), *Prunus angustifolia, Prunus pumila var. besseyi* (northern stands), *Rhus trilobata*, and *Yucca glauca*. Associated herbaceous species can vary with geography, amount and season of precipitation, disturbance, and soil texture. The herbaceous layer typically has a moderate to dense canopy but may include stands with sparse understory. Several mid- to tallgrass species characteristic of sand substrates are usually present to dominant, such as *Andropogon hallii, Calamovilfa gigantea, Calamovilfa longifolia, Schizachyrium scoparium, Sporobolus cryptandrus, Sporobolus giganteus*, or *Hesperostipa comata*.

In the southern range of this system,*Quercus havardii* may also be present to dominant and represents one succession pathway that develops over time following a disturbance. *Quercus havardii* is able to resprout following a fire and thus may persist for long periods of time once established forming extensive clones. Edaphic and climatic factors are the most important dynamic processes for this type, with drought and extreme winds impacting this system significantly in

some areas. Because *Quercus havardii* is able to resprout rapidly following fire, fire tends to cause structural changes in the vegetation, and compositional shifts are less significant in most cases. Overgrazing can lead to decreasing dominance of some of the grass species such as *Andropogon hallii, Calamovilfa gigantea*, and *Schizachyrium scoparium*. In the western extent of this system in the shortgrass prairie, more xeric mid- and shortgrass species such as *Hesperostipa comata, Sporobolus cryptandrus* and *Bouteloua gracilis* often dominate the herbaceous layer.

Range: This system is found primarily within the south-central areas of the Western Great Plains Division ranging from the Nebraska Sandhills south into central Texas. However, examples of this system can be found as far north as the Badlands in South Dakota.

States: CO, KS, NE, NM, OK, SD?, TX

Map Zones: 25:?, 26:C, 27:C, 28:?, 31:C, 33:C, 34:C, 38:C

Similar: East-Central Texas Plains Xeric Sandyland (CES205.897), Western Great Plains Sand Prairie (CES303.670), Western Great Plains Tallgrass Prairie (CES303.673)

Descriptors:

Grazing Intensity/Spatial Character :	Landscape/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Major Physiognomy :	Shrubland (Shrub)

3213: Quercus havardii Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Quercus havardii Scrub Alliance

Codes: ESLF: EVT_fuel: 2213

ESP: NatureServe Id: A4112

BioGeographical Division :

NVC MacroGroup: M052 Great Plains Sand Grassland & Shrubland

NVC Group: G069 Great Plains Sand Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 - Shrub & Herb Vegetation

NVCS Subclass: 2.B - Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 - Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb - Great Plains Grassland & Shrubland

Summary: No descriptive summary available for this alliance. This alliance is a member of the CES303.671 Western Great Plains Sandhill Steppe Ecological System. Member associations CEGL002171 Quercus havardii / Sporobolus cryptandrus - Schizachyrium scoparium Shrubland; CEGL004558 Quercus havardii - (Penstemon ambiguus, Croton dioicus) / Sporobolus giganteus Scrub. The description for the system follows. This system is found mostly in south-central areas of the Western Great Plains Division ranging from southwestern Wyoming and southwestern Nebraska up into the Nebraska Sandhill region, south though eastern Colorado, and New Mexico to central Texas, although some examples may reach as far north as the Badlands of South Dakota. The climate is semi-arid to arid for much of the region in which this system occurs. This system is found on somewhat excessively to excessively well-drained, deep sandy soils that are often associated with dune systems and ancient floodplains. In some areas, this system may actually occur as a result of overgrazing in ~Western Great Plains Tallgrass Prairie (CES303.673)$$ or ~Western Great Plains Sand Prairie (CES303.670)$$. Typically, this system is characterized by a sparse to moderately dense woody layer dominated by *Artemisia filifolia*, but other characteristic species may be present, including *Amorpha canescens, Prosopis glandulosa* (southern stands), *Prunus angustifolia, Prunus pumila var. besseyi* (northern stands), *Rhus trilobata*, and *Yucca glauca*. Associated herbaceous species can vary with geography, amount and season of precipitation, disturbance, and soil texture. The herbaceous layer typically has a moderate to dense canopy but may include stands with sparse understory. Several mid- to tallgrass species characteristic of sand substrates are usually present to dominant, such as *Andropogon hallii, Calamovilfa gigantea, Calamovilfa longifolia, Schizachyrium scoparium, Sporobolus cryptandrus, Sporobolus giganteus*, or *Hesperostipa comata*.

In the southern range of this system,*Quercus havardii* may also be present to dominant and represents one succession pathway that develops over time following a disturbance. *Quercus havardii* is able to resprout following a fire and thus may persist for long periods of time once established forming extensive clones. Edaphic and climatic factors are the most important dynamic processes for this type, with drought and extreme winds impacting this system significantly in some areas. Because *Quercus havardii* is able to resprout rapidly following fire, fire tends to cause structural changes in the vegetation, and compositional shifts are less significant in most cases. Overgrazing can lead to decreasing dominance of some of the grass species such as *Andropogon hallii, Calamovilfa gigantea*, and *Schizachyrium scoparium*. In the western extent of this system in the shortgrass prairie, more xeric mid- and shortgrass species such as *Hesperostipa comata, Sporobolus cryptandrus* and *Bouteloua gracilis* often dominate the herbaceous layer.

Range: See summary - Quercus havardii occurs in the southern portion of the range for this system. This system is found primarily within the south-central areas of the Western Great Plains Division ranging from the Nebraska Sandhills south into central Texas. However, examples of this system can be found as far north as the Badlands in South Dakota.

States: TX, OK, NM

Map Zones:

Similar:

Descriptors:

3214: Arctostaphylos patula Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Arctostaphylos patula - Arctostaphylos nevadensis Shrubland Alliance

Codes: ESLF: EVT_fuel: 2214

ESP: NatureServe Id: A0788

BioGeographical Division :

NVC MacroGroup: 094 Cool Interior Chaparral

NVC Group: G282 Western North American Montane Sclerophyll Scrub

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd Western North American Interior Sclerophyllous Chaparral

Summary: This alliances is a member of the CES304.001 Great Basin Semi-Desert Chaparral Ecological System. A0788 Arctostaphylos patula - Arctostaphylos nevadensis Shrubland Alliance This alliance consists of shrublands strongly dominated by Arctostaphylos patula or Arctostaphylos nevadensis. They are often monotypic stands with few other shrubs. Common shrub associates include Arctostaphylos nevadensis, Ceanothus cordulatus, Ceanothus velutinus, Cercocarpus montanus, Chrysolepis sempervirens (= Castanopsis sempervirens), and Ribes spp. Eastward, steppe species such as Artemisia tridentata, Purshia tridentata, and Cercocarpus ledifolius become common associates. Herbaceous vegetation is typically sparse and poorly described across the range of this alliance. Reported associates in northern California include Elymus elymoides, Pyrola picta, and Stephanomeria lactucina. This alliance occurs on the eastern slope of the Sierra Nevada and into the western Great Basin and Colorado Plateau. Stands occur on steep, usually south-facing slopes, where soils are rocky and well-drained from 800 to 3300 m in elevation. Much of the annual precipitation comes as winter snow, and summer drought stress is characteristic. These shrublands typically establish after stand-replacing fires and will succeed to forests after several decades. Excessively rocky or droughty, fire-prone sites within forested areas may support relatively persistent stands of this alliance. They are an important component of the Sierra Nevada/southern Cascade montane chaparral and may form large inclusions in dry pine forests following disturbance.

Range: These shrublands are reported from the eastern slope of the Sierra Nevada in Nevada and California and from the Colorado Plateau in southwestern Utah and western Colorado. Arctostaphylos patula is reported to form dense shrublands from southern Oregon and east across the Great Basin in montane habitats to Montana, northwestern Colorado, and northern Arizona (Mozingo 1987). The alliance likely occurs in these areas as well.

States: NV, CA, UT, CO, OR, MT, AZ

Map Zones:

Similar:

Descriptors:

3215: Quercus turbinella Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Quercus turbinella Shrubland Alliance

Codes: ESLF: EVT_fuel: 2215

ESP: NatureServe Id: A0793

BioGeographical Division :

NVC MacroGroup: - Warm Interior Chaparral

NVC Group: - Western Madrean Chaparral

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 - Shrub & Herb Vegetation

NVCS Subclass: 2.B - Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 - Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nd - Western North American Interior Sclerophyllous Chaparral

Summary: This alliance includes evergreen shrublands dominated or codominated by Quercus turbinella that typically forms thickets with other shrubs. Important shrub associates can include Arctostaphylos spp., Ceanothus greggii, Cercocarpus montanus, Coleogyne ramosissima, Ephedra viridis, Fraxinus greggii, Garrya wrightii, Juniperus osteosperma, Rhus virens, Rhus trilobata, Rhus microphylla, and a shrub form of Quercus grisea. Ground cover is typically sparse with scattered grasses, forbs and ferns. Some typical herbaceous components include Aristida spp., Astrolepis sinuata (= Notholaena sinuata), Bouteloua curtipendula, Bouteloua eriopoda, and Notholaena standleyi. Shrublands in this alliance are small in extent and occur in a matrix of succulent desert scrub and semi-desert grassland. Quercus turbinella shrublands are typically found on steep, rocky slopes, often sheltered slopes in limestone canyons, in the mountains of Nevada, Arizona, New Mexico, and western Texas.

Range: The distribution of shrublands included in this alliance is centered in Arizona below the Mogollon Rim, extending north and west into Utah, Nevada, and east into southern New Mexico, western Texas. It also likely occurs in northern Mexico.

States: AZ, UT, NV, NM, TX

Map Zones:

Similar: A3971 Quercus pungens - Quercus intricata - Quercus vaseyana Chaparral Alliance

Descriptors:

3216: Cercocarpus montanus Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Cercocarpus montanus var. glaber Mesic Chaparral Alliance

Codes: ESLF: EVT_fuel: 2216

ESP: NatureServe Id: A0587

BioGeographical Division :

NVC MacroGroup: - California Chaparral

NVC Group: - California Mesic & Pre-montane Chaparral

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 - Shrub & Herb Vegetation

NVCS Subclass: 2.B - Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.1 - Mediterranean Scrub & Grassland

NVCS Division: 2.B.1.Na - Californian Scrub

Summary: There are several Cercocarpus montanus domianted alliances, although only two with no co-dominates listed. A0587 Cercocarpus montanus var. glaber Mesic Chaparral AllianceVegetation in this alliance is characterized by the presence of Cercocarpus montanus var. glaber or Cercocarpus montanus var. minutiflorus as either a tall shrub or small tree. The shrub layer is variable in density and species composition, because of the wide distribution (within California) of the alliance. Characteristic shrubs include several species of Ceanothus and Arctostaphylos, Adenostoma fasciculatum, Artemisia tridentata, Eriogonum fasciculatum, Eriogonum wrightii, Fremontodendron californicum, Garrya flavescens, Heteromeles arbutifolia, Malosma laurina, Prunus ilicifolia, Quercus berberidifolia, Quercus john-tuckeri, Rhamnus ilicifolia, Salvia apiana, Salvia mellifera, and Yucca whipplei (= Hesperoyucca whipplei). Tree associates include many different species of Quercus, Juniperus, and Pinus depending on location, but they usually have scant cover. Most stands are open and typically occupy rockier sites than denser Ceanothus- and Quercus-dominated chaparral types. This alliance is widely distributed latitudinally, known from the valleys of northwestern California to montane habitats in the southern part of the state. Elevation ranges from 100-2400 m. Depending upon local moisture conditions and fire history, this vegetation can occur on ridges with stony, excessively drained soils or moist swales with fine soils and subirrigation. Habitats are ridges and upper slopes on all aspects, and fractured rock outcrops, including limestone and marble, and rarely flooded, rocky alluvium. Soils are shallow, rocky, and well-drained.

Range: This alliance is found throughout California, from the valleys of northwestern California to montane habitats in the southern part of the state.

States:

Map Zones:

Similar:

Descriptors:

3217: Quercus gambelii Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Quercus gambelii - Robinia neomexicana Shrubland Alliance

Codes: ESLF: EVT_fuel: 2217

ESP: NatureServe Id: A3738

BioGeographical Division :

NVC MacroGroup: M049 Southern Rocky Mountain Montane Shrubland

NVC Group: G277 Southern Rocky Mountain Gambel Oak - Mixed Montane Shrubland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: There are two alliances that are dominated by Quercus gambelii. A3738 Quercus gambelii - Robinia neomexicana Shrubland Alliance
(Gambel Oak - New Mexico Locust Shrubland Alliance) and A3735 Quercus gambelii - Symphoricarpos oreophilus Shrubland Alliance. Both are members of the CES306.818 Rocky Mountain Gambel Oak-Mixed Montane Shrubland Ecological System.
A3738 - This alliance occurs in desert mountains in southern New Mexico north into the southern Rocky Mountains in northern New Mexico and west to the Mogollon Rim in north-central Arizona. Stands are characterized by shrublands dominated or codominated by Robinia neomexicana and Quercus gambelii. Stands have a moderately dense to dense woody layer up to 2-5 m tall. The understory may be dominated by mesic forbs such as Thalictrum fendleri, but little other information is available. Stands in the montane conifer zone are considered seral and may have seedlings of Pinus ponderosa, Abies concolor, or conifer species that are colonizing the stand. Robinia neomexicana is considered a semi-riparian species by some researchers. Thickets occur along drainages in canyons at lower elevations (1500-2000 m). On upland sites it is restricted to cooler north aspects at lower montane elevations, but may occur on any aspects at higher montane elevations. Sites are nearly level to moderately steep slopes. Substrate ranges from alluvial deposits on stream terraces to colluvial slopes. **A3735** - This shrubland alliance occurs in the Colorado Plateau and southern Rocky Mountains and is characterized by dominance or codominance of Quercus gambelii in a moderately dense to dense tall- or short-shrub layer, typically 2-5 m tall, but can also occur as 1-m tall clumps to small trees over 5 m tall. The variable structure includes patches of oak shrubs with grass growing in between, dense oak thickets with little understory, and relatively mesic, tall shrublands with a rich understory of short shrubs, grasses and forbs. Scattered trees are occasionally present in stands and typically include species

of Pinus or Juniperus. Characteristic shrubs that may codominate or form a separate short-shrub layer include Amelanchier alnifolia, Amelanchier utahensis, Artemisia tridentata, Cercocarpus montanus, Fendlera rupicola, Prunus virginiana, Rhus trilobata, Symphoricarpos oreophilus, and Symphoricarpos rotundifolius. The herbaceous layer is sparse to moderately dense, ranging from 1-40% cover and is dominated by perennial graminoids, particularly Bouteloua curtipendula, Bouteloua gracilis, Carex geyeri, Carex inops, Elymus arizonicus, Festuca thurberi, Koeleria macrantha, Muhlenbergia montana, Hesperostipa comata, and Poa fendleriana. Many forb and fern species can occur, but none has much cover. Stands occur in the foothills and lower montane slopes, mesas and canyons. Elevations range from 1550-2950 m. Sites range from nearly level mesatops to steep (to 80%), rocky slopes on upper slopes and ridgetops. Other stands occur in canyon bottoms and along drainages. Soils are generally deep, coarse-textured, and well-drained.

Range: A3738 This alliance is known from the southern Rocky Mountains, Colorado Plateau, Arizona-New Mexico Mountains and desert mountains in the northern Chihuahuan Desert. A3735 This alliance is known from the Colorado Plateau, southern Rocky Mountains, Great Basin, Utah High Plateaus, and Wyoming basins of Utah, Colorado, Wyoming, New Mexico and Arizona.

States: UT, CO, NM, AZ, WY

Map Zones:

Similar:

Descriptors:

3220: Artemisia tridentata ssp. vaseyana Shrubland Alliance

Match Confidence: Unmatched

Suggested Match: Artemisia tridentata ssp. vaseyana - Mixed Shrubland Alliance

Codes: ESLF: EVT_fuel: 2220

ESP: NatureServe Id: A3208

BioGeographical Division :

NVC MacroGroup: M169 Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe

NVC Group: G303 Intermountain Mountain Big Sagebrush Shrubland & Steppe

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 3 - Desert & Semi-Desert

NVCS Subclass: 3.B - Cool Semi-Desert Scrub & Grassland

NVCS Formation: 3.B.1 - Cool Semi-Desert Scrub & Grassland

NVCS Division: 3.B.1.Ne - Western North American Cool Semi-Desert Scrub & Grassland

Summary: This alliance is widespread in mountainous areas across the western U.S. The vegetation included in this alliance is characterized by an open to dense (10-70% cover) shrub layer in which Artemisia tridentata ssp. vaseyana is codominant, usually with 40-60% relative cover with non-sagebrush shrub species such as Amelanchier utahensis, Holodiscus dumosus, Purshia tridentata, or Symphoricarpos oreophilus. Perennial graminoids typically dominate the open to moderately dense herbaceous layer. The most widespread species are Pseudoroegneria spicata and Festuca idahoensis, which occur from the Columbia Basin to the northern Rockies, although they may not be the most abundant species in individual stands. Other locally important species may include Achnatherum occidentale (= Stipa occidentalis), Bouteloua gracilis, Bromus carinatus, Elymus trachycaulus, Festuca thurberi, Festuca viridula, Koeleria macrantha, Leucopoa kingii (= Festuca kingii), Leymus cinereus, Pascopyrum smithii, Poa fendleriana, and Poa secunda. The forb layer is variable and can be very diverse. Species of Castilleja, Potentilla, Erigeron, Phlox, Astragalus, Geum, Lupinus, and Eriogonum are characteristic. The alliance forms large, continuous stands on mid-elevation mountain slopes and foothills, and can extend above the lower treeline as patches within montane or subalpine coniferous forests. Sites are variable and range from flats to steep slopes to ridgetops with deep to shallow rocky soil.

Range: This shrubland alliance occurs in mountainous regions from eastern California, Oregon, and Washington, across the Great Basin in Nevada, the northern Rocky Mountain foothills of Idaho, and in Colorado, Wyoming, and Montana. It has not been reported from Utah, Arizona, or New Mexico, but it is very likely to occur in these states at high elevations. In addition, the alliance probably extends north into Alberta, Canada.

States: CA, OR, WA, NV, ID, CO, WY, MT, UT?, AZ?, NM?

Map Zones:

Similar: Artemisia tridentata ssp. spiciformis - Artemisia tridentata ssp. vaseyana Shrubland & Steppe Alliance

Descriptors:

3227: Dry-mesic Montane Douglas-fir Forest

Match Confidence: Unmatched

Suggested Match: Pseudotsuga menziesii Middle Rocky Mountain Dry-Mesic Forest & Woodlan

Codes: ESLF: EVT_fuel: 2227

ESP: 1045 NatureServe Id: A3462

BioGeographical Division :

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G215 Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 - Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb - Rocky Mountain Cool Temperate Forest

Summary: This alliance is a member fo the CES306.959 Middle Rocky Mountain Montane Douglas-fir Forest and Woodland Ecological System. Stands of this alliance are Pseudotsuga menziesii-dominated forests and woodlands occasionally with Juniperus osteosperma, Juniperus scopulorum, Pinus flexilis (on calcareous substrates), Populus tremuloides (on disturbed sites), and Pinus contorta (at higher elevations). True firs, such as Abies concolor, Abies grandis, and Abies lasiocarpa, are absent, but occasional Picea engelmannii can occur in some stands. Pinus ponderosa is also not common in this group. Understory components include shrubs such as Cercocarpus ledifolius, Juniperus communis, Mahonia repens, Purshia tridentata, Spiraea betulifolia, Symphoricarpos albus, and Symphoricarpos oreophilus. Common graminoids include Calamagrostis rubescens, Carex rossii, Leucopoa kingii, and Pseudoroegneria spicata. Forbs are variable, but typical taxa include Arnica cordifolia, Thalictrum occidentale, Viola adunca, and species of many other genera, including Antennaria, Arenaria, Erigeron, Eriogonum, Lathyrus, Lupinus, Penstemon, and Vicia. This alliance occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana. This alliance often occurs at the lower treeline immediately above valley grasslands, or sagebrush steppe and shrublands. Stands are found on all aspects in the Central Rockies where the southern monsoon influence is less and maritime climate regime is not important. Climate is drier and more continental than at higher elevations or in the Pacific Northwest. Annual precipitation ranges from 50-100 cm with moderate snowfall and a greater proportion falling during the growing season. Monsoonal summer rains can contribute a significant proportion of the annual precipitation in the southern portion of the range. Elevations range from

less than 1000 m in the central Rocky Mountains to over 2400 m in the Wyoming Rockies. Lower elevation stands typically occupy cooler, less xeric northern exposures often on steep slopes. At higher elevations, these forests occur primarily on southerly aspects or ridgetops and plateaus. Soils are highly variable and derived from diverse parent materials, including extrusive volcanics in the Yellowstone region, and sedimentary rocks elsewhere in the Rockies. The soils are typically well-drained and well-aerated. They can be derived from moderately deep colluvium or shallow-jointed bedrock, and are usually gravelly or rocky.

Range: This alliance occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana.

States: ID, WY, MT, OR?

Map Zones:

Similar: A3463 Pseudotsuga menziesii Middle Rocky Mountain Mesic-Wet Forest Alliance

Descriptors:

3228: Dry-mesic Montane Western Larch Forest

Match Confidence: Unmatched

Suggested Match: Larix occidentalis Forest Alliance

Codes: ESLF: EVT_fuel: 2228

ESP: 1045 NatureServe Id: A0275

BioGeographical Division :

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G211 Central Rocky Mountain Mesic Grand Fir – Douglas-fir Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 - Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb - Rocky Mountain Cool Temperate Forest

Summary: A0275 Larix occidentalis Forest Alliance. Stands dominated by *Larix occidentalis* grow best on mesic sites, but also may occur on relatively dry sites. Sites include valley bottoms, benches and lower mountain slopes often on the more mesic north and east aspects, but it is found on all aspects in its northern extent. Substrates are variable, but may include glacial till or colluvium derived from limestone, argillite and quartzite. Soils range from gravelly to non-gravelly loams and silt loams, occasionally with finer texture subsoils. Stands are dominated by the shade-intolerant, fire-tolerant, cold-deciduous conifer *Larix occidentalis*. They are typically even-aged, developing after catastrophic disturbances such as crownfires or clearcuts. Stand height varies from 30-55 m but can be much less if trees are stunted by high stocking densities of seedlings that may form "doghair" stands similar to *Pinus contorta*. Young stands may appear to be pure stands of *Larix occidentalis*, but with time develop into mixed-species stands as slower growing, shade-tolerant species become codominant, including *Pseudotsuga menziesii* or *Abies lasiocarpa*. Unless there are frequent fires to reduce the shade-tolerant subcanopy, *Larix occidentalis* may be over overtopped and quickly decline. Other than juvenile shade-tolerant trees, the understory may have shrub and herbaceous layers depending on tree canopy closure. Shrubs may include *Acer glabrum, Alnus viridis ssp. sinuata (= Alnus sinuata), Amelanchier alnifolia, Paxistima myrsinites, Physocarpus malvaceus, Rubus parviflorus, Salix scouleriana, Symphoricarpos albus*, and *Vaccinium* spp. The herbaceous layer is often conspicuous. Adjacent stands include other montane and subalpine forests dominated by *Pseudotsuga menziesii, Abies lasiocarpa, Picea engelmannii, Pinus contorta, Pinus ponderosa, Thuja plicata*, and *Tsuga heterophylla*. This alliance ranges from 500-1600 m in elevation. Stands in Montana are mostly above 1000 m. Climate is temperate, continental with influences from the Pacific maritime. Mean annual precipitation ranges from 71-81 cm, occurring mostly in the winter with about 20% of the annual precipitation falling in the growing season in May-June. July and August are typically dry. Snow is common in the middle to upper elevation and higher latitude sites. These stands are restricted by cold, short growing seasons and drought at lower elevations.

Range: These seral forests are reported from the northern Rocky Mountains in northwestern Montana, and

occur in Idaho, Washington, Oregon and possibly British Columbia, Canada.

States: MT, ID, WA, OR, BC.

Map Zones:

Similar:

Descriptors:

3229: Pinus albicaulis Woodland Alliance

Match Confidence: Unmatched

Suggested Match: Pinus albicaulis Forest & Woodland Alliance

Codes: ESLF: EVT_fuel: 2229

ESP: 1229 NatureServe Id: A3368

BioGeographical Division :

NVC MacroGroup: M020 Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Group: G223 Northern Rocky Mountain Whitebark Pine – Subalpine Larch Woodl

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 - Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb - Rocky Mountain Cool Temperate Forest

Summary: This subalpine forest and woodland alliance occurs locally in the mountains of the interior northwestern U.S. and adjacent southwestern Canada from the central and northern Rocky Mountains, Klamath Mountains and Cascade Range. These forests are characterized by a coniferous tree canopy, 10-20 m tall, that is dominated by *Pinus albicaulis* or codominated by *Abies lasiocarpa*. Other tree associates, if present, vary by geography and elevation zones. Species include *Picea engelmannii* in more mesic stands, *Pinus contorta* and *Pseudotsuga menziesii* in the lower subalpine, *Tsuga mertensiana* in the Cascades, and *Pinus flexilis* in southern stands. A sparse shrub layer may be present consisting of juvenile trees and other woody species such as *Juniperus communis, Ribes montigenum, Shepherdia canadensis, Symphoricarpos oreophilus*, and *Vaccinium scoparium*. The herbaceous layer is typically sparse, but ranges from nearly absent to a moderately dense cover of graminoids with scattered forbs. Characteristic species include *Achillea millefolium, Antennaria microphylla, Arnica* spp., *Carex geyeri, Carex rossii, Festuca idahoensis, Poa nervosa, Potentilla diversifolia, Solidago multiradiata*, and *Xerophyllum tenax*. Elevations range from 1750-3400 m depending on latitude and geography. Landforms include ridgetops, mountain slopes, glacial trough walls and moraines, landslides and rockslides, and cirque headwalls and basins. Sites may be nearly level to steep-sloping on all aspects. Subalpine stands typically occur where disturbance such as avalanche or fire has temporarily reduced more shade-tolerant tree species, whereas at treeline they are found in mesic, protected pockets away from the extremely harsh environmental conditions. Substrates are generally lithic, well-drained, coarse-textured soils such as shallow, gravelly sands or loams derived from colluvium, glacial till and residuum.

Range: This alliance occurs intermittently throughout the northern and central Rocky Mountains and in the Cascade Range. Stands are reported from Idaho, Montana, Oregon, Wyoming and Montana, north to British Columbia and Alberta, Canada, and south to northern Nevada.

States: AB, BC, CA, ID, MT, NV, OR, WA, WY.

Map Zones:

Similar:

Descriptors:

3230: Pinus sabiniana Woodland Alliance

Match Confidence: Unmatched

Suggested Match: Pinus attenuata - Pinus coulteri - Pinus sabiniana Woodland Alliance

Codes: ESLF: EVT_fuel: 2230

ESP: 1230 NatureServe Id: A3356

BioGeographical Division :

NVC MacroGroup: M009 California Forest and Woodland

NVC Group: G198 California Conifer Forest and Woodland.

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 - Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc - Californian Warm Temperate Forest

Summary: This alliance consists of woodlands dominated by *Pinus attenuata, Pinus coulteri*, and/or *Pinus sabiniana* in the canopy. Other trees present may include *Pinus monticola, Pinus ponderosa, Pseudotsuga macrocarpa, Quercus agrifolia, Quercus chrysolepis, Quercus douglasii, Quercus kelloggii, Quercus lobata*, and *Quercus wislizeni*. Shrubs are continuous in cover to infrequent, and the herbaceous layer is sparse. Shrubs could include *Adenostoma fasciculatum, Arctostaphylos columbiana, Arctostaphylos glandulosa, Arctostaphylos glauca, Arctostaphylos patula, Arctostaphylos pungens, Arctostaphylos viscida, Ceanothus cuneatus, Ceanothus papillosus, Cercocarpus montanus var. glaber, Quercus durata*, and *Quercus vacciniifolia*. This woodland alliance occurs in Baja California, Mexico, and throughout California's foothills and mountains on all aspects on ridges and upper slopes. Stands are found at elevations ranging from 300-2100 m. The soils are usually shallow, infertile, and moderately to excessively drained. The surface is often covered with stones and rock outcrops. This region has a Mediterranean climate with most precipitation falling between November and May. Summers are warm and dry, winters are mild. The unusually large range of this alliance is indicative of its tolerance to varied environmental factors such as precipitation. In the southern reaches of the range, this alliance may receive fewer than 60 cm of rain per year; at the northern extreme perhaps as much as 150 cm per year.

Range: Stands of this alliance are widespread, extending from Baja California, Mexico, to northern California. Stands are found between 180 and 2100 m elevation at suitable locations in virtually every mountain range not immediately adjacent to the coast. The montane regions of the northern, central and southern Coast Ranges, the margins of the Sacramento Valley, the inner Klamath Mountains and foothills, the Cascade Range and Sierra Nevada foothills, the Peninsular and Transverse ranges, the Modoc Plateau and into the western Mojave Desert.

States: CA

Map Zones:

Similar:

Descriptors:

3231: Sequoiadendron giganteum Forest Alliance

Match Confidence: Unmatched

Suggested Match: Sequoiadendron giganteum Forest Alliance

Codes: ESLF: EVT_fuel: 2231

ESP: 1231 NatureServe Id: A4150

BioGeographical Division :

NVC MacroGroup: M023 Southern Vancouverian Montane-Foothill Forest

NVC Group: G344 California Montane Conifer Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 - Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd - Vancouverian Cool Temperate Forest

Summary: This alliance consists of mixed conifer forest where *Sequoiadendron giganteum* is the dominant or at least characteristic tree within the stand. Other trees present in the canopy include *Abies concolor, Calocedrus decurrens (= Libocedrus decurrens), Abies magnifica, Quercus kelloggii, Pseudotsuga menziesii, Pinus jeffreyi, Pinus contorta var. murrayana, Pinus ponderosa*, and/or *Pinus lambertiana*. Shrubs may be infrequent to common and include *Chrysolepis sempervirens (= Castanopsis sempervirens), Chamaebatia foliolosa, Ceanothus* spp., *Arctostaphylos patula, Rhododendron occidentale, Ribes* spp., *Rosa* spp., and *Rubus* spp. Stand structure and composition vary considerably with elevation, latitude, exposure, soil moisture, and time since most recent fire or disturbance. This forest alliance occurs along the western slope of California's Sierra Nevada.

Range: Groves of giant sequoia are scattered in a belt about 24 km wide and 420 km long on the west slope of California's Sierra Nevada

States: CA.

Map Zones:

Similar:

Descriptors:

3232: Abies grandis Forest Forest

Match Confidence: Unmatched

Suggested Match: Abies grandis - Pseudotsuga menziesii Forest & Woodland Alliance

Codes: ESLF: EVT_fuel: 2232

ESP: NatureServe Id: A3362

BioGeographical Division :

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G211 Central Rocky Mountain Western Large Savanna

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 - Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb - Rocky Mountain Cool Temperate Forest

Summary: This alliance occurs in the middle to northern Rocky Mountains and occasionally in the Cascade Mountains in a variety of topographic positions. These are highly variable montane coniferous forests that lie between drier *Pseudotsuga menziesii - Pinus ponderosa* and more moist *Tsuga heterophylla* or *Thuja plicata* forests on the moisture scale, and are warmer than forests dominated by *Abies lasiocarpa*. Stands are dominated by *Abies grandis* where *Pseudotsuga menziesii* may be an early-seral component, codominant or the sole dominant species. Several other conifers may be present in the canopy, typically as seral species, including *Larix occidentalis, Pinus contorta*, or *Pinus monticola*. *Picea engelmannii* and *Taxus brevifolia* become increasingly common towards the eastern edge of the range, and *Tsuga heterophylla* and *Thuja plicata* may be associates at moister sites. The shrub and herbaceous components of these forests are highly variable across the range of the alliance and are very species-diverse due to the moderate climate regime. Cold-deciduous or ericaceous shrubs can be abundant in some stands. Shrubs can include *Acer glabrum, Linnaea borealis, Menziesia ferruginea, Physocarpus malvaceus, Spiraea betulifolia, Symphoricarpos occidentalis*, and *Vaccinium membranaceum*. Herbaceous layers may be graminoid- or forb-dominated and may include *Asarum caudatum, Bromus vulgaris, Calamagrostis rubescens, Carex geyeri, Clintonia uniflora, Coptis occidentalis, Cornus canadensis, Linnaea borealis*, and *Trautvetteria caroliniensis*. Elevations range from 460-1950 m. Topographic positions include montane slopes, alluvial benches and terraces, ridgetops, flats, protected coves, ravines, and valley bottoms. All aspects are represented and slopes can be flat to steep. Parent materials are highly variable, but volcanic ash is often present in the soil profile. Soils are derived from basalt colluvium and alluvium, volcanic ash, granitics, shale, sandstone, meta-sediments, gneiss, quartzite, limestone, and loess or loess-ash over colluvium or alluvium.

Notes: This is the combination of old alliances Abies grandis Forest Alliance (A.153) and Pseudotsuga menziesii Forest Alliance (A.157). It was suggested during peer review that Abies grandis / Calamagrostis rubescens Woodland (CEGL000916) and Abies grandis / Carex geyeri Woodland (CEGL000917) be placed in another group as they are much colder and drier than other associations in this group.

Range: Oregon to Montana. Ecoregional sections include the Okanogan Highlands, Bitterroot Mountains, Idaho Batholith, and Blue Mountains.

States: WA, OR, MT.

Map Zones:

Similar:

Descriptors:

3233: Subalpine Douglas-fir Forest

Match Confidence: Unmatched

Suggested Match: Pseudotsuga menziesii Middle Rocky Mountain Dry-Mesic Forest & Woodlan

Codes: ESLF: EVT_fuel: 2233

ESP: 1055 NatureServe Id: A3462

BioGeographical Division :

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G215 Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This forest and woodland alliance is dominated by *Pseudotsuga menziesii* and occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming and in Montana on the east side of the Continental Divide. Stands of this alliance are *Pseudotsuga menziesii*-dominated forests and woodlands occasionally with *Juniperus osteosperma, Juniperus scopulorum, Pinus flexilis* (on calcareous substrates), *Populus tremuloides* (on disturbed sites), and *Pinus contorta* (at higher elevations). True firs, such as *Abies concolor, Abies grandis*, and *Abies lasiocarpa*, are absent, but occasional *Picea engelmannii* can occur in some stands. *Pinus ponderosa* is also not common in this group. Understory components include shrubs such as *Cercocarpus ledifolius, Juniperus communis, Mahonia repens, Purshia tridentata, Spiraea betulifolia, Symphoricarpos albus*, and *Symphoricarpos oreophilus*. Common graminoids include *Calamagrostis rubescens, Carex rossii, Leucopoa kingii*, and *Pseudoroegneria spicata*. Forbs are variable, but typical taxa include *Arnica cordifolia, Thalictrum occidentale, Viola adunca*, and species of many other genera, including *Antennaria, Arenaria, Erigeron, Eriogonum, Lathyrus, Lupinus, Penstemon*, and *Vicia*. This alliance occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana. This alliance often occurs at the lower treeline immediately above valley grasslands, or sagebrush steppe and shrublands. Stands are found on all aspects in the Central Rockies where the southern monsoon influence is less and maritime climate regime is not important. Climate is drier and more continental than at higher elevations or in the Pacific Northwest. Annual precipitation ranges from 50-100 cm with moderate snowfall and a greater proportion falling during the growing season. Monsoonal summer rains can contribute a significant proportion of the annual precipitation in the southern portion of the range. Elevations range from less than 1000 m in the central Rocky Mountains to over 2400 m in the Wyoming Rockies. Lower elevation stands typically occupy cooler, less xeric northern exposures often on steep slopes. At higher elevations, these forests occur primarily on southerly aspects or ridgetops and plateaus. Soils are highly variable and derived from diverse parent materials, including extrusive volcanics in the Yellowstone region, and sedimentary rocks elsewhere in the Rockies. The soils are typically well-drained and well-aerated. They can be derived from moderately deep colluvium or shallow-jointed bedrock, and are usually gravelly or rocky.

Range: This alliance occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana.

States: MT, ID, WY.

Map Zones:

Similar:

Descriptors:

3234: Mesic Montane Douglas-fir Forest

Match Confidence: Unmatched

Suggested Match: Pseudotsuga menziesii Middle Rocky Mountain Mesic-Wet Forest Alliance

Codes: ESLF: EVT_fuel: 3234

ESP: 1047 NatureServe Id: A3463

BioGeographical Division :

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G215 Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: Stands are *Pseudotsuga menziesii*-dominated forests and woodlands; occasionally *Populus tremuloides* may codominate on disturbed sites ,and *Pinus contorta* may be present at higher elevations. True firs, such as *Abies concolor, Abies grandis*, and *Abies lasiocarpa*, are absent, but occasional *Picea engelmannii* can occur in some stands. *Pinus ponderosa* is also not common in this group. Understory components include relatively mesic species such as the shrubs *Acer glabrum, Amelanchier alnifolia, Linnaea borealis*, and *Physocarpus malvaceus*, and herbs and grasses such as *Achillea millefolium, Bromus carinatus, Eucephalus engelmannii (= Aster engelmannii), Fragaria vesca, Geranium viscosissimum, Lathyrus* spp., *Osmorhiza berteroi*, and *Piptatherum micranthum*. This alliance is restricted to mesic to wet sites in the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana. This alliance occurs in the Central Rockies where the southern monsoon influence is less and maritime climate regime is not important. Climate is drier and more continental than at higher elevations or in the Pacific Northwest. Annual precipitation ranges from 50-100 cm with moderate snowfall and a greater proportion falling during the growing season. Monsoonal summer rains can contribute a significant proportion of the annual precipitation in the southern portion of the range. Elevations range from less than 1000 m in the central Rocky Mountains to over 2400 m in the Wyoming Rockies. Stands typically occupy cooler northern exposures in relatively moist sites such as lower slopes, benches and valley bottoms. Lower elevation stands occupy mesic ravines and canyons on northerly aspects. Soils are highly variable and derived from diverse parent materials, including extrusive volcanics in the Yellowstone region, and sedimentary rocks elsewhere in the Rockies. The soils can be derived from moderately deep colluvium or shallow-jointed bedrock, and are usually gravelly or rocky.

Range: This alliance occurs on relatively moist, cool to warm sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental

Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana.

States: ID, MT, WY

Map Zones:

Similar:

Descriptors:

3235: Xeric Montane Douglas-fir Forest

Match Confidence: Unmatched

Suggested Match: Pseudotsuga menziesii Middle Rocky Mountain Dry-Mesic Forest & Woodlan

Codes: ESLF: EVT_fuel: 2235

ESP: 1166 NatureServe Id: A3462

BioGeographical Division :

NVC MacroGroup: M501 Central Rocky Mountain Dry Lower Montane-Foothill Forest

NVC Group: G215 Middle Rocky Mountain Montane Douglas-fir Forest and Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This forest and woodland alliance is dominated by *Pseudotsuga menziesii* and occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming and in Montana on the east side of the Continental Divide. Stands of this alliance are *Pseudotsuga menziesii*-dominated forests and woodlands occasionally with *Juniperus osteosperma, Juniperus scopulorum, Pinus flexilis* (on calcareous substrates), *Populus tremuloides* (on disturbed sites), and *Pinus contorta* (at higher elevations). True firs, such as *Abies concolor, Abies grandis*, and *Abies lasiocarpa*, are absent, but occasional *Picea engelmannii* can occur in some stands. *Pinus ponderosa* is also not common in this group. Understory components include shrubs such as *Cercocarpus ledifolius, Juniperus communis, Mahonia repens, Purshia tridentata, Spiraea betulifolia, Symphoricarpos albus*, and *Symphoricarpos oreophilus*. Common graminoids include *Calamagrostis rubescens, Carex rossii, Leucopoa kingii*, and *Pseudoroegneria spicata*. Forbs are variable, but typical taxa include *Arnica cordifolia, Thalictrum occidentale, Viola adunca*, and species of many other genera, including *Antennaria, Arenaria, Erigeron, Eriogonum, Lathyrus, Lupinus, Penstemon*, and *Vicia*. This alliance occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana. This alliance often occurs at the lower treeline immediately above valley grasslands, or sagebrush steppe and shrublands. Stands are found on all aspects in the Central Rockies where the southern monsoon influence is less and maritime climate regime is not important. Climate is drier and more continental than at higher elevations or in the Pacific Northwest. Annual precipitation ranges from 50-100 cm with moderate snowfall and a greater proportion falling during the growing season. Monsoonal summer rains can contribute a significant proportion of the annual precipitation in the southern portion of the range. Elevations range from less than 1000 m in the central Rocky Mountains to over 2400 m in the Wyoming Rockies. Lower elevation stands typically occupy cooler, less xeric northern exposures often on steep slopes. At higher elevations, these forests occur primarily on southerly aspects or ridgetops and plateaus. Soils are highly variable and derived from diverse parent materials, including extrusive volcanics in the Yellowstone region, and sedimentary rocks elsewhere in the Rockies. The soils are typically well-drained and well-aerated. They can be derived from moderately deep colluvium or shallow-jointed bedrock, and are usually gravelly or rocky.

Range: This alliance occurs on relatively dry to mesic sites throughout the middle Rocky Mountains of central and southern Idaho, the Greater Yellowstone region, and the Wind River, Gros Ventre and Bighorn ranges of Wyoming. It extends north into Montana on the east side of the Continental Divide, to the McDonald Pass area, and also into the Rocky Mountain Front region and central "sky island" ranges of Montana

States: ID, MT, WY.

Map Zones:

Similar:

Descriptors:

3236: Subalpine Western Larch Forest

Match Confidence: Unmatched

Suggested Match: Larix occidentalis Forest Alliance

Codes: ESLF: EVT_fuel: 2236

ESP: 1055 NatureServe Id: A0275

BioGeographical Division :

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G211 Central Rocky Mountain Mesic Grand Fir – Douglas-fir Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: These seral forests are reported from the northern Rocky Mountains in northwestern Montana, and occur in Idaho, Washington, Oregon and possibly British Columbia, Canada. Stands dominated by *Larix occidentalis* grow best on mesic sites, but also may occur on relatively dry sites. Sites include valley bottoms, benches and lower mountain slopes often on the more mesic north and east aspects, but it is found on all aspects in its northern extent. Substrates are variable, but may include glacial till or colluvium derived from limestone, argillite and quartzite. Soils range from gravelly to non-gravelly loams and silt loams, occasionally with finer texture subsoils. Stands are dominated by the shade-intolerant, fire-tolerant, cold-deciduous conifer *Larix occidentalis*. They are typically even-aged, developing after catastrophic disturbances such as crownfires or clearcuts. Stand height varies from 30-55 m but can be much less if trees are stunted by high stocking densities of seedlings that may form "doghair" stands similar to *Pinus contorta*. Young stands may appear to be pure stands of *Larix occidentalis*, but with time develop into mixed-species stands as slower growing, shade-tolerant species become codominant, including *Pseudotsuga menziesii* or *Abies lasiocarpa*. Unless there are frequent fires to reduce the shade-tolerant subcanopy, *Larix occidentalis* may be over overtopped and quickly decline. Other than juvenile shade-tolerant trees, the understory may have shrub and herbaceous layers depending on tree canopy closure. Shrubs may include *Acer glabrum, Alnus viridis ssp. sinuata (= Alnus sinuata), Amelanchier alnifolia, Paxistima myrsinites, Physocarpus malvaceus, Rubus parviflorus, Salix scouleriana, Symphoricarpos albus*, and *Vaccinium* spp. The herbaceous layer is often conspicuous. Adjacent stands include other montane and subalpine forests dominated by *Pseudotsuga menziesii, Abies lasiocarpa, Picea engelmannii, Pinus contorta, Pinus ponderosa, Thuja plicata*, and *Tsuga heterophylla*. This alliance ranges from 500-1600 m in elevation. Stands in Montana are mostly above 1000 m. Climate is temperate, continental with influences from the Pacific maritime. Mean annual precipitation ranges from 71-81 cm, occurring mostly in the winter with about 20% of the annual precipitation falling in the growing season in May-June. July and August are typically dry. Snow is common in the middle to upper elevation and higher latitude sites. These stands are restricted by cold, short growing seasons and drought at lower elevations.

Range: occur in Idaho, Washington, Oregon and possibly British Columbia, Canada.

States: MT, ID, WA, OR, BC.

Map Zones:

Similar:

Descriptors:

3237: Mesic Montane Western Larch Forest

Match Confidence: Unmatched

Suggested Match: Larix occidentalis Forest Alliance

Codes: ESLF: EVT_fuel: 2237

ESP: 1045 NatureServe Id: A0275

BioGeographical Division :

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G211 Central Rocky Mountain Mesic Grand Fir – Douglas-fir Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: These seral forests are reported from the northern Rocky Mountains in northwestern Montana, and occur in Idaho, Washington, Oregon and possibly British Columbia, Canada. Stands dominated by *Larix occidentalis* grow best on mesic sites, but also may occur on relatively dry sites. Sites include valley bottoms, benches and lower mountain slopes often on the more mesic north and east aspects, but it is found on all aspects in its northern extent. Substrates are variable, but may include glacial till or colluvium derived from limestone, argillite and quartzite. Soils range from gravelly to non-gravelly loams and silt loams, occasionally with finer texture subsoils. Stands are dominated by the shade-intolerant, fire-tolerant, cold-deciduous conifer *Larix occidentalis*. They are typically even-aged, developing after catastrophic disturbances such as crownfires or clearcuts. Stand height varies from 30-55 m but can be much less if trees are stunted by high stocking densities of seedlings that may form "doghair" stands similar to *Pinus contorta*. Young stands may appear to be pure stands of *Larix occidentalis*, but with time develop into mixed-species stands as slower growing, shade-tolerant species become codominant, including *Pseudotsuga menziesii* or *Abies lasiocarpa*. Unless there are frequent fires to reduce the shade-tolerant subcanopy, *Larix occidentalis* may be over overtopped and quickly decline. Other than juvenile shade-tolerant trees, the understory may have shrub and herbaceous layers depending on tree canopy closure. Shrubs may include *Acer glabrum, Alnus viridis ssp. sinuata (= Alnus sinuata), Amelanchier alnifolia, Paxistima myrsinites, Physocarpus malvaceus, Rubus parviflorus, Salix scouleriana, Symphoricarpos albus*, and *Vaccinium* spp. The herbaceous layer is often conspicuous. Adjacent stands include other montane and subalpine forests dominated by *Pseudotsuga menziesii, Abies lasiocarpa, Picea engelmannii, Pinus contorta, Pinus ponderosa, Thuja plicata*, and *Tsuga heterophylla*. This alliance ranges from 500-1600 m in elevation. Stands in Montana are mostly above 1000 m. Climate is temperate, continental with influences from the Pacific maritime. Mean annual precipitation ranges from 71-81 cm, occurring

mostly in the winter with about 20% of the annual precipitation falling in the growing season in May-June. July and August are typically dry. Snow is common in the middle to upper elevation and higher latitude sites. These stands are restricted by cold, short growing seasons and drought at lower elevations.

Range: These seral forests are reported from the northern Rocky Mountains in northwestern Montana, and occur in Idaho, Washington, Oregon and possibly British Columbia, Canada

States: MT, ID, WA, OR, BC.

Map Zones:

Similar:

Descriptors:

3238: Laurentian-Acadian Northern Oak Forest

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Northern Pine-(Oak) Forest

Codes: ESLF: 4265 EVT_fuel: 2362

ESP: 1362 NatureServe Id: CES201.719

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G025 Laurentian & Acadian Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the deciduous expression of this Ecological System. This is a pine-dominated, or occasionally pine-oak, forest system that is typically found on nutrient-poor soils, or on moderately rich soils in the Midwest, in a variety of topographic settings. Soils are loamy to sandy, varying from thin soil over bedrock to deeper soils, sometimes sandy. Sites are xeric to subxeric, but less strongly than barrens and sandplains. The dominant fire regime varies from 100-200 years for *Pinus strobus* and *Pinus resinosa*. Other boreal conifers, or in the East *Picea rubens*, may occasionally be present. Canopy structure is mostly closed but can be partially open. Conifers typically dominate the canopy, but codominates may include hardwoods, especially *Quercus rubra* or *Acer rubrum*, but also *Populus tremuloides* or *Betula papyrifera*. The shrub and field layers can be somewhat dense to sparse.

Range: This system is found in the upper midwestern and northeastern United States and adjacent Canada.

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PA?, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Laurentian Pine-Oak Barrens (CES201.718), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3239: Laurentian-Acadian Northern Pine-Oak Forest

Match Confidence: Solid Match

Suggested Match: Laurentian-Acadian Northern Pine-(Oak) Forest

Codes: ESLF: 4265 EVT_fuel: 2362

ESP: 1362 NatureServe Id: CES201.719

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G025 Laurentian & Acadian Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine or mixed expression of this Ecological System. This is a pine-dominated, or occasionally pine-oak, forest system that is typically found on nutrient-poor soils, or on moderately rich soils in the Midwest, in a variety of topographic settings. Soils are loamy to sandy, varying from thin soil over bedrock to deeper soils, sometimes sandy. Sites are xeric to subxeric, but less strongly than barrens and sandplains. The dominant fire regime varies from 100-200 years for *Pinus strobus* and *Pinus resinosa*. Other boreal conifers, or in the East *Picea rubens*, may occasionally be present. Canopy structure is mostly closed but can be partially open. Conifers typically dominate the canopy, but codominates may include hardwoods, especially *Quercus rubra* or *Acer rubrum*, but also *Populus tremuloides* or *Betula papyrifera*. The shrub and field layers can be somewhat dense to sparse.

Range:

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PA?, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Laurentian Pine-Oak Barrens (CES201.718), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3240: Laurentian-Acadian Hardwood Forest

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Northern Hardwood Forest

Codes: ESLF: 4108 EVT_fuel: 2302

ESP: 1302 NatureServe Id: CES201.564

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G743 Laurentian & Acadian Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These northern hardwood forests range across New England and adjacent Canada, south to northern Pennsylvania and west to Minnesota. They occur in various dry-mesic to wet-mesic settings at low to moderate elevations (generally<610 m [2000 feet]) throughout the Laurentian-Acadian Division. > *Acer saccharum, Betula alleghaniensis*, and *Fagus grandifolia* are the dominant trees (the latter only east of northern Wisconsin). *Tsuga canadensis* or, in the Northeast, *Picea rubens* are common minor canopy associates. *Ostrya virginiana* is frequent but not dominant. Oak is a minor component and absent from northern regions. Successional stands may be dominated by *Populus tremuloides, Betula papyrifera, Acer rubrum, Fraxinus americana, Prunus serotina*, sometimes with scattered *Pinus strobus*. Soils range from moderately nutrient-poor to quite enriched, with associated shifts in the herb flora. This system can include large expanses of rich forest in areas of limestone or similar bedrock, as well as forests that are relatively poor floristically in areas of granitic (or similar) bedrock or acidic till. Blowdowns or snow and ice loading, with subsequent gap regeneration, are the most frequent form of natural disturbance.

Range: This system occurs in northern New England and northern New York west across the upper Great Lakes to northern Minnesota, and adjacent Canada; occasional southwards.

States: MA, ME, MI, MN, NB, NH, NS, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Acadian Low-Elevation Spruce-Fir-Hardwood Forest (CES201.565), Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563), North-Central Interior Beech-Maple Forest (CES202.693)

Descriptors:

Soil Depth :	Shallow Soil
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High Ridge/Upper Slope
Topography :	High-Low Slope
Glacial History :	Glaciated
Soil Fertility :	Eutrophic
Soil Fertility :	Mesotrophic Soil
Life Zones :	Montane
Soil pH :	Acidic
Floristics/Dominants :	Acer saccharum - Betula spp.
Soil Depth :	Deep
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Texture :	Loam
Soil Moisture (NRCS) :	Udic
Disturbance Return Interval :	Long
Wind Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Broad-Leaved Tree
Soil pH :	Circumneutral

3241: Laurentian-Acadian Pine-Hemlock-Hardwood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4308 EVT_fuel: 2366

ESP: 1366 NatureServe Id: CES201.563

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G741 Laurentian & Acadian Hemlock - White Pine - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This north-temperate forest system ranges from the northeastern U.S. and adjacent Canada west to the Great Lakes and upper Midwest. The mesic to dry-mesic forests usually occur on low-nutrient soils at low elevations, mostly less than 610 m (2000 feet). Canopy dominants include *Pinus strobus, Tsuga canadensis*, and *Quercus rubra* in varying percentages. *Acer rubrum* is also quite common; *Betula lenta* may be common at the southern periphery of this system's range. *Quercus velutina* and *Quercus alba* are essentially absent from this system, being more representative of systems in the Central Interior-Appalachian Division to the south. This is a widespread, matrix forest type for the more temperate portions of this division. Gap replacement and infrequent fire are the major natural regeneration modes.

Range: New England west to the Great Lakes and northern Minnesota.

States: MA, ME, MI, MN, NB, NH, NS, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), Laurentian-Acadian Northern Hardwoods Forest (CES201.564), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719)

Descriptors:

Soil Texture : Loam

Major Physiognomy : Forest and Woodland (Tree)

Topography : High-Low Slope

Glacial History : Glaciated

Soil Fertility :	Mesotrophic Soil
Soil pH :	Acidic
Soil Depth :	Shallow Soil
Life Zones :	Lowland
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Floristics/Dominants :	Pinus spp. - Tsuga canadensis
Soil Texture :	Sand
Soil Moisture (NRCS) :	Udic
Disturbance Return Interval :	Very Long
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Wind Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Soil Depth :	Deep

3242: Laurentian Oak Barrens

Match Confidence: Good Match

Suggested Match: Laurentian Pine-Oak Barrens

Codes: ESLF: 5423 EVT_fuel: 2407

ESP: 1407 NatureServe Id: CES201.718

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G160 Great Lakes Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the deciduous expression of this Ecological System. These pine-oak barrens occur in the northern and western Great Lakes region. They occur on sandplains/outwash habitats, with dry, frequent fires (every 10-50 years). *Pinus banksiana, Pinus resinosa, Quercus ellipsoidalis*, and *Pinus strobus* are common overstory dominants. Prairie species are common throughout much of the range of the type. Common shrub and field layer species include *Schizachyrium scoparium, Andropogon gerardii, Carex pensylvanica, Vaccinium angustifolium*, and *Corylus americana*. Oak grubs may be common under frequent burning. Catastrophic burns may create open bracken grasslands.

Range: Occurs in the northern and western Great Lakes region.

States: MI, MN, ON, WI

Map Zones: 41:C, 50:C, 51:C

Similar: Boreal Jack Pine-Black Spruce Forest (CES103.022), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), North-Central Oak Barrens (CES202.727), Northeastern Interior Pine Barrens (CES202.590)

Descriptors:

Major Physiognomy : Woody-Herbaceous

3243: Laurentian Pine-Oak Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5423 EVT_fuel: 2407

ESP: 1407 NatureServe Id: CES201.718

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G160 Great Lakes Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the conifer or mixed expression of this Ecological System. These pine-oak barrens occur in the northern and western Great Lakes region. They occur on sandplains/outwash habitats, with dry, frequent fires (every 10-50 years). *Pinus banksiana, Pinus resinosa, Quercus ellipsoidalis*, and *Pinus strobus* are common overstory dominants. Prairie species are common throughout much of the range of the type. Common shrub and field layer species include *Schizachyrium scoparium, Andropogon gerardii, Carex pensylvanica, Vaccinium angustifolium*, and *Corylus americana*. Oak grubs may be common under frequent burning. Catastrophic burns may create open bracken grasslands.

Range: Occurs in the northern and western Great Lakes region.

States: MI, MN, ON, WI

Map Zones: 41:C, 50:C, 51:C

Similar: Boreal Jack Pine-Black Spruce Forest (CES103.022), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), North-Central Oak Barrens (CES202.727), Northeastern Interior Pine Barrens (CES202.590)

Descriptors:

Major Physiognomy : Woody-Herbaceous

3244: Boreal Hardwood Forest

Match Confidence: Poor Match

Suggested Match: Western North American Boreal White Spruce-Hardwood Forest

Codes: ESLF: 4335 EVT_fuel: 2244

ESP: 1603 NatureServe Id: CES105.106

BioGeographical Division :

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G579 Western Boreal Mesic White Spruce - Hardwood

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This represents the hardwood expression of this system. This system is common on well-drained upland terrain on south, west, and east aspects. *Picea glauca* codominates with *Betula papyrifera* and/or *Populus tremuloides*, and the mixed stands are persistent for over 75 years. This system is known as Boreal White Spruce-Hardwood by the Alaska Natural Heritage Program. This system is similar to a mid-seral stage of Western North American Boreal White Spruce Forest (CES105.104).

Environment: This system occurs on rolling hills, inactive terraces, and mountain sideslopes up to 750 m elevation. Soils are typically well-drained and derived from glacial or other depositional processes and include moraines, drumlins, eskers, kettle-kame, colluvium, alluvial fan, floodplains, and loess deposits. This system is common on all aspects except north. Permafrost is rare on most sites; inclusions of wet mixed forest on loamy soils underlain by permafrost also occur (Jorgenson et al. 1999).

Vegetation: Canopy cover is dominated by *Picea glauca* and *Betula papyrifera* and typically ranges from 25% to 80%. *Populus tremuloides* or *Populus balsamifera* may be codominant in the hardwood component. The understory is open shrub or herbaceous. Common understory species include *Alnus* spp., *Ledum* spp., *Vaccinium vitis-idaea, Betula nana, Rosa acicularis, Shepherdia canadensis*, and *Viburnum edule*. Feathermosses such as *Hylocomium splendens* and *Pleurozium schreberi* are common in the ground layer (Boggs and Sturdy 2005). Common understory species on wet sites include *Calamagrostis canadensis* and *Equisetum* spp. (Jorgenson et al. 1999). **Dynamics:** After fire, this system returns more quickly to mixed hardwood-spruce than the white spruce system.

Range: This system is found in the Boreal region of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C.

Similar:

Descriptors:

Substrate Consolidation :	Unconsolidated
Soil Moisture (NRCS) :	Aridic
Soil Depth :	Deep
Bioclimate :	Boreal
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3245: Boreal White Spruce-Fir-Hardwood Forest

Match Confidence: Direct Match

Suggested Match: Western North American Boreal White Spruce-Hardwood Forest

Codes: ESLF: 4307 EVT_fuel: 2365

ESP: 1365 NatureServe Id: CES103.021

BioGeographical Division : Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G579 Western Boreal Mesic White Spruce - Hardwood

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This system represents the southern edge of the boreal forest, ranging from eastern Alberta to eastern Canada and southward into Minnesota and the Great Lakes region, and possibly the Canadian Maritimes. The low-elevation forests are dominated by *Picea glauca* and *Abies balsamea*. *Picea mariana* is often present, along with occasional *Pinus banksiana*. Codominant boreal hardwoods include *Populus tremuloides* and *Betula papyrifera*. Northern hardwoods are relatively minor. Soils are acidic and usually rocky, and range from well-drained to somewhat poorly drained. This is the matrix forest type of this division. This system may include earlier successional patches, in which *Populus* spp. and *Betula* spp. are dominant or mixed with *Picea* and *Abies*, that will develop into spruce-fir forests. Blowdowns with subsequent gap regeneration are the most frequent form of natural disturbance, with large-scale fires important at longer return intervals.

Range: This system ranges from eastern Alberta to eastern Canada and southward into Minnesota and the Great Lakes region, and possibly the Canadian Maritimes.

States: AB, MB, MI, MN, NB?, ON, QC, SK, WI

Map Zones: 41:C, 50:C, 51:C

Similar: Boreal White Spruce Forest and Woodland (CES105.848)

Descriptors:

Floristics/Dominants : Picea (glauca, mariana, rubens) - Abies

Soil Fertility : Oligotrophic

Soil Fertility : Mesotrophic Soil

Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Lowland

3247: Southern Appalachian Grass Bald

Match Confidence: Good Match

Suggested Match: Southern Appalachian Grass and Shrub Bald

Codes: ESLF: 7127 EVT_fuel: 2414

ESP: 1414 NatureServe Id: CES202.294

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M506 Appalachian Rocky Felsic & Mafic Scrub & Grassland

NVC Group: G657 Southern Appalachian Grass Bald

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This is the herbaceous expression of this Ecological System. This ecological system consists of dense herbaceous and shrubland communities in the highest elevational zone of the southern Appalachians, generally above 1524 m (5000 feet) but occasionally to 1220 m (4000 feet), and at slightly lower elevations at its northern limit in Virginia and West Virginia, and in the Cumberland Mountains along the Virginia-Kentucky border. Vegetation consists either of dense shrub-dominated areas (heath balds) or dense herbaceous cover dominated by grasses or sedges (grassy balds). The combination of high-elevation, non-wetland sites and dense herbaceous or shrub vegetation without appreciable rock outcrop conceptually distinguishes this system from all others in the southern Appalachians. However, the widespread areas of degraded spruce-fir with grass and shrub cover and the invasion of grassy balds by trees blur the distinction somewhat.

Range: This system ranges from the Balsam Mountains and Great Smoky Mountains of North Carolina and Tennessee northward to Virginia and West Virginia. The system is also of limited extent in the Cumberland Mountains along the Virginia-Kentucky border. The current status in Georgia is open to question and was apparently never extensive in any case.

States: GA, KY, NC, TN, VA, WV

Map Zones: 57:C, 61:C

Similar:

Descriptors:

Lifeform : Graminoid

Major Physiognomy : Herbaceous

3248: Northern Atlantic Coastal Plain Dune and Swale Grassland

Match Confidence: Good Match

Suggested Match: Northern Atlantic Coastal Plain Dune and Swale

Codes: ESLF: 7149 EVT_fuel: 2436

ESP: 1436 NatureServe Id: CES203.264

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G493 North Atlantic Coastal Shrub & Grass Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This system consists of vegetation of barrier islands and other coastal areas, ranging from northernmost North Carolina northward to southern Maine (where extensive sandy coastlines are replaced by rocky coasts). A range of plant communities may be present, but natural vegetation is predominately herbaceous, with *Ammophila breviligulata* diagnostic. Shrublands resulting from succession from grasslands may occur in limited areas. Both dune uplands and non-flooded wetland vegetation of interdunal swales are included in this system. Small patches of natural woodland may also be present in limited areas, especially in the northern range of this system. Dominant ecological processes are those associated with the maritime environment, including frequent salt spray, saltwater overwash, and sand movement.

Range: This system ranges from northernmost North Carolina (EPA ecoregion 63d) and southeastern Virginia to southern Maine. The southern portion is a transition zone from around Kitty Hawk, North Carolina, to the Virginia-North Carolina border. The northern limit is Merrymeeting Bay, Maine.

States: CT, DE, MA, MD, ME, NC, NH, NJ, NY, RI, VA

Map Zones: 60:C, 65:C, 66:C

Similar: Northern Atlantic Coastal Plain Heathland and Grassland (CES203.895), Northern Atlantic Coastal Plain Maritime Forest (CES203.302), Northern Atlantic Coastal Plain Sandy Beach (CES203.301), Southeastern Coastal Plain Interdunal Wetland (CES203.258), Southern Atlantic Coastal Plain Dune and Maritime Grassland (CES203.273)

Descriptors:

SCS Subregion : North Atlantic Coastal Plain

Lifeform :	Graminoid
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Specialized Substrates :	Beach
Landforms :	Coast
Major Physiognomy :	Herbaceous

3249: Atlantic Coastal Plain Peatland Pocosin and Canebrake Shrubland

Match Confidence: Good Match

Suggested Match: Atlantic Coastal Plain Peatland Pocosin and Canebrake

Codes: ESLF: 9121 EVT_fuel: 2452

ESP: 1452 NatureServe Id: CES203.267

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M065 Atlantic & Gulf Coastal Plain Bog & Fen

NVC Group: G186 Southeastern Coastal Plain Pocosin & Shrub Bog

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Nb Southeastern North American Coastal Bog & Fen

Summary: This system includes wetlands of organic soils, occurring on broad flats or gentle basins, primarily on the outer terraces of the Atlantic Coastal Plain of the Carolinas and southeastern Virginia. Under current conditions, the vegetation is predominantly dense shrubland and very shrubby open woodlands. A characteristic suite of primarily evergreen shrubs, greenbriars, and *Pinus serotina* dominates. These shrubs include *Ilex glabra, Lyonia lucida, Lyonia mariana, Cyrilla racemiflora, Ilex coriacea*, and *Zenobia pulverulenta*, along with *Smilax laurifolia*. *Pinus serotina* is the characteristic tree, along with *Gordonia lasianthus, Magnolia virginiana*, and *Persea palustris*. Herbs are scarce and largely limited to small open patches. Under pre-European settlement fire regimes, stands of *Arundinaria gigantea ssp. tecta* (canebrakes) would have been more common and extensive. Soil saturation, sheet flow, and peat depth create a distinct zonation, with the highest stature woody vegetation on the edges and lowest in the center. Catastrophic fires are important in this system, naturally occurring at moderate frequency. Fires generally kill all above-ground vegetation in large patches, creating a shifting mosaic. Vegetation structure and biomass recover rapidly in most of the burned areas, primarily by sprouting.

Range: This systems is found primarily in North Carolina, extending into northern South Carolina and southeastern Virginia.

States: GA, NC, SC, VA

Map Zones: 58:C, 60:C

Similar: Atlantic Coastal Plain Streamhead Seepage Swamp, Pocosin and Baygall (CES203.252), Southern Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest (CES203.304)

Descriptors:

Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)

3250: Inter-Mountain Basins Curl-leaf Mountain Mahogany Shrubland

Match Confidence: Solid Match

Suggested Match: Inter-Mountain Basins Curl-leaf Mountain-mahogany Woodland and Shrubla

Codes: ESLF: 4303 EVT_fuel: 2062

ESP: 1062 NatureServe Id: CES304.772

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M026 Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper W

NVC Group: G249 Intermountain Basins Curl-leaf Mountain-mahogany Scrub & Woodl

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nc Western North American Cool Temperate Woodland & Scrub

Summary: This ecological system occurs in hills and mountain ranges of the Intermountain West basins from the eastern foothills of the Sierra Nevada northeast to the foothills of the Bighorn Mountains. It typically occurs from 600 m to over 2650 m in elevation on rocky outcrops or escarpments and forms small- to large-patch stands in forested areas. Most stands occur as shrublands on ridges and steep rimrock slopes, but they may be composed of small trees in steppe areas. Scattered junipers or pines may also occur. This system includes both woodlands and shrublands dominated by *Cercocarpus ledifolius*. *Artemisia tridentata ssp. vaseyana, Purshia tridentata*, with species of *Arctostaphylos, Ribes*, or *Symphoricarpos* are often present. Undergrowth is often very sparse and dominated by bunch grasses, usually *Pseudoroegneria spicata* and *Festuca idahoensis*. *Cercocarpus ledifolius* is a slow-growing, drought-tolerant species that generally does not resprout after burning and needs the protection from fire that rocky sites provide.

Range: This system occurs in hills and mountain ranges of the Intermountain West basins from the eastern foothills of the Sierra Nevada northeast to the foothills of the Bighorn Mountains.

States: CA, CO, ID, MT, NV, OR, UT, WY

Map Zones: 6:P, 7:C, 8:C, 9:C, 10:C, 12:C, 16:C, 17:C, 18:C, 19:C, 21:C, 22:C, 23:?, 29:C, 30:?

Similar:

Descriptors:

Floristics/Dominants : Cercocarpus ledifolius

Fire Intensity/Spatial Character : Patch/Medium Intensity

Disturbance Return Interval : Long

Soil Moisture (NRCS) :	Aridic
Bioclimate :	Temperate
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Landforms :	Plateau
Landforms :	Piedmont
Landforms :	Foothill(s)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3251: Rocky Mountain Montane Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Rocky Mountain Montane Riparian Systems

Codes: ESLF: 9109 EVT_fuel: 2159

ESP: 1159 NatureServe Id: CES306.614

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M034 Rocky Mountain & Great Basin Montane Riparian Forest

NVC Group: G506 Rocky Mountain & Great Basin Montane Riparian Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nc Rocky Mountain & Great Basin Montane Flooded & Swamp Forest

Summary: This lower montane riparian systems group is found throughout the Rocky Mountains and Colorado Plateau regions within a broad elevational range from approximately 900 to 2800 m. These systems often occur as mosaics of multiple communities that are tree-dominated with a diverse shrub component. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. They can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. Stands are also found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. Dominant trees may include *Acer negundo, Populus angustifolia, Populus balsamifera, Populus deltoides, Populus fremontii, Pseudotsuga menziesii, Picea pungens, Populus tremuloides, Salix amygdaloides, Juniperus scopulorum, Picea mariana*, and *Picea glauca*. Dominant shrubs include *Acer glabrum, Alnus incana, Betula occidentalis, Betula papyrifera, Cornus sericea, Crataegus rivularis, Forestiera pubescens, Prunus virginiana, Rhus trilobata, Salix monticola, Salix drummondiana, Salix exigua, Salix irrorata, Salix lucida, Shepherdia argentea*, or *Symphoricarpos* spp. Exotic trees *Elaeagnus angustifolia* and *Tamarix* spp. are common in some stands.

Range: This lower montane riparian system group occurs throughout the Rocky Mountains and Colorado Plateau regions.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, SD, UT, WA, WY

Map Zones: 9:C, 10:C, 12:C, 13:C, 15:C, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:C, 26:C, 27:C, 28:C, 29:C, 33:P

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Flooding Return Interval :	Short (<5 yrs)
Substrate Consolidation :	Unconsolidated
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Hydrogeomorphic Units :	Riverine / Alluvial
Life Zones :	Montane

3252: Rocky Mountain Subalpine/Upper Montane Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Rocky Mountain Subalpine-Montane Riparian Shrubland

Codes: ESLF: 9110 EVT_fuel: 2160

ESP: 1160 NatureServe Id: CES306.832

BioGeographical Division : Rocky Mountain

NVC MacroGroup: M075 Western North American Montane-Subalpine Wet Shrubland & Wet

NVC Group: G527 Western Montane-Subalpine Riparian & Seep Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

Summary: This system is found throughout the Rocky Mountain cordillera from New Mexico north into Montana, and also occurs in mountainous areas of the Intermountain region and Colorado Plateau. These are montane to subalpine riparian shrublands occurring as narrow bands of shrubs lining streambanks and alluvial terraces in narrow to wide, low-gradient valley bottoms and floodplains with sinuous stream channels. Generally it is found at higher elevations, but can be found anywhere from 1700-3475 m. Occurrences can also be found around seeps, fens, and isolated springs on hillslopes away from valley bottoms. Many of the plant associations found within this system are associated with beaver activity. This system often occurs as a mosaic of multiple communities that are shrub- and herb-dominated and includes above-treeline, willow-dominated, snowmelt-fed basins that feed into streams. The dominant shrubs reflect the large elevational gradient and include *Alnus incana, Betula glandulosa, Betula occidentalis, Cornus sericea, Salix bebbiana, Salix boothii, Salix brachycarpa, Salix drummondiana, Salix eriocephala, Salix geyeriana, Salix monticola, Salix planifolia*, and *Salix wolfii*. Generally the upland vegetation surrounding these riparian systems are of either conifer or aspen forests.

Range: This system is found throughout the Rocky Mountain cordillera from New Mexico north into Montana (including the isolated island mountain ranges of central and eastern Montana), and also occurs in mountainous areas of the Intermountain West and Colorado Plateau.

States: AB, AZ, BC, CO, ID, MT, NM, NV, OR, SD, UT, WA, WY

Map Zones: 1:C, 6:?, 7:?, 8:?, 9:C, 10:C, 12:C, 15:?, 16:C, 17:P, 18:C, 19:C, 20:C, 21:C, 22:C, 23:C, 24:C, 25:C, 26:P, 27:C, 28:C, 29:C

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Juxtaposition :	RM Subalpine/Montane Riparian Shrubland
Juxtaposition :	RM Subalpine/Montane Riparian Woodland
Flooding Return Interval :	Short (<5 yrs)
Lifeform :	Broad-Leaved Deciduous Shrub
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3253: Western Great Plains Floodplain Shrubland

Match Confidence: Unmatched

Suggested Match: Western Great Plains Floodplain Systems

Codes: ESLF: 9112 EVT_fuel: 2162

ESP: 1162 NatureServe Id: CES303.616

BioGeographical Division :

NVC MacroGroup: M028 Northern & Central Great Plains Floodplain Forest

NVC Group: G147 Northern & Central Great Plains Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This riparian system group is found in the floodplains of medium and large rivers of the western Great Plains ranging from Texas and New Mexico to Canada. Alluvial soils and periodic, intermediate flooding (every 5-25 years) typify this system. Dominant communities range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Stands are also found on alluvial soils in highly variable landscape settings, from deep cut ravines to wide, braided streambeds. Dominant species include *Andropogon gerardii, Artemisia cana ssp. cana, Carex pellita (= Carex lanuginosa), Populus balsamifera ssp. trichocarpa* (northern stands), *Elymus lanceolatus, Fraxinus* spp., *Panicum virgatum, Pascopyrum smithii, Populus deltoides, Quercus macrocarpa, Salix* spp., *Schizachyrium scoparium, Sporobolus cryptandrus, Ulmus americana*, and *Ulmus rubra*. In addition, exotic species such as *Tamarix* spp., *Ulmus pumila*, and *Elaeagnus angustifolia* can invade these systems.

Range: This montane to subalpine riparian system group is found in the floodplains of medium and large rivers of the western Great Plains from Texas and New Mexico to Canada.

States: AB, CO, KS, MB, MT, ND, NE, NM, OK, SD, SK, TX, WY

Map Zones: 20:C, 21:?, 22:C, 25:C, 26:C, 27:C, 28:C, 29:C, 30:C, 31:C, 32:C, 33:C, 34:C, 35:C, 36:C, 38:C, 39:C, 40:C, 43:C

Similar:

Descriptors:

Juxtaposition : Riparian mosaic

Mass Movement Type : Flood Scouring

Disturbance Return Interval	:	Very Short
Hydrogeomorphic Units	:	Riverine / Alluvial
Major Physiognomy	:	Woody-Herbaceous

3254: Western Great Plains Floodplain Herbaceous

Match Confidence: Unmatched

Suggested Match: Western Great Plains Floodplain Systems

Codes: ESLF: 9153 EVT_fuel: 2162

ESP: NatureServe Id: CES303.678

BioGeographical Division :

NVC MacroGroup: M028 Northern & Central Great Plains Floodplain Forest

NVC Group: G147 Northern & Central Great Plains Floodplain Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This ecological system is found in the floodplains of medium and large rivers of the western Great Plains. It occurs on the lower reaches of the North and South Platte, Platte, Arkansas, and Canadian rivers. Alluvial soils and periodic, intermediate flooding (every 5-25 years) typify this system. These are the perennial big rivers of the region with hydrologic dynamics largely driven by snowmelt in the mountains, instead of local precipitation events. Dominant communities within this system range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Dominant species include *Populus deltoides* and *Salix* spp. Grass cover underneath the trees is an important part of this system and is a mix of tallgrass species, including *Panicum virgatum* and *Andropogon gerardii*. *Tamarix* spp. and less desirable grasses and forbs can invade degraded areas within the floodplains, especially in the western portion of the province. These areas are often subjected to heavy grazing and/or agriculture and can be heavily degraded. Another factor is that groundwater depletion and lack of fire have created additional species changes. In most cases, the majority of the wet meadow and prairie communities may be extremely degraded or extirpated from the system.

Range: This system is found along major river floodplains in the southern and central portions of the Western Great Plains Division. This system occurs on the middle to lower reaches of the North and South Platte, Platte, Arkansas, and Canadian rivers. Major river floodplains of eastern Wyoming and Montana are included in ~Northwestern Great Plains Floodplain (CES303.676)$$ and not this system.

States: CO, KS, NE, OK, SD, TX

Map Zones: 22:C, 25:?, 26:C, 27:C, 28:P, 31:C, 32:C, 33:C, 34:C, 35:C, 36:C, 38:C, 43:C

Similar: Northwestern Great Plains Floodplain (CES303.676), South-Central Interior Large Floodplain (CES202.705), Southeastern Great Plains Floodplain Forest (CES205.710)

Descriptors:

Flooding Return Interval :	Long (>25 yrs)
Water Depth :	Deep (>15 cm)
Hydrogeomorphic Units :	Riverine / Alluvial
Landforms :	Floodplain
Major Physiognomy :	Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3255: Inter-Mountain Basins Montane Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Inter-Mountain Basins Montane Riparian Systems

Codes: ESLF: 9104 EVT_fuel: 2154

ESP: 1154 NatureServe Id: CES304.611

BioGeographical Division : Inter-Mountain Basins

NVC MacroGroup: M034 Rocky Mountain & Great Basin Montane Riparian Forest

NVC Group: G506 Rocky Mountain & Great Basin Montane Riparian Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nc Rocky Mountain & Great Basin Montane Flooded & Swamp Forest

Summary: This montane riparian system group is found on the periphery of the northern Rockies in the Columbia River Basin, along major tributaries and the main stem of the Columbia at relatively low elevations and at higher elevations in mountain ranges of the Great Basin and along the eastern slope of the Sierra Nevada within a broad elevation range from about 1220 m to over 2135 m (4000-7000 feet). This system group often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. The variety of plant associations connected to this system reflects elevation, stream gradient, floodplain width, and flooding events. Important and diagnostic trees include *Abies concolor, Pseudotsuga menziesii, Alnus incana, Betula occidentalis, Populus angustifolia, Populus fremontii, Populus balsamifera ssp. trichocarpa, Alnus rhombifolia, Populus tremuloides, Celtis laevigata var. reticulata, Betula occidentalis*, or *Pinus ponderosa*. Important shrubs include *Amelanchier alnifolia, Artemisia cana, Cornus sericea, Crataegus douglasii, Philadelphus lewisii, Prunus virginiana, Rosa nutkana, Rosa woodsii, Salix exigua, Salix gooddingii, Salix eriocephala, Salix lasiolepis, Salix laevigata, Salix lemmonii, Salix lucida ssp. lasiandra, Salix lutea*, and *Symphoricarpos albus*. Herbaceous layers are often dominated by species of *Carex* and *Juncus*, and perennial grasses and mesic forbs, such as *Deschampsia caespitosa, Elymus trachycaulus, Glyceria striata, Iris missouriensis, Maianthemum stellatum*, or *Thalictrum fendleri*. Introduced forage species, such as *Agrostis stolonifera, Poa pratensis, Phleum pratense*, and the weedy annual *Bromus tectorum*, are often present in disturbed stands.

Range: This montane riparian system group occurs in mountains of the Great Basin and eastern slope of the Sierra Nevada north into the Columbia River Basin.

States: BC, CA, ID, MT?, NV, OR, UT, WA

Map Zones: 7:C, 8:C, 9:C, 10:C, 12:C, 13:C, 16:C, 17:C, 18:C, 21:P, 22:?

Similar:

Descriptors:

Temporal Persistence :	Short (50-100 yrs)
Juxtaposition :	Riparian mosaic
Flooding Return Interval :	Short (<5 yrs)
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3256: Apacherian-Chihuahuan Semi-Desert Grassland

Match Confidence: Good Match

Suggested Match: Apacherian-Chihuahuan Semi-Desert Grassland and Steppe

Codes: ESLF: 5450 EVT_fuel: 2121

ESP: 1121 NatureServe Id: CES302.735

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M087 Chihuahuan Semi-Desert Grassland

NVC Group: G490 Chihuahuan Desert Foothill-Piedmont & Lower Montane Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system is a broadly defined desert grassland, mixed shrub-succulent or xeromorphic oak savanna that is typical of the Borderlands of Arizona, New Mexico and northern Mexico (Apacherian region) but extends west to the Sonoran Desert, north into the Mogollon Rim and throughout much of the Chihuahuan Desert. It is found on gently sloping bajadas that support frequent fire throughout the Sky Islands and on mesas and steeper piedmont, foothill and desert mountain slopes up to 1670 m elevation in the Chihuahuan Desert. It is characterized by typically diverse perennial grasses. Common species include grasses *Bouteloua eriopoda, Bouteloua hirsuta, Bouteloua ramosa, Bouteloua rothrockii, Bouteloua curtipendula, Bouteloua gracilis, Eragrostis intermedia, Muhlenbergia emersleyi, Muhlenbergia porteri, Muhlenbergia setifolia*, and *Pleuraphis jamesii*, succulent species of *Agave, Dasylirion*, and *Yucca*, short-shrub species of *Calliandra, Mimosa*, and *Parthenium*, and tall-shrub/short-tree species of *Acacia, Prosopis*, and various oaks (e.g., *Quercus grisea, Quercus emoryi, Quercus arizonica, Quercus oblongifolia*). *Pleuraphis mutica*-dominated semi-desert grasslands often with *Bouteloua eriopoda* or *Bouteloua gracilis* occurring on lowlands and loamy plains in the Chihuahuan Desert are classified as ~Chihuahuan Loamy Plains Desert Grassland (CES302.061)$$. Many of the historical desert grassland and savanna areas have been converted through intensive grazing and other land uses, some to ~Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733)$$ (*Prosopis* spp.-dominated).

Range: This system is found in the Borderlands of Arizona, New Mexico and northern Mexico (Apacherian region), extending to the Sonoran Desert and throughout much of the northern Chihuahuan Desert.

States: AZ, MXCH, NM, TX

Map Zones: 13:C, 14:C, 15:C, 24:C, 25:C, 26:C, 27:C, 28:?, 34:?

Similar: Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733), Madrean Encinal (CES305.795), Madrean Juniper Savanna (CES301.730)

Descriptors:

Lifeform :	Graminoid
Lifeform :	Succulent Shrub
Lifeform :	Thorn Shrub
Lifeform :	Xeromorphic Shrub
Lifeform :	Xeromorphic Tree
Lifeform :	Broad-Leaved Evergreen Tree
Fire Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Aridic
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Lowland

3257: California Central Valley Riparian Herbaceous

Match Confidence: Unmatched

Suggested Match: California Central Valley Riparian Woodland and Shrubland

Codes: ESLF: 9101 EVT_fuel: 2151

ESP: 1151 NatureServe Id: CES206.946

BioGeographical Division :

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G797 Warm Southwest Riparian Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nd Interior Lowland West Flooded & Swamp Forest

Summary: This is the herbaceous expression of the California Valley Riparian Woodland and Shrubland Ecological System (CES206.946). This system occurs in the floodplains of rivers of California's Central Valley. Alluvial soils and late winter/early spring flooding (usually every year) from snowmelt typify this system. Communities are predominantly floodplain woodlands, but also include shrublands, wet meadows and gravel/s and flats. Important trees and shrubs include Populus fremontii, Platanus racemosa, Quercus lobata, Salix gooddingii, Acer negundo, Cephalanthus occidentalis, and Vitis californica. Juglans nigra hybrids and Ailanthus altissima are problem invasive trees. Tamarix spp. extend as far north as Shasta County. Herbaceous components can include Carex barbarae, Artemisia douglasiana, and various marsh species along riverbanks and backwater (Schoenoplectus californicus (= Scirpus californicus), Typha spp.). Arundo donax is another common invasive and introduced forage species that often invades degraded areas within the floodplains. Periodic flooding and associated sediment scour are necessary to maintain growth and reproduction of vegetation. Flooding regimes have been significantly altered in all but a few tributaries that support this system.

Range: Occurs in the floodplains of rivers of California's Central Valley.

States: CA

Map Zones:

Similar:

Descriptors:

Hydrogeomorphic Units : Riverine / Alluvial

Life Zones : Lowland

Major Physiognomy	Forest and Woodland (Tree)
Major Physiognomy	Shrubland (Shrub)
Major Physiognomy	Herbaceous
Landforms	Floodplain
Landforms	Fluvial
Life Zones	Lowland
Bioclimate	Mediterranean
Juxtaposition	Riparian mosaic
Soil Depth	Deep
Soil Texture	Silt
Soil Texture	Sand
Soil Moisture (NRCS)	Aquic
Soil Moisture (NRCS)	Udic
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Topography	Toeslope/Bottom/Valley

3258: North American Warm Desert Riparian Herbaceous

Match Confidence: Good Match

Suggested Match: North American Warm Desert Riparian Systems

Codes: ESLF: 9105 EVT_fuel: 2155

ESP: 1155 NatureServe Id: CES302.612

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G797 Warm Southwest Riparian Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nd Interior Lowland West Flooded & Swamp Forest

Summary: This desert riparian systems group occurs along drainages and intermittently flooded basins in the northern Chihuahuan and Sonoran deserts, and extends into limited areas of the southern Great Plains and Edwards Plateau and up into the lower montane zone of Sky Island mountains. The woody riparian stands occur in mountain canyons and valleys of southern Arizona, New Mexico, western Texas and adjacent Mexico, and consist of mid- to low-elevation (1100-1800 m) riparian corridors along perennial and seasonally intermittent streams. The intermittently flooded basins are relatively small depressions on broad mesas, plains and valley bottoms that receive runoff from adjacent areas. The riparian vegetation is a mix of riparian woodlands and shrublands. Characteristic woody species include *Acer negundo, Alnus oblongifolia, Baccharis salicifolia, Celtis laevigata var. reticulata, Fraxinus velutina, Juglans major, Platanus wrightii, Pluchea sericea, Populus angustifolia, Populus deltoides ssp. wislizeni, Populus fremontii, Prosopis glandulosa, Prosopis velutina, Prunus* spp., *Salix exigua, Salix lasiolepis, Salix geyeriana, Salix gooddingii, Sapindus saponaria*, and *Shepherdia argentea*. These systems may have inclusions of herbaceous-dominated vegetation, typically *Pleuraphis mutica, Pascopyrum smithii, Panicum obtusum, Sporobolus airoides*, or *Sporobolus wrightii*. This system seems to be the herbaceous expression of the North American Warm Desert Lower Montane Riparian Woodland and Shrubland (CES302.748).

Range: This desert riparian system group occurs along drainages and intermittently flooded basins in the northern Chihuahuan and Sonoran deserts, and extends into limited areas of the southern Great Plains and Edwards Plateau and up into the lower montane zone of Sky Island mountains in southern Arizona, New Mexico, western Texas and adjacent Mexico.

States: AZ, CA, MXBC, MXBS, MXCH, MXSO, NM, NV, TX

Map Zones: 4:C, 6:C, 12:P, 13:C, 14:C, 15:C, 16:C, 17:?, 23:C, 25:C, 26:C, 27:P, 34:?, 35:P

Similar:

Descriptors:

Floristics/Dominants :	Prosopis spp. dominates
Hydrogeomorphic Units :	Riverine / Alluvial
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Landforms :	Swale
Major Physiognomy :	Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3259: Introduced Riparian Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2180

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3260: Mediterranean California Lower Montane Black Oak Forest and Woodland

Match Confidence: Good Match

Suggested Match: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woo

Codes: ESLF: 4217 EVT_fuel: 2030

ESP: 1030 NatureServe Id: CES206.923

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This ecological system is found throughout California's middle and inner North Coast Ranges, as well as the southern and eastern Klamath Mountains from 600-1600 m (1800-4850 feet) elevation, and the lower slopes of the western Sierra Nevada. It occurs in valleys and lower slopes on a variety of parent materials, including granitics, metamorphic and Franciscan metasedimentary parent material and deep, well-developed soils. It is characterized by woodlands or forests of *Pinus ponderosa* with one or more oaks, including *Quercus kelloggii, Quercus garryana, Quercus wislizeni*, or *Quercus chrysolepis*. *Pseudotsuga menziesii* may co-occur with *Pinus ponderosa*, particularly in the North Coast Ranges and Klamath Mountains. On most sites, the oaks are dominant, forming a dense subcanopy under a more open canopy of the conifers. On many sites, *Quercus kelloggii* is the dominant; in late-seral stands on more mesic sites, conifers such as *Pinus ponderosa* or *Pseudotsuga menziesii* will form a persistent emergent canopy over the oak. Stands may have shrubby understories (in the Klamath Mountains and Sierra Nevada) and, more rarely, grassy understories (in North Coast Ranges). Common shrubs include *Arctostaphylos viscida, Arctostaphylos manzanita, Ceanothus integerrimus*, and *Toxicodendron diversilobum*. Grasses can include *Festuca californica, Festuca idahoensis*, and *Melica* spp. Historical fire in this system was likely high frequency but of low intensity. Conifer species, such as *Pseudotsuga menziesii*, become more abundant with wildfire suppression.

Range: This system is found throughout California's middle and inner North Coast Ranges, as well as the Klamath Mountains from 600-1600 m (1800-4850 feet) elevation, and the lower slopes of the western Sierra Nevada.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:P, 6:C, 7:C, 13:?

Similar: California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna (CES206.936), Mediterranean California Mixed Evergreen Forest (CES206.919)

Descriptors:

Floristics/Dominants :	Quercus kellogii
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Depth :	Deep
Specialized Substrates :	Franciscan-formation Soils
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3261: Mediterranean California Lower Montane Black Oak - Conifer Forest and Woodl

Match Confidence: Solid Match

Suggested Match: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woo

Codes: ESLF: 4217 EVT_fuel: 2030

ESP: 1030 NatureServe Id: CES206.923

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This ecological system is found throughout California's middle and inner North Coast Ranges, as well as the southern and eastern Klamath Mountains from 600-1600 m (1800-4850 feet) elevation, and the lower slopes of the western Sierra Nevada. It occurs in valleys and lower slopes on a variety of parent materials, including granitics, metamorphic and Franciscan metasedimentary parent material and deep, well-developed soils. It is characterized by woodlands or forests of *Pinus ponderosa* with one or more oaks, including *Quercus kelloggii, Quercus garryana, Quercus wislizeni*, or *Quercus chrysolepis*. *Pseudotsuga menziesii* may co-occur with *Pinus ponderosa*, particularly in the North Coast Ranges and Klamath Mountains. On most sites, the oaks are dominant, forming a dense subcanopy under a more open canopy of the conifers. On many sites, *Quercus kelloggii* is the dominant; in late-seral stands on more mesic sites, conifers such as *Pinus ponderosa* or *Pseudotsuga menziesii* will form a persistent emergent canopy over the oak. Stands may have shrubby understories (in the Klamath Mountains and Sierra Nevada) and, more rarely, grassy understories (in North Coast Ranges). Common shrubs include *Arctostaphylos viscida, Arctostaphylos manzanita, Ceanothus integerrimus*, and *Toxicodendron diversilobum*. Grasses can include *Festuca californica, Festuca idahoensis*, and *Melica* spp. Historical fire in this system was likely high frequency but of low intensity. Conifer species, such as *Pseudotsuga menziesii*, become more abundant with wildfire suppression.

Range: This system is found throughout California's middle and inner North Coast Ranges, as well as the Klamath Mountains from 600-1600 m (1800-4850 feet) elevation, and the lower slopes of the western Sierra Nevada.

States: CA, OR

Map Zones: 2:C, 3:C, 4:C, 5:P, 6:C, 7:C, 13:?

Similar: California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna (CES206.936), Mediterranean California Mixed Evergreen Forest (CES206.919)

Descriptors:

Floristics/Dominants :	Quercus kellogii
Fire Intensity/Spatial Character :	Patch/Low Intensity
Disturbance Return Interval :	Short
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Depth :	Deep
Specialized Substrates :	Franciscan-formation Soils
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3262: East Cascades Oak Forest and Woodland

Match Confidence: Good Match

Suggested Match: East Cascades Mesic Montane Mixed-Conifer Forest and Woodland

Codes: ESLF: 4205 EVT_fuel: 2018

ESP: 1018 NatureServe Id: CES204.086

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M500 Central Rocky Mountain Mesic Lower Montane Forest

NVC Group: G212 East Cascades Mesic Grand Fir - Douglas-fir Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nb Rocky Mountain Cool Temperate Forest

Summary: This ecological system occurs on the upper east slopes of the Cascades in Washington, south of Lake Chelan and south to Mount Hood in Oregon. Elevations range from 610 to 1220 m (2000-4000 feet) in a very restricted range occupying less than 5% of the forested landscape in the east Cascades. This system is associated with a submesic climate regime with annual precipitation ranging from 100 to 200 cm (40-80 inches) and maximum winter snowpacks that typically melt off in spring at lower elevations. This ecological system is composed of variable montane coniferous forests typically below Pacific silver fir forests along the crest east of the Cascades. This system also includes montane forests along rivers and slopes, and in mesic "coves" which were historically protected from wildfires. Most occurrences of this system are dominated by a mix of *Pseudotsuga menziesii* with *Abies grandis* and/or *Tsuga heterophylla*. Several other conifers can dominate or codominate, including *Thuja plicata, Pinus contorta, Pinus monticola*, and *Larix occidentalis*. *Abies grandis* and other fire-sensitive, shade-tolerant species dominate forests on many sites once dominated by *Pseudotsuga menziesii* and *Pinus ponderosa*, which were formerly maintained by wildfire. They are very productive forests in the eastern Cascades which have been priority stands for timber production. *Mahonia nervosa, Linnaea borealis, Paxistima myrsinites, Acer circinatum, Spiraea betulifolia, Symphoricarpos hesperius, Cornus nuttallii, Rubus parviflorus*, and *Vaccinium membranaceum* are common shrub species. The composition of the herbaceous layer reflects local climate and degree of canopy closure and contains species more restricted to the Cascades, for example, *Achlys triphylla, Anemone deltoidea*, and *Vancouveria hexandra*. Typically, stand-replacement fire-return intervals are 150-500 years with moderate-severity fire-return intervals of 50-100 years.

Range: This ecological system occurs on the upper east slopes of the Cascades in Washington, south of

Lake Chelan and south to Mount Hood in Oregon.

States: BC, OR, WA

Map Zones: 1:C, 7:C, 9:P

Similar: Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest (CES306.805)

Descriptors:

Temporal Persistence :	Long (> 500 yrs)
Floristics/Dominants :	Pseudotsuga menziesii
Floristics/Dominants :	Tsuga heterophylla, Thjua plicata
Floristics/Dominants :	Abies grandis-mixed
Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Disturbance Return Interval :	Very Long
Soil Moisture (NRCS) :	Udic
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3263: East Cascades Oak - Ponderosa Pine Forest and Woodland

Match Confidence: Solid Match

Suggested Match: East Cascades Oak-Ponderosa Pine Forest and Woodland

Codes: ESLF: 4301 EVT_fuel: 2060

ESP: 1060 NatureServe Id: CES204.085

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G206 Cascadian Oregon White Oak - Conifer Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This narrowly restricted ecological system appears at or near lower treeline in foothills of the eastern Cascades in Washington and Oregon within 65 km (40 miles) of the Columbia River Gorge. It also appears in the adjacent Columbia Plateau ecoregion. Elevations range from 460 to 1920 m. Most occurrences of this system are dominated by a mix of *Quercus garryana* and *Pinus ponderosa* or *Pseudotsuga menziesii*. Isolated, taller *Pinus ponderosa* or *Pseudotsuga menziesii* over *Quercus garryana* trees characterize parts of this system. Clonal *Quercus garryana* can create dense patches across a grassy landscape or can dominate open woodlands or savannas. The understory may include dense stands of shrubs or, more often, be dominated by grasses, sedges or forbs. Shrub-steppe shrubs may be prominent in some stands and create a distinct tree / shrub / sparse grassland habitat, including *Purshia tridentata, Artemisia tridentata, Artemisia nova*, and *Chrysothamnus viscidiflorus*. Understories are generally dominated by herbaceous species, especially graminoids. Mesic sites have an open to closed sodgrass understory dominated by *Calamagrostis rubescens, Carex geyeri, Carex rossii, Carex inops*, or *Elymus glaucus*. Drier savanna and woodland understories typically contain bunchgrass steppe species such as *Festuca idahoensis* or *Pseudoroegneria spicata*. Common exotic grasses that often appear in high abundance are *Bromus tectorum* and *Poa bulbosa*. These woodlands occur at the lower treeline/ecotone between *Artemisia* spp. or *Purshia tridentata* steppe or shrubland and *Pinus ponderosa* and/or *Pseudotsuga menziesii* forests or woodlands. In the Columbia River Gorge, this system appears as small to large patches in transitional areas in the Little White Salmon and White Salmon river drainages in Washington and Hood River, Rock Creek, Moiser Creek, Mill Creek, Threemile Creek, Fifteen Mile Creek, and White River drainages in Oregon. *Quercus garryana* can create dense patches often associated with grassland or shrubland balds within a closed *Pseudotsuga menziesii* forest landscape. Commonly the understory is shrubby and composed of *Ceanothus integerrimus,*

Holodiscus discolor, Symphoricarpos albus, and *Toxicodendron diversilobum*. Fire plays an important role in creating vegetation structure and composition in this habitat. Decades of fire suppression have led to invasion by *Pinus ponderosa* along lower treeline and by *Pseudotsuga menziesii* in the gorge and other oak patches on xeric sites in the east Cascade foothills. In the past, most of the habitat experienced frequent low-severity fires that maintained woodland or savanna conditions. The mean fire-return interval is 20 years, although variable. Soil drought plays a role, maintaining an open tree canopy in part of this dry woodland habitat.

Range: This narrowly restricted ecological system appears at or near lower treeline in foothills of the eastern Cascades in Washington and Oregon within 65 km (40 miles) of the Columbia River Gorge. It also appears in the adjacent Columbia Plateau ecoregion. Disjunct occurrences in Klamath and Siskiyou counties, Oregon, have more sagebrush and bitterbrush in the understory, along with other shrubs.

States: BC, OR, WA

Map Zones: 1:C, 7:C, 8:C

Similar:

Descriptors:

Temporal Persistence	Short (50-100 yrs)
Fire Intensity/Spatial Character	Landscape/Low Intensity
Fire Intensity/Spatial Character	Patch/Medium Intensity
Disturbance Return Interval	Intermediate
Soil Moisture (NRCS)	Aridic
Soil Organic Matter	Mineral: W/A Horizon <10 cm
Soil Depth	Very Shallow
Soil pH	Circumneutral
Bioclimate	Temperate
Topography	High Ridge/Upper Slope
Major Physiognomy	Forest and Woodland (Tree)
Life Zones	Montane
Life Zones	Montane

3264: California Lower Montane Blue Oak Forest and Woodland

Match Confidence: Good Match

Suggested Match: California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna

Codes: ESLF: 5403 EVT_fuel: 2114

ESP: 1114 NatureServe Id: CES206.936

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This ecological system is primarily found in the valley margins and foothills of the Sierra Nevada and Coast Ranges of California from approximately 120-1200 m (360-3600 feet) in elevation on rolling plains or dry slopes. Over a century of anthropogenic changes (especially cutting of oak) have altered the density and distribution of woody vegetation. A high-quality occurrence often consists of open park-like stands of *Pinus sabiniana*, with oaks and other various broadleaf tree and shrub species, including *Quercus douglasii, Quercus wislizeni, Quercus agrifolia* (primarily central and southern Coast Ranges), *Quercus lobata, Aesculus californica, Arctostaphylos* spp., *Cercis canadensis var. texensis (= Cercis occidentalis), Ceanothus cuneatus, Frangula californica (= Rhamnus californica), Ribes quercetorum, Juniperus californica*, and *Pinus coulteri* (central and southern Coast Ranges). *Pinus sabiniana* tends to drop out all together in the driest and more southerly sites, which are often dominated by *Quercus douglasii*. The California central coast region may have open stands of just *Juniperus californica*, with a grassy understory. These stands belong here due to proximity to other blue oak and gray pine stands or chaparral, and due to the heavy native or non-native grass cover. This is distinguished from Great Basin pinyon-juniper stands, which have little herbaceous understory, and *Pinus monophylla* rather than *Pinus sabiniana*. These stands of only juniper are caused by repeated removal of the oaks by humans and feral pig populations. Northern extensions of this system include *Quercus garryana* as the dominant oak, where it becomes successional to ~Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)$$. *Pinus sabiniana* density also varies based on intensity or frequency of fire, being less abundant in areas of higher intensity or frequency, hence it is often more abundant on steep, rocky or more mesic north-facing slope exposures. Historically, understory vegetation included mixed chaparral to perennial bunchgrass. Currently, most occurrences have understories dominated by dense cover of annual species, both native and non-

native. Variable canopy densities in existing occurrences are likely due to variation in soil moisture regime, natural patch dynamics of fire, and land use (fire suppression, livestock grazing, herbivory, etc.).

Range: This system occurs primarily in the valley margins and foothills of the Sierra Nevada and Coast Ranges from approximately 120-1200 m (360-3600 feet) elevation, from Shasta County to Kern and northern Los Angeles counties, California. It is unlikely to occur in the southern portion of zone 7 (Modoc Plateau), but this needs to be confirmed with California ecologists.

States: CA

Map Zones: 2:P, 3:C, 4:C, 5:C, 6:C, 7:P

Similar: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)

Descriptors:

Soil Moisture (NRCS) :	Ustic
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Woody-Herbaceous
Landforms :	Alluvial plain
Landforms :	Alluvial terrace
Topography :	High-Low Slope
Topography :	Toeslope/Bottom/Valley
Life Zones :	Montane
Soil Texture :	Sand
Juxtaposition :	Savanna-Woodland mosaic
Disturbance Return Interval :	Short
Fire Intensity/Spatial Character :	Patch/Low Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Broad-Leaved Evergreen Tree
Lifeform :	Graminoid
Floristics/Dominants :	Pinus sabiniana, Quercus douglasii
Bioclimate :	Mediterranean

3265: California Lower Montane Blue Oak-Foothill Pine Forest and Woodland

Match Confidence: Good Match

Suggested Match: California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna

Codes: ESLF: 5403 EVT_fuel: 2114

ESP: 1114 NatureServe Id: CES206.936

BioGeographical Division : Mediterranean California

NVC MacroGroup: M009 California Forest & Woodland

NVC Group: G195 California Broadleaf Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nc Californian Warm Temperate Forest

Summary: This ecological system is primarily found in the valley margins and foothills of the Sierra Nevada and Coast Ranges of California from approximately 120-1200 m (360-3600 feet) in elevation on rolling plains or dry slopes. Over a century of anthropogenic changes (especially cutting of oak) have altered the density and distribution of woody vegetation. A high-quality occurrence often consists of open park-like stands of *Pinus sabiniana*, with oaks and other various broadleaf tree and shrub species, including *Quercus douglasii, Quercus wislizeni, Quercus agrifolia* (primarily central and southern Coast Ranges), *Quercus lobata, Aesculus californica, Arctostaphylos* spp., *Cercis canadensis var. texensis (= Cercis occidentalis), Ceanothus cuneatus, Frangula californica (= Rhamnus californica), Ribes quercetorum, Juniperus californica*, and *Pinus coulteri* (central and southern Coast Ranges). *Pinus sabiniana* tends to drop out all together in the driest and more southerly sites, which are often dominated by *Quercus douglasii*. The California central coast region may have open stands of just *Juniperus californica*, with a grassy understory. These stands belong here due to proximity to other blue oak and gray pine stands or chaparral, and due to the heavy native or non-native grass cover. This is distinguished from Great Basin pinyon-juniper stands, which have little herbaceous understory, and *Pinus monophylla* rather than *Pinus sabiniana*. These stands of only juniper are caused by repeated removal of the oaks by humans and feral pig populations. Northern extensions of this system include *Quercus garryana* as the dominant oak, where it becomes successional to ~Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)$$. *Pinus sabiniana* density also varies based on intensity or frequency of fire, being less abundant in areas of higher intensity or frequency, hence it is often more abundant on steep, rocky or more mesic north-facing slope exposures. Historically, understory vegetation included mixed chaparral to perennial bunchgrass. Currently, most occurrences have understories dominated by dense cover of annual species, both native and non-

native. Variable canopy densities in existing occurrences are likely due to variation in soil moisture regime, natural patch dynamics of fire, and land use (fire suppression, livestock grazing, herbivory, etc.).

Range: This system occurs primarily in the valley margins and foothills of the Sierra Nevada and Coast Ranges from approximately 120-1200 m (360-3600 feet) elevation, from Shasta County to Kern and northern Los Angeles counties, California. It is unlikely to occur in the southern portion of zone 7 (Modoc Plateau), but this needs to be confirmed with California ecologists.

States: CA

Map Zones: 2:P, 3:C, 4:C, 5:C, 6:C, 7:P

Similar: Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923)

Descriptors:

Soil Moisture (NRCS) :	Ustic
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Woody-Herbaceous
Landforms :	Alluvial plain
Landforms :	Alluvial terrace
Topography :	High-Low Slope
Topography :	Toeslope/Bottom/Valley
Life Zones :	Montane
Soil Texture :	Sand
Juxtaposition :	Savanna-Woodland mosaic
Disturbance Return Interval :	Short
Fire Intensity/Spatial Character :	Patch/Low Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Broad-Leaved Evergreen Tree
Lifeform :	Graminoid
Floristics/Dominants :	Pinus sabiniana, Quercus douglasii
Bioclimate :	Mediterranean

3266: Oregon White Oak Woodland

Match Confidence: Unmatched

Suggested Match: North Pacific Oak Woodland

Codes: ESLF: 4101 EVT_fuel: 2266

ESP: 1008 NatureServe Id: CES204.852

BioGeographical Division :

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G206 Cascadian Oregon White Oak - Conifer Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system is limited to the southern portions of the North Pacific region. It occurs primarily in the Puget Trough and Willamette Valley but trickles down into the Klamath ecoregion and into California. This system is associated with dry, predominantly low-elevation sites and/or sites that experienced frequent presettlement fires. In the Willamette Valley, soils are mesic yet well-drained, and the type is clearly large patch in nature. In the Puget Lowland and Georgia Basin, this system is primarily found on dry sites, typically either shallow bedrock soils or deep gravelly glacial outwash soils. It occurs on various soils in the interior valleys of the Klamath Mountains, and on shallow soils of "bald hill" toward the coast. Even where more environmentally limited, the system is strongly associated with a pre-European settlement, low-severity fire regime. Succession in the absence of fire tends to favor increased shrub dominance in the understory, increased tree density, and increased importance of conifers, with the end result being conversion to a conifer forest. The vegetation ranges from savanna and woodland to forest dominated by deciduous broadleaf trees, mostly *Quercus garryana*. Codominance by the evergreen conifer *Pseudotsuga menziesii* is common, and *Pinus ponderosa* is important in some stands. In the south, common associates also include *Quercus kelloggii* and *Arbutus menziesii*. This system merges into Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland (CES206.923) on sites that support more conifer cover, and into Mediterranean California Mixed Oak Woodland (CES206.909) in the southern portion of its distribution. This system is borderline between small patch and large patch in its dynamics.

Range: This system occurs primarily in the Puget Trough and Willamette Valley and extends southward at low elevations in the Klamath Mountains on both sides of the Oregon/California stateline.

States: CA, OR, WA

Map Zones: 1, 2, 3, 6:?, 7

Similar:

Descriptors:

Floristics/Dominants :	Quercus garryana
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland

3267: Douglas-fir - Oregon White Oak Woodland

Match Confidence: Unmatched

Suggested Match: Quercus garryana Woodland Alliance

Codes: ESLF: EVT_fuel: 2267

ESP: NatureServe Id: A3328

BioGeographical Division :

NVC MacroGroup: M886 Southern Vancouverian Dry Foothill Forest

NVC Group: G206 Cascadian Oregon White Oak - Conifer Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This alliance consists of savanna, woodland and forest dominated by *Quercus garryana*. Codominance by the evergreen conifer *Pseudotsuga menziesii* is common, and *Pinus ponderosa* is important in some stands with mesic indicator species in the undergrowth. In the south, common associates also include *Quercus kelloggii* and *Arbutus menziesii*. The predominant oaks in areas of higher fire frequency include *Quercus kelloggii* and *Quercus garryana*, with *Quercus garryana var. garryana* codominant in the central and northern Coast Ranges. The perennial bunchgrass component includes *Festuca idahoensis, Festuca californica, Elymus glaucus*, and *Danthonia californica* (close to the coast). A variety of native forbs also occur. Other characteristic species include *Toxicodendron diversilobum, Juniperus occidentalis*, and *Ceanothus cuneatus*. This alliance occurs in southwestern British Columbia, in the Puget Trough and Willamette Valley south into the Klamath Mountains and into northern California, where it is found in the northern portions of the Sierra Nevada and Coast Ranges foothills at lower montane elevations from 600-1600 m (1800-4850 feet) on steep, rocky slopes where snow and cold temperatures occur. This alliance is associated with dry, predominantly low-elevation sites and/or sites that experienced frequent presettlement fires.

Range: This alliance occurs in southwestern British Columbia, in the Puget Trough and Willamette Valley and extends southward at low elevations in the Klamath Mountains on both sides of the Oregon/California stateline, and continues south in the northern portions of the Sierra Nevada and Coast Ranges foothills and lower montane of California and Oregon.

States: CA, OR, WA

Map Zones: 1, 2, 3, 6:?, 7

Similar:

Descriptors:

3268: Eastern Great Plains Tallgrass Aspen Shrubland

Match Confidence: Good Match

Suggested Match: Eastern Great Plains Tallgrass Aspen Parkland

Codes: ESLF: 4137 EVT_fuel: 2331

ESP: 1331 NatureServe Id: CES205.688

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M151 Northern Great Plains Woodland

NVC Group: G146 Northern Great Plains Tallgrass Aspen Parkland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found primarily on part of the Glacial Lake Agassiz plain in northwestern Minnesota, ranging into southern Canada. Calcareous glacial drift overlain with lacustrine soils ranging from loamy to gravelly is characteristic of the lakeplain within the range of this system. Historically this system included a mosaic of tallgrass prairie, wet prairie, brush prairie and aspen-oak woodlands. It is dominated by *Populus tremuloides* with scattered *Quercus macrocarpa* and *Betula papyrifera*. Shrubs such as willow (*Salix* spp.) and hazel (*Corylus* spp.) are also common. The dominant tallgrass species is *Andropogon gerardii* often associated with *Sorghastrum nutans, Calamagrostis* spp., and *Sporobolus heterolepis*. Fire is the most important natural dynamic in this system and helps maintain the open parkland or brush nature of this system. Wind and grazing are also important dynamics. Conversion to agriculture and fire suppression have decreased the range of this system and allowed more shrubs and trees to establish.

Range: This system is found primarily on part of the Glacial Lake Agassiz plain in northwestern Minnesota, ranging into southern Canada.

States: MB, MN, ND

Map Zones: 39:P, 40:C, 41:P

Similar: Northwestern Great Plains Aspen Forest and Parkland (CES303.681)

Descriptors:

Glacial History : Glaciated

Specialized Substrates : Sandplains/Glacial Outwash or Flats

Landforms : Lakeplain

Major Physiognomy : Woody-Herbaceous
Major Physiognomy : Forest and Woodland (Tree)

3269: Laurentian Shrubland Barrens

Match Confidence: Good Match
Suggested Match: Laurentian Pine-Oak Barrens

Codes: ESLF: 5423 EVT_fuel: 2407
ESP: 1407 NatureServe Id: CES201.718

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G160 Great Lakes Pine Barrens

1997 Standard

FGDC Division : Vegetated
FGDC Order : Tree-dominated
FGDC Class : Sparse tree canopy
FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland
NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland
NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland
NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These pine-oak barrens occur in the northern and western Great Lakes region. They occur on sandplains/outwash habitats, with dry, frequent fires (every 10-50 years). *Pinus banksiana, Pinus resinosa, Quercus ellipsoidalis*, and *Pinus strobus* are common overstory dominants. Prairie species are common throughout much of the range of the type. Common shrub and field layer species include *Schizachyrium scoparium, Andropogon gerardii, Carex pensylvanica, Vaccinium angustifolium*, and *Corylus americana*. Oak grubs may be common under frequent burning. Catastrophic burns may create open bracken grasslands.

Range: Occurs in the northern and western Great Lakes region.

States: MI, MN, ON, WI

Map Zones: 41:C, 50:C, 51:C

Similar: Boreal Jack Pine-Black Spruce Forest (CES103.022), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), North-Central Oak Barrens (CES202.727), Northeastern Interior Pine Barrens (CES202.590)

Descriptors:

Major Physiognomy : Woody-Herbaceous

3270: North-Central Interior Sand and Gravel Shrubland

Match Confidence: Poor Match

Suggested Match: North-Central Interior Sand and Gravel Tallgrass Prairie

Codes: ESLF: 7125 EVT_fuel: 2412

ESP: 1412 NatureServe Id: CES202.695

BioGeographical Division :

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G151 Sand & Gravel Tallgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found in the northern Midwest, particularly in Minnesota, Wisconsin, Michigan, and possibly ranging into Ontario. It is often found on glacial features such as kames, eskers, moraines, lakeplains (though excluding the Great Lakes lakeplain) and sandplains, and along eolian dunes. In contrast to the deeper, richer soils supporting other tallgrass systems in the region, the underlying soils in this system tend to be more shallow, sandy, rocky, and/or gravelly outwash soils. Organic content is significantly lower. Grassland species such as Schizachyrium scoparium, Andropogon gerardii, and Bouteloua spp., varying in cover from sparse to moderately dense, dominate this system. Hesperostipa spartea and Sporobolus heterolepis are also common components of this system. Woody species more tolerant of droughty conditions may be found in some examples. The most common trees are Pinus banksiana, Quercus ellipsoidalis, Quercus macrocarpa, and Populus tremuloides. Fire and drought are the major dynamics influencing this system. If fire and periodic drought are not present, woody species begin to invade this system, especially in the eastern parts of its distribution. Wind can also play a role, especially on examples found on sandplains and/or eolian dunes.

Range: This system is found in the northern Midwest possibly ranging into Ontario.

States: IA, IL, IN, MI, MN, MO, ND, ON, SD, WI

Map Zones: 39:C, 40:C, 41:P, 42:C, 43:P, 49:P, 50:C, 51:C, 52:C

Similar:

Descriptors:

Wind Intensity/Spatial Character : Patch/High Intensity

Fire Intensity/Spatial Character : Patch/High Intensity

Soil Texture	: Sand
Glacial History	: Glaciated
Landforms	: Outwash terrace
Landforms	: Outwash plain
Landforms	: Moraine
Landforms	: Lakeplain
Landforms	: Kame
Landforms	: Esker
Major Physiognomy	: Herbaceous

3271: Eastern Boreal Floodplain Herbaceous

Match Confidence: Good Match

Suggested Match: Eastern Boreal Floodplain

Codes: ESLF: 9113 EVT_fuel: 2444

ESP: 1444 NatureServe Id: CES103.588

BioGeographical Division : Boreal

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G052 Eastern Boreal Hardwood Floodplain & Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This is the herbaceous expression of the Ecological System. These southern boreal floodplains are found in the extreme northern portions of the eastern U.S., and believed to be more widespread in Canada. They consist of floodplains along medium-sized northern rivers, in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. (*Acer saccharinum* is uncommon or absent.) Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. The distribution in Division 201 appears to be primarily Canadian, with incursions into northern Maine and northern Minnesota.

Range: This system is found primarily in Canada, with distribution extending into far-northern New England and the northern Great Lakes region.

States: ME, MI, MN, NB, NH, NY, ON, QC, VT

Map Zones: 40:?, 41:P, 50:P, 51:P, 63:P, 64:P, 66:C

Similar:

Descriptors:

Soil Depth : Deep

Major Physiognomy : Forest and Woodland (Tree)

Major Physiognomy : Shrubland (Shrub)

Topography : Toeslope/Bottom/Valley

Hydrogeomorphic Units :	Riverine / Alluvial
Glacial History :	Glaciated
Soil Fertility :	Mesotrophic Soil
Soil Fertility :	Oligotrophic
Life Zones :	Lowland
Soil pH :	Acidic
Flooding Return Interval :	Short (<5 yrs)
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Texture :	Silt
Disturbance Return Interval :	Very Short
Mass Movement Type :	Flood Scouring
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Water Nutrient Status :	Mesotrophic Water
Water pH :	Circumneutral
Water pH :	Acidic
Soil pH :	Circumneutral

3272: Eastern Boreal Floodplain Shrubland

Match Confidence: Good Match

Suggested Match: Eastern Boreal Floodplain

Codes: ESLF: 9113 EVT_fuel: 2444

ESP: 1444 NatureServe Id: CES103.588

BioGeographical Division : Boreal

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G052 Eastern Boreal Hardwood Floodplain & Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This is the shrubland expression of this ecological system. These southern boreal floodplains are found in the extreme northern portions of the eastern U.S., and believed to be more widespread in Canada. They consist of floodplains along medium-sized northern rivers, in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. (*Acer saccharinum* is uncommon or absent.) Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. The distribution in Division 201 appears to be primarily Canadian, with incursions into northern Maine and northern Minnesota.

Range: This system is found primarily in Canada, with distribution extending into far-northern New England and the northern Great Lakes region.

States: ME, MI, MN, NB, NH, NY, ON, QC, VT

Map Zones: 40:?, 41:P, 50:P, 51:P, 63:P, 64:P, 66:C

Similar:

Descriptors:

Soil Depth : Deep

Major Physiognomy : Forest and Woodland (Tree)

Major Physiognomy : Shrubland (Shrub)

Topography : Toeslope/Bottom/Valley

Hydrogeomorphic Units :	Riverine / Alluvial
Glacial History :	Glaciated
Soil Fertility :	Mesotrophic Soil
Soil Fertility :	Oligotrophic
Life Zones :	Lowland
Soil pH :	Acidic
Flooding Return Interval :	Short (<5 yrs)
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Texture :	Silt
Disturbance Return Interval :	Very Short
Mass Movement Type :	Flood Scouring
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Water Nutrient Status :	Mesotrophic Water
Water pH :	Circumneutral
Water pH :	Acidic
Soil pH :	Circumneutral

3273: Eastern Great Plains Floodplain Herbaceous

Match Confidence: Good Match

Suggested Match: Eastern Great Plains Floodplain Systems

Codes: ESLF: 9138 EVT_fuel: 2469

ESP: 1469 NatureServe Id: CES205.625

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M028 Northern & Central Great Plains Floodplain Forest

NVC Group: G147 Northern & Central Great Plains Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the herbaceous expression of this aggregated forested floodplains systems.

Range: These aggregated systems occur in Iowa, Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

States: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI

Map Zones: 38:C, 39:C, 40:C, 42:C, 43:C, 49:C, 52:P

Similar:

Descriptors:

3274: Central Interior and Appalachian Floodplain Herbaceous

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Shrub-Herbaceous Wetland Systems

Codes: ESLF: 9212 EVT_fuel: 2493

ESP: 1493 NatureServe Id: CES202.641

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M029 Central & Appalachian Floodplain Forest

NVC Group: G673 Silver Maple - Sugarberry - Sweetgum Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the herbaceous expression of this group of floodplain systems. This systems group is typically found on glacial potholes, along small streams, ponds, channels in glacial outwash and on lakeplains. These wetlands consist of deep to shallow areas of freshwater marsh dominated by emergent and submergent species that may be surrounded by a zone of wet meadow. Stands may be open ponds with floating or rooted aquatics, deep marsh with bulrush or cattails, or wet meadow. They range in size from fairly small to several acres. The hydric soils are flooded by water at depths of several centimeters to over 1 meter for most of the growing season. Emergent marsh species such as *Typha* spp. and *Schoenoplectus* spp. dominate the core of this system, with an occasional scattering of tall *Carex* spp. and forbs that can vary from dense to open cover. Wet meadows can surround the emergent marsh core along wet mineral soils or shallow peat with the water table typically just below the surface for most of the growing season. The vegetation in the wet meadow zone is dominated by sedges (*Carex* spp.) and grasses such as *Calamagrostis canadensis*. These systems also can contain a zone of wet prairie species such as *Spartina pectinata*. Shrub swamps can also be associated with the wet meadows within these systems. Typical shrub species include *Cornus* spp., *Salix* spp., and/or *Cephalanthus occidentalis*. Trees are generally absent and, if present, are scattered.

Range: This systems group ranges throughout the upper midwestern United States from northwestern Pennsylvania to Missouri and the Dakotas and into adjacent Canada.

States: IA, IL, IN, MI, MN, MO, ND, OH, ON, PA, SD, WI

Map Zones: 39:P, 40:P, 41:C, 42:C, 43:C, 44:P, 47:C, 49:C, 50:C, 51:C, 52:C, 53:C, 62:C

Similar: Laurentian-Acadian Shrub-Herbaceous Wetland Systems (CES201.642)

Descriptors:

Hydroperiod :	>180 days
Water Depth :	Shallow (<15 cm)
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Shrub
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate

3275: Central Interior and Appalachian Floodplain Shrubland

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Shrub-Herbaceous Wetland Systems

Codes: ESLF: 9212 EVT_fuel: 2493

ESP: 1493 NatureServe Id: CES202.641

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M029 Central & Appalachian Floodplain Forest

NVC Group: G673 Silver Maple - Sugarberry - Sweetgum Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the shrubland expression of this group of floodplain systems. This systems group is typically found on glacial potholes, along small streams, ponds, channels in glacial outwash and on lakeplains. These wetlands consist of deep to shallow areas of freshwater marsh dominated by emergent and submergent species that may be surrounded by a zone of wet meadow. Stands may be open ponds with floating or rooted aquatics, deep marsh with bulrush or cattails, or wet meadow. They range in size from fairly small to several acres. The hydric soils are flooded by water at depths of several centimeters to over 1 meter for most of the growing season. Emergent marsh species such as *Typha* spp. and *Schoenoplectus* spp. dominate the core of this system, with an occasional scattering of tall *Carex* spp. and forbs that can vary from dense to open cover. Wet meadows can surround the emergent marsh core along wet mineral soils or shallow peat with the water table typically just below the surface for most of the growing season. The vegetation in the wet meadow zone is dominated by sedges (*Carex* spp.) and grasses such as *Calamagrostis canadensis*. These systems also can contain a zone of wet prairie species such as *Spartina pectinata*. Shrub swamps can also be associated with the wet meadows within these systems. Typical shrub species include *Cornus* spp., *Salix* spp., and/or *Cephalanthus occidentalis*. Trees are generally absent and, if present, are scattered.

Range: This systems group ranges throughout the upper midwestern United States from northwestern Pennsylvania to Missouri and the Dakotas and into adjacent Canada.

States: IA, IL, IN, MI, MN, MO, ND, OH, ON, PA, SD, WI

Map Zones: 39:P, 40:P, 41:C, 42:C, 43:C, 44:P, 47:C, 49:C, 50:C, 51:C, 52:C, 53:C, 62:C

Similar: Laurentian-Acadian Shrub-Herbaceous Wetland Systems (CES201.642)

Descriptors:

Hydroperiod :	>180 days
Water Depth :	Shallow (<15 cm)
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Shrub
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate

3276: Laurentian-Acadian Floodplain Herbaceous

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Floodplain Systems

Codes: ESLF: 9144 EVT_fuel: 2475

ESP: 1475 NatureServe Id: CES201.631

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G653 Silver Maple - Green Ash - Black Ash Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the herbaceous expression of this group of ecological systems. This systems group encompasses north-temperate and sub-boreal floodplains in the northeastern and north-central U.S. and adjacent Canada north of the range of *Platanus occidentalis*. Most occur along medium to large rivers where topography and process have resulted in the development of a complex of upland and wetland, temperate, alluvial vegetation on generally flat topography. This complex includes floodplain forests, with *Acer saccharinum* characteristic, as well as herbaceous sloughs and shrub wetlands. Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. Associated trees include *Acer rubrum* and *Carpinus caroliniana*, the latter frequent but never abundant. On terraces or in more calcareous areas, *Acer saccharum* or *Quercus rubra* may be locally prominent, with *Betula alleghaniensis* and *Fraxinus* spp. *Salix nigra* is characteristic of the levees adjacent to the channel. Common shrubs include *Cornus amomum* and *Viburnum* spp. The herb layer in the forested portions often features abundant spring ephemerals, giving way to a fern-dominated understory in many areas by mid-summer. Non-forested wetlands associated with these systems include shrub-dominated and graminoid-herbaceous vegetation.

Two uncommon expressions occur along sub-boreal rivers in northernmost New England and adjacent Canada: ice-scour rivershores and boreal floodplain forests. The ice-scour rivershores lack extensive forests because spring iceflows prevent floodplain forests from developing, except in small and widely scattered pockets; the vegetation consists of shrublands, tall grasslands, graminoid-forb-dwarf-shrub shoreline seeps, and rivershore outcrops. Characteristic shrubs include*Alnus incana* and *Alnus viridis ssp. crispa (= Alnus crispa), Myrica gale, Cornus sericea, Salix eriocephala* and many other *Salix* spp., and *Dasiphora fruticosa ssp. floribunda*. Characteristic

herbaceous species vary with the setting, although *Calamagrostis canadensis* is ubiquitous. Soils in some areas remain saturated by seepage waters; other patches are well-drained for most of the growing season. These rivershores are flooded every spring, with summer floods in occasional years. The extent of ice-scour varies from year to year according to the snowpack and conditions during ice-out. The location and extent of shrub versus herb cover will vary in time and space according to how recent and severe the scour events have been. Boreal floodplain forests, north of the range of *Acer saccharinum*, develop in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. Most are underwater each spring; microtopography determines how long the various habitats are inundated.

Range: This systems group occurs across the glaciated Northeast from New England, New York, and New Brunswick west to Minnesota.

States: MA?, ME, MI, MN, NB, NH, NY, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar:

Descriptors:

Juxtaposition	Riparian mosaic
Flooding Return Interval	Short (<5 yrs)
Flooding Return Interval	Very Short
Mass Movement Type	Flood Scouring
Glacial History	Glaciated
Hydrogeomorphic Units	Riverine / Alluvial
Specialized Substrates	Entisoles
Major Physiognomy	Herbaceous
Major Physiognomy	Shrubland (Shrub)
Major Physiognomy	Forest and Woodland (Tree)

3277: Laurentian-Acadian Floodplain Shrubland

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Floodplain Systems

Codes: ESLF: 9144 EVT_fuel: 2475

ESP: 1475 NatureServe Id: CES201.631

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G653 Silver Maple - Green Ash - Black Ash Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the shrubland expression of this group of floodplain systems. This systems group encompasses north-temperate and sub-boreal floodplains in the northeastern and north-central U.S. and adjacent Canada north of the range of *Platanus occidentalis*. Most occur along medium to large rivers where topography and process have resulted in the development of a complex of upland and wetland, temperate, alluvial vegetation on generally flat topography. This complex includes floodplain forests, with *Acer saccharinum* characteristic, as well as herbaceous sloughs and shrub wetlands. Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. Associated trees include *Acer rubrum* and *Carpinus caroliniana*, the latter frequent but never abundant. On terraces or in more calcareous areas, *Acer saccharum* or *Quercus rubra* may be locally prominent, with *Betula alleghaniensis* and *Fraxinus* spp. *Salix nigra* is characteristic of the levees adjacent to the channel. Common shrubs include *Cornus amomum* and *Viburnum* spp. The herb layer in the forested portions often features abundant spring ephemerals, giving way to a fern-dominated understory in many areas by mid-summer. Non-forested wetlands associated with these systems include shrub-dominated and graminoid-herbaceous vegetation.

Two uncommon expressions occur along sub-boreal rivers in northernmost New England and adjacent Canada: ice-scour rivershores and boreal floodplain forests. The ice-scour rivershores lack extensive forests because spring iceflows prevent floodplain forests from developing, except in small and widely scattered pockets; the vegetation consists of shrublands, tall grasslands, graminoid-forb-dwarf-shrub shoreline seeps, and rivershore outcrops. Characteristic shrubs include*Alnus incana* and *Alnus viridis ssp. crispa (= Alnus crispa), Myrica gale, Cornus sericea, Salix eriocephala* and many other *Salix* spp., and *Dasiphora fruticosa ssp. floribunda*. Characteristic

herbaceous species vary with the setting, although *Calamagrostis canadensis* is ubiquitous. Soils in some areas remain saturated by seepage waters; other patches are well-drained for most of the growing season. These rivershores are flooded every spring, with summer floods in occasional years. The extent of ice-scour varies from year to year according to the snowpack and conditions during ice-out. The location and extent of shrub versus herb cover will vary in time and space according to how recent and severe the scour events have been. Boreal floodplain forests, north of the range of *Acer saccharinum*, develop in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. Most are underwater each spring; microtopography determines how long the various habitats are inundated.

Range: This systems group occurs across the glaciated Northeast from New England, New York, and New Brunswick west to Minnesota.

States: MA?, ME, MI, MN, NB, NH, NY, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar:

Descriptors:

Juxtaposition	Riparian mosaic
Flooding Return Interval	Short (<5 yrs)
Flooding Return Interval	Very Short
Mass Movement Type	Flood Scouring
Glacial History	Glaciated
Hydrogeomorphic Units	Riverine / Alluvial
Specialized Substrates	Entisoles
Major Physiognomy	Herbaceous
Major Physiognomy	Shrubland (Shrub)
Major Physiognomy	Forest and Woodland (Tree)

3278: Boreal Acidic Peatland Herbaceous

Match Confidence: Good Match

Suggested Match: Boreal Acidic Peatland Systems

Codes: ESLF: 9146 EVT_fuel: 2477

ESP: 1477 NatureServe Id: CES103.633

BioGeographical Division : Boreal

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G284 North Pacific Bog & Acidic Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This systems group includes peatlands that are found at the near-boreal latitudes of the northeastern and north-central United States and adjacent Canada, where climate allows the rate of peat accumulation to exceed its decomposition, resulting in acidic peatlands. They vary from ombrotrophic to weakly minerotrophic, often within the same peatland, with various arrangements of raised bog (ombrotrophic) and poor fen (minerotrophic) portions; most are at least partly ombrotrophic. The surface morphology of the bog may be more-or-less level, domed, or eccentric, but typically is over the water table. A maritime version along the north Atlantic Coast south to easternmost Maine develops distinctive raised plateaus when occurring in basins, or occurs as a "blanket bog" over a sloping rocky substrate in extreme maritime settings. The vegetation physiognomy varies from forest to low-shrub dominance, often with patches of graminoids and bryophyte lawns. The maritime bogs are almost always non-forested and often feature lawns of *Trichophorum caespitosum*. In settings where trees form a partial to moderate cover, stunted (or less frequently well-developed) *Picea mariana* and *Larix laricina* are the dominant trees, and dwarf-shrubs (*Chamaedaphne calyculata, Ledum groenlandicum*) and sedges are common in the understory. Dwarf-shrub-dominated areas are dominated by low ericaceous shrubs (including *Kalmia angustifolia, Kalmia polifolia, Ledum groenlandicum, Chamaedaphne calyculata*, and, near the coast, *Empetrum nigrum* and *Gaylussacia dumosa*), with patches of stunted conifers. In the raised portions, secondary bog pools may be present. These peatlands are sometimes referred to as a "muskeg," a flat boggy peatland with scattered trees and a fairly dense shrub layer on mounded or hummocky peat.

Range: This systems group is primarily Canadian in distribution, ranging from the Maritimes west to Manitoba, and extending south into the northernmost United States from Maine to Minnesota.

Very few examples occur south of the Laurentian-Acadian Division.

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:P, 66:C

Similar:

Descriptors:

Juxtaposition :	Bog and Fen mosaic
Water Nutrient Status :	Oligotrophic
Floristics/Dominants :	Picea mariana - Larix laricina
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Boreal
Major Physiognomy :	Woody-Herbaceous

3279: Boreal Acidic Peatland Shrubland

Match Confidence: Good Match

Suggested Match: Boreal Acidic Peatland Systems

Codes: ESLF: 9146 EVT_fuel: 2477

ESP: 1477 NatureServe Id: CES103.633

BioGeographical Division : Boreal

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G284 North Pacific Bog & Acidic Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This systems group includes peatlands that are found at the near-boreal latitudes of the northeastern and north-central United States and adjacent Canada, where climate allows the rate of peat accumulation to exceed its decomposition, resulting in acidic peatlands. They vary from ombrotrophic to weakly minerotrophic, often within the same peatland, with various arrangements of raised bog (ombrotrophic) and poor fen (minerotrophic) portions; most are at least partly ombrotrophic. The surface morphology of the bog may be more-or-less level, domed, or eccentric, but typically is over the water table. A maritime version along the north Atlantic Coast south to easternmost Maine develops distinctive raised plateaus when occurring in basins, or occurs as a "blanket bog" over a sloping rocky substrate in extreme maritime settings. The vegetation physiognomy varies from forest to low-shrub dominance, often with patches of graminoids and bryophyte lawns. The maritime bogs are almost always non-forested and often feature lawns of *Trichophorum caespitosum*. In settings where trees form a partial to moderate cover, stunted (or less frequently well-developed) *Picea mariana* and *Larix laricina* are the dominant trees, and dwarf-shrubs (*Chamaedaphne calyculata, Ledum groenlandicum*) and sedges are common in the understory. Dwarf-shrub-dominated areas are dominated by low ericaceous shrubs (including *Kalmia angustifolia, Kalmia polifolia, Ledum groenlandicum, Chamaedaphne calyculata*, and, near the coast, *Empetrum nigrum* and *Gaylussacia dumosa*), with patches of stunted conifers. In the raised portions, secondary bog pools may be present. These peatlands are sometimes referred to as a "muskeg," a flat boggy peatland with scattered trees and a fairly dense shrub layer on mounded or hummocky peat.

Range: This systems group is primarily Canadian in distribution, ranging from the Maritimes west to Manitoba, and extending south into the northernmost United States from Maine to Minnesota.

Very few examples occur south of the Laurentian-Acadian Division.

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:P, 66:C

Similar:

Descriptors:

Juxtaposition :	Bog and Fen mosaic
Water Nutrient Status :	Oligotrophic
Floristics/Dominants :	Picea mariana - Larix laricina
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Boreal
Major Physiognomy :	Woody-Herbaceous

3280: Central Interior and Appalachian Swamp Shrubland

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Swamp Systems

Codes: ESLF: 9148 EVT_fuel: 2479

ESP: 1479 NatureServe Id: CES202.635

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central & Appalachian Swamp Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This systems group includes swamps that occur primarily in the glaciated landscape of the eastern United States, with outliers found to the south of the periglacial landscape. Most are small-patch features, but some may be more extensive in larger basins or wet flats; in either case, they are usually discrete elements of the landscape. The acidic substrate is typically mineral soil with a component of organic muck; there may be a peaty epipedon. In some cases, such as kettleholes, a true peat substrate develops. Vegetation physiognomy ranges from forested swamps to semi-open fens. Forested swamps may be dominated by *Tsuga canadensis* mixed with deciduous wetland trees such as *Acer rubrum* or *Nyssa sylvatica*; or in areas with higher pH and/or nutrient levels, by *Acer rubrum* and *Fraxinus nigra*, with calciphilic herbs and sometimes with *Larix laricina*. High-elevation wetlands in the Allegheny Mountains are characterized by additional northern elements such as *Abies balsamea* and *Picea rubens*, with open shrub- and graminoid-dominated fens and occasional bogs. Common species in the understory layers of these wetlands include *Carex* spp., *Osmunda cinnamomea, Cephalanthus occidentalis, Alnus* spp., *Rhododendron maximum, Hypericum densiflorum*, and *Ilex* spp. The hemlock-dominated swamps generally develop in larger lowland basins. In kettleholes or other deep glacial depressions, semi-open fens develop (colloquially called kettlehole "bogs"), where the nutrient-poor substrate and the reduced throughflow of water create oligotrophic conditions fostering the development of *Sphagnum* peat and the growth of peatland vegetation. Ericaceous shrubs and dwarf-shrubs (e.g., *Chamaedaphne calyculata*) dominate, with patches of graminoid dominance. Some may have a sparse tree layer, with *Acer rubrum* and/or *Nyssa sylvatica* characteristic. Many, though not all, of these swamps have a bryoid layer featuring *Sphagnum*.

Range: This systems group of the eastern United States is found from New England south to West Virginia,

west to Minnesota and Ohio, as well as in adjacent Ontario, Canada. Its range is primarily north of the glacial terminus, as well as in periglacial areas. It extends southward at higher elevations in the mountains of western Virginia and eastern West Virginia.

States: CT, DE?, IA, IL, IN, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, ON, PA, RI, VA, VT, WI, WV

Map Zones: 38:C, 41:?, 42:C, 43:P, 44:P, 47:C, 49:C, 50:C, 51:C, 52:C, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Temperate
Specialized Substrates :	Histosoles
Major Physiognomy :	Forest and Woodland (Tree)

3281: Laurentian-Acadian Alkaline Conifer-Hardwood Swamp Shrubland

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Alkaline Conifer-Hardwood Swamp

Codes: ESLF: 9345 EVT_fuel: 2481

ESP: 1481 NatureServe Id: CES201.575

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G046 Laurentian-Acadian-Allegheny Alkaline Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: These forested wetlands are found across northern New England and the upper Midwest and eastern to south-central Canada in basins where higher pH and/or nutrient levels are associated with a rich flora. The substrate is typically mineral soil, but there may be some peat; often, there is an organic epipedon over mineral soil. *Thuja occidentalis* is a diagnostic canopy species and may dominate the canopy or be mixed with other conifers or with deciduous trees, most commonly *Acer rubrum* or *Fraxinus nigra*. Some examples can be almost entirely deciduous and dominated by *Fraxinus nigra*. *Cornus sericea* is a common shrub. The herb layer tends to be more diverse than in acidic swamps. Small open fenny areas may occur within the wetland. Seepage may influence parts of the wetland, but the hydrology is dominated by the basin setting.

Range: Scattered locations from New England and adjacent Canada west to the Great Lakes and northern Minnesota.

States: CT, ME, MI, MN, NY, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Laurentian-Acadian Alkaline Fen (CES201.585), North-Central Interior and Appalachian Rich Swamp (CES202.605), Northern Appalachian-Acadian Conifer-Hardwood Acidic Swamp (CES201.574)

Descriptors:

Temporal Persistence : Moderate (100-500 yrs)

Soil Moisture Regime : Saturated

Water pH : Circumneutral

Water Nutrient Status :	Mesotrophic Water
Floristics/Dominants :	Thuja occidentalis - Fraxinus nigra
Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Forest and Woodland (Tree)

3282: Great Lakes Coastal Marsh Shrubland

Match Confidence: Good Match

Suggested Match: Great Lakes Coastal Marsh Systems

Codes: ESLF: 9211 EVT_fuel: 2492

ESP: 1492 NatureServe Id: CES201.640

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M069 Eastern North American Wet Meadow & Marsh

NVC Group: G125 Eastern North American Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: This systems group is found throughout the Great Lakes Basin in the United States and Canada. It can include a complex variety of wetlands occurring along the Great Lakes shorelines, as well as portions of tributary rivers and streams that are directly affected by Great Lakes water regimes. It also forms much of the St. Clair River delta. Species distributions and community patterns are determined by multiple abiotic factors, including the type of aquatic system (lakeshore, major river channels, smaller tributary rivers, major deltas, or estuarine), Great Lakes water-level fluctuations, surficial bedrock, glacial landform, climate, and land use. Although wetland species are generally widely distributed, those of more temperate prairie regions are found in the southern parts of the basin, while those of more boreal and subarctic regions are found in the northern parts of the basin. Vegetation types found across this diverse set of abiotic factors can be placed into a number of zones, though not all are present at a given site. The first four zones are typically inundated directly by lake waters: (a) submergent marsh - containing submergent and/or floating vegetation; (b) emergent marsh - characterized by shallow water or semipermanently flooded soils, and typically dominated by bulrushes, cattails, and other emergent species, but also containing submergent and/or floating vegetation; (c) shore fen - saturated vegetation mats characterized by groundwater influence from shoreline habitats but affected by lake-level fluctuations, and dominated by herbaceous or shrubby species; and (d) shoreline or strand - a narrow zone at or just above the water level where seasonal water-level fluctuations and waves cause erosion, and which is dominated by annual or pioneer herbaceous species. The next set of zones are inland from the water's edge and include: (e) herbaceous and shrubby wet meadows - characterized by saturated or seasonally flooded soils, and typically dominated by sedges, grasses, and other herbs, but occasionally dominated by shrubs; and (f) shrub or wooded swamps - characterized by seasonal flooding and dominated by woody species. Species assemblages in these zones change depending

on the interaction of factors across the Great Lakes Basin. These systems can be divided into a number of geographical variants, based on the various community types found across the range of the system: (1) Lake Michigan Lacustrine Estuary; (2) Lake Erie-St. Clair Lakeplain Marsh; (3) Lake Ontario Lagoon Marsh; (4) St. Lawrence River Estuary; (5) Lake Superior Poor Fen; (6) Northern Rich Fen; (7) Northern Great Lakes Marsh; (8) Green Bay Disturbed Marsh; and (9) Saginaw Bay Lakeplain Marsh.

Range: This systems group is found throughout the northern Great Lakes Basin in the United States and Canada from New York west to Minnesota. In Pennsylvania, this is only on Presque Isle.

States: MI, MN, NY, OH, ON, PA, WI

Map Zones: 41:C, 49:P, 50:C, 51:C, 52:C, 62:C, 63:C, 64:C

Similar:

Descriptors:

Hydrogeomorphic Units :	Tidal / Estuarine
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous

3283: Central Interior and Appalachian Shrub Wetlands

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Shrub-Herbaceous Wetland Systems

Codes: ESLF: 9212 EVT_fuel: 2493

ESP: 1493 NatureServe Id: CES202.641

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup:

NVC Group:

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: This systems group is typically found on glacial potholes, along small streams, ponds, channels in glacial outwash and on lakeplains. These wetlands consist of deep to shallow areas of freshwater marsh dominated by emergent and submergent species that may be surrounded by a zone of wet meadow. Stands may be open ponds with floating or rooted aquatics, deep marsh with bulrush or cattails, or wet meadow. They range in size from fairly small to several acres. The hydric soils are flooded by water at depths of several centimeters to over 1 meter for most of the growing season. Emergent marsh species such as *Typha* spp. and *Schoenoplectus* spp. dominate the core of this system, with an occasional scattering of tall *Carex* spp. and forbs that can vary from dense to open cover. Wet meadows can surround the emergent marsh core along wet mineral soils or shallow peat with the water table typically just below the surface for most of the growing season. The vegetation in the wet meadow zone is dominated by sedges (*Carex* spp.) and grasses such as *Calamagrostis canadensis*. These systems also can contain a zone of wet prairie species such as *Spartina pectinata*. Shrub swamps can also be associated with the wet meadows within these systems. Typical shrub species include *Cornus* spp., *Salix* spp., and/or *Cephalanthus occidentalis*. Trees are generally absent and, if present, are scattered.

Range: This systems group ranges throughout the upper midwestern United States from northwestern Pennsylvania to Missouri and the Dakotas and into adjacent Canada.

States: IA, IL, IN, MI, MN, MO, ND, OH, ON, PA, SD, WI

Map Zones: 39:P, 40:P, 41:C, 42:C, 43:C, 44:P, 47:C, 49:C, 50:C, 51:C, 52:C, 53:C, 62:C

Similar: Laurentian-Acadian Shrub-Herbaceous Wetland Systems (CES201.642)

Descriptors:

Hydroperiod :	>180 days
Water Depth :	Shallow (<15 cm)
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Shrub
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate

3284: Laurentian-Acadian Herbaceous Wetlands

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Shrub-Herbaceous Wetland Systems

Codes: ESLF: 9215 EVT_fuel: 2494

ESP: 1494 NatureServe Id: CES201.642

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation:

NVCS Division:

Summary: This systems group includes non-forested wetlands that are found in wet basins (closed or open), pondshores, and streamshores throughout the Northeast to the Great Lakes and upper Midwest, and in adjacent Canada. Many occur in association with larger lakes or streams. In shallow basins with particularly nutrient-poor and acidic conditions, *Sphagnum*-based fens develop; other settings develop as mineral-soil marshes. In areas of more-or-less permanent standing water, freshwater marshes with herbaceous vegetation are characteristic. Shrub swamps and fen vegetation typically include areas of graminoid dominance and shrub dominance, and scattered stunted trees may be present. Freshwater marshes, with non-persistent herbaceous vegetation, are associated with lakes, ponds, slow-moving streams, and/or impoundments or ditches. Scattered shrubs may be present but usually total less than 25% cover. The substrate is typically muck over mineral soil. Typical species in some freshwater marsh communities include *Typha latifolia, Typha angustifolia, Phragmites australis, Schoenoplectus americanus, Thelypteris palustris, Impatiens capensis, Carex* spp., *Potamogeton* spp., *Nuphar advena (= Nuphar lutea ssp. advena)*, and *Nymphaea odorata*. Where standing water does not persist through the season, shrub swamps and wet meadows develop, varying from small pockets to extensive acreages. They often have a patchwork of shrub and graminoid dominance; typical species include *Salix* spp., *Cornus amomum, Cornus sericea, Alnus incana, Spiraea alba, Calamagrostis canadensis*, tall *Carex* spp., and *Juncus effusus*. Trees are generally absent and, if present, are scattered; *Acer rubrum* is typical.

An especially distinctive (and rare) expression within this systems group are the ribbed bogs or fens in which a pattern of narrow (2- to 3-m wide), low (less than 1 m deep) ridges are oriented at right angles to the direction of the drainage (National Wetlands Working Group 1988). Wet pools or depressions occur between the ridges. They develop almost entirely north of 46 degrees N

latitude in east-central Canada and the adjacent U.S. They are minerotrophic peatlands in which the vegetation has developed into a pattern of strings (raised, usually linear features) and flarks (wet depressions separating the strings). These peatlands usually develop in open basins and flat plains, and the patterned portion may occupy only a fraction of the entire peatland.

Range: This systems group ranges over a large area across the northern tier of the United States and adjacent Canada from Maine and the Canadian Maritimes west to Minnesota and western Ontario. They occur throughout this glaciated landscape south to Pennsylvania and northern New Jersey.

States: CT, IL?, IN?, MA, ME, MI, MN, NB, NH, NJ, NS?, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 49:P, 50:C, 51:C, 52:P, 62:P, 63:C, 64:C, 65:C, 66:C

Similar: Central Interior and Appalachian Shrub-Herbaceous Wetland Systems (CES202.641), North-Central Interior Freshwater Marsh (CES202.899), North-Central Interior Wet Meadow-Shrub Swamp (CES202.701)

Descriptors:

Hydroperiod :	>180 days
Water pH :	Acidic
Lifeform :	Graminoid
Lifeform :	Dwarf-Shrub
Lifeform :	Broad-Leaved Deciduous Shrub
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Depressional

3285: Laurentian-Acadian Shrub Wetlands

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Shrub-Herbaceous Wetland Systems

Codes: ESLF: 9215 EVT_fuel: 2494

ESP: 1494 NatureServe Id: CES201.642

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: -

NVCS Division: -

Summary: This systems group includes non-forested wetlands that are found in wet basins (closed or open), pondshores, and streamshores throughout the Northeast to the Great Lakes and upper Midwest, and in adjacent Canada. Many occur in association with larger lakes or streams. In shallow basins with particularly nutrient-poor and acidic conditions, *Sphagnum*-based fens develop; other settings develop as mineral-soil marshes. In areas of more-or-less permanent standing water, freshwater marshes with herbaceous vegetation are characteristic. Shrub swamps and fen vegetation typically include areas of graminoid dominance and shrub dominance, and scattered stunted trees may be present. Freshwater marshes, with non-persistent herbaceous vegetation, are associated with lakes, ponds, slow-moving streams, and/or impoundments or ditches. Scattered shrubs may be present but usually total less than 25% cover. The substrate is typically muck over mineral soil. Typical species in some freshwater marsh communities include *Typha latifolia, Typha angustifolia, Phragmites australis, Schoenoplectus americanus, Thelypteris palustris, Impatiens capensis, Carex* spp., *Potamogeton* spp., *Nuphar advena (= Nuphar lutea ssp. advena)*, and *Nymphaea odorata*. Where standing water does not persist through the season, shrub swamps and wet meadows develop, varying from small pockets to extensive acreages. They often have a patchwork of shrub and graminoid dominance; typical species include *Salix* spp., *Cornus amomum, Cornus sericea, Alnus incana, Spiraea alba, Calamagrostis canadensis*, tall *Carex* spp., and *Juncus effusus*. Trees are generally absent and, if present, are scattered; *Acer rubrum* is typical.

An especially distinctive (and rare) expression within this systems group are the ribbed bogs or fens in which a pattern of narrow (2- to 3-m wide), low (less than 1 m deep) ridges are oriented at right angles to the direction of the drainage (National Wetlands Working Group 1988). Wet pools or depressions occur between the ridges. They develop almost entirely north of 46 degrees N

latitude in east-central Canada and the adjacent U.S. They are minerotrophic peatlands in which the vegetation has developed into a pattern of strings (raised, usually linear features) and flarks (wet depressions separating the strings). These peatlands usually develop in open basins and flat plains, and the patterned portion may occupy only a fraction of the entire peatland.

Range: This systems group ranges over a large area across the northern tier of the United States and adjacent Canada from Maine and the Canadian Maritimes west to Minnesota and western Ontario. They occur throughout this glaciated landscape south to Pennsylvania and northern New Jersey.

States: CT, IL?, IN?, MA, ME, MI, MN, NB, NH, NJ, NS?, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 49:P, 50:C, 51:C, 52:P, 62:P, 63:C, 64:C, 65:C, 66:C

Similar: Central Interior and Appalachian Shrub-Herbaceous Wetland Systems (CES202.641), North-Central Interior Freshwater Marsh (CES202.899), North-Central Interior Wet Meadow-Shrub Swamp (CES202.701)

Descriptors:

Hydroperiod :	>180 days
Water pH :	Acidic
Lifeform :	Graminoid
Lifeform :	Dwarf-Shrub
Lifeform :	Broad-Leaved Deciduous Shrub
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Depressional

3286: Paleozoic Plateau Bluff and Talus Herbaceous

Match Confidence: Good Match

Suggested Match: Paleozoic Plateau Bluff and Talus

Codes: ESLF: 5430 EVT_fuel: 2517

ESP: 1517 NatureServe Id: CES202.704

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M111 Eastern North American Cliff & Rock Vegetation

NVC Group: G340 Eastern North American Talus & Bluff

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Na Eastern North American Temperate Cliff, Scree & Rock Vegetation

Summary: This system is found in the driftless regions of southeastern Minnesota, southwestern Wisconsin, and northern Iowa and Illinois. This region was not glaciated like the surrounding areas and thus is predominated by rolling hills and bluff outcrops. This system is found primarily on blufftops and dry upper slopes along the Upper Mississippi River, although it can range into bordering regions such as the Baraboo Hills in Wisconsin. This system contains a mosaic of woodlands, savannas, prairies and sparsely vegetated limestone, dolomite, and/or sandstone outcrops, with occasional talus, especially algific talus. Soils range from thin to moderately deep and are moderately to excessively well-drained with a high mineral content. Woodlands consist of primarily a mixture of oak species such as *Quercus macrocarpa, Quercus rubra, Quercus muehlenbergii*, and *Quercus alba*. *Acer saccharum, Betula alleghaniensis*, and conifer species such as *Pinus* spp. and *Tsuga canadensis* may occur on more mesic and protected areas within this system. Prairie openings (also called "goat prairies") contain *Schizachyrium scoparium* and *Bouteloua curtipendula* with scattered *Juniperus virginiana*. Historically, fire was the most important dynamic maintaining these systems, however, fire suppression within the region has allowed more canopy cover and thus very few prairie openings remain. Algific talus harbors a number of unusual Pleistocene relict species, including plants and snails.

Range: This system is found within the Paleozoic Plateau (aka Driftless Region) of southeastern Minnesota, southwestern Wisconsin and northern Iowa and Illinois.

States: IA, IL, MN, WI

Map Zones: 42:C, 49:C, 50:C

Similar: Central Interior Calcareous Cliff and Talus (CES202.690)

Descriptors:

Glacial History :	Unglaciated
Landforms :	Bluff
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3287: Modified/Managed Northern Tallgrass Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2539

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced perennial forb or grassland species such as: Circium arvense, C. vulgare, Centaurea spp., Euphorbia esula, Isatis tinctora, Lepidium sp., Melilotus albus, M. officinalis, Onopordum acanthium, Agropyron cristatum, Bromus inermis, Eragrostis lehmannianna, Pennisetum spp., Poa bulbosa, P. pratensis, Thinopyrum intermedium. Tallgrass Prairie areas that have been convered to agriculture, biofuels or other managed cultural systems.

Range:

States:

Map Zones:

Similar:

Descriptors:

3288: Central Appalachian Rocky Shrubland

Match Confidence: Unmatched

Suggested Match: Central Appalachian Alkaline Glade and Woodland

Codes: ESLF: 5416 EVT_fuel: 2400

ESP: 1400 NatureServe Id: CES202.602

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system occurs at low to moderate elevations from the Central Appalachians (with a few northward incursions into southernmost New York and New England possible) south to the Ridge and Valley and Piedmont. It consists of woodlands and open glades on thin soils over limestone, dolostone or similar calcareous rock. Juniperus virginiana is a common tree, often increasing in the absence of fire, and Quercus muehlenbergii is indicative of the limestone substrate. Rhus aromatica, Cercis canadensis, and Ostrya virginiana may occur. Prairie grasses are the dominant herbs (Andropogon gerardii, Schizachyrium scoparium, Bouteloua spp.). Forb richness is often high; characteristic forbs include Asclepias verticillata, Brickellia eupatorioides, Erigeron pulchellus, Monarda fistulosa, Packera obovata, Salvia lyrata, and Symphyotrichum oblongifolium. Fire is sometimes an important natural disturbance factor, but open physiognomies may also be maintained by drought.

Range: This system is known from Pennsylvania and northwestern New Jersey south through the Ridge and Valley to western Virginia, possibly extending to southeasternmost New York and the marble valleys of northwestern Connecticut.

States: CTpotentially occurs, MD, NJ, NYpotentially occurs, OH, PA, VA, WV

Map Zones: 57, 60, 61, 64

Similar:

Descriptors:

Fire Intensity/Spatial Character : Patch/Medium Intensity

Disturbance Return Interval : Intermediate

Soil Moisture (NRCS) :	Ustic
Soil Depth :	Shallow Soil
Soil pH :	Circumneutral
Soil pH :	Alkaline
Soil Fertility :	Mesotrophic Soil
Glacial History :	Unglaciated
Bioclimate :	Temperate
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3289: Acadian-Appalachian Subalpine Heath-Krummholz

Match Confidence: Good Match

Suggested Match: Acadian-Appalachian Subalpine Woodland and Heath-Krummholz

Codes: ESLF: 5320 EVT_fuel: 2389

ESP: 1389 NatureServe Id: CES201.568

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M131 Eastern North American Alpine Shrub & Grassland

NVC Group: G087 Eastern Subalpine Shrub - Herb Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Na Eastern North American Alpine Dwarf-Shrub & Grassland

Summary: This system encompasses vegetation of varying physiognomy at upper elevations, near and slightly above treeline, in the northeastern U.S. and adjacent Canada. It may be a zone between montane spruce-fir forest and alpine systems or may cover the ridgelines and summits of lower mountains. In the Appalachians it occurs mostly above 915 m (3000 feet) elevation but can be at much lower elevations near the Atlantic Coast. Trees become progressively stunted as exposure increases, with *Picea rubens* being replaced by *Picea mariana* in a stunted form. Vegetation structure ranges from woodland to shrubland to sparsely vegetated dwarf-shrubs and herbs. Woodlands may be locally extensive, and patches of open rock support areas of shrub, dwarf-shrub or sparse vegetation. In the subalpine zone, shrublands may be extensive on the upper slopes, forming krummholz or, in somewhat more protected spots, deciduous shrub thickets. Ericads, including *Kalmia angustifolia, Ledum groenlandicum*, and *Vaccinium uliginosum*, are the most characteristic shrubs; *Empetrum nigrum* and *Empetrum eamesii ssp. atropurpureum (= Empetrum atropurpureum)* are indicative of the subalpine zone. *Vaccinium boreale* occurs rarely but is diagnostic where it is present. Subalpine fens are included here: these are heath-dominated and graminoid-dominated fens, often occurring in a mosaic surrounded by other subalpine vegetation. They are on gentle slopes (usually about 10%), usually at 732 to 915 m (2400-3000 feet) elevation. *Calamagrostis pickeringii* is dominant and characteristic in the graminoid fens, with northern sedges such as *Carex michauxiana, Carex wiegandii, Carex exilis*, etc. The montane heath fens contain *Alnus viridis ssp. crispa (= Alnus crispa), Nemopanthus mucronatus*, and ericads. Peat accumulation is in the range of 10-50 cm. Occurrences are usually about 5 acres in size but range up to about 20 acres.

Range: This system is found on the higher summits of the northern Appalachian mountains, from northern New England and the Adirondacks into the Canadian GaspÃ©, extending south in scattered

locations into southern New England.

States: ME, NB, NH, NY, QC, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Acadian-Appalachian Montane Spruce-Fir Forest (CES201.566), Northern Appalachian-Acadian Rocky Heath Outcrop (CES201.571)

Descriptors:

Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Topography :	High Ridge/Upper Slope
Glacial History :	Glaciated
Soil Fertility :	Mesotrophic Soil
Soil Fertility :	Oligotrophic
Soil pH :	Acidic
Life Zones :	Alpine
Soil Depth :	Shallow Soil
Temporal Persistence :	Long (> 500 yrs)
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Moisture (NRCS) :	Udic
Substrate Consolidation :	Consolidated
Disturbance Return Interval :	Intermediate
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Wind Intensity/Spatial Character :	Landscape/High Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Shrub
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Soil Depth :	Very Shallow

3290: North-Central Oak Barrens Herbaceous

Match Confidence: Good Match

Suggested Match: North-Central Oak Barrens

Codes: ESLF: 5411 EVT_fuel: 2395

ESP: 1395 NatureServe Id: CES202.727

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M012 Central Midwest Oak Forest, Woodland & Savanna

NVC Group: G181 Central Midwest Oak Openings & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This community occurs on well-drained, coarse-textured sandy soils derived from glacial outwash, end moraine formations, or lakeplain dune systems in the north-central U.S. into Ontario, Canada. Soils range from almost pure sand, to loamy sand, to sandy loam. The soils have low fertility, organic matter, and moisture-retention capacity. Factors which affect seasonal soil moisture are strongly related to variation in this type. This oak barrens system is a scrubby, open-treed system dominated by graminoids and shrubs. Canopy structure varies from a dominant herbaceous ground layer with sparse, scattered "savanna" canopy (5-30%), through oak-dominated scrub, to a more closed woodland canopy (30-80%). The canopy layer is dominated by *Quercus velutina*, with some *Quercus ellipsoidalis, Quercus macrocarpa*, and *Quercus alba* (the latter more common eastward and in woodland conditions). Occasional *Pinus banksiana* can occur in the northern parts of the range. Species found in the herb layer include *Ambrosia psilostachya, Amphicarpaea bracteata, Artemisia ludoviciana, Andropogon gerardii, Calamovilfa longifolia, Carex pensylvanica, Carex* spp., *Comandra umbellata, Sorghastrum nutans, Hesperostipa spartea (= Stipa spartea)*, and *Schizachyrium scoparium*. Fire was an important factor in maintaining this community. Oak wilt and droughts also reduce tree cover.

Range: This system is found in the north-central U.S. from North Dakota to western New York and westernmost Pennsylvania (mostly historic there) and into Ontario, Canada.

States: IL, IN, MI, MN, ND, NY, OH, ON, PA, WI

Map Zones: 39:C, 40:C, 41:C, 42:C, 43:C, 49:C, 50:C, 51:C, 52:C, 63:C

Similar: Laurentian Pine-Oak Barrens (CES201.718)

Descriptors:

Major Physiognomy : Woody-Herbaceous

3291: Central Interior Highlands Calcareous Glade and Barrens Herbaceous

Match Confidence: Solid Match

Suggested Match: Central Interior Highlands Calcareous Glade and Barrens

Codes: ESLF: 5417 EVT_fuel: 2401

ESP: 1401 NatureServe Id: CES202.691

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G179 Central Alkaline Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system is found primarily in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions with scattered occurrences in northern Missouri. It occurs along moderate to steep slopes and steep valleys on primarily southerly to westerly facing slopes. Limestone and/or dolomite bedrock typify this system with shallow, moderately to well-drained soils interspersed with rocks. These soils often dry out during the summer and autumn, and then become saturated during the winter and spring. *Schizachyrium scoparium* dominates this system and is commonly associated with *Andropogon gerardii, Bouteloua curtipendula*, and calcium-loving plant species. Stunted woodlands primarily dominated by *Quercus muehlenbergii* interspersed with *Juniperus virginiana* occur on variable-depth-to-bedrock soils. Fire is the primary natural dynamic, and prescribed fires help manage this system by restricting woody growth and maintaining the more open glade structure.

Range: This system is found primarily in the Interior Highlands of the Ozark, Ouachita, and the Interior Low Plateau regions ranging east to southern Ohio and including the Knobs region and Cliff section of Kentucky, the Cumberland Plateau escarpment of Tennessee, the Western Valley of the Tennessee River, and the Moulton Valley of northern Alabama.

States: AL, AR, IL, IN, KY, MO, OH, OK, TN

Map Zones: 43:P, 44:C, 47:C, 48:C, 49:C, 53:C

Similar: Alabama Ketona Glade and Woodland (CES202.338), Bluegrass Savanna and Woodland (CES202.888), Central Appalachian Alkaline Glade and Woodland (CES202.602), Nashville Basin Limestone Glade and Woodland (CES202.334), Southern Ridge and Valley / Cumberland Dry Calcareous Forest (CES202.457), Southern Ridge and Valley Calcareous Glade and

Woodland (CES202.024)

Descriptors:

Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil pH :	Alkaline
Specialized Substrates :	Sedimentary Rock
Specialized Substrates :	Rock Outcrops/Barrens/Glades
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3292: Open Water

Match Confidence: Unmatched

Suggested Match: Open Water (Fresh)

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, inland waters of streams, rivers, ponds and lakes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3293: Snow-Ice

Match Confidence: Unmatched

Suggested Match: North American Glacier and Ice Field

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This widespread ecological system is composed of unvegetated landscapes of annual/perennial ice and snow at the highest elevations, where snowfall accumulation exceeds melting. The primary ecological processes include snow/ice retention, wind desiccation, and permafrost. The snowpack/ice field never melts or, if so, then for only a few weeks. The alpine substrate/ice field ecological system is part of the alpine mosaic consisting of alpine bedrock and scree, tundra dry meadow, wet meadow, fell-fields, and dwarf-shrubland.

Range:

States:

Map Zones:

Similar:

Descriptors:

3294: Barren

Match Confidence: Unmatched

Suggested Match: Undifferentiated Barren Land

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3295: Quarries-Strip Mines-Gravel Pits

Match Confidence: Unmatched

Suggested Match: Quarries, Mines, Gravel Pits and Oil Wells

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of extractive mining activities with significant surface expression.

Range:

States:

Map Zones:

Similar:

Descriptors:

3296: Developed-Low Intensity

Match Confidence: Unmatched

Suggested Match: Developed, Low Intensity

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3297: Developed-Medium Intensity

Match Confidence: Unmatched

Suggested Match: Developed, Medium Intensity

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3298: Developed-High Intensity

Match Confidence: Unmatched

Suggested Match: Developed, High Intensity

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3299: Developed-Roads

Match Confidence: Unmatched

Suggested Match: Developed, High Intensity

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Roads in highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3300: Central Interior and Appalachian Riparian Herbaceous

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Riparian Systems

Codes: ESLF: 9141 EVT_fuel: 2472

ESP: 1472 NatureServe Id: CES202.628

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M029 Central & Appalachian Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the herbaceous expression of this group of riparian ecological systems. This riverscour-influenced systems group occurs on moderately to very high-gradient streams over a wide range of elevations. It develops on small floodplains and shores along river channels that lack a broad, flat floodplain due to steeper sideslopes, higher gradient, or both. Flooding is the major process affecting the vegetation, with the substrate more rapidly drained than in flat floodplain areas. These systems are affected by flood-scouring in some areas and deposition in others. The vegetation is often a mosaic including various combinations of forest, woodland, shrubland, and herbaceous communities. The non-forested components are particularly distinctive. The succession of woody plants (particularly trees) is retarded by the force of "flashy," high-velocity water traveling down the stream channels. Common trees include *Betula nigra, Platanus occidentalis*, and *Acer negundo*. Where somewhat more stable, linear forests develop; typical trees include *Liriodendron tulipifera, Liquidambar styraciflua, Acer rubrum, Celtis laevigata, Fraxinus pennsylvanica, Quercus michauxii*, and *Quercus pagoda*. Some common shrubs, occurring as forest/woodland understory or as non-forested shrublands, include *Alnus serrulata, Cephalanthus occidentalis, Cornus amomum, Lindera benzoin, Salix caroliniana* and other *Salix* spp., *Toxicodendron radicans*, and, over parts of the range, *Fothergilla major, Hypericum densiflorum, Itea virginica*, and *Rhododendron arborescens*. More southern examples may contain *Hydrangea quercifolia, Hypericum densiflorum*, and *Morella cerifera (= Myrica cerifera var. cerifera); Hamamelis vernalis* is characteristic in the Ozark/Ouachita region. Open, flood-scoured rivershore prairies feature *Andropogon gerardii, Sorghastrum nutans, Schizachyrium scoparium, Chasmanthium latifolium, Tripsacum dactyloides*, and/or *Panicum virgatum*. *Carex torta* is typical of wetter areas near the channel. Forbs are diverse and variable from occurrence to occurrence. Some characteristic forbs are *Baptisia australis, Conoclinium coelestinum (= Eupatorium*

coelestinum), Coreopsis pubescens, Coreopsis tripteris, Elephantopus carolinianus, Helenium autumnale, Hydrocotyle sp., *Ludwigia leptocarpa, Lycopus* spp., *Orontium aquaticum, Osmunda regalis var. spectabilis, Oxypolis rigidior, Phlox carolina, Pityopsis graminifolia var. latifolia, Rudbeckia laciniata*, and *Vernonia gigantea*. Distinctive shoals with *Hymenocallis coronaria* and/or *Justicia americana* may be present as well. Small seeps and fens can often be found within these habitats, especially at the headwaters and terraces of streams. These areas are typically dominated by primarily wetland obligate species of sedges (*Carex* spp.), ferns (*Osmunda* spp.), and other herbaceous species such as *Impatiens capensis*. Flood-scouring is a powerful and ecologically important abrasive force along these riparian habitats. However, in contrast to larger floodplain systems, these systems have little to no floodplain development (i.e., floodplains, if present, are not differentiated into levees, sloughs, ridges, terraces, and abandoned channel segments) and often contain cobblebars and steep banks. They are typically higher gradient than larger floodplains and experience periodic, strong flooding of short duration.

Range: This systems group encompasses small stream riparian systems over much of the eastern United States, from southern New England south to Georgia, and west to Illinois and eastern Oklahoma.

States: AL, AR, CT, GA, IL, IN, KY, MA, MD, MO, NC, NH, NJ?, NY, OH, OK, PA, SC, TN, VA, VT, WV

Map Zones: 44:C, 46:C, 47:C, 48:C, 49:C, 53:C, 54:C, 57:C, 59:C, 60:C, 61:C, 62:C, 63:P, 64:C, 65:C

Similar:

Descriptors:

Juxtaposition :	Riparian mosaic
Flooding Return Interval :	Short (<5 yrs)
Flooding Return Interval :	Intermittent
Mass Movement Type :	Flood Scouring
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Life Zones :	Lowland

3301: Boreal Aspen-Birch Forest

Match Confidence: Direct Match

Suggested Match: Laurentian-Acadian Sub-boreal Aspen-Birch Forest

Codes: ESLF: 4107 EVT_fuel: 2301

ESP: 1301 NatureServe Id: CES103.020

BioGeographical Division : Boreal

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G048 Laurentian Sub-Boreal Mesic Balsam Fir - Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These early-successional boreal hardwood forests and woodlands are widespread throughout the boreal region of Canada, extending into parts of the Laurentian-Acadian region, but more localized eastward. They originate naturally after fires and blowdowns, but more commonly originate after logging of conifer or mixed conifer-hardwood systems. *Populus tremuloides* and *Betula papyrifera* are the most important tree species. This system is maintained by repeated disturbance within 50-year return intervals and would otherwise succeed to conifer systems. Localized stands of mixed conifer-hardwoods (pines and spruces) can occur in this type, but are more typically part of conifer systems.

Range: This system is found in the Upper Great Lakes and southern Canada east to Quebec (and possibly northern portions of the Canadian Maritimes).

States: MB, MI, MN, NB?, ON, QC, WI

Map Zones: 41:C, 50:C, 51:C

Similar: Acadian Low-Elevation Spruce-Fir-Hardwood Forest (CES201.565)

Descriptors:

Disturbance Return Interval : Intermediate
Bioclimate : Boreal
Major Physiognomy : Forest and Woodland (Tree)

3302: Laurentian-Acadian Northern Hardwoods Forest

Match Confidence: Direct Match

Suggested Match: Laurentian-Acadian Northern Hardwood Forest

Codes: ESLF: 4108 EVT_fuel: 2302

ESP: 1302 NatureServe Id: CES201.564

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G743 Laurentian & Acadian Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These northern hardwood forests range across New England and adjacent Canada, south to northern Pennsylvania and west to Minnesota. They occur in various dry-mesic to wet-mesic settings at low to moderate elevations (generally<610 m [2000 feet]) throughout the Laurentian-Acadian Division. > *Acer saccharum, Betula alleghaniensis*, and *Fagus grandifolia* are the dominant trees (the latter only east of northern Wisconsin). *Tsuga canadensis* or, in the Northeast, *Picea rubens* are common minor canopy associates. *Ostrya virginiana* is frequent but not dominant. Oak is a minor component and absent from northern regions. Successional stands may be dominated by *Populus tremuloides, Betula papyrifera, Acer rubrum, Fraxinus americana, Prunus serotina*, sometimes with scattered *Pinus strobus*. Soils range from moderately nutrient-poor to quite enriched, with associated shifts in the herb flora. This system can include large expanses of rich forest in areas of limestone or similar bedrock, as well as forests that are relatively poor floristically in areas of granitic (or similar) bedrock or acidic till. Blowdowns or snow and ice loading, with subsequent gap regeneration, are the most frequent form of natural disturbance.

Range: This system occurs in northern New England and northern New York west across the upper Great Lakes to northern Minnesota, and adjacent Canada; occasional southwards.

States: MA, ME, MI, MN, NB, NH, NS, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Acadian Low-Elevation Spruce-Fir-Hardwood Forest (CES201.565), Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563), North-Central Interior Beech-Maple Forest (CES202.693)

Descriptors:

Soil Depth :	Shallow Soil
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Topography :	High Ridge/Upper Slope
Topography :	High-Low Slope
Glacial History :	Glaciated
Soil Fertility :	Eutrophic
Soil Fertility :	Mesotrophic Soil
Life Zones :	Montane
Soil pH :	Acidic
Floristics/Dominants :	Acer saccharum - Betula spp.
Soil Depth :	Deep
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Texture :	Loam
Soil Moisture (NRCS) :	Udic
Disturbance Return Interval :	Long
Wind Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Broad-Leaved Tree
Soil pH :	Circumneutral

3303: Northeastern Interior Dry-Mesic Oak Forest

Match Confidence: Direct Match

Suggested Match: Northeastern Interior Dry-Mesic Oak Forest

Codes: ESLF: 4109 EVT_fuel: 2303

ESP: 1303 NatureServe Id: CES202.592

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G650 Northeastern Oak - Hickory Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These oak-dominated forests are one of the matrix forest systems in the northeastern and north-central U.S. Occurring in dry-mesic settings, they are typically closed-canopy forests, though there may be areas of patchy-canopy woodlands. They cover large expanses at low to mid elevations, where the topography is flat to gently rolling, occasionally steep. Soils are mostly acidic and relatively infertile but not strongly xeric. Local areas of calcareous bedrock, or colluvial pockets, may support forests typical of richer soils. Oak species characteristic of dry-mesic conditions (e.g., *Quercus rubra, Quercus alba, Quercus velutina*, and *Quercus coccinea*) and *Carya* spp. are dominant in mature stands. *Quercus prinus* may be present but is generally less important than the other oak species. *Castanea dentata* was a prominent tree before chestnut blight eradicated it as a canopy constituent. *Acer rubrum, Betula lenta*, and *Betula alleghaniensis* may be common associates; *Acer saccharum* is occasional. With a long history of human habitation, many of the forests are early- to mid-successional, where *Pinus strobus, Pinus virginiana*, or *Liriodendron tulipifera* may be dominant or codominant. Within these forests, hillslope pockets with impeded drainage may support small isolated wetlands, including non-forested seeps or forested wetlands with *Acer rubrum, Quercus bicolor*, or *Nyssa sylvatica* characteristic.

Range: This system is found from southern New York west through Ohio and Pennsylvania and south to Virginia. It does not extend to the southernmost part of Virginia, except in the Ridge and Valley.

States: MD, NJ, NY, OH, PA, VA, WV

Map Zones: 57:C, 60:C, 61:C, 62:C, 63:C, 64:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central Appalachian Dry Oak-Pine Forest (CES202.591), Southern Appalachian Oak Forest (CES202.886)

Descriptors:

Floristics/Dominants :	Quercus - Carya
Lifeform :	Broad-Leaved Deciduous Tree
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Loam
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil pH :	Acidic
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3304: Ozark-Ouachita Dry-Mesic Oak Forest

Match Confidence: Direct Match

Suggested Match: Ozark-Ouachita Dry-Mesic Oak Forest

Codes: ESLF: 4110 EVT_fuel: 2304

ESP: 1304 NatureServe Id: CES202.708

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found throughout the Ozark and Ouachita Highlands ranging to the western edge of the Interior Low Plateau. It is the matrix system of this region and occurs on dry-mesic to mesic, gentle to moderately steep slopes. Soils are typically moderately to well-drained and more fertile than those associated with oak woodlands. A closed canopy of oak species (*Quercus rubra* and *Quercus alba*) often associated with hickory species (*Carya* spp.) typifies this system. *Acer saccharum* (or *Acer barbatum* to the south) may occur on more mesic examples of this system. Wind, drought, lightning, and occasional fires can influence this system.

Range: This system is found throughout the Ozark and Ouachita Highlands, reaching to the western Interior Low Plateau of Illinois.

States: AR, IL, KS?, MO, OK

Map Zones: 32:P, 43:?, 44:C, 49:C

Similar: Ouachita Novaculite Glade and Woodland (CES202.314), Ozark-Ouachita Dry Oak Woodland (CES202.707), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313)

Descriptors:

SCS Subregion : Ozark/Ouachita
Floristics/Dominants : Quercus - Carya
Major Physiognomy : Forest and Woodland (Tree)

3305: Southern Interior Low Plateau Dry-Mesic Oak Forest

Match Confidence: Direct Match

Suggested Match: Southern Interior Low Plateau Dry-Mesic Oak Forest

Codes: ESLF: 4111 EVT_fuel: 2305

ESP: 1305 NatureServe Id: CES202.898

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system of upland hardwood-dominated forests occurs in the Interior Low Plateau region of the southeastern United States along ridgetops and slopes of various aspects. The system includes essentially all upland hardwood stands of the region except for mesic hardwood forests (which are accommodated by ~South-Central Interior Mesophytic Forest (CES202.887)$$). The floristic expression of different stands included in this system varies considerably with aspect and soil type. Included here are a variety of associations ranging along a moisture gradient from submesic to drier ones. The submesic to dry-mesic expressions tend to be found on midslopes with northerly to easterly aspects, and the drier ones on southerly to westerly aspects and on broad ridges. Parent material can range from calcareous to acidic with very shallow, well- to excessively well-drained soils in the drier expressions and moderately well-drained soils in the submesic to dry-mesic ones. The canopy closure of this system ranges from closed to somewhat open in the drier examples. Historically, these examples may have been more open under conditions of more frequent fire.

A number of different*Quercus* species may dominate stands of this system, with *Carya* species also prominent. In some drier examples on more acidic substrates, *Quercus prinus* is typical over most of the range, reflecting relations with other Appalachian systems to the east. In addition, *Quercus stellata, Quercus marilandica*, and *Quercus coccinea* will also share dominance or be prominent in many of the drier examples. *Quercus muehlenbergii* and/or *Quercus shumardii* may appear in drier examples with high base status. *Quercus alba* may also be present but not typically dominant. In the submesic to dry-mesic examples, *Quercus alba* will typically exhibit dominance, possibly with *Quercus velutina* or *Quercus falcata*. The understories are typically shrub- and small tree-dominated, with the typical species varying with aspect, soil, and moisture relations.

Range: including southern Indiana and a small part of southeastern Ohio.

States: AL, IL, IN, KY, OH, TN

Map Zones: 47:C, 48:C, 49:C, 53:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), East Gulf Coastal Plain Northern Dry Upland Hardwood Forest (CES203.483), North-Central Interior Dry-Mesic Oak Forest and Woodland (CES202.046)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3306: East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland

Match Confidence: Direct Match

Suggested Match: East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland

Codes: ESLF: 4112 EVT_fuel: 2306

ESP: 1306 NatureServe Id: CES203.482

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the former matrix hardwood system flanking the loess bluffs of the most northern portions of the Upper East Gulf Coastal Plain of western Tennessee, western Kentucky, possibly southern Illinois, and northern Mississippi. The core distribution of this system is mapped as the Loess Plains (Level IV Ecoregion 74b) of Omernik (EPA 2004). Extensive forests once covered this broad area of generally flat to rolling uplands. Most have been cleared for agriculture due to the rich, productive soils derived from relatively thick loess deposits. The areal extent of this forested system has been so heavily reduced that the component community types remain undocumented and speculative at best. Typical stands would contain oaks and other hardwoods. Some typical canopy dominants include *Quercus falcata, Quercus alba, Carya alba, Quercus stellata, Quercus marilandica*, and *Quercus velutina*. Scattered successional stands would be dominated by *Juniperus virginiana var. virginiana*. In addition, *Liquidambar styraciflua* and *Liriodendron tulipifera* may be present.

Range: This system would have occupied the most northern portions of the Upper East Gulf Coastal Plain of western Tennessee, western Kentucky, possibly southern Illinois, and northern Mississippi. Today it is reduced to remnants in a largely agricultural landscape.

States: IL?, KY, MS, TN

Map Zones: 46:C, 47:C, 49:?

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506)

Descriptors:

Lifeform : Broad-Leaved Tree

Landforms : Loess deposit (undifferentiated)

3307: East Gulf Coastal Plain Northern Dry Upland Hardwood Forest

Match Confidence: Direct Match

Suggested Match: East Gulf Coastal Plain Northern Dry Upland Hardwood Forest

Codes: ESLF: 4113 EVT_fuel: 2307

ESP: 1307 NatureServe Id: CES203.483

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents dry, upland, predominantly hardwood forests of limited portions of the Coastal Plain of western Kentucky and Tennessee, northern Mississippi and Alabama. The core range of this type lies within the Northern Hilly Coastal Plain (Level IV Ecoregion 65e) of Omernik (EPA 2004), which includes the Northern Pontotoc Ridge (222Cf), Upper Loam Hills (222Cg), and Northern Loessal Hills (222Ce) subsections of Keys et al. (1995). These areas occupy the eastern margin of the upper Coastal Plain where elevation is greatest and influence of loess is less than adjacent areas to the west. The vegetation has been broadly considered distinct from other Coastal Plain forests (Bryant et al. 1993, Fralish and Franklin 2002) but has received almost no specific study. Although vastly forested when compared to the loess plains to the west (USGS 1992), most of the vegetation is recovering from one or more forms of severe disturbance (Franklin and Kupfer 2000). *Quercus alba* dominates the upland forests which have been studied in a limited portion of this area (Franklin and Kupfer 2000), but communities have not been described to the same detail as in other ecological systems.

Range: This system is found in the Coastal Plain of western Kentucky and Tennessee, ranging south to northern Mississippi and Alabama.

States: AL, KY, MS, TN

Map Zones: 46:C, 47:C

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506), Southern Interior Low Plateau Dry-Mesic Oak Forest (CES202.898)

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

3308: Crosstimbers Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Crosstimbers Oak Forest and Woodland

Codes: ESLF: 4114 EVT_fuel: 2308

ESP: 1308 NatureServe Id: CES205.682

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G017 Southeastern Great Plains Post Oak - Blackjack Oak Forest & Woodl

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is primarily found within central Texas and Oklahoma, ranging north to southeastern Kansas, and east into eastern Oklahoma. It is distinct from the surrounding prairie by the higher density of tree species. The area consists of irregular plains with primarily sandy to loamy Ustalf soils that range from shallow to moderately deep. Rainfall can be moderate, but somewhat erratic, therefore moisture is often limiting during part of the growing season. Short, stunted *Quercus stellata* and *Quercus marilandica* characterize and dominate this system. Other species, such as *Carya texana, Carya cordiformis, Quercus prinoides, Ulmus crassifolia*, and *Quercus* spp., can also be present within their respective ranges. The understory often contains species typical of the surrounding prairies, in particular *Schizachyrium scoparium*. Shrubs such as *Rhus* spp. may also be present. Drought, grazing, and fire are the primary natural processes that affect this system. Overgrazing and conversion to agriculture, along with fire suppression, have led to the invasion of some areas by problematic brush species such as *Juniperus virginiana* and *Juniperus ashei* and *Prosopis glandulosa* farther south in Texas and Oklahoma. It has also led to decreases in native grass cover allowing for annual grasses and forbs to invade.

Range: This system is primarily found within central Texas and Oklahoma, with the northern extent reaching into southeastern Kansas in the Cross Timbers (EPA level III ecoregion 29). It also includes the "Lower Canadian Hills" and "Osage Cuestas" in eastern Oklahoma and the Edwards Plateau Woodland, Semiarid Edwards Plateau and Broken Red Plains of Texas (37e, 40b, 30a, 30d, 27i of EPA, respectively).

States: KS, OK, TX

Map Zones: 32:C, 34:P, 35:C, 38:?, 43:C, 44:C

Similar: East-Central Texas Plains Post Oak Savanna and Woodland (CES205.679)

Descriptors:

Soil Texture : Sand
Soil Texture : Loam
Major Physiognomy : Forest and Woodland (Tree)

3309: Southern Appalachian Northern Hardwood Forest

Match Confidence: Direct Match

Suggested Match: Southern Appalachian Northern Hardwood Forest

Codes: ESLF: 4115 EVT_fuel: 2309

ESP: 1309 NatureServe Id: CES202.029

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G742 Appalachian & Allegheny Northern Hardwood - Conifer Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system consists of hardwood forests of the higher elevation zones of the Southern Appalachians, generally above 1372 m (4500 feet) elevation. Included are classic northern hardwood forests, dominated by various combinations of mesophytic hardwoods, which interfinger with high-elevation oak forests downslope or on more exposed aspects. The combination of elevation and aspect provides habitat for this system. Included in this system are limited areas locally known as "beech gaps" and "boulderfields." Stands are dominated by various combinations of Appalachian mesophytic trees, including *Betula alleghaniensis, Fagus grandifolia, Aesculus flava, Acer saccharum*, and *Tsuga canadensis*. *Prunus serotina* and *Tilia americana var. heterophylla* are occasionally abundant. *Quercus rubra* may be present but is not dominant. In Kentucky, this system is of extremely limited extent, being restricted to areas above about 1100-1160 m (3600-3800 feet) elevation on Black Mountain, the highest elevation in Kentucky, which is apparently higher in elevation than adjacent areas in Tennessee and Virginia.

Range: This system is primarily found in the Southern Blue Ridge, where it ranges from northwestern Georgia, western North Carolina and eastern Tennessee northward to southern Virginia. In Kentucky, this system is restricted to the Cumberland Mountains in the extreme southeastern corner of that state.

States: GA, KY, NC, TN, VA

Map Zones: 53:C, 57:C, 61:C

Similar: Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), Central and Southern Appalachian Montane Oak Forest (CES202.596), Southern Appalachian Oak Forest (CES202.886)

Descriptors:

Lifeform :	Broad-Leaved Tree
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3310: North-Central Interior Dry-Mesic Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4116 EVT_fuel: 2310

ESP: 1310 NatureServe Id: CES202.046

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M012 Central Midwest Oak Forest, Woodland & Savanna

NVC Group: G649 North-Central Oak - Hickory Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found throughout the glaciated regions of the Midwest, typically in gently rolling landscapes. It can occur on uplands within the prairie matrix and near floodplains, or on rolling glacial moraines and among kettle-kame topography. Soils are typically well-drained Mollisols or Alfisols that range from loamy to sandy loam in texture. Historically, this type was quite extensive in Michigan, Indiana, Illinois, Missouri, Iowa, Wisconsin, and Minnesota. Well over 700,000 hectares likely occurred in southern Michigan alone (ca. 1800). It is distinguished from other forested systems within the region by a dry-mesic edaphic condition that is transitional between dry oak forests and woodlands and mesic hardwood forests, such as maple-basswood forests. Forest cover can range from a dense to moderately open canopy and there is commonly a dense shrub layer. Fire-resistant oak species, in particular *Quercus macrocarpa, Quercus rubra*, and/or *Quercus alba*, dominate the overstory. *Carya* spp., including *Carya ovata, Carya cordiformis*, and *Carya alba (= Carya tomentosa)*, are diagnostic in portions of the range of this system. Depending on site location and overstory canopy density, the understory may include species such as *Corylus americana, Amelanchier* spp., *Maianthemum stellatum, Caulophyllum thalictroides, Laportea canadensis, Trillium grandiflorum, Aralia nudicaulis*, and *Urtica dioica*. Occasionally, prairie grasses such as *Andropogon gerardii* and *Panicum virgatum* may be present. Fire constitutes the main natural process for this type and likely maintained a more open canopy structure to support oak regeneration. Historic fire frequency was likely highest in the prairie-forest border areas. Fire suppression may account for the more closed oak forest examples of this system with the more mesic understory. It likely has allowed for other associates, such as *Acer saccharum, Celtis occidentalis, Liriodendron tulipifera, Ostrya virginiana*, and *Juglans nigra*, to become more prevalent, especially in upland areas along floodplains. Periodic drought, intensified by local conditions, such as slope, southern exposure, or sandy soil, also inhibit growth of mesophytic

trees. Extensive conversion for agriculture has fragmented this system. Continued fire suppression has also resulted in succession to mesic hardwoods, such that in many locations, no oak species are regenerating. Remaining large areas of this system are likely under considerable pressure due to conversion to agriculture, pastureland, and urban development.

Range: Found throughout the glaciated regions of the Midwest.

States: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI

Map Zones: 38:C, 39:C, 40:C, 41:?, 42:C, 43:C, 44:C, 47:P, 49:C, 50:C, 51:C, 52:C

Similar: Southern Interior Low Plateau Dry-Mesic Oak Forest (CES202.898)

Descriptors:

Floristics/Dominants :	Quercus - Carya
Fire Intensity/Spatial Character :	Patch/Low Intensity
Soil Moisture (NRCS) :	Udic
Soil Texture :	Loam
Soil Fertility :	Mesotrophic Soil
Bioclimate :	Temperate
Landforms :	Moraine
Landforms :	Lakeplain
Landforms :	Kame moraine
Landforms :	Glaciated uplands
Landforms :	Footslope
Major Physiognomy :	Forest and Woodland (Tree)

3311: North-Central Interior Dry Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4117 EVT_fuel: 2311

ESP: 1311 NatureServe Id: CES202.047

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M012 Central Midwest Oak Forest, Woodland & Savanna

NVC Group: G649 North-Central Oak - Hickory Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found throughout the glaciated regions of the Midwest, typically in gently rolling to flat landscapes. It can occur on uplands within the prairie matrix or within the context of dry-mesic oak-hickory forests and oak savannas. These are common on rolling glacial moraines and outwash plains. Soils are typically well-drained to excessively drained Mollisols or Alfisols that range from sand to sandy loam in texture. Historically, this type was quite extensive in Michigan, Indiana, Illinois, Missouri, Iowa, Wisconsin, and Minnesota. It is distinguished from other forested systems within the region by a dry edaphic condition that is transitional between dry prairies, oak barrens, or savannas and dry-mesic oak-hickory forests and woodlands. Forest cover can range from dense to moderately open canopy. Fire-resistant oak species, in particular *Quercus velutina, Quercus macrocarpa, Quercus coccinea*, and *Quercus ellipsoidalis*, dominate the overstory. *Carya glabra, Prunus serotina*, and *Sassafras albidum* are also common in portions of the range of this system. Depending on range of distribution and overstory canopy density, the understory may include species such as *Gaylussacia baccata* (in MI, WI, and MN), *Vaccinium angustifolium*, and *Rhus aromatica*, and/or a mixture of woodland and grassland species, including *Schizachyrium scoparium, Deschampsia flexuosa*, and *Carex pensylvanica*. Extreme drought, along with periodic ground and crown fire events, constitute the main natural processes for this type and likely maintained a more open canopy structure that supported oak regeneration. In fact, many current examples of this type have resulted from long-term fire suppression and conversion of oak barrens to these forests and woodlands. Fire suppression may also account for examples of this system with the more dry-mesic understory. It likely has allowed for other associates such as *Quercus rubra* and *Fraxinus americana* to become more prevalent. Extensive conversion for agriculture in the surrounding landscape with more productive soils has fragmented and isolated examples of this system. It is found primarily within the "corn belt" of the United States, and remaining large

areas of this system are likely under considerable pressure due to conversion to pastureland and urban development.

Range: Found throughout the glaciated regions of the Midwest.

States: IL, IN, MI, MN, MO, ND, OH, WI

Map Zones: 38:P, 39:P, 40:P, 41:C, 42:C, 43:C, 44:P, 47:P, 49:C, 50:C, 51:C, 52:C

Similar:

Descriptors:

Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Xeric
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Soil pH :	Acidic
Landforms :	Outwash terrace
Landforms :	Outwash plain
Major Physiognomy :	Forest and Woodland (Tree)

3312: Ouachita Montane Oak Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4118 EVT_fuel: 2312

ESP: 1312 NatureServe Id: CES202.306

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G017 Southeastern Great Plains Post Oak - Blackjack Oak Forest & Woodl

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents hardwood forests of the highest elevations of the Ouachita, Rich, and Black Fork mountains of Arkansas and Oklahoma (about 790-850 m [2600-2800 feet]). Vegetation consists of either forests or open woodlands dominated by *Quercus alba* or *Quercus stellata*. Canopy trees are often stunted due to the effects of ice, wind and cold conditions, in combination with fog, shallow soils over rock, and periodic severe drought. Some stands form almost impenetrable thickets.

Range: This system is found at the highest elevations of the Ouachita, Rich, and Black Fork mountains of Arkansas and Oklahoma (about 790-850 m [2600-2800 feet]).

States: AR, OK

Map Zones: 44:C

Similar:

Descriptors:

SCS Subregion : Ozark/Ouachita

Lifeform : Broad-Leaved Tree

Major Physiognomy : Forest and Woodland (Tree)

Life Zones : Montane

3313: North-Central Interior Beech-Maple Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4119 EVT_fuel: 2313

ESP: 1313 NatureServe Id: CES202.693

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M882 Central Midwest Mesic Forest

NVC Group: G021 North-Central Beech - Maple - Basswood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found primarily along the southern Great Lakes ranging from central Indiana to southern Ontario. It is typically found on flat to rolling uplands to steep slopes with rich loam soils over glacial till. This system is characterized by a dense tree canopy that forms a thick layer of humus and leaf litter leading to a dense and rich herbaceous layer. *Acer saccharum* and *Fagus grandifolia* comprise up to 80% of the canopy. Other associates can include *Quercus rubra, Tilia americana, Carpinus caroliniana*, and *Ostrya virginiana*. The relative dominance of sugar maple compared to other tree species varies across the range of this system based on regional climate and microclimate. The herbaceous layer is very diverse and typically includes spring ephemerals. Some common species include *Arisaema triphyllum, Osmorhiza claytonii, Polygonatum biflorum*, and *Trillium grandiflorum*. The primary natural dynamic influencing this system includes wind-driven gap dynamics. Conversion to agriculture has significantly decreased the range of this system, and very few large stands remain intact.

Range: This system is located in the southern Great Lakes from central Indiana north into southern Ontario, and east to northwestern Pennsylvania and western New York.

States: IN, MI, NY, OH, ON, PA

Map Zones: 47:C, 49:C, 51:C, 52:C, 62:P, 63:C

Similar: Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), Laurentian-Acadian Northern Hardwoods Forest (CES201.564), North-Central Interior Maple-Basswood Forest (CES202.696), South-Central Interior Mesophytic Forest (CES202.887)

Descriptors:

Floristics/Dominants : Acer saccharum-Fagus grandifolia

Glacial History : Glaciated
Major Physiognomy : Forest and Woodland (Tree)

3314: North-Central Interior Maple-Basswood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4120 EVT_fuel: 2314

ESP: 1314 NatureServe Id: CES202.696

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M882 Central Midwest Mesic Forest

NVC Group: G021 North-Central Beech - Maple - Basswood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is primarily found in the prairie forest border region of Minnesota, Wisconsin, and Iowa, but it can range north into northern Minnesota and Wisconsin and south to central Illinois, central Missouri, and eastern Kansas. This forest system is distinguished by underlying mesic soils and the predominance of mesic deciduous species forming a moderately dense to dense canopy. Examples of this system occur on valley slopes and bottoms often with northern or eastern aspects. Soils are moderately well-drained, fertile, and medium to deep loams that have developed from glacial till or loess parent material. *Acer saccharum* typifies this system, with *Tilia americana, Quercus rubra*, and *Ostrya virginiana* as common associates. The dense canopy allows for a rich mixture of shrub and herbaceous species in the understory. Examples of common herbaceous species include *Anemone quinquefolia, Adiantum pedatum, Arisaema triphyllum*, and *Sanicula* spp. Dynamic processes such as wind and fire can impact this system over long return cycles; however, the most immediate threats to remaining examples of this system are grazing and conversion to agriculture.

Range: This system ranges from northern Minnesota and Wisconsin south to eastern Kansas and Nebraska and southeast to central Illinois, Missouri, and possibly western Indiana.

States: IA, IL, IN, KS, MI, MN, MO, NE, WI

Map Zones: 39:C, 40:C, 41:C, 42:C, 43:C, 44:P, 49:C, 50:C, 51:C, 52:C

Similar: North-Central Interior Beech-Maple Forest (CES202.693)

Descriptors:

Soil Texture : Loam

Soil Depth : Deep

Soil Fertility	:	Mesotrophic Soil
Topography	:	Toeslope/Bottom/Valley
Topography	:	High-Low Slope
Major Physiognomy	:	Forest and Woodland (Tree)

3315: Southern Appalachian Oak Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4121 EVT_fuel: 2315

ESP: 1315 NatureServe Id: CES202.886

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G015 Appalachian Oak / Chestnut Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system consists of predominantly dry-mesic (to dry) forests occurring on open and exposed topography at lower to mid elevations in the Southern Blue Ridge and Southern Ridge and Valley ecoregions. This is the upland forest that characterizes much of the lower elevations of these areas. Substrates of stands included in this system can range from acidic to circumneutral or basic, and the vegetation varies accordingly. Bedrock may be of any type. Soils are usually deep residual soils but are often rocky. Some shallow soils and colluvium may be present locally within the group, but shallow soils tend to produce environments that are more extreme and have a larger component of various pine species. Typically, the vegetation consists of forests dominated by oaks, especially *Quercus prinus, Quercus alba, Quercus rubra, Quercus velutina*, and *Quercus coccinea*, with varying amounts of *Carya* spp., *Nyssa sylvatica, Acer rubrum*, and other species such as *Pinus strobus* and *Fraxinus americana*. Historically, *Castanea dentata* was a dominant or codominant in many of these communities until its virtual elimination by the chestnut blight fungus (*Cryphonectria parasitica*] during the early 1900s. Some areas (usually on drier sites) now have dense evergreen ericaceous shrub layers of *Kalmia latifolia*, with *Rhododendron* spp. on more mesic sites. Some other areas have deciduous ericad layers, sometimes consisting of *Vaccinium* spp. or *Gaylussacia* spp. This system concept also includes many successional communities that have been impacted by logging or agriculture, such as types dominated by *Liriodendron tulipifera, Pinus* spp., and *Robinia pseudoacacia*. This system is naturally dominated by stable, uneven-aged forests, with canopy dynamics dominated by gap-phase regeneration. Most oaks are long-lived with typical age of mortality ranging from 200 to 400 years. Scarlet and black oaks are shorter lived with typical ages being approximately 50 to 100 years, while white oaks can live as long as 600 years.

Range: Carolina north into the Southern Blue Ridge of Virginia to the Roanoke River in the Blue Ridge, and slightly farther south in the Ridge and Valley. It occurs in very limited montane outliers in the Piedmont, and possibly on Pine/Black mountain in Kentucky.

States: GA, KY, NC, SC, TN, VA, WV

Map Zones: 53:C, 57:C, 59:C, 61:P

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central Appalachian Dry Oak-Pine Forest (CES202.591), Central and Southern Appalachian Montane Oak Forest (CES202.596), Northeastern Interior Dry-Mesic Oak Forest (CES202.592), Southern Appalachian Montane Pine Forest and Woodland (CES202.331), Southern Appalachian Northern Hardwood Forest (CES202.029)

Descriptors:

Floristics/Dominants :	Quercus - Carya
Lifeform :	Broad-Leaved Deciduous Tree
Glacial History :	Unglaciated
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)

3316: Southern Piedmont Mesic Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4122 EVT_fuel: 2316

ESP: 1316 NatureServe Id: CES202.342

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G020 Appalachian & Interior Mesic Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses mixed deciduous hardwood or occasionally hardwood-pine forests of mesic sites in the Piedmont (TNC Ecoregion 52) of the southeastern United States. Most examples occur on lower or north-facing slopes where topography creates mesic moisture conditions. A mix of a small number of mesophytic trees is usually dominant, with *Fagus grandifolia* most prominent. Both acidic and basic substrates are currently included in this concept, as are certain heath bluffs, where dense shrub layers of mesophytic ericaceous shrubs may occur beneath an open tree canopy. Fire is naturally infrequent in this system, due to the slopes and moist conditions. If fire does penetrate, it is likely to be low in intensity and may not have significant ecological effects. Vegetation consists of forests dominated by combinations of trees that include a significant component of mesophytic species. *Fagus grandifolia* is almost always abundant and is often strongly dominant. *Quercus rubra, Liriodendron tulipifera*, and *Acer rubrum* may be abundant. In basic soil examples, *Fraxinus americana* and *Acer barbatum* are also abundant. A well-developed understory is usually present. Herbs range from fairly dense in basic examples to sparse in acidic examples, and may be nearly absent in a few. The composition of all lower strata varies substantially with soil acidity.

Range: Ranges throughout the southern Piedmont, from Virginia to Alabama.

States: AL, GA, NC, SC, VA

Map Zones: 54:C, 59:C, 60:C, 61:C

Similar: Southern Atlantic Coastal Plain Mesic Hardwood Forest (CES203.242), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339), Southern Piedmont Large Floodplain Forest (CES202.324), Southern Piedmont Small Floodplain and Riparian Forest (CES202.323), Southern and Central

Appalachian Cove Forest (CES202.373)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Disturbance Return Interval :	Very Long
Major Physiognomy :	Forest and Woodland (Tree)

3317: Allegheny-Cumberland Dry Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4123 EVT_fuel: 2317

ESP: 1317 NatureServe Id: CES202.359

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G015 Appalachian Oak / Chestnut Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses dry hardwood forests on predominately acidic substrates in the Allegheny and Cumberland plateaus, and ridges in the southern Ridge and Valley. Its range is more or less consistent with the "Mixed Mesophytic Forest Region" of Braun (1950) and Greller (1988), although it is not a mesic forest type. These forests are typically dominated by *Quercus alba, Quercus falcata, Quercus prinus, Quercus coccinea*, with lesser amounts of *Acer rubrum, Carya glabra*, and *Carya alba*. Small inclusions of *Pinus echinata* and/or *Pinus virginiana* may occur, particularly adjacent to escarpments or following fire. In addition, *Pinus strobus* may be prominent in some stands in the absence of fire. It occurs in a variety of situations, including on nutrient-poor or acidic soils. Sprouts of *Castanea dentata* can often be found where it was formerly a common tree.

Range: This system is centered on the Allegheny and Cumberland plateaus from northern Alabama north to Ohio, West Virginia, and possibly western Pennsylvania.

States: AL, GA, KY, OH, PA?, TN, VA, WV

Map Zones: 48:C, 53:C, 57:C, 61:C, 62:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Northeastern Interior Dry-Mesic Oak Forest (CES202.592), Southern Appalachian Low-Elevation Pine Forest (CES202.332), Southern Appalachian Oak Forest (CES202.886), Southern Interior Low Plateau Dry-Mesic Oak Forest (CES202.898), Southern Ridge and Valley / Cumberland Dry Calcareous Forest (CES202.457)

Descriptors:

Lifeform : Broad-Leaved Tree

Soil pH : Acidic

Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Lowland

3318: Southern and Central Appalachian Cove Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4124 EVT_fuel: 2318

ESP: 1318 NatureServe Id: CES202.373

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G020 Appalachian & Interior Mesic Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system consists of mesophytic hardwood or hemlock-hardwood forests of sheltered topographic positions in the Southern Blue Ridge and central Appalachian Mountains. Examples are generally found on concave slopes that promote moist conditions. The system includes a mosaic of acidic and "rich" coves that may be distinguished by individual plant communities based on perceived differences in soil fertility and species richness (rich examples have higher diversity and density in the herbaceous layer). Both acidic and rich coves may occur in the same site, with the acidic coves potentially creeping out of the draw-up to at least midslope on well-protected north-facing slopes. Characteristic species in the canopy include *Aesculus flava, Acer saccharum, Fraxinus americana, Tilia americana, Liriodendron tulipifera, Halesia tetraptera, Tsuga canadensis, Fagus grandifolia, Magnolia acuminata*, and *Magnolia fraseri*.

Range: This system occurs in the southern and central Appalachian Mountains, ranging into the Cumberland Mountains of Kentucky and Tennessee. This range is more-or-less consistent with the "Oak-Chestnut" forest region of Braun (1950) and Greller (1988), versus the "Mixed Mesophytic" and "Western Mesophytic" forest regions to the west.

States: GA, KY, MD, NC, SC, TN, VA, WV

Map Zones: 53:C, 57:C, 61:C, 62:C

Similar: Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), South-Central Interior Mesophytic Forest (CES202.887), Southern Piedmont Mesic Forest (CES202.342)

Descriptors:

Lifeform : Broad-Leaved Tree
Major Physiognomy : Forest and Woodland (Tree)

3319: Central Interior and Appalachian Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Riparian Systems

Codes: ESLF: 9141 EVT_fuel: 2472

ESP: 1472 NatureServe Id: CES202.628

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M029 Central & Appalachian Floodplain Forest

NVC Group: G673 Silver Maple - Sugarberry - Sweetgum Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This is the shrubland expression of this group or riparian ecological systems. This riverscour-influenced systems group occurs on moderately to very high-gradient streams over a wide range of elevations. It develops on small floodplains and shores along river channels that lack a broad, flat floodplain due to steeper sideslopes, higher gradient, or both. Flooding is the major process affecting the vegetation, with the substrate more rapidly drained than in flat floodplain areas. These systems are affected by flood-scouring in some areas and deposition in others. The vegetation is often a mosaic including various combinations of forest, woodland, shrubland, and herbaceous communities. The non-forested components are particularly distinctive. The succession of woody plants (particularly trees) is retarded by the force of "flashy," high-velocity water traveling down the stream channels. Common trees include *Betula nigra, Platanus occidentalis*, and *Acer negundo*. Where somewhat more stable, linear forests develop; typical trees include *Liriodendron tulipifera, Liquidambar styraciflua, Acer rubrum, Celtis laevigata, Fraxinus pennsylvanica, Quercus michauxii*, and *Quercus pagoda*. Some common shrubs, occurring as forest/woodland understory or as non-forested shrublands, include *Alnus serrulata, Cephalanthus occidentalis, Cornus amomum, Lindera benzoin, Salix caroliniana* and other *Salix* spp., *Toxicodendron radicans*, and, over parts of the range, *Fothergilla major, Hypericum densiflorum, Itea virginica*, and *Rhododendron arborescens*. More southern examples may contain *Hydrangea quercifolia, Hypericum densiflorum*, and *Morella cerifera (= Myrica cerifera var. cerifera); Hamamelis vernalis* is characteristic in the Ozark/Ouachita region. Open, flood-scoured rivershore prairies feature *Andropogon gerardii, Sorghastrum nutans, Schizachyrium scoparium, Chasmanthium latifolium, Tripsacum dactyloides*, and/or *Panicum virgatum*. *Carex torta* is typical of wetter areas near the channel. Forbs are diverse and variable from occurrence to occurrence. Some characteristic forbs are *Baptisia australis, Conoclinium coelestinum (= Eupatorium*

coelestinum), Coreopsis pubescens, Coreopsis tripteris, Elephantopus carolinianus, Helenium autumnale, Hydrocotyle sp., *Ludwigia leptocarpa, Lycopus* spp., *Orontium aquaticum, Osmunda regalis var. spectabilis, Oxypolis rigidior, Phlox carolina, Pityopsis graminifolia var. latifolia, Rudbeckia laciniata*, and *Vernonia gigantea*. Distinctive shoals with *Hymenocallis coronaria* and/or *Justicia americana* may be present as well. Small seeps and fens can often be found within these habitats, especially at the headwaters and terraces of streams. These areas are typically dominated by primarily wetland obligate species of sedges (*Carex* spp.), ferns (*Osmunda* spp.), and other herbaceous species such as *Impatiens capensis*. Flood-scouring is a powerful and ecologically important abrasive force along these riparian habitats. However, in contrast to larger floodplain systems, these systems have little to no floodplain development (i.e., floodplains, if present, are not differentiated into levees, sloughs, ridges, terraces, and abandoned channel segments) and often contain cobblebars and steep banks. They are typically higher gradient than larger floodplains and experience periodic, strong flooding of short duration.

Range: This systems group encompasses small stream riparian systems over much of the eastern United States, from southern New England south to Georgia, and west to Illinois and eastern Oklahoma.

States: AL, AR, CT, GA, IL, IN, KY, MA, MD, MO, NC, NH, NJ?, NY, OH, OK, PA, SC, TN, VA, VT, WV

Map Zones: 44:C, 46:C, 47:C, 48:C, 49:C, 53:C, 54:C, 57:C, 59:C, 60:C, 61:C, 62:C, 63:P, 64:C, 65:C

Similar:

Descriptors:

Juxtaposition :	Riparian mosaic
Flooding Return Interval :	Short (<5 yrs)
Flooding Return Interval :	Intermittent
Mass Movement Type :	Flood Scouring
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Life Zones :	Lowland

3320: Central and Southern Appalachian Montane Oak Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4126 EVT_fuel: 2320

ESP: 1320 NatureServe Id: CES202.596

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G015 Appalachian Oak / Chestnut Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This generally oak-dominated system is found in the central and southern Appalachian Mountains. These high-elevation deciduous forests occur on exposed sites, including ridgecrests and south- to west-facing slopes, mostly between 915 and 1372 m (3000-4500 feet) elevation, less commonly ranging up to 1680 m (5500 feet). In most associations attributed to this system, the soils are thin, weathered, nutrient-poor, low in organic matter, and acidic. The forests are dominated by *Quercus* spp. (most commonly *Quercus rubra* and *Quercus alba*), with the individuals often stunted or wind-flagged. *Castanea dentata* sprouts are also common, but the importance of chestnut in these forests has been dramatically altered by chestnut blight. *Ilex montana* and *Rhododendron prinophyllum* are characteristic shrubs.

Range: This system is found at higher elevations of the central and southern Appalachian Mountains, Virginia and West Virginia to Georgia. In Kentucky, this system is restricted to the Cumberland Mountains in the extreme southeastern corner of that state. In West Virginia, this is found in the Ridge and Valley.

States: GA, KY, MD?, NC, SC, TN, VA, WV

Map Zones: 53:P, 57:C, 61:C

Similar: Southern Appalachian Low-Elevation Pine Forest (CES202.332), Southern Appalachian Northern Hardwood Forest (CES202.029), Southern Appalachian Oak Forest (CES202.886)

Descriptors:

Floristics/Dominants : Quercus - Carya

Lifeform : Broad-Leaved Deciduous Tree

Wind Intensity/Spatial Character :	Landscape/Medium Intensity
Substrate Consolidation :	Consolidated
Soil Moisture (NRCS) :	Ustic
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Depth :	Shallow Soil
Soil pH :	Acidic
Soil Fertility :	Oligotrophic
Glacial History :	Unglaciated
Bioclimate :	Temperate
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3321: South-Central Interior Mesophytic Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4127 EVT_fuel: 2321

ESP: 1321 NatureServe Id: CES202.887

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G020 Appalachian & Interior Mesic Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These high-diversity, predominately deciduous forests occur on deep and enriched soils (in some cases due to, or enhanced by, the presence of limestone or related base-rich geology), in non-montane settings and usually in somewhat protected landscape positions such as coves or lower slopes. The core distribution of this system lies in the Cumberland and Allegheny plateaus, extending into the adjacent southern Ridge and Valley and portions of the Interior Low Plateau where it is located entirely south of the glacial boundary. Dominant species include *Acer saccharum, Fagus grandifolia, Liriodendron tulipifera, Tilia americana, Quercus rubra, Magnolia acuminata*, and *Juglans nigra*. *Tsuga canadensis* may be a component of some stands. Trees may grow very large in undisturbed areas. The herb layer is very rich, often with abundant spring ephemerals. Many examples may be bisected by small streams.

Range: This system occurs in southeastern Ohio east to Virginia, West Virginia, Kentucky, Tennessee, Georgia, and Alabama, with disjunct occurrences in unglaciated southwestern Pennsylvania and southwestern New York. This range is more-or-less consistent with the "Mixed Mesophytic" and "Western Mesophytic" (non-coastal plain portion only) forest regions of Braun (1950) and Greller (1988), although it does extend into unglaciated portions of the "Beech-Maple" region to the north. Thus, this system is most extensive in the Cumberland and Allegheny plateaus, as well as the unglaciated Interior Low Plateau, and becomes relatively limited in extent towards its western limit in the Ozark Hills of Illinois, and towards its northern limit in southwestern New York.. It is replaced in the Upper East Gulf Coastal Plain by other systems. Its range also includes the southern Ridge and Valley from Tennessee (and adjacent southwestern Virginia) to Alabama. Parts of the Cumberland Mountains (EPA 69 in Kentucky and Tennessee) are instead occupied by ~Southern and Central Appalachian Cove Forest (CES202.373)$$. ~North-Central Interior Beech-Maple Forest

(CES202.693)$$ replaces this one in EPA 72b of Indiana.

States: AL, GA, IL, IN, KY, NY, OH, PA, TN, VA, WV

Map Zones: 47:C, 48:C, 49:C, 53:C, 57:C, 61:C, 62:C, 63:C

Similar: Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), North-Central Interior Beech-Maple Forest (CES202.693), Ozark-Ouachita Mesic Hardwood Forest (CES202.043), Southern and Central Appalachian Cove Forest (CES202.373)

Descriptors:

Lifeform	: Broad-Leaved Deciduous Tree
Soil Fertility	: Eutrophic
Glacial History	: Unglaciated
Topography	: High-Low Slope
Major Physiognomy	: Forest and Woodland (Tree)

3322: Crowley's Ridge Mesic Loess Slope Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4128 EVT_fuel: 2322

ESP: 1322 NatureServe Id: CES203.079

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G166 Southern Mesic Beech - Oak - Mixed Deciduous Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This ecological system of mesic upland forests is confined to Crowley's Ridge, along the western side of the lower Mississippi River, extending from Missouri south into Arkansas. This vegetation and the ridge itself are very distinctive from that of the adjacent alluvial plain. The ridge is a remnant loess-capped feature rising from 30 m to over 60 m (100-200 feet) above the alluvial plain surface, to about 150 m (450 feet) above sea level. The base of the ridge is comprised of Tertiary substrates overlain by Quaternary alluvial deposits and capped with up to 15 m (50 feet) of Pleistocene loess. The system is generally comprised of mesic forests that occupy ravines between narrow, "finger" ridges and slopes in a highly dissected landscape. The sites tend to be more mesic than sites elsewhere in the southeastern United States. In many cases, these slopes and ravines provide habitat for plant species that are rare or absent from other parts of the alluvial plain (e.g., *Liriodendron tulipifera, Tilia americana*). Canopies are dominated by *Fagus grandifolia, Quercus alba*, and *Liriodendron tulipifera*, with many associates.

Range: This system is endemic to Crowley's Ridge (Arkansas, Missouri), which is a distinctive landscape feature in the Mississippi River Alluvial Plain.

States: AR, MO

Map Zones: 45:C

Similar: Mississippi River Alluvial Plain Dry-Mesic Loess Slope Forest (CES203.071)

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Glacial History : Unglaciated

Specialized Substrates : Loess
Major Physiognomy : Forest and Woodland (Tree)

3323: West Gulf Coastal Plain Mesic Hardwood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4129 EVT_fuel: 2323

ESP: 1323 NatureServe Id: CES203.280

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G007 Southern Mesic Beech - Magnolia - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This ecological system is found in limited upland areas (especially ravines and sideslopes) of the Gulf Coastal Plain west of the Mississippi River. These areas are topographically isolated from historically fire-prone, pine-dominated uplands in eastern Texas, western Louisiana, and southern Arkansas. Sites are often found along slopes above perennial streams in the region. These sites have moderate to high fertility and moisture retention. Soils can be quite variable, ranging from coarse to loamy in surface texture. Most are acidic in surface reactions and less commonly circumneutral. Vegetation indicators are mesic hardwoods such as *Fagus grandifolia, Quercus alba*, and *Ilex opaca*, although scattered, large-diameter pines (most often *Pinus taeda*) are also often present. Spring-blooming herbaceous species are typical in the understory of most examples.

Range: This system is limited to particular upland areas (especially ravines and sideslopes) of the Gulf Coastal Plain west of the Mississippi River, with some occurrences on Macon Ridge (a terrace ecoregion in the Mississippi River Alluvial Plain) in Louisiana.

States: AR, LA, TX

Map Zones: 37:C, 44:P, 99:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Tree
Disturbance Return Interval :	Very Long
Major Physiognomy :	Forest and Woodland (Tree)

3324: Northern Atlantic Coastal Plain Hardwood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4130 EVT_fuel: 2324

ESP: 1324 NatureServe Id: CES203.475

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G650 Northeastern Oak - Hickory Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This ecological system is comprised of dry hardwood forests largely dominated by oaks, ranging from sandy glacial and outwash deposits of Cape Cod, Massachusetts, and Long Island, New York, south to the Coastal Plain portions of Maryland and Virginia south to about the James River. *Quercus alba, Quercus prinus, Quercus coccinea*, and *Quercus rubra* are typical, and *Ilex opaca* is sometimes present. In the northern half of the range, conditions can grade to dry-mesic, reflected in the local abundance of *Fagus grandifolia*. These forests occur on acidic, sandy to gravelly soils with a thick duff layer, often with an ericaceous shrub layer. From New Jersey south to Virginia, this system also includes oak-beech/heath forests on steep slopes.

Range: This system ranges from sandy glacial and outwash deposits of Massachusetts and Long Island, New York, south to the Coastal Plain portions of Maryland and Virginia, south to about the James River, with historic occurrences (and possibly some extant remnants) in eastern Pennsylvania.

States: CT, DC, DE, MA, MD, NJ, NY, PA, VA

Map Zones: 60:C, 65:C, 66:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Southern Atlantic Coastal Plain Mesic Hardwood Forest (CES203.242)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Disturbance Return Interval :	Long
Major Physiognomy :	Forest and Woodland (Tree)

3325: East Gulf Coastal Plain Northern Mesic Hardwood Slope Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4131 EVT_fuel: 2325

ESP: 1325 NatureServe Id: CES203.477

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G166 Southern Mesic Beech - Oak - Mixed Deciduous Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system includes mesic deciduous hardwood forests of inland portions of the East Gulf Coastal Plain, including Alabama, Mississippi, western Kentucky, and western Tennessee. This system covers parts of the more mesic forests in the coastal plain portion of the Western Mesophytic Forest Region of Braun (1950) referred to as mesophytic mixed hardwoods, as well as mesic forests in the adjacent "Oak-Pine-Hickory" region to the south (Greller 1988). Examples of this system occur on slopes and ravines between dry uplands and stream bottoms. Mesic forests of the loess bluffs are treated in separate ecological systems, being confined to that landform of steep bluffs and ravines on deep loess. The most characteristic feature of the vegetation in some examples may be *Fagus grandifolia*, but a variety of other hardwood species may also be found in the overstory, and *Fagus grandifolia* may not always be present. Some stands may be dominated by *Fagus grandifolia* and *Quercus alba*, others by *Quercus alba* or *Quercus pagoda* with other mesic hardwoods. In addition, *Pinus taeda* may be common in some examples in the southern portion of the range and, depending on previous disturbance and site conditions, may be locally dominant [see CEGL004763]. To the south this system is replaced by ~Southern Coastal Plain Mesic Slope Forest (CES203.476)$$, which is within the range of *Pinus glabra* and *Magnolia grandiflora*. Most of the vegetation is recovering from one or more forms of severe disturbance (Franklin and Kupfer 2000).

Range: This system is found in northern and inland portions of the East Gulf Coastal Plain, including Alabama, Mississippi, western Kentucky, and western Tennessee.

States: AL, AR?, GA, KY, MS, TN

Map Zones: 46:C, 47:C

Similar: East Gulf Coastal Plain Northern Loess Bluff Forest (CES203.481), East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556), Southern Coastal Plain Mesic Slope Forest (CES203.476)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Landforms :	Slope
Major Physiognomy :	Forest and Woodland (Tree)

3326: South-Central Interior/Upper Coastal Plain Flatwoods

Match Confidence: Solid Match

Suggested Match: South-Central Interior / Upper Coastal Plain Flatwoods

Codes: ESLF: 4132 EVT_fuel: 2326

ESP: 1326 NatureServe Id: CES203.479

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M503 Central & Appalachian Swamp Forest

NVC Group: G654 South-Central Flatwoods & Pond Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This system represents hardwood-dominated "xerohydric flatwoods" of limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky, as well as in the nearby Shawnee Hills in the western Interior Low Plateau. The core of the area from which this system was initially described is referred to as the Jackson Purchase or "Jackson Plain," where these areas have long been recognized as a distinctive subdivision within this region (Davis 1923, Bryant and Martin 1988). There is some local variability in the expression of this system along a hydrologic/microtopographic gradient. The elevated ridges are composed of somewhat coarser-textured soils and retain less moisture than do the lower areas, although both occur in a tight local mosaic. The soils appear to have well-developed subsurface hardpans, the impermeability of which contributes to shallowly perched water tables during portions of the year when precipitation is greatest and evapotranspiration is lowest (not due to overbank flooding). Thus, soil moisture fluctuates widely throughout the growing season, from saturated to very dry, a condition sometimes referred to as xerohydric (Evans 1991). Fire was an important natural process in this system, and well-burned examples tend to be relatively open-canopied with well-developed herbaceous layers (M. Evans pers. comm.).

Range: This system occurs in limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky and adjacent Tennessee (the "Jackson Purchase" or "Jackson Plain" region; 222Cb; 74b in part), as well as in the nearby "Shawnee Hills" of the Interior Low Plateau (222Dh, 222Di; 72c) of Kentucky and adjacent Indiana.

States: IL?, IN, KY, TN

Map Zones: 46:P, 47:C, 49:?

Similar: South-Central Interior / Upper Coastal Plain Wet Flatwoods (CES203.480)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Landforms :	Pimple mounds
Major Physiognomy :	Forest and Woodland (Tree)

3327: East Gulf Coastal Plain Northern Loess Bluff Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4133 EVT_fuel: 2327

ESP: 1327 NatureServe Id: CES203.481

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G166 Southern Mesic Beech - Oak - Mixed Deciduous Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system is largely confined to steep bluffs bordering the northern portion of the eastern edge of the Mississippi River Alluvial Plain. The geology is typically mapped as the Jackson Formation. These bluffs extend up to 150 m (500 feet) in elevation and from 30 to 60 m (100-200 feet) above the adjacent plain. They consist of a belt of Pleistocene and Tertiary eolian deposits (Braun 1950) that are often deeply eroded and very steep, with fertile top soil and abundant moisture (Miller and Neiswender 1987). The vegetation is often richer than surrounding non-loessal areas, or those with only thin loess deposits. The forests found on these bluffs are intermediate in soil moisture for the region and may best be thought of as mesic. The vegetation may sometimes be referred to as western mesophytic forest and may share some superficial similarities with cove forests of the Interior Highlands. In many cases, these bluffs provide habitat for plant species that are rare or absent from other parts of the Coastal Plain. Braun (1950) noted that the composition of forest changes from north to south along the bluffs; more southerly examples are represented by the ~East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556)$$, and these would contain *Magnolia grandiflora* as an important component. As currently defined this system ranges northward from about 32 degrees N latitude (where the Big Black River cuts through the bluffs), and occurs only in the westernmost portions of the Upper East Gulf Coastal Plain, including northern and central Mississippi, western Tennessee, and western Kentucky, being restricted to the northern part of the Loess Bluff Hills (Ecoregion 74a of EPA (2004)).

Range: This system is endemic to the loess bluffs ("Bluff Hills" [Ecoregion 74a] of EPA (2004)) along the eastern edge of the Mississippi River Alluvial Plain in Mississippi, Tennessee, and Kentucky.

States: KY, MS, TN

Map Zones: 46:C, 47:C

Similar: East Gulf Coastal Plain Northern Mesic Hardwood Slope Forest (CES203.477), East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556), Southern Coastal Plain Mesic Slope Forest (CES203.476)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Landforms :	Loess deposit (undifferentiated)
Major Physiognomy :	Forest and Woodland (Tree)

3328: Southern Coastal Plain Limestone Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4134 EVT_fuel: 2328

ESP: 1328 NatureServe Id: CES203.502

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G166 Southern Mesic Beech - Oak - Mixed Deciduous Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system represents deciduous forests of the East Gulf Coastal Plain where limestone or other calcareous substrates occur near enough to the surface to influence vegetation composition. Examples are most common in the Black Belt region of Alabama and Mississippi, but are also present in more isolated patches in other portions of the region, including western Alabama, eastern Georgia, and southwestern middle Tennessee. Generally, the vegetation consists of forests and woodlands on well-developed, deep soils. Related vegetation surrounding rock outcrops and calcareous prairies is accommodated within other ecological systems.

Range: This system occurs in the East Gulf (and rarely the Atlantic) Coastal Plain, most commonly in the Black Belt region of Alabama and Mississippi. It is also present in more isolated patches in other portions of the region, including western Alabama, eastern Georgia, and marginally in southwestern middle Tennessee.

States: AL, GA?, MS, TN

Map Zones: 46:C, 55:C, 99:C

Similar:

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree
Soil pH : Circumneutral
Major Physiognomy : Forest and Woodland (Tree)

3329: East Gulf Coastal Plain Southern Loess Bluff Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4135 EVT_fuel: 2329

ESP: 1329 NatureServe Id: CES203.556

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G007 Southern Mesic Beech - Magnolia - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system of upland hardwood-dominated forests is defined as including both the steep loess bluffs bordering the eastern edge of the Mississippi River Alluvial Plain, ranging from south-central Mississippi to southeastern Louisiana, as well as hardwood vegetation of the "Loess Plains" immediately to the east of these bluffs and ravines. The vegetation is often richer than surrounding non-loessal areas, or those with only thin loess deposits. At least in some examples of this system, tree species normally associated with bottomland habitats are found to be abundant or even dominant in non-flooded uplands. In many cases, the bluffs provide habitat "refugia" for plant species that are more common to the north (Delcourt and Delcourt 1975). Braun (1950) noted that the general composition of forests along the bluffs changes from north to south; the more northerly examples are represented in this classification by ~East Gulf Coastal Plain Northern Loess Bluff Forest (CES203.481)$$, north of the range of *Magnolia grandiflora* and *Pinus glabra*. As currently defined this system ranges from about 32 degrees N latitude (where the Big Black River dissects the bluffs) southward and is restricted to the southern part of the Loess Bluff Hills (Ecoregion 74a of EPA (2004)).

Range: This system is endemic to the loess bluffs ("Bluff Hills" [Ecoregion 74a] of EPA (2004)) and the immediately adjacent Southern Rolling Plains (western portion of Ecoregion 74c) along the eastern edge of the Mississippi River Alluvial Plain in southwestern Mississippi and adjacent Louisiana.

States: LA, MS

Map Zones: 46:C, 99:C

Similar: East Gulf Coastal Plain Northern Loess Bluff Forest (CES203.481), East Gulf Coastal Plain Northern Mesic Hardwood Slope Forest (CES203.477), Southern Coastal Plain Mesic Slope

Forest (CES203.476)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Landforms :	Loess deposit (undifferentiated)
Major Physiognomy :	Forest and Woodland (Tree)

3330: Southern Coastal Plain Dry Upland Hardwood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4136 EVT_fuel: 2330

ESP: 1330 NatureServe Id: CES203.560

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G790 Southern Evergreen Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This is one of three hardwood-dominated systems found in the East Gulf Coastal Plain and adjacent areas of central Florida. This type is found in the Southern Coastal Plain and Southeastern Plains (EPA Level III Ecoregion 75 and parts of 65). Examples attributable to this type are typically deciduous or mixed evergreen oak-dominated forests, often with a pine component present. Although the southern portion of the range of this system overlaps ~Southern Coastal Plain Oak Dome and Hammock (CES203.494)$$, the latter is dominated by evergreen oak species, and the two should not be confused. The core range of this type extends northward to the approximate historical range of longleaf pine; although most deciduous species do not mimic this range, this boundary does appear to be a reasonable demarcation boundary north of which *Quercus alba* becomes more abundant and south of which *Quercus hemisphaerica* is more diagnostic. Like all hardwood systems of this region, examples occur within a landscape matrix historically occupied by pine-dominated uplands and consequently only occurred in fire-sheltered locations in naturally small to large patches. Examples of this system tend to occur on sites intermediate in moisture tendency (mostly dry to dry-mesic), although occasional xeric stands may also be included. Toward the northern range limits of this system, it may have been less restricted to small patches in fire-protected locations, and may have been formerly more prevalent on the landscape even in areas heavily influenced by fire.

Important tree species vary geographically and according to previous disturbance.*Quercus hemisphaerica* is a typical species in many examples, with *Quercus stellata, Quercus falcata*, and *Quercus alba* less frequently encountered, but dominant in some stands. The overstory of some examples may be quite diverse, with hickories and other hardwood species often present. Typically mesic sites, as indicated by species indicative of these conditions, are covered under other

systems. *Pinus taeda* is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting. *Pinus glabra* or *Pinus echinata* may also be present in some examples. Stands may be found on slopes above rivers and adjacent to sinkholes, as well as other fire-infrequent habitats.

Range: East Gulf Coastal Plain and adjacent areas of central Florida ranging northward into central Mississippi and Alabama.

States: AL, FL, GA, MS

Map Zones: 46:C, 55:C, 56:C, 99:C

Similar: Southern Coastal Plain Oak Dome and Hammock (CES203.494)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Major Physiognomy :	Forest and Woodland (Tree)

3331: Eastern Great Plains Tallgrass Aspen Forest and Woodland

Match Confidence: Good Match

Suggested Match: Eastern Great Plains Tallgrass Aspen Parkland

Codes: ESLF: 4137 EVT_fuel: 2331

ESP: 1331 NatureServe Id: CES205.688

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M151 Northern Great Plains Woodland

NVC Group: G146 Northern Great Plains Tallgrass Aspen Parkland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found primarily on part of the Glacial Lake Agassiz plain in northwestern Minnesota, ranging into southern Canada. Calcareous glacial drift overlain with lacustrine soils ranging from loamy to gravelly is characteristic of the lakeplain within the range of this system. Historically this system included a mosaic of tallgrass prairie, wet prairie, brush prairie and aspen-oak woodlands. It is dominated by *Populus tremuloides* with scattered *Quercus macrocarpa* and *Betula papyrifera*. Shrubs such as willow (*Salix* spp.) and hazel (*Corylus* spp.) are also common. The dominant tallgrass species is *Andropogon gerardii* often associated with *Sorghastrum nutans, Calamagrostis* spp., and *Sporobolus heterolepis*. Fire is the most important natural dynamic in this system and helps maintain the open parkland or brush nature of this system. Wind and grazing are also important dynamics. Conversion to agriculture and fire suppression have decreased the range of this system and allowed more shrubs and trees to establish.

Range: This system is found primarily on part of the Glacial Lake Agassiz plain in northwestern Minnesota, ranging into southern Canada.

States: MB, MN, ND

Map Zones: 39:P, 40:C, 41:P

Similar: Northwestern Great Plains Aspen Forest and Parkland (CES303.681)

Descriptors:

Glacial History : Glaciated

Specialized Substrates : Sandplains/Glacial Outwash or Flats

Landforms : Lakeplain

Major Physiognomy : Woody-Herbaceous
Major Physiognomy : Forest and Woodland (Tree)

3332: Gulf and Atlantic Coastal Plain Floodplain Herbaceous

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Floodplain Systems

Codes: ESLF: 9142 EVT_fuel: 2473

ESP: 1473 NatureServe Id: CES203.629

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M031 Southern Coastal Plain Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This systems group comprises floodplain forests in the southeastern United States, from southern Virginia south to central Florida and west to the Gulf Coast, Mississippi River, and eastern Texas. It includes broad gradients of river size, soil nutrient levels, and flood frequency. Flooding ranges from semipermanent in the wettest areas to intermittent and short on the higher portions of the floodplain. Some of the major geomorphic features associated with different community types include natural levees, point bars, meander scrolls, oxbows, and sloughs. Small river floodplain forests have fewer major geomorphic floodplain features typically associated with large river floodplains. Those features that are present tend to be smaller and more closely intermixed with one another, resulting in less obvious vegetational zonation. Large rivers have greater variation in water levels and have flood regimes that integrate the effects of very large watersheds. Depositional landforms are larger, and communities can be more segregated. Along the Mississippi River and other very large rivers, low bottomlands are characteristic. These are seasonally flooded backswamps, with flooding usually more frequently than every two years, generally by still water that may be impounded behind natural levees.

Vegetation generally includes forests dominated by bottomland hardwood species and other trees tolerant of flooding. However, herbaceous and shrub vegetation may be present in certain areas, particularly on recently deposited bars and in oxbow lakes. Most examples are nearly contiguous over large areas, broken only by the river itself. Higher terraces may have a mosaic of floodplain and upland systems, and may include nonriverine wetland systems. Some of the most typical and characteristic tree species found in stands of this systems group include*Taxodium distichum, Nyssa aquatica, Acer saccharinum, Platanus occidentalis, Populus deltoides, Acer negundo*, and *Salix nigra*. Other trees may include *Celtis laevigata, Carya illinoinensis, Fraxinus pennsylvanica,*

Gleditsia triacanthos, Liquidambar styraciflua, Nyssa biflora, Quercus laurifolia, Quercus lyrata, Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus phellos, Quercus similis, Quercus texana, Quercus virginiana, Salix nigra, Ulmus americana, and *Ulmus crassifolia*. Three distinct groups of associations can be recognized. The lowest, wettest areas have some combination of *Taxodium distichum* and *Nyssa aquatica* dominating. Natural levees and riverfronts have a diverse mixture of trees that typically includes *Platanus occidentalis, Celtis laevigata, Fraxinus pennsylvanica, Acer saccharinum, Acer negundo*, and other species that benefit from the high light levels and heavy alluvial deposition of these sites. Soils are typically sandier than those of the lower bottomlands. *Arundinaria gigantea* (giant cane) is a common understory in these forests on natural levees and higher point bars, and may become dominant after thinning or removal of the overstory. Willow and cottonwood sandbars may have an open-canopy (woodland-type) structure. Moderate to high parts of the floodplain away from the levee are usually dominated by bottomland hardwoods, various mixtures of wetland oaks, including *Quercus laurifolia, Quercus michauxii, Quercus pagoda*, and sometimes a number of other oak species, along with *Liquidambar styraciflua* or other species. The wettest forests can be simple in structure, with an understory but little shrub or herb layer; others tend to have well-developed subcanopy, shrub, and herb layers. Woody vines are usually prominent. Shrubs and small trees include *Alnus serrulata, Arundinaria gigantea, Carpinus caroliniana, Cephalanthus occidentalis, Clethra alnifolia, Cornus foemina, Crataegus viridis, Forestiera acuminata, Ilex decidua, Itea virginica, Morella cerifera, Planera aquatica, Sabal minor*, and *Sebastiania fruticosa*. Vines may include *Berchemia scandens* and *Smilax bona-nox*. Herbaceous species may include *Boehmeria cylindrica, Carex complanata, Carex debilis, Carex intumescens, Carex joorii, Leersia virginica, Lycopus virginicus, Mikania scandens, Saccharum baldwinii*, and *Typha latifolia*. Aquatic and floating herbs include *Lemna minor, Nelumbo lutea, Nuphar advena (= Nuphar lutea ssp. advena)*, and *Nymphaea odorata*.

Range: This systems group ranges across much of the southeastern United States, from the Chesapeake Bay to southern Illinois and Missouri, south to central Florida and west to the Gulf Coast and Mississippi River, Oklahoma, and Texas.

States: AL, AR, DE, FL, GA, IL, KY, LA, MD, MO, MS, NC, OK, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 98:C, 99:C

Similar: Gulf and Atlantic Coastal Plain Small Stream Riparian Systems (CES203.630)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)

3333: South Florida Hardwood Hammock

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4139 EVT_fuel: 2333

ESP: 1333 NatureServe Id: CES411.287

BioGeographical Division : Caribbean

NVC MacroGroup: M134 Caribbean Coastal Lowland Dry Forest

NVC Group: G765 Caribbean Hardwood Hammock & Coastal Strand Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.1 Tropical Dry Forest & Woodland

NVCS Division: 1.A.1.Ea Caribbeo-Mesoamerican Dry Forest

Summary: This rockland tropical hammock system, as currently defined, occurs only in extreme southern Florida. It consists of upland hardwood forest on elevated ridges of limestone in three discrete major regions; the Keys, southeastern Big Cypress, and the Miami Rock Ridge. Tropical hardwood species are diagnostic of the system, although few are common or dominant in all regions where these hammocks occur (Snyder et al. 1990). Among the species likely to be encountered throughout are *Bursera simaruba, Coccoloba diversifolia*, and *Eugenia axillaris*. The northward ranges of these species are limited by the incidence of frosts (Drew and Schomer 1984). *Quercus laurifolia* is one of the few temperate species which attains prominence in this system. These forests tend to have a dense canopy that produces deeper shade, less evaporation, and lower air temperature than surrounding vegetation. This microclimate, in combination with high water tables, tends to keep humidity levels high and the community quite mesic (FNAI 1990). A number of orchid and bromeliad species thrive in such conditions. Unlike most coastal plain systems, fire is a major threat to ~South Florida Hardwood Hammock (CES411.287)$$. For this reason, many examples occur alongside natural firebreaks, such as the leeward side of exposed limestone (Robertson 1955), moats created by limestone solution (Duever et al. 1986), and elevated outcrops above marshes, scrub cypress, or sometimes mangrove swamps (Snyder et al. 1990).

Range: This system is endemic to south Florida.

States: FL

Map Zones: 56:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Evergreen Tree
Soil pH :	Alkaline
Major Physiognomy :	Forest and Woodland (Tree)

3334: Ozark-Ouachita Mesic Hardwood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4140 EVT_fuel: 2334

ESP: 1334 NatureServe Id: CES202.043

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M882 Central Midwest Mesic Forest

NVC Group: G791 Ozark-Ouachitas Mesic Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found on lower slopes, toeslopes and valley bottoms within the Ozark and Ouachita regions, as well as on north slopes. In the Ozarks, *Quercus rubra* increases in abundance compared to dry-mesic habitats, and *Acer saccharum* is sometimes a leading dominant. On more alkaline moist soils, *Quercus muehlenbergii, Tilia americana*, and *Cercis canadensis* may be common. In the Boston Mountains, mesic forests may also be common on protected slopes and terraces next to streams. Here, *Fagus grandifolia* may be the leading dominant, with codominants of *Acer saccharum, Liquidambar styraciflua, Tilia americana, Magnolia acuminata, Magnolia tripetala*, and others. Similar habitats occur in the western Ouachita Mountains.

Range: This system is found within the Ozarks and Ouachita Mountains of Missouri, Arkansas, and Oklahoma.

States: AR, MO, OK

Map Zones: 44:C

Similar: South-Central Interior Mesophytic Forest (CES202.887)

Descriptors:

SCS Subregion :	Ozark/Ouachita
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland

3335: Southern Atlantic Coastal Plain Dry and Dry-Mesic Oak Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4141 EVT_fuel: 2335

ESP: 1335 NatureServe Id: CES203.241

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G165 Piedmont & Central Atlantic Coastal Plain Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses oak-dominated forests of somewhat fire-sheltered dry to dry-mesic sites in the Mid-Atlantic and South Atlantic coastal plains from southeastern Virginia to Georgia. Sites where this system occurs are somewhat protected from most natural fires by some combination of steeper topography, isolation from the spread of fire, and limited flammability of the vegetation. If fires were more frequent, the vegetation would likely be replaced by more fire-tolerant southern pines, especially *Pinus palustris*.

Range: This system ranges from southeastern Virginia (south of the James River) south to southeastern Georgia in the Atlantic Coastal Plain.

States: GA, NC, SC, VA

Map Zones: 55:C, 58:C, 60:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Tree
Disturbance Return Interval :	Long
Major Physiognomy :	Forest and Woodland (Tree)

3336: Southwest Florida Coastal Strand and Maritime Hammock

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4142 EVT_fuel: 2336

ESP: 1336 NatureServe Id: CES411.368

BioGeographical Division : Caribbean

NVC MacroGroup: M134 Caribbean Coastal Lowland Dry Forest

NVC Group: G765 Caribbean Hardwood Hammock & Coastal Strand Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.1 Tropical Dry Forest & Woodland

NVCS Division: 1.A.1.Ea Caribbeo-Mesoamerican Dry Forest

Summary: This ecological system occurs as a narrow band of hardwood forest lying just inland of the coastal dune system in southwestern Florida. It is found on stabilized, old, coastal dunes, often with substantial shell components. The vegetation is characterized by hardwood species with tropical affinities. As such, the northern extent of this type is limited by periodic freezes and cold tolerance of tropical constituent species, such as *Piscidia piscipula* and *Eugenia axillaris* (Johnson and Muller 1993a). This system is closely related to both inland tropical hammocks and southeast Florida maritime hammocks, and may share some species overlap with each.

Range: Endemic to south Florida.

States: FL

Map Zones: 56:C

Similar: Southeast Florida Coastal Strand and Maritime Hammock (CES411.369)

Descriptors:

Landforms : Coast
Major Physiognomy : Forest and Woodland (Tree)

3337: Southeast Florida Coastal Strand and Maritime Hammock

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4143 EVT_fuel: 2337

ESP: 1337 NatureServe Id: CES411.369

BioGeographical Division : Caribbean

NVC MacroGroup: M134 Caribbean Coastal Lowland Dry Forest

NVC Group: G765 Caribbean Hardwood Hammock & Coastal Strand Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.1 Tropical Dry Forest & Woodland

NVCS Division: 1.A.1.Ea Caribbeo-Mesoamerican Dry Forest

Summary: This ecological system occurs as a narrow band of hardwood forest and shrublands along the Atlantic coast of southeastern Florida (approximately Volusia County southward). It is found on stabilized, old, coastal dunes, often with substantial shell components. The vegetation is characterized by hardwood species with tropical affinities. As such, the northern extent of this type is limited by periodic freezes and cold tolerance of tropical constituent species, such as *Guapira discolor* and *Exothea paniculata* (Johnson and Muller 1993a). This system is closely related to both inland tropical hammocks and southwest Florida maritime hammocks, and may share some species overlap with each.

Range: Endemic to south Florida.

States: FL

Map Zones: 56:C

Similar: Southwest Florida Coastal Strand and Maritime Hammock (CES411.368)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3338: Central and South Texas Coastal Fringe Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4144 EVT_fuel: 2338

ESP: 1338 NatureServe Id: CES203.464

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G798 Coastal Live Oak - Hickory - Palmetto Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system includes oak-dominated forests woodlands, shrublands and savannas occurring on deep sands of the Pleistocene-aged Ingleside barrier-strandplain of the central Texas coast and the Holocene-aged eolian sand deposits of the South Texas Sand Sheet. Topography varies from larger dunes to smaller ridges and swales. Vegetation of this physiognomically variable and dynamic system primarily includes patches (mottes) of forests, woodlands and shrublands dominated by *Quercus fusiformis*. Associated species vary in a north/south manner across the range of this system. Other canopy species in the vicinity of Aransas National Wildlife Refuge, at the northern end of the range, include *Quercus marilandica, Quercus hemisphaerica, Persea borbonia*, and *Celtis laevigata*. In this area, understory species include *Ilex vomitoria, Smilax bona-nox, Vitis mustangensis*, and/or *Morella cerifera*. Other canopy species on the South Texas Sand Sheet, at the southern end of the range, include *Prosopis glandulosa var. glandulosa, Zanthoxylum hirsutum, Condalia hookeri, Lantana urticoides (= Lantana horrida), Ziziphus obtusifolia var. obtusifolia*, and a very few other species. Many of the species found in the northern parts of the range of this system are absent in the southern occurrences. A characteristic component of the sparse ground cover within the mottes and forests across the entire range is *Malvaviscus arboreus var. drummondii*. Canopy openings are similar in composition to surrounding grasslands. In addition to *Schizachyrium littorale*, other herbaceous species common in canopy openings across the range of this system include *Paspalum plicatulum, Paspalum monostachyum, Andropogon gerardii, Sorghastrum nutans, Muhlenbergia capillaris, Helianthemum georgianum, Croton argyranthemus*, and *Froelichia floridana*. Minor changes in drainage can cause major differences in species composition. On the Ingleside barrier-strandplain, while *Paspalum monostachyum* may dominate slightly lower areas, deeper swales are typically dominated by *Panicum virgatum, Spartina patens, Fimbristylis* spp., *Hydrocotyle bonariensis, Rhynchospora* spp., *Fuirena* spp., *Eleocharis* spp., and

Cyperus spp.

Range: This system is endemic to Texas. It is found within 10 km of the coast on deep sands of ancient Pleistocene strandplains (the Ingleside barrier-strandplain) at its northern extent and within a much greater distance from the coast (100 km) on the Holocene-aged eolian sand deposits of the South Texas Sand Sheet (primarily Kenedy and Brooks counties but extending into adjacent Jim Hogg, Hidalgo, and Willacy counties) at its southern extent.

States: TX

Map Zones: 36:C

Similar: Central and Upper Texas Coast Dune and Coastal Grassland (CES203.465), South Texas Sand Sheet Grassland (CES301.538)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3339: West Gulf Coastal Plain Chenier and Upper Texas Coastal Fringe Forest and Wo

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4145 EVT_fuel: 2339

ESP: 1339 NatureServe Id: CES203.466

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G798 Coastal Live Oak - Hickory - Palmetto Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system includes a range of woody vegetation present along the northern Gulf of Mexico, from Louisiana to the upper Texas coast, including shell ridges along the coast and bay margins, coastal salt domes, stranded ancient barrier ridges (Ingleside barrier strandplain), and chenier ridges of the Chenier Plain. It is heterogeneous in physiognomy, including forests, woodlands and shrublands. The Chenier Plain is characterized by a prograding coastline replenished by sediments carried to the Gulf of Mexico initially by the Mississippi and subsequently the Atchafalaya and other rivers. It is void of barrier islands and shoreline, and sediments are reworked by waves into beach ridges, sometimes with a substantial shell component. This process has been continuing since the last glacial retreat, and as the coastline progrades, older beach ridges are left as interior ridges surrounded by marsh. These interior beach ridges are referred to as cheniers (French for oak) because they were historically dominated by *Quercus virginiana*. Ridges parallel the coast and are usually 3 meters above mean sea level. Today, very few remain vegetated by a live oak-dominated forest because many have been cleared for agriculture. Though not confined to coastal areas, salt domes are a distinctive feature along the Gulf Coast of upper Texas and Louisiana where they often form a drastic contrast to the low-lying Coastal Plain sediments surrounding them. Formed by the rise of salt masses which push up overlying strata, salt domes may rise 30 meters above the surrounding landscape. The natural vegetation of cheniers and salt domes are oak-dominated woodlands and forests. The Ingleside barrier strandplain is a Pleistocene barrier ridge that outcrops discontinuously along the Texas coast. One of these areas is located northeast of Galveston Bay and supports vegetation classes within this ecological system. Shell ridges located along coast and bay margins are typically dominated by halophytic shrubs. Similar vegetation may also be found on coastal dredge spoil. Vegetation structure and composition of occurrences of this system may be influenced by salt spray (on those shell ridges, salt domes and cheniers closest to

the gulf), tropical storms and hurricanes, and the distinctive climate of the immediate coast. This system includes the Northern Gulf Coast Chenier Plain which extends from Vermillion Bay in Louisiana through Jefferson County, Texas; it also includes the upper Texas coast from the Chenier Plain south to Matagorda Bay.

Range: Northern Gulf of Mexico, from Louisiana to the upper Texas coast.

States: LA, TX

Map Zones: 37:C, 98:C

Similar:

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3340: Appalachian Shale Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4147 EVT_fuel: 2340

ESP: 1340 NatureServe Id: CES202.598

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G162 Virginia Pine & Table Mountain Pine Woodland & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses the distinctive shale barrens of the central and southern Appalachians at low to mid elevations. The exposure and lack of soil create extreme conditions for plant growth. Vegetation is mostly classified as woodland, overall, but may include large open areas of sparse vegetation. Dominant trees are primarily *Quercus prinus* and *Pinus virginiana*, although on higher-pH substrates the common trees include *Juniperus virginiana* and *Fraxinus americana*. Shale barren endemics are diagnostic in the herb layer. The substrate includes areas of solid rock as well as unstable areas of shale scree, usually steeply sloped. The fully exposed areas are extremely dry. These barrens are high in endemic species.

Range: This system is found from southern Pennsylvania south to Virginia and extreme eastern Tennessee. Application of the concept south of Virginia is uncertain. It is not attributed to Kentucky.

States: MD, NC?, PA, TN, VA, WV

Map Zones: 57:C, 61:C

Similar: Central Appalachian Pine-Oak Rocky Woodland (CES202.600), Central Interior Highlands Dry Acidic Glade and Barrens (CES202.692), Southern Appalachian Montane Cliff and Talus (CES202.330), Southern and Central Appalachian Mafic Glade and Barrens (CES202.348)

Descriptors:

Mass Movement Type : Landslide

Substrate Consolidation : Unconsolidated

Soil Moisture (NRCS) : Ustic

Soil Depth : Very Shallow

Soil pH	: Acidic
Glacial History	: Unglaciated
Bioclimate	: Temperate
Specialized Substrates	: Talus
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Life Zones	: Lowland

3342: Piedmont Hardpan Woodland and Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4149 EVT_fuel: 2342

ESP: 1342 NatureServe Id: CES202.268

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G165 Piedmont & Central Atlantic Coastal Plain Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This Piedmont system occurs in places where a particularly dense clay hardpan has developed over a range of typically mafic rocks, sometimes with more limited areas of shallow glade-like vegetation. In the deeper soil portions of this system, the density of the clay, in combination with its shrink-swell properties, limits water and root penetration into the soil and creates xeric conditions for plants despite the presence of deep soil. Possibly most typical of this system in North Carolina is an open forest or woodland of *Quercus stellata*, with *Quercus marilandica* as a characteristic associate. The open canopy leads to a better developed herb layer than in most Piedmont forests, one that is usually grassy. In Virginia, typical canopy trees include *Quercus alba, Carya glabra*, and *Fraxinus americana*. Some of these sites may have once supported open prairies or prairie savannas when they burned more frequently. Fire was probably once the most important natural dynamic process, but the universal elimination of fire in the Piedmont makes this difficult to observe on most of the modern landscape.

Range: As currently known, this system is found in the Piedmont of Maryland, Virginia, North Carolina, South Carolina and Georgia. Its status in Alabama is not known. Its occurrence may be more frequent in the Triassic basins, but it is not restricted to them.

States: GA, MD, NC, SC, VA

Map Zones: 54:C, 59:C, 60:C, 61:C

Similar: Piedmont Upland Depression Swamp (CES202.336)

Descriptors:

Lifeform : Broad-Leaved Tree

Soil Texture : Clay

3343: Southern Atlantic Coastal Plain Mesic Hardwood Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4150 EVT_fuel: 2343

ESP: 1343 NatureServe Id: CES203.242

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G166 Southern Mesic Beech - Oak - Mixed Deciduous Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This upland system of the Atlantic Coastal Plain ranges from Delaware south to interior Georgia in a variety of moist but non-wetland sites that are naturally sheltered from frequent fire. Such sites include lower slopes and bluffs along streams and rivers in dissected terrain, mesic flats between drier pine-dominated uplands and floodplains, and local topographic high areas within bottomland terraces or nonriverine wet flats. Soil textures are variable in both texture and pH. The vegetation consists of forests dominated by combinations of trees that include a significant component of mesophytic deciduous hardwood species, such as *Fagus grandifolia* or *Acer barbatum*. Its southern limit is generally exclusive of the natural range of *Pinus glabra* as mapped by Kossuth and Michael (1990) and *Magnolia grandiflora* as mapped by Outcalt (1990). Upland and bottomland oaks at the mid range of moisture tolerance are usually also present, particularly *Quercus alba*, but sometimes also *Quercus pagoda, Quercus falcata, Quercus michauxii, Quercus shumardii*, or *Quercus nigra*. *Pinus taeda* is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting. Analogous systems on the Gulf Coastal Plain have pine as a natural component, and this may be true for some examples of this system. Understories are usually well-developed. Shrub and herb layers may be sparse or moderately dense. Within its range, *Sabal minor* may be a prominent shrub. Species richness may be fairly high in basic sites but is fairly low otherwise.

Range: This system ranges from Delaware south to central Georgia in the Atlantic Coastal Plain.

States: DC, DE, GA, MD, NC, SC, VA

Map Zones: 55:C, 58:C, 60:C

Similar: Atlantic Coastal Plain Brownwater Stream Floodplain Forest (CES203.248), Northern Atlantic

Coastal Plain Hardwood Forest (CES203.475), Southern Coastal Plain Mesic Slope Forest (CES203.476), Southern Piedmont Mesic Forest (CES202.342)

Descriptors:

Disturbance Return Interval : Long
Major Physiognomy : Forest and Woodland (Tree)

3344: Boreal Jack Pine-Black Spruce Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4247 EVT_fuel: 2344

ESP: 1344 NatureServe Id: CES103.022

BioGeographical Division : Boreal

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This conifer forest system is found on nutrient-poor soils in a variety of topographic settings. It ranges from eastern Alberta to eastern Canada, and southward into Minnesota, the Great Lakes region, and very locally into northwestern Maine. Soils are loamy to sandy, varying from thin soil over bedrock to deeper soils, sometimes sandy. Sites are xeric, but less strongly than barrens and sandplains. The dominant fire regime varies from 50-100 years. *Pinus banksiana* and *Picea mariana* are characteristic overstory species. In the Upper Great Lakes region, *Pinus banksiana* may intermix with *Pinus resinosa*. Canopy structure is mostly closed but can be partially open. Conifers typically dominate the canopy, but boreal hardwoods (*Populus tremuloides, Betula papyrifera*) may codominate. As time since fire increases, *Picea mariana* may dominate. The shrub and field layers can be somewhat dense to sparse, and older *Picea mariana* stands may be dominated by feathermosses.

Range: It ranges from eastern Alberta to eastern Canada, and southward into Minnesota and the Great Lakes region and very locally into northwestern Maine.

States: AB?, MB, ME, MI, MN, ON, QC, SK?, WI

Map Zones: 41:C, 50:C, 51:C, 66:P

Similar: Acadian Sub-boreal Spruce Barrens (CES201.561), Boreal-Laurentian Conifer Acidic Swamp (CES103.724), Laurentian Acidic Rocky Outcrop (CES201.019), Laurentian Pine-Oak Barrens (CES201.718)

Descriptors:

Temporal Persistence : Moderate (100-500 yrs)

Lifeform : Needle-Leaved Tree

Fire Intensity/Spatial Character :	Landscape/High Intensity
Soil Texture :	Sand
Soil pH :	Acidic
Soil Fertility :	Oligotrophic
Bioclimate :	Boreal
Landforms :	Outwash plain
Major Physiognomy :	Forest and Woodland (Tree)

3346: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4249 EVT_fuel: 2346

ESP: 1346 NatureServe Id: CES203.254

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G009 Dry-Mesic Loamy Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system occurs in the Fall-line Sandhills region of central North Carolina extending into central Georgia. It is the predominant system in its range, covering most of the natural landscape of the region. It occurs on upland sites ranging from gently rolling, broad ridgetops to steeper sideslopes, as well as locally in mesic swales and terraces. Most soils are well- to excessively drained. The vegetation is naturally dominated by *Pinus palustris*. Most associations have an understory of scrub oaks (*Quercus laevis, Quercus marilandica, Quercus incana*, and *Quercus margarettiae*). The herb layer is generally well-developed and dominated by grasses. Wiregrasses (*Aristida stricta* in the north, *Aristida beyrichiana* in the south) dominates in most of the range, but other grasses dominate where it is absent. Forbs, including many legumes, are also abundant. Frequent, low-intensity fire is the dominant natural ecological force.

Range: This system ranges from central North Carolina to central Georgia, in the Fall-line Sandhills region (Ecoregion 65c of EPA (2004); 232Bq of Keys et al. (1995)).

States: GA, NC, SC

Map Zones: 55:C, 58:C

Similar: Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281), Central Atlantic Coastal Plain Wet Longleaf Pine Savanna and Flatwoods (CES203.265)

Descriptors:

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Very Short
Major Physiognomy :	Forest and Woodland (Tree)

3347: Atlantic Coastal Plain Upland Longleaf Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4250 EVT_fuel: 2347

ESP: 1347 NatureServe Id: CES203.281

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G009 Dry-Mesic Loamy Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system of upland *Pinus palustris*-dominated vegetation ranges from southern Virginia (beginning approximately at the James River) to northeastern Florida (excluding longleaf pine of the Fall-Line Sandhills, accommodated by another ecological system), where it was once perhaps the most extensive system in the Outer Coastal Plain within its range. Examples and associations share the common feature of upland (non-wetland) moisture regimes and natural exposure to frequent fire. They occur on a variety of well- to excessively drained soils, and on the higher parts of upland-wetland mosaics. The vegetation is naturally dominated by *Pinus palustris*. Most associations have an understory of scrub oaks. The herb layer is generally well-developed and dominated by grasses. *Aristida stricta* primarily dominates in the northern part of its range, and *Aristida beyrichiana* in the southern part. Frequent, low-intensity fire is the dominant natural ecological force.

Range: This system is found in the Atlantic Coastal Plain (exclusive of the Fall-line Sandhills) from southern Virginia to northeastern Florida.

States: FL, GA, NC, SC, VA

Map Zones: 55:C, 58:C, 60:C

Similar: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254), Central Atlantic Coastal Plain Wet Longleaf Pine Savanna and Flatwoods (CES203.265)

Descriptors:

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Very Short

3348: West Gulf Coastal Plain Upland Longleaf Pine Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4251 EVT_fuel: 2348

ESP: 1348 NatureServe Id: CES203.293

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G009 Dry-Mesic Loamy Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: The common and unifying feature of this system is vegetation naturally dominated by *Pinus palustris*. This was formerly the most extensive system within its natural range in western Louisiana and eastern Texas. In most of the region, longleaf pine is (presently) a distinctive, but rarely dominant, element of existing vegetation (Harcombe et al. 1993). However, this tree historically dominated the vegetation across nearly all uplands regardless of soil type or moisture (excluding wetlands), and longleaf pine forests were among the most valuable economic resources in the region at the turn of the century (Bray 1906). Typical sites included sandhills on well-drained to excessively drained soils, but also more loamy and clayey upland soils. The importance of frequent fire has been well documented for the perpetuation of this system. Unlike comparable systems east of the Mississippi River, this type lies outside the ranges of *Aristida stricta* and *Aristida beyrichiana*, but most stands supported open grass-dominated understories rich in species diversity.

Range: The boundary of this system follows TNC Ecoregion 41 (West Gulf Coastal Plain) closely in western Louisiana, but extends slightly into Ecoregion 40 (Upper West Gulf Coastal Plain) in eastern Texas.

States: LA, TX

Map Zones: 37:C

Similar: West Gulf Coastal Plain Stream Terrace Sandyland Longleaf Pine Woodland (CES203.891), West Gulf Coastal Plain Wet Longleaf Pine Savanna and Flatwoods (CES203.191)

Descriptors:

SCS Subregion : West Gulf Coastal Plain

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Very Short

Major Physiognomy : Forest and Woodland (Tree)

3349: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4252 EVT_fuel: 2349

ESP: 1349 NatureServe Id: CES203.496

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G009 Dry-Mesic Loamy Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system represents longleaf pine forests of rolling, dissected uplands of the East Gulf Coastal Plain. These stands occur primarily in Ecoregion 65 (EPA 2004). It is found inland of the coastal flatlands (*sensu* Peet and Allard (1993); Ecoregion 75a (EPA 2004)) and extends landward into the Upper East Gulf Coastal Plain Ecoregion (*sensu* TNC) by about 80 km (50 miles). It potentially occupies a much larger geographic area than the related longleaf pine woodlands of the outer coastal area. The characteristic species is *Pinus palustris*, although many stands may support only relictual individuals following a long history of exploitation, harvest, and stand conversion, primarily to *Pinus taeda*. This system includes stands with a range of soil and moisture conditions. Mesic stands on medium- to fine-textured soils are more typical of the system, although limited xeric areas on deep sands are also present. In natural condition, fire is believed to have been frequent enough to limit development of intolerant species of hardwoods and both *Pinus taeda* and *Pinus echinata*. Although such species may be present or even common in the most mesic stands, they generally do not share dominance in the overstory unless the system has been fire-suppressed.

Range: This system formerly occupied an extensive range across the southern parts of Alabama, Florida, and Mississippi, and was also present in limited areas of Louisiana and Georgia. It has been greatly reduced in its extent, with much of its range now occupied by agriculture and/or forestry operations. In southwestern Mississippi, this system is apparently absent (or very rare and limited) west of 91 degrees W longitude to the limits of the alluvial plain and northwest of a line running approximately from the intersection of 31 degrees N latitude and 91 degrees W longitude, northeastward to the city of Jackson, Mississippi. This is consistent with the ranges of "Oak-Pine" vegetation versus "Longleaf-Loblolly-Slash Pines" (generally equivalent to this system) in Shantz

and Zon (1924).

States: AL, FL, GA, LA, MS

Map Zones: 46:C, 55:C, 99:C

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506), East Gulf Coastal Plain Near-Coast Pine Flatwoods (CES203.375), Southeastern Interior Longleaf Pine Woodland (CES202.319)

Descriptors:

SCS Subregion :	East Gulf Coastal Plain
Disturbance Return Interval :	Very Short
Major Physiognomy :	Forest and Woodland (Tree)

3350: Central and Southern Appalachian Spruce-Fir Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4253 EVT_fuel: 2350

ESP: 1350 NatureServe Id: CES202.028

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G632 Central & Southern Appalachian Red Spruce - Fir - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system consists of forests in the highest elevation zone of the Blue Ridge and parts of the Central Appalachians, generally dominated by *Picea rubens, Abies fraseri*, or by a mixture of spruce and fir. *Abies fraseri* is the constituent fir from Mount Rogers in Virginia southward. Examples occur above 1676 m (5500 feet) in the Southern Blue Ridge, but as low as 975 m (3200 feet) at the northern range in West Virginia, and may range up to the highest peaks. Elevation and orographic effects make the climate cool and wet, with heavy moisture input from fog as well as high rainfall. Strong winds, extreme cold, rime ice, and other extreme weather are periodically important.

Range: This system ranges from the Balsam Mountains and Great Smoky Mountains of North Carolina and Tennessee northward to the mountains of western Virginia and eastern West Virginia.

States: NC, TN, VA, WV

Map Zones: 57:C, 61:C

Similar: Acadian-Appalachian Montane Spruce-Fir Forest (CES201.566)

Descriptors:

Lifeform : Needle-Leaved Tree
Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Montane

3351: Southeastern Interior Longleaf Pine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4254 EVT_fuel: 2351

ESP: 1351 NatureServe Id: CES202.319

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses the fire-maintained non-Coastal Plain woodlands and forests where *Pinus palustris* is a dominant or codominant canopy species. Its current range includes the outer Piedmont of Georgia and the Carolinas and various parts of Alabama, including the Talladega upland region (quartzite-slate transition) and the Cumberland Plateau, as well as, at least historically, the intervening Ridge and Valley. Examples occur on rolling to somewhat mountainous upland slopes in North Carolina, South Carolina, Georgia, and Alabama. They are believed to naturally be open woodlands with grassy ground cover, but many are now closed forests with dense shrubs or with little ground cover. *Pinus palustris* is either dominant, codominant, or present in circumstances that indicate former dominance or codominance. *Pinus echinata, Pinus taeda, Quercus falcata, Quercus stellata, Quercus prinus, Quercus coccinea*, and *Quercus velutina* are frequent associates, often codominating. Some of the most frequently encountered grasses include *Schizachyrium scoparium, Sorghastrum nutans, Andropogon* spp., *Chasmanthium laxum, Panicum virgatum, Piptochaetium avenaceum*, and *Danthonia spicata*.

Range: This system once ranged throughout the southern two-thirds of the Piedmont, from central North Carolina to Alabama, where it extends into the adjacent Ridge and Valley. More extensive areas are now largely, if not exclusively, restricted to south-central North Carolina (outer Piedmont) and to eastern Alabama (Talladega upland), as well as the Cumberland Plateau and at least historically, the Ridge and Valley of Alabama. Smaller remnants are found in very limited areas of South Carolina and Georgia.

States: AL, GA, NC, SC

Map Zones: 48:C, 54:C, 59:C

Similar: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339)

Descriptors:

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3352: Southern Appalachian Montane Pine Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4255 EVT_fuel: 2352

ESP: 1352 NatureServe Id: CES202.331

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G162 Virginia Pine & Table Mountain Pine Woodland & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system consists of predominantly evergreen woodlands (or more rarely forests) occupying very exposed, convex, often rocky south- and west-facing slopes, ridge spurs, crests, and clifftops in the Central Appalachians, Southern Ridge and Valley and Southern Blue Ridge. They occur at moderate to upper elevations (450-1200 m [1500-4000 feet]), with the more southerly examples at the higher elevations. In the Southern Blue Ridge, this system is best developed above 700 m (2300 feet) in elevation. The underlying rock is acidic and sedimentary or metasedimentary (e.g., quartzites, sandstones and shales). The soils are very infertile, shallow and droughty. A thick, poorly decomposed duff layer, along with dead wood and highly volatile ericaceous shrubs, creates a strongly fire-prone habitat. Most examples are dominated by *Pinus pungens*, often with *Pinus rigida* and/or *Pinus virginiana*, and occasionally *Tsuga caroliniana*. The canopy is usually patchy to open, but areas of closed canopy may be present, especially where *Tsuga caroliniana* is prominent. Fire is a very important ecological process in this system. Pines may be able to maintain dominance due to edaphic conditions, such as very shallow soil or extreme exposure in some areas which can produce sustained drought conditions, but most sites appear eventually to succeed to oak dominance in the absence of fire. Fire is also presumably a strong influence on vegetation structure, producing a more open woodland canopy structure and more herbaceous ground cover.

Range: This system is centered on the Southern Blue Ridge, from northern Georgia and South Carolina north through Virginia, with outlying occurrences north through the Central Appalachians to a small incursion in the northern Blue Ridge of south-central Pennsylvania.

States: GA, KY, MD, NC, OH, PA, SC, TN, VA, WV

Map Zones: 53:C, 54:C, 57:C, 59:C, 60:C, 61:C

Similar: Central Appalachian Pine-Oak Rocky Woodland (CES202.600), Southern Appalachian Granitic Dome (CES202.297), Southern Appalachian Low-Elevation Pine Forest (CES202.332), Southern Appalachian Oak Forest (CES202.886), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339)

Descriptors:

Lifeform :	Needle-Leaved Tree
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3353: Southern Appalachian Low-Elevation Pine Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4256 EVT_fuel: 2353

ESP: 1353 NatureServe Id: CES202.332

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system consists of shortleaf pine- and Virginia pine-dominated forests in the lower elevation Southern Appalachians and adjacent Piedmont and Cumberland Plateau, extending into the Interior Low Plateau of Indiana, Kentucky and Tennessee. Examples can occur on a variety of topographic and landscape positions, including ridgetops, upper and midslopes, as well as lower elevations (generally below 700 m [2300 feet]) in the Southern Appalachians such as mountain valleys. Examples occur on a variety of acidic bedrock types. Frequent, low-intensity fires coupled with severe fires (Harrod and White 1999) may have been the sole factor determining the occurrence of this system rather than hardwood forests under natural conditions. Under current conditions, stands are dominated by *Pinus echinata* or *Pinus virginiana*. *Pinus rigida* may sometimes be present. Hardwoods are sometimes abundant, especially dry-site oaks such as *Quercus falcata, Quercus prinus*, and *Quercus coccinea*, but also *Carya glabra, Acer rubrum*, and others. The shrub layer may be well-developed, with *Vaccinium pallidum, Gaylussacia baccata*, or other acid-tolerant species most characteristic. Herbs are usually sparse but may include *Pityopsis graminifolia* and *Tephrosia virginiana*.

Range: This system is found primarily in the Appalachian regions of Kentucky and the Southern Blue Ridge in northern Georgia, western North Carolina, southeastern Tennessee, the Cumberlands of Alabama, parts of the Interior Low Plateau (e.g., the Knobs Region of Kentucky and southern Indiana and the western Highland Rim of Tennessee), and southwestern Virginia.

States: AL, GA, IN, KY, NC, SC, TN, VA

Map Zones: 47:C, 48:C, 53:C, 54:C, 57:C, 59:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central and Southern

Appalachian Montane Oak Forest (CES202.596), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313), Southern Appalachian Montane Pine Forest and Woodland (CES202.331), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339)

Descriptors:

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Soil pH :	Acidic
Major Physiognomy :	Forest and Woodland (Tree)

3354: Northeastern Interior Pine Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4257 EVT_fuel: 2354

ESP: 1354 NatureServe Id: CES202.590

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G161 Pitch Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These pine barrens occur on glacial sandplains of the inland regions of the northeastern U.S., with a disjunction to the distinctive till plain shrublands in the Poconos of eastern Pennsylvania. Substrates include outwash plains, stabilized sand dunes, and glacial till. The soils are consequently coarse-textured, acidic, mostly well-drained to xeric, and low in nutrients. *Pinus rigida* is the usual dominant, and cover may range from closed-canopy forest to (more typically) open woodlands. *Quercus rubra, Pinus strobus*, and *Betula populifolia* are common associates. A tall-shrub layer of *Quercus ilicifolia* and/or *Quercus prinoides* is commonly present, although portions of some barrens (or occasionally the entire barrens) lack the scrub oak component. A well-developed low-shrub layer is typical, with lowbush *Vaccinium* spp., *Gaylussacia baccata*, and *Comptonia peregrina* characteristic, with *Rhododendron canadense* characteristic on slightly more mesic microsites. The system is often a physiognomic patchwork, ranging from nearly closed-canopy forest to open pine woodlands, to scrub oak shrublands, to herbaceous/dwarf-shrub frost pockets. Grassy areas dominated by *Schizachyrium scoparium* with *Lupinus perennis, Lespedeza capitata*, and other forbs provide habitat for several rare invertebrates. Small changes in elevation can create pockets with saturated soil, where shrubs such as *Corylus americana, Cephalanthus occidentalis, Vaccinium corymbosum*, and *Alnus* spp. form dense cover. These barrens always have a history of recurrent fires, and fire is required to maintain them.

Range: This system is restricted to south-central New England; Colchester, Vermont; eastern New York; and the Pennsylvania Poconos.

States: CT, MA, ME, NH, NY, PA, RI, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Laurentian Pine-Oak Barrens (CES201.718), Northern Atlantic Coastal Plain Pitch Pine Barrens (CES203.269)

Descriptors:

Floristics/Dominants :	Pinus rigida
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Soil pH :	Acidic
Soil Fertility :	Oligotrophic
Glacial History :	Glaciated
Specialized Substrates :	Sandplains/Glacial Outwash or Flats
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3355: Northern Atlantic Coastal Plain Pitch Pine Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4258 EVT_fuel: 2355

ESP: 1355 NatureServe Id: CES203.269

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G161 Pitch Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is comprised of a group of dry pitch pine woodlands and forests of deep sandy soils ranging from Cape Cod (Massachusetts) south through Long Island (New York) and the New Jersey Coastal Plain, with occasional occurrences north to southernmost Maine and south to the Anacostia watershed (Maryland). The vegetation is characterized by a tree canopy of *Pinus rigida* with a tall-shrub layer dominated by *Quercus ilicifolia* and a low-shrub layer characterized by *Vaccinium pallidum* or *Vaccinium angustifolium*. The system is heavily influenced by fire, the composition and structure of its components varying with fire frequency. In general, tree oaks are more prevalent in those stands having a longer fire-return interval, fire frequencies of 8-10 years foster the growth of "pine plains," i.e., dwarf pine stands 1 meter in height. Pine barrens with a history of more-or-less biennial burns for *Vaccinium angustifolium* production may have very few trees and be characterized as sandplain grasslands. Dwarf-shrubs such as *Arctostaphylos uva-ursi, Vaccinium angustifolium*, and *Hudsonia ericoides* typify the field layer of pine plains and sandplain grasslands. *Schizachyrium scoparium* and (in close proximity to the coast) *Schizachyrium littorale* are common grasses.

Scrub oak stands may occur without pine cover, particularly in low-lying areas that do not intersect the water table, where cold-air drainage inhibits pine growth. North of the glacial boundary, heathlands characterized by*Arctostaphylos uva-ursi, Corema conradii*, and *Morella pensylvanica* and grasslands characterized by *Schizachyrium littorale, Schizachyrium scoparium*, and *Danthonia spicata* occur as small (or occasionally large) patches. The Pine Barrens of New Jersey are very similar in structure and composition to those north of the glacial boundary but are characterized by additional species, such as *Quercus marilandica, Pyxidanthera barbulata, Leiophyllum buxifolium*, and others. Where the water table is close to the surface, pitch pine lowland

vegetation (described as a separate system) occurs.

Range: This system is found in the Coastal Plain from Delaware Bay northward through the New Jersey Coastal Plain and Long Island (New York) to Cape Cod, Massachusetts, with peripheral occurrences in Pennsylvania (historic), New Hampshire (historic), and southern Maine (Kennebunk Plains and Wells Barren).

States: DE, MA, MD, ME, NH, NJ, NY, PA, RI

Map Zones: 60:C, 65:C

Similar: Northeastern Interior Pine Barrens (CES202.590), Northern Atlantic Coastal Plain Heathland and Grassland (CES203.895)

Descriptors:

Lifeform :	Needle-Leaved Tree
Fire Intensity/Spatial Character :	Patch/High Intensity
Soil Moisture (NRCS) :	Xeric
Major Physiognomy :	Forest and Woodland (Tree)

3356: Florida Longleaf Pine Sandhill

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4259 EVT_fuel: 2356

ESP: 1356 NatureServe Id: CES203.284

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G154 Xeric Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system represents stands of *Pinus palustris* on excessively well-drained, sandy soils in the Outer Coastal Plain and adjacent Inner Coastal Plain of Florida. This includes the "high pine islands" of central Florida, as well as vegetation of extensive areas of sand in the panhandle, as at Eglin Air Force Base. In central Florida, these stands are found in relation with sand pine scrub vegetation. This system represents larger patches of *Pinus palustris* Sandhills, ranging from 60 to 4000 hectares in size. Examples also occur on the Ocala National Forest, the southern end of the Lake Wales Ridge, the Brooksville Ridge, and in other parts of the Florida Peninsula. Fire is absolutely essential to maintain this system, without which it may be almost completely replaced by scrub vegetation or other non-longleaf pine-dominated vegetation.

Range: This system is found in the Outer Coastal Plain and adjacent Inner Coastal Plain of Florida, including the central Florida Peninsula (Ocala National Forest, Brooksville Ridge, southern end of the Lake Wales Ridge) (Abrahamson et al. 1984) and the panhandle (e.g., Eglin Air Force Base).

States: FL

Map Zones: 55:C, 56:C, 99:C

Similar:

Descriptors:

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Very Short
Soil Moisture (NRCS) :	Xeric
Major Physiognomy :	Forest and Woodland (Tree)

3357: Southern Coastal Plain Mesic Slope Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4260 EVT_fuel: 2357

ESP: 1357 NatureServe Id: CES203.476

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M008 Southern Mesic Mixed Broadleaf Forest

NVC Group: G007 Southern Mesic Beech - Magnolia - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This forested system of the southern East Gulf and Atlantic coastal plains occurs on steep slopes, bluffs, or sheltered ravines where fire is naturally rare, generally within the natural range of *Pinus glabra* as mapped by Kossuth and Michael (1990) and *Magnolia grandiflora* as mapped by Outcalt (1990). Stands are mesic, and vegetation typically includes species such as *Fagus grandifolia, Magnolia grandiflora, Illicium floridanum*, and other species rarely encountered outside this system in the region. Related forests which occur on deep loess soils along the western margin of the region are classified as ~East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556)$$. Some component associations are also found in temporarily flooded floodplains adjacent to these slopes, but this is primarily an upland system. The system also includes essentially upland vegetation of Pleistocene terraces, although these are conceptually transitional to creek floodplain systems.

Range: This mesic upland system of the southern (Atlantic and Gulf) coastal plains is found in suitable conditions from Georgia south to northern Florida and west to (and including) the loessal plains of Mississippi and Louisiana. Its range is generally congruent with the natural range of *Pinus glabra* and *Magnolia grandiflora*.

States: AL, FL, GA, LA, MS, SC

Map Zones: 46:C, 55:C, 56:?, 58:C, 99:C

Similar: East Gulf Coastal Plain Northern Loess Bluff Forest (CES203.481), East Gulf Coastal Plain Northern Mesic Hardwood Slope Forest (CES203.477), East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556), Southeastern Coastal Plain Cliff (CES203.398), Southern Atlantic Coastal Plain Mesic Hardwood Forest (CES203.242)

Descriptors:

Lifeform :	Broad-Leaved Evergreen Tree
Disturbance Return Interval :	Long
Landforms :	Slope
Major Physiognomy :	Forest and Woodland (Tree)

3358: East-Central Texas Plains Pine Forest and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4261 EVT_fuel: 2358

ESP: 1358 NatureServe Id: CES205.896

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system, dominated by *Pinus taeda*, is endemic to central Texas. Locally this is known as the "Bastrop Pines." Examples may share similarities, in terms of the vegetation, with Coastal Plain pine-hardwood systems to the east (TNC Ecoregions 40 and 41) but differ in the fact that this system contains only loblolly pine which is generally considered successional in the more eastern systems. The vegetation includes a range of communities (that have yet to be defined) that range from very dry to xeric uplands to dry and even mesic areas with different suites of hardwood associates. The *Pinus taeda* of this region is genetically different than strains to the east; it has much greater drought tolerance. It is possible that this area was one of the epicenters of early southern pine colonization of the Coastal Plain based on fossil pollen evidence.

Range: This system is endemic to central Texas.

States: TX

Map Zones: 32:?, 35:?, 36:C, 37:P

Similar:

Descriptors:

Lifeform : Needle-Leaved Tree
Major Physiognomy : Forest and Woodland (Tree)

3359: Gulf and Atlantic Coastal Plain Floodplain Shrubland

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Floodplain Systems

Codes: ESLF: 9142 EVT_fuel: 2473

ESP: 1473 NatureServe Id: CES203.629

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M031 Southern Coastal Plain Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This is the shrubland expression of this group of Floodplain Ecological Systems. This systems group comprises floodplain forests in the southeastern United States, from southern Virginia south to central Florida and west to the Gulf Coast, Mississippi River, and eastern Texas. It includes broad gradients of river size, soil nutrient levels, and flood frequency. Flooding ranges from semipermanent in the wettest areas to intermittent and short on the higher portions of the floodplain. Some of the major geomorphic features associated with different community types include natural levees, point bars, meander scrolls, oxbows, and sloughs. Small river floodplain forests have fewer major geomorphic floodplain features typically associated with large river floodplains. Those features that are present tend to be smaller and more closely intermixed with one another, resulting in less obvious vegetational zonation. Large rivers have greater variation in water levels and have flood regimes that integrate the effects of very large watersheds. Depositional landforms are larger, and communities can be more segregated. Along the Mississippi River and other very large rivers, low bottomlands are characteristic. These are seasonally flooded backswamps, with flooding usually more frequently than every two years, generally by still water that may be impounded behind natural levees.

Vegetation generally includes forests dominated by bottomland hardwood species and other trees tolerant of flooding. However, herbaceous and shrub vegetation may be present in certain areas, particularly on recently deposited bars and in oxbow lakes. Most examples are nearly contiguous over large areas, broken only by the river itself. Higher terraces may have a mosaic of floodplain and upland systems, and may include nonriverine wetland systems. Some of the most typical and characteristic tree species found in stands of this systems group include*Taxodium distichum, Nyssa aquatica, Acer saccharinum, Platanus occidentalis, Populus deltoides, Acer negundo*, and *Salix*

nigra. Other trees may include *Celtis laevigata, Carya illinoinensis, Fraxinus pennsylvanica, Gleditsia triacanthos, Liquidambar styraciflua, Nyssa biflora, Quercus laurifolia, Quercus lyrata, Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus phellos, Quercus similis, Quercus texana, Quercus virginiana, Salix nigra, Ulmus americana*, and *Ulmus crassifolia*. Three distinct groups of associations can be recognized. The lowest, wettest areas have some combination of *Taxodium distichum* and *Nyssa aquatica* dominating. Natural levees and riverfronts have a diverse mixture of trees that typically includes *Platanus occidentalis, Celtis laevigata, Fraxinus pennsylvanica, Acer saccharinum, Acer negundo*, and other species that benefit from the high light levels and heavy alluvial deposition of these sites. Soils are typically sandier than those of the lower bottomlands. *Arundinaria gigantea* (giant cane) is a common understory in these forests on natural levees and higher point bars, and may become dominant after thinning or removal of the overstory. Willow and cottonwood sandbars may have an open-canopy (woodland-type) structure. Moderate to high parts of the floodplain away from the levee are usually dominated by bottomland hardwoods, various mixtures of wetland oaks, including *Quercus laurifolia, Quercus michauxii, Quercus pagoda*, and sometimes a number of other oak species, along with *Liquidambar styraciflua* or other species. The wettest forests can be simple in structure, with an understory but little shrub or herb layer; others tend to have well-developed subcanopy, shrub, and herb layers. Woody vines are usually prominent. Shrubs and small trees include *Alnus serrulata, Arundinaria gigantea, Carpinus caroliniana, Cephalanthus occidentalis, Clethra alnifolia, Cornus foemina, Crataegus viridis, Forestiera acuminata, Ilex decidua, Itea virginica, Morella cerifera, Planera aquatica, Sabal minor*, and *Sebastiania fruticosa*. Vines may include *Berchemia scandens* and *Smilax bona-nox*. Herbaceous species may include *Boehmeria cylindrica, Carex complanata, Carex debilis, Carex intumescens, Carex joorii, Leersia virginica, Lycopus virginicus, Mikania scandens, Saccharum baldwinii*, and *Typha latifolia*. Aquatic and floating herbs include *Lemna minor, Nelumbo lutea, Nuphar advena (= Nuphar lutea ssp. advena)*, and *Nymphaea odorata*.

Range: This systems group ranges across much of the southeastern United States, from the Chesapeake Bay to southern Illinois and Missouri, south to central Florida and west to the Gulf Coast and Mississippi River, Oklahoma, and Texas.

States: AL, AR, DE, FL, GA, IL, KY, LA, MD, MO, MS, NC, OK, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 98:C, 99:C

Similar: Gulf and Atlantic Coastal Plain Small Stream Riparian Systems (CES203.630)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)

3361: Central Atlantic Coastal Plain Maritime Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4264 EVT_fuel: 2361

ESP: 1361 NatureServe Id: CES203.261

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G798 Coastal Live Oak - Hickory - Palmetto Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system encompasses most woody vegetation of Atlantic Coast barrier islands and similar coastal strands, from Virginia Beach to central South Carolina (approximately the Cooper River where the true Sea Islands begin). It includes forests and shrublands whose structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast. Many examples of this system will include a component of *Quercus virginiana* or *Morella cerifera*. Also included are embedded freshwater depressional wetlands dominated by shrubs or small trees, such as *Cornus foemina, Persea palustris*, or *Salix caroliniana*. This system may experience less effects from fire than the equivalent ~Southern Atlantic Coastal Plain Maritime Forest (CES203.537)$$.

Range: This system is found from southernmost Virginia to central South Carolina (Cooper River).

States: NC, SC, VA

Map Zones: 58:C, 60:C

Similar: Northern Atlantic Coastal Plain Maritime Forest (CES203.302), Southern Atlantic Coastal Plain Dune and Maritime Grassland (CES203.273), Southern Atlantic Coastal Plain Maritime Forest (CES203.537)

Descriptors:

Landforms : Coast
Major Physiognomy : Forest and Woodland (Tree)

3362: Laurentian-Acadian Northern Pine Forest

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Northern Pine-(Oak) Forest

Codes: ESLF: 4265 EVT_fuel: 2362

ESP: 1362 NatureServe Id: CES201.719

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G025 Laurentian & Acadian Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this ecological system. This is a pine-dominated, or occasionally pine-oak, forest system that is typically found on nutrient-poor soils, or on moderately rich soils in the Midwest, in a variety of topographic settings. Soils are loamy to sandy, varying from thin soil over bedrock to deeper soils, sometimes sandy. Sites are xeric to subxeric, but less strongly than barrens and sandplains. The dominant fire regime varies from 100-200 years for *Pinus strobus* and *Pinus resinosa*. Other boreal conifers, or in the East *Picea rubens*, may occasionally be present. Canopy structure is mostly closed but can be partially open. Conifers typically dominate the canopy, but codominates may include hardwoods, especially *Quercus rubra* or *Acer rubrum*, but also *Populus tremuloides* or *Betula papyrifera*. The shrub and field layers can be somewhat dense to sparse.

Range:

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PA?, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Laurentian Pine-Oak Barrens (CES201.718), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3363: Central Interior Highlands Dry Acidic Glade and Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4305 EVT_fuel: 2363

ESP: 1363 NatureServe Id: CES202.692

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M509 Central Interior & Piedmont Acidic Scrub & Grassland

NVC Group: G178 Central Interior Acidic Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system is primarily found in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions with small occurrences in northern Missouri. It occurs on flatrock outcrops and along moderate to steep slopes or valley walls of rivers along most aspects. Parent material includes chert, igneous and/or sandstone bedrock with well- to excessively well-drained, shallow soils interspersed with rock and boulders. These soils are typically dry during the summer and autumn, becoming saturated during the spring and winter. Grasses such as *Schizachyrium scoparium* and *Sorghastrum nutans* dominate this system with stunted oak species (*Quercus stellata, Quercus marilandica*) and shrub species such as *Vaccinium* spp. occurring on variable depth soils. *Juniperus virginiana* can be present and often increases in the absence of fire. In Kentucky, this system includes both sandstone glades found in the Shawnee Hills (EPA Ecoregions 71a, 72h of Woods et al. (2002)), as well as shale glades found in the Knobs region (EPA Ecoregions 70d, 71c of Woods et al. (2002)), both in the Kentucky Interior Low Plateau. It also includes dry *Quercus stellata*-dominated barrens on Cretaceous-aged gravel substrates on the northern fringes of the Upper East Gulf Coastal Plain Ecoregion in southern Illinois and western Kentucky. This system is influenced by drought and infrequent to occasional fires. Prescribed fires help manage this system by maintaining an open glade structure.

Range: This system is found in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions, with rare and limited occurrences in the Upper East Gulf Coastal Plain of Kentucky and Illinois.

States: AR, IL, IN, KY, MO, OK, TN?

Map Zones: 43:P, 44:C, 47:C, 48:C, 49:C, 53:C

Similar: Appalachian Shale Barrens (CES202.598), Cumberland Sandstone Glade and Barrens (CES202.337)

Descriptors:

Soil pH :	Acidic
Specialized Substrates :	Igneous Rock
Specialized Substrates :	Sedimentary Rock
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3364: Ozark-Ouachita Dry Oak Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4306 EVT_fuel: 2364

ESP: 1364 NatureServe Id: CES202.707

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system occurs in the Ozark and Ouachita Highlands and far western portions of the Interior Low Plateau regions along gentle to steep slopes and over bluff escarpments with southerly to westerly aspects. Parent material can range from calcareous to acidic with very shallow, well- to excessively well-drained soils, sometimes with a fragipan that causes "xero-hydric" moisture conditions. This system was historically woodland in structure, composition, and process but now includes areas of more closed canopy. Oak species such as *Quercus stellata, Quercus marilandica*, and *Quercus coccinea* dominate this system with an understory of grassland species such as *Schizachyrium scoparium* and shrub species such as *Vaccinium arboreum*. Drought stress is the major dynamic influencing and maintaining this system. On flatwoods with fragipans, *Quercus stellata* is the major dominant. *Quercus alba, Quercus falcata*, and/or *Carya texana* may be present in some stands.

Range: This system occurs in the Western Interior Highlands of the Ozark, Ouachita, and western Interior Low Plateau regions.

States: AR, IL, MO, OK

Map Zones: 44:C, 49:P

Similar: Ouachita Novaculite Glade and Woodland (CES202.314), Ozark-Ouachita Dry-Mesic Oak Forest (CES202.708), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313)

Descriptors:

SCS Subregion : Ozark/Ouachita

Major Physiognomy : Woody-Herbaceous

3365: Boreal White Spruce-Fir Forest

Match Confidence: Poor Match

Suggested Match: Western North American Boreal White Spruce Forest

Codes: ESLF: 4290 EVT_fuel: 2365

ESP: 1365 NatureServe Id: CES105.104

BioGeographical Division :

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This ecological system is common throughout interior Alaska and extends south and eastward into adjacent provinces and territories of Canada into western Alberta. The montane *Picea glauca* forests in the Northern Rockies represent the southernmost extent of these expansive boreal forests. The southern limit appears to be related to July mean temperatures exceeding 65 degrees F and maximum of 75 degrees F, and where annual precipitation drops below 38-50 cm (15-20 inches). The landscape is typically rolling hills formed by drumlins, kettle-kame, stabilized dunes, moraines, lacustrine deposits, loess deposits, eskers, and bedrock outcrops and sometimes mountain slopes. This system is composed of multi-aged stands of *Picea glauca* and the subdominants *Betula papyrifera, Populus tremuloides*, and *Picea mariana*. *Picea glauca* associations found in Banff, Jasper, Kootenay and Yoho national parks occur on gentle to moderate slopes and are generally very mature stands. Mature stands are often open-canopied with a well-developed shrub layer. Common understory shrubs include *Rosa acicularis, Viburnum edule, Ledum palustre ssp. decumbens, Ledum groenlandicum, Arctostaphylos uva-ursi, Vaccinium vitis-idaea, Vaccinium uliginosum, Empetrum nigrum, Betula nana*, and *Linnaea borealis*. Common herbaceous species include *Geocaulon lividum, Pyrola* spp., *Equisetum sylvaticum, Equisetum arvense*, and *Mertensia paniculata*. Feathermosses such as *Abietinella abietina, Hylocomium splendens*, and *Pleurozium schreberi* are common in the ground layer (Boggs and Sturdy 2005). The disturbance regime is characterized by large crown fires, though other disturbances, such as insect infestations and blowdown are common.

Range: This sytems is found throughout interior Alaska and extends south and eastward into adjacent provinces and territories of Canada into western Alberta.

States: AK

Map Zones: 68:?, 69, 70, 71, 72, 73, 74, 75, 76.

Similar:

Descriptors:

Landforms :	Kettle
Life Zones :	Lowland
Life Zones :	Lowland
Major Physiognomy :	Forest and Woodland (Tree)
Landforms :	Drumlin
Landforms :	Esker
Life Zones :	Montane
Landforms :	Kame moraine
Floristics/Dominants :	Picea glauca
Landforms :	Loess deposit (undifferentiated)
Landforms :	Moraine
Bioclimate :	Boreal
Disturbance Return Interval :	Very Long
Fire Intensity/Spatial Character :	Landscape/High Intensity
Floristics/Dominants :	Sphagnum spp.
Landforms :	Kame

3366: Laurentian-Acadian Pine-Hemlock Forest

Match Confidence: Solid Match

Suggested Match: Laurentian-Acadian Pine-Hemlock-Hardwood Forest

Codes: ESLF: 4308 EVT_fuel: 2366

ESP: 1366 NatureServe Id: CES201.563

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G741 Laurentian & Acadian Hemlock - White Pine - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the evergreen dominated expression of this Ecological System. This north-temperate forest system ranges from the northeastern U.S. and adjacent Canada west to the Great Lakes and upper Midwest. The mesic to dry-mesic forests usually occur on low-nutrient soils at low elevations, mostly less than 610 m (2000 feet). Canopy dominants include *Pinus strobus, Tsuga canadensis*, and *Quercus rubra* in varying percentages. *Acer rubrum* is also quite common; *Betula lenta* may be common at the southern periphery of this system's range. *Quercus velutina* and *Quercus alba* are essentially absent from this system, being more representative of systems in the Central Interior-Appalachian Division to the south. This is a widespread, matrix forest type for the more temperate portions of this division. Gap replacement and infrequent fire are the major natural regeneration modes.

Range: New England west to the Great Lakes and northern Minnesota.

States: MA, ME, MI, MN, NB, NH, NS, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Appalachian (Hemlock)-Northern Hardwood Forest (CES202.593), Laurentian-Acadian Northern Hardwoods Forest (CES201.564), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719)

Descriptors:

Soil Texture : Loam

Major Physiognomy : Forest and Woodland (Tree)

Topography : High-Low Slope

Glacial History	Glaciated
Soil Fertility	Mesotrophic Soil
Soil pH	Acidic
Soil Depth	Shallow Soil
Life Zones	Lowland
Soil Organic Matter	Mineral: W/A Horizon >10 cm
Floristics/Dominants	Pinus spp. - Tsuga canadensis
Soil Texture	Sand
Soil Moisture (NRCS)	Udic
Disturbance Return Interval	Very Long
Fire Intensity/Spatial Character	Landscape/Medium Intensity
Wind Intensity/Spatial Character	Patch/Medium Intensity
Lifeform	Needle-Leaved Tree
Lifeform	Broad-Leaved Deciduous Tree
Soil Depth	Deep

3367: Ozark-Ouachita Shortleaf Pine Forest and Woodland

Match Confidence: Solid Match

Suggested Match: Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland

Codes: ESLF: 4310 EVT_fuel: 2367

ESP: 1367 NatureServe Id: CES202.313

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this ecological system. This system represents forests and woodlands of the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri in which *Pinus echinata* is an important or dominant component. Although examples of this system occur throughout this region, there is local variation in the extent to which they were present. For example, this system was historically prominent only in the southeastern part of the Ozark Highlands where sandstone derived soils were common, being excluded from or diminished in other areas by inadequate winter precipitation and non-conducive soils. In contrast, pine was virtually ubiquitous in the historical forests of the Ouachitas. In nearly all cases (at least in the Ouachitas), *Pinus echinata* occurs with a variable mixture of hardwood species. The exact composition of the hardwoods is much more closely related to aspect and topographic factors than is the pine component. In some examples of this system, the aggregate importance of hardwoods may be greater than pine, especially on subxeric and mesic sites.

Range: This system occurs in the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri.

States: AR, MO, OK

Map Zones: 44:C

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506), Ouachita Novaculite Glade and Woodland (CES202.314), Ozark-Ouachita Dry Oak Woodland (CES202.707), Ozark-Ouachita Dry-Mesic Oak Forest (CES202.708), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Southern Appalachian Low-Elevation Pine Forest (CES202.332)

Descriptors:

SCS Subregion :	Ozark/Ouachita
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3368: Southern Piedmont Dry Pine Forest

Match Confidence: Good Match

Suggested Match: Southern Piedmont Dry Oak-(Pine) Forest

Codes: ESLF: 4311 EVT_fuel: 2368

ESP: 1368 NatureServe Id: CES202.339

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G165 Piedmont & Central Atlantic Coastal Plain Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this system. This system encompasses the prevailing upland forests of the southern Piedmont. High-quality and historic examples are typically dominated by combinations of upland oaks, sometimes with pines as a significant component, especially in the southern portions of the region. These forests occur in a variety of habitats and, under natural conditions, were the matrix vegetation type covering most of the landscape. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of original oak-hickory forests. Stands of these forests are dominated by combinations of upland oaks, particularly Quercus alba, Quercus rubra, Quercus velutina, Quercus stellata, Quercus coccinea, and *Quercus falcata*, along with *Carya glabra, Carya alba*, and other *Carya* spp. Other common tree species include *Pinus taeda, Pinus echinata, Pinus virginiana, Acer rubrum, Liquidambar styraciflua*, and *Liriodendron tulipifera*.

Range: This system ranges throughout the Piedmont from Alabama to Virginia. In Virginia, it is primarily central and southern, but extends into a narrow portion of northern Virginia in the Piedmont ecoregion.

States: AL, GA, NC, SC, VA

Map Zones: 54:C, 59:C, 60:C, 61:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Southeastern Interior Longleaf Pine Woodland (CES202.319), Southern Appalachian Low-Elevation Pine Forest (CES202.332), Southern Appalachian Montane Pine Forest and Woodland (CES202.331), Southern Piedmont Mesic Forest (CES202.342)

Descriptors:

Lifeform : Broad-Leaved Tree
Lifeform : Needle-Leaved Tree
Major Physiognomy : Forest and Woodland (Tree)

3369: Central Appalachian Dry Pine Forest

Match Confidence: Good Match

Suggested Match: Central Appalachian Dry Oak-Pine Forest

Codes: ESLF: 4312 EVT_fuel: 2369

ESP: 1369 NatureServe Id: CES202.591

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G015 Appalachian Oak / Chestnut Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this ecological system. These oak and oak-pine forests cover large areas in the low- to mid-elevation Central Appalachians and middle Piedmont. The topography and landscape position range from rolling hills to steep slopes, with occasional occurrences on more level, ancient alluvial fans. In the highly dissected fall zone of Maryland and the District of Columbia, where the Piedmont and Coastal Plain meet, it is also found on dry knolls capped with Pleistocene- and Tertiary-aged fluvial cobble and gravel terrace deposits. Soils are typically coarse and infertile; they may be deep (on glacial deposits in the northern and terrace deposits in the southern parts of the system's range), or more commonly shallow, on rocky slopes of acidic rock (shale, sandstone, other acidic igneous or metamorphic rock). The well-drained soils and exposure create dry conditions. The forest is mostly closed-canopy but can include patches of more open woodlands. It is dominated by a variable mixture of dry-site oak and pine species, most typically *Quercus prinus, Pinus virginiana*, and *Pinus strobus*, but sometimes *Quercus alba* and/or *Quercus coccinea*. The system may include areas of oak forest, pine forest (usually small), and mixed oak-pine forest. Heath shrubs such as *Vaccinium pallidum, Gaylussacia baccata*, and *Kalmia latifolia* are common in the understory and often form a dense layer. Embedded submesic ravines and concave landforms support slightly more diverse forests characterized by mixtures of oaks, several hickories, *Cornus florida*, and sometimes *Liriodendron tulipifera*. Small hillslope pockets with impeded drainage may support small isolated wetlands with *Acer rubrum* and *Nyssa sylvatica* characteristic. Disturbance agents include fire, windthrow, and ice damage. Increased site disturbance generally leads to secondary forest vegetation with a greater proportion of *Pinus virginiana* and weedy hardwoods such as *Acer rubrum*.

Range: This system is found from central New England through Pennsylvania and south to the Roanoke

River in southern Virginia. It is primarily Appalachian but overlaps slightly into the upper Piedmont and fall zone in Virginia, Maryland and the District of Columbia.

States: CT, DC, MA, MD, ME, NH, NJ, NY, PA, RI, VA, VT, WV

Map Zones: 57:P, 60:C, 61:C, 63:C, 64:C, 65:C, 66:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central Appalachian Pine-Oak Rocky Woodland (CES202.600), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), Northeastern Interior Dry-Mesic Oak Forest (CES202.592), Northern Atlantic Coastal Plain Hardwood Forest (CES203.475), Southern Appalachian Oak Forest (CES202.886), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339)

Descriptors:

Floristics/Dominants :	Pinus (strobus, rigida, echinata, virginiana) - Quercus p
Lifeform :	Broad-Leaved Tree
Lifeform :	Needle-Leaved Tree
Wind Intensity/Spatial Character :	Patch/Low Intensity
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Soil Texture :	Loam
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil pH :	Acidic
Soil Fertility :	Oligotrophic
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3370: Appalachian Hemlock Forest

Match Confidence: Good Match

Suggested Match: Appalachian (Hemlock)-Northern Hardwood Forest

Codes: ESLF: 4313 EVT_fuel: 2370

ESP: 1370 NatureServe Id: CES202.593

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G742 Appalachian & Allegheny Northern Hardwood - Conifer Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the conifer dominated expression of this ecological system. This forested system of the northeastern U.S. ranges from central New England west to Lake Erie and south to the higher elevations of Virginia and West Virginia. It is one of the matrix forest types in the northern part of the Central Interior and Appalachian Division. Northern hardwoods such as *Acer saccharum, Betula alleghaniensis*, and *Fagus grandifolia* are characteristic, either forming a deciduous canopy or mixed with *Tsuga canadensis* (or in some cases *Pinus strobus*). Other common and sometimes dominant trees include *Quercus* spp. (most commonly *Quercus rubra*), *Liriodendron tulipifera, Prunus serotina*, and *Betula lenta*. It is of more limited extent and more ecologically constrained in the southern part of its range, in northern parts of Virginia and West Virginia.

Range: This system is found from central New England south to Virginia and West Virginia, and probably in adjacent Kentucky.

States: CT, KY?, MA, MD, ME?, NH, NJ, NY, OH?, PA, VA, VT, WV

Map Zones: 53:C, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar: Laurentian-Acadian Northern Hardwoods Forest (CES201.564), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563), North-Central Interior Beech-Maple Forest (CES202.693), South-Central Interior Mesophytic Forest (CES202.887), Southern Appalachian Northern Hardwood Forest (CES202.029), Southern and Central Appalachian Cove Forest (CES202.373)

Descriptors:

Soil Depth : Deep

Major Physiognomy : Forest and Woodland (Tree)

Topography	: High-Low Slope
Topography	: Toeslope/Bottom/Valley
Bioclimate	: Temperate
Soil Fertility	: Mesotrophic Soil
Life Zones	: Lowland
Soil Depth	: Shallow Soil
Temporal Persistence	: Moderate (100-500 yrs)
Soil Organic Matter	: Mineral: W/A Horizon >10 cm
Soil Moisture (NRCS)	: Ustic
Disturbance Return Interval	: Long
Lifeform	: Needle-Leaved Tree
Lifeform	: Broad-Leaved Deciduous Tree
Floristics/Dominants	: Pinus spp. - Tsuga canadensis
Soil pH	: Acidic

3371: West Gulf Coastal Plain Pine Forest

Match Confidence: Unmatched

Suggested Match: West Gulf Coastal Plain Pine-Hardwood Forest

Codes: ESLF: 4314 EVT_fuel: 2371

ESP: 1371 NatureServe Id: CES203.378

BioGeographical Division :

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this ecological system - West Gulf Coastal Plain Pine-Hardwood Forest (CES203.378). This West Gulf Coastal Plain ecological system consists of forests and woodlands dominated by *Pinus taeda* and/or *Pinus echinata* in combination with a variety of dry to dry-mesic site hardwood species. This type was the historical matrix vegetation (dominant vegetation type) for large portions of the West Gulf Coastal Plain landward of the range of *Pinus palustris*, where it replaced *Pinus palustris*-dominated vegetation. In this region of southern Arkansas, northwestern Louisiana, and parts of eastern Texas, this type was historically present on nearly all uplands in the region except on the most edaphically limited sites (droughty sands, calcareous clays, and shallow soil barrens/rock outcrops). Such sites are underlain by loamy to fine-textured soils of variable depths. These are upland sites on ridgetops and adjacent sideslopes, with moderate fertility and moisture retention. This type was also present in more limited areas within the range of *Pinus palustris* (in the West Gulf Coastal Plain), where it was confined more typically to sideslopes and other locations not dominated by *Pinus palustris*. There are no known "Fidel" herbaceous species or any local endemic or globally rare plant species, and overall this system may have supported relatively low levels of vascular plant species diversity. This system has undergone major transformations since European settlement of the region.

Range: This system is restricted to the West Gulf Coastal Plain of Arkansas, Louisiana and Texas.

States: AR, LA, TX

Map Zones: 37, 44

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3372: East Gulf Coastal Plain Interior Shortleaf Pine Forest

Match Confidence: Good Match

Suggested Match: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest

Codes: ESLF: 4315 EVT_fuel: 2372

ESP: 1372 NatureServe Id: CES203.506

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this Ecological System. This forested ecological system of the East Gulf Coastal Plain occurs most extensively on generally rolling uplands north of the range of *Pinus palustris*. It was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude (the approximate local northern limit of the historic range of *Pinus palustris*), and about 35 degrees N latitude (the approximate limit where relatively extensive examples of *Pinus echinata* are replaced by predominantly hardwood-dominated systems, although isolated examples of this system may occur both north and south of these boundaries in limited areas. Stands tend to occur on generally well-drained sandy or clayey soils with dry to dry-mesic moisture regimes. *Pinus echinata* is the dominant pine species of the generalized "dry and dry-mesic oak-pine" forest type in the Gulf Coastal Plain (White and Lloyd 1998) and is the most characteristic floristic component of this system. The actual amount of *Pinus echinata* present varies based on a number of factors, but intact examples of this system often include stands that are dominated by *Pinus echinata* grading into stands with a mixture of upland hardwoods. Locally, on mid to lower slopes, *Pinus taeda* may be a component, extending further upslope in the absence of fire. Fire is possibly the most important natural process affecting the floristic composition and vegetation structure of this system, although fire-return intervals are lower than those associated with the ~East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496)$$. *Pinus echinata* may have difficulty replacing itself in the absence of fire, particularly on sites other than the driest ones. Landers (1989) inferred a fire-return interval of 10 times per century for *Pinus echinata*. Local topographic conditions affecting natural fire compartment size generally lend themselves to this fire frequency, although some examples may have more frequent fires and some less than this generalized value. Where fire is most frequent the system may develop a relatively pure canopy of *Pinus echinata*

typified by a very open woodland structure with scattered overstory trees and an herbaceous-dominated understory; such examples are rare on the modern landscape. More typical are areas in which *Quercus* spp., *Carya* spp., *Liquidambar styraciflua, Liriodendron tulipifera, Acer* spp., and *Nyssa sylvatica* have become prominent in the midstory and even overstory and in which herbaceous patches are rare. Although the general distributional boundaries described above indicate where this system formed an historical landscape matrix, smaller patches of the system may also be present in limited areas both north and south of these boundaries. Although Lawson (1990) maps the native range of shortleaf throughout a relatively large area of western Tennessee, the actual distribution of the species appears to be much more confined and almost absent from the Coastal Plain (Chester et al. 1993); when present, it occurs in only small stands on dry southwestern aspects.

Range: This system is restricted to the East Gulf Coastal Plain; it was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude and about 35 degrees N latitude. In southwestern Mississippi, this system is apparently dominant on the landscape west of 91 degrees W longitude to the limits of the alluvial plain and northwest of a line running approximately from the intersection of 31 degrees N latitude and 91 degrees W longitude, northeastward to the city of Jackson, Mississippi, extending at least to about 34 degrees N latitude. This is consistent with the ranges of Oak-Pine vegetation (generally equivalent to this system) versus Longleaf-Loblolly-Slash Pines in Shantz and Zon (1924).

States: AL, MS, TN?

Map Zones: 46:C, 47:?, 99:C

Similar: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496), East Gulf Coastal Plain Northern Dry Upland Hardwood Forest (CES203.483), East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland (CES203.482), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313)

Descriptors:

Disturbance Return Interval : Short
Major Physiognomy : Forest and Woodland (Tree)

3373: Acadian Low-Elevation Spruce-Fir Forest

Match Confidence: Good Match

Suggested Match: Acadian Low-Elevation Spruce-Fir-Hardwood Forest

Codes: ESLF: 4316 EVT_fuel: 2373

ESP: 1373 NatureServe Id: CES201.565

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G744 Northern Appalachian & Acadian Red Spruce - Fir - Hardwood Fores

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the conifer dominated expression of this ecological system. forests are dominated by *Picea rubens* and *Abies balsamea*. *Picea mariana* and *Picea glauca* may be present. *Betula alleghaniensis* is the most common codominant, and *Acer rubrum, Acer saccharum*, and *Fagus grandifolia* are sometimes present. The upland soils are acidic and usually rocky, mostly well- to moderately well-drained but with some somewhat poorly drained patches at the slope bottoms. This is the matrix forest type in the lower-elevation northern portions of this division. This system may include earlier successional patches in which *Populus* spp. and *Betula* spp. are dominant or mixed with *Picea* and *Abies* that will develop into spruce-fir forests. Blowdowns with subsequent gap regeneration are the most frequent form of natural disturbance, with large-scale fires important at longer return intervals.

Range: This system is found in northern New England, northern New York and adjacent Canada and is occasional southwards.

States: ME, NB, NH, NY, PA, QC?, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Acadian Sub-boreal Spruce Flat (CES201.562), Boreal Aspen-Birch Forest (CES103.020), Laurentian-Acadian Northern Hardwoods Forest (CES201.564)

Descriptors:

Soil Texture : Loam

Major Physiognomy : Forest and Woodland (Tree)

Topography : High-Low Slope

Topography	Toeslope/Bottom/Valley
Glacial History	Glaciated
Soil Fertility	Mesotrophic Soil
Soil Fertility	Oligotrophic
Life Zones	Lowland
Soil Organic Matter	Mineral: W/A Horizon >10 cm
Temporal Persistence	Moderate (100-500 yrs)
Soil Texture	Sand
Soil Moisture (NRCS)	Udic
Disturbance Return Interval	Long
Wind Intensity/Spatial Character	Patch/Medium Intensity
Lifeform	Needle-Leaved Tree
Floristics/Dominants	Picea (glauca, mariana, rubens) - Abies
Soil pH	Acidic

3374: Acadian-Appalachian Montane Spruce-Fir Forest

Match Confidence: Direct Match

Suggested Match: Acadian-Appalachian Montane Spruce-Fir Forest

Codes: ESLF: 4317 EVT_fuel: 2374

ESP: 1374 NatureServe Id: CES201.566

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G744 Northern Appalachian & Acadian Red Spruce - Fir - Hardwood Fores

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the matrix forest system in the montane spruce-fir region of the northern Appalachian Mountains, extending east through the Canadian Maritimes. It occurs mostly upwards of 457 m (1500 feet) elevation and is restricted to progressively higher elevations southward. Northward, it is often contiguous with ~Acadian Low-Elevation Spruce-Fir-Hardwood Forest (CES201.565)$$. This system often forms a mosaic of strongly coniferous patches and mixed patches, with occasional smaller inclusions of northern hardwoods, but is overall more than 50% coniferous. *Picea rubens* and *Abies balsamea* are the dominant conifers. Gaps formed by wind, snow, ice, and harvesting are the major replacement agents; fires may be important but only over a long return interval.

Range: This system is found at higher elevations of northern New England and the Adirondacks, extending north along the mountains and higher hills into Canada and occurring southward in the Catskills.

States: MA, ME, NH, NY, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Acadian-Appalachian Subalpine Woodland and Heath-Krummholz (CES201.568), Central and Southern Appalachian Spruce-Fir Forest (CES202.028)

Descriptors:

Soil Texture : Loam

Major Physiognomy : Forest and Woodland (Tree)

Topography : High Ridge/Upper Slope

Glacial History : Glaciated

Soil Fertility : Mesotrophic Soil

Soil Fertility :	Oligotrophic
Life Zones :	Montane
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Udic
Disturbance Return Interval :	Long
Wind Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Tree
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Soil pH :	Acidic

3375: Eastern Serpentine Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4318 EVT_fuel: 2375

ESP: 1375 NatureServe Id: CES202.347

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M506 Appalachian Rocky Felsic & Mafic Scrub & Grassland

NVC Group: G180 Appalachian Mafic Glade

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system consists of distinct vegetation associated with ultramafic rock substrates in the Piedmont and Blue Ridge of the eastern United States. Most examples are open woodlands with *Pinus rigida, Pinus virginiana*, and/or *Quercus alba, Quercus marilandica*, and *Quercus stellata* in the often stunted canopy. Extreme edaphic conditions lead to locally xerophytic growing conditions that contribute to relatively open canopies and a ground cover dominated by prairie grasses and a variety of forbs. Disjunct species from drier regions and some endemic plant taxa are often present. The unusual and extreme soil chemistry determines the underlying floristics and distinctive flora of the type, but that fire frequency determines the physiognomy of particular examples over time.

Range: This system is widely scattered throughout the southern and central Appalachians and Piedmont, from Pennsylvania to North Carolina.

States: MD, NC, PA, VA

Map Zones: 57:C, 59:C, 60:C, 61:C

Similar:

Descriptors:

Specialized Substrate Chemistry :	Ultramafic with low Ca:Mg ratio
Glacial History :	Unglaciated
Specialized Substrates :	Serpentine
Specialized Substrates :	Rock Outcrops/Barrens/Glades
Major Physiognomy :	Forest and Woodland (Tree)

3376: Southern Ridge and Valley/Cumberland Dry Calcareous Forest

Match Confidence: Solid Match

Suggested Match: Southern Ridge and Valley / Cumberland Dry Calcareous Forest

Codes: ESLF: 4319 EVT_fuel: 2376

ESP: 1376 NatureServe Id: CES202.457

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G016 Northeastern Chinkapin Oak - Red-cedar Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system includes dry to dry-mesic calcareous forests of the Southern Ridge and Valley region of Alabama and Georgia, extending north into Tennessee, Kentucky, Virginia and adjacent West Virginia. It includes calcareous forests on lower escarpments of the Cumberland Plateau and other related areas. Examples occur on a variety of different landscape positions and occur on generally deeper soils than glade systems of the same regions. This system is distinguished from those farther north in the Ridge and Valley because of its southerly location in the region, an area which is transitional to the "Oak-Pine-Hickory" region. High-quality and historic examples are typically dominated by combinations of *Quercus* species and *Carya* species, sometimes with *Pinus* species and/or *Juniperus virginiana* as a significant component in certain landscape positions and with particular successional histories. These forests occur in a variety of habitats and are the matrix vegetation type that covers most of the landscape under natural conditions. Examples can occur on a variety of topographic and landscape positions including ridgetops and upper and midslopes. Fire frequency and intensity are factors determining the relative mixture of deciduous hardwood versus evergreen trees in this system. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of the original forests. The range of this system is primarily composed of circumneutral substrates, which exert an expected influence on the composition of the vegetation.

Range: This systems is endemic to the Southern Ridge and Valley and the Cumberland Plateau escarpment in Alabama, Georgia, Tennessee, Kentucky, Virginia and adjacent West Virginia.

States: AL, GA, KY, TN, VA, WV

Map Zones: 48:C, 53:C, 57:C, 61:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central Appalachian Alkaline Glade and Woodland (CES202.602), Central Interior Highlands Calcareous Glade and Barrens (CES202.691), Southern Ridge and Valley Calcareous Glade and Woodland (CES202.024)

Descriptors:

Lifeform : Broad-Leaved Tree
Soil pH : Circumneutral
Major Physiognomy : Forest and Woodland (Tree)

3377: Central Appalachian Rocky Pine Woodland

Match Confidence: Good Match

Suggested Match: Central Appalachian Pine-Oak Rocky Woodland

Codes: ESLF: 4320 EVT_fuel: 2377

ESP: 1377 NatureServe Id: CES202.600

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G161 Pitch Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses open or patchily wooded hilltops and outcrops or rocky slopes in the Central Appalachians, High Allegheny Plateau, and Lower New England / Northern Piedmont. It occurs mostly at lower elevations, but occasionally up to 1220 m (4000 feet) in West Virginia. The substrate rock is generally granitic or of other acidic lithology, although near the northern limit of its range in New England, examples can also occur on intermediate, base-rich, or mafic bedrock including traprock. The vegetation is patchy, with woodland as well as open portions. *Pinus rigida* (and within its range *Pinus virginiana*) is diagnostic and often mixed with xerophytic *Quercus* spp. and sprouts of *Castanea dentata*. In New England, some examples lack pine and feature *Juniperus virginiana* or *Ostrya virginiana* as important codominants with oak. Some areas have a fairly well-developed heath shrub layer, others a graminoid layer, the latter particularly common under oaks or other deciduous trees. Conditions are dry and for the most part nutrient-poor, and at many, if not most, sites, a history of fire is evident. In the Central Appalachians ecoregion, this system is rarely found on sandy soils rather than rock.

Range: This system occurs from central New England south to Virginia and West Virginia, with peripheral occurrences in southeastern Ohio and easternmost Kentucky.

States: CT, KY, MA, MD?, ME, NH, NJ, NY, OH, PA, VA, VT, WV

Map Zones: 53:C, 57:P, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar: Appalachian Shale Barrens (CES202.598), Central Appalachian Dry Oak-Pine Forest (CES202.591), Northern Appalachian-Acadian Rocky Heath Outcrop (CES201.571), Southern Appalachian Montane Pine Forest and Woodland (CES202.331)

Descriptors:

Soil Depth :	Shallow Soil
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Woody-Herbaceous
Topography :	High Ridge/Upper Slope
Bioclimate :	Temperate
Life Zones :	Lowland
Soil pH :	Acidic
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Ustic
Substrate Consolidation :	Consolidated
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Floristics/Dominants :	Pinus (strobus, rigida, echinata, virginiana) - Quercus p
Soil Fertility :	Oligotrophic

3378: West Gulf Coastal Plain Sandhill Shortleaf Pine Forest and Woodland

Match Confidence: Unmatched

Suggested Match: West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest and Woodlan

Codes: ESLF: 4321 EVT_fuel: 2378

ESP: 1378 NatureServe Id: CES203.056

BioGeographical Division :

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This represents the pine dominated expression of this Ecological System. This ecological system occurs west of the Mississippi River primarily outside the natural range of longleaf pine (*Pinus palustris*) and less commonly within this range. Like other sandhill systems of the Gulf and Atlantic coastal plains, this type is found on uplands underlain with deep, coarse sandy soils. These sites are typified by low fertility and moisture retention, which contribute to open tree canopies with usually less than 60% canopy closure. Sparse understory vegetation and abundant patches of bare soil are indicative of this system. Vegetation indicators are species tolerant of droughty sites, especially *Quercus incana* and *Quercus arkansana*, but also *Quercus marilandica* and *Quercus stellata*. *Pinus echinata* is usually present, and *Pinus palustris* is absent (or perhaps at low frequency within its range). This system supports a large concentration of vascular plant endemics, near endemics, and a number of plant species with high fidelity to sandhills in the region. Elsewhere in the Atlantic and Gulf coastal plains, including most of the adjacent outer West Gulf Coastal Plain ecoregion, these site conditions are closely associated with longleaf pine. Classification Comments: In Arkansas (at least), this system is most closely affiliated with the "Briley-Alaga-Bibb" Soil Association (MUID=AR039 in STATSGO).

Range: This system occurs west of the Mississippi River primarily outside the natural range of longleaf pine (*Pinus palustris*).

States: AR, LA, TX.

Map Zones: 37

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3379: Northern Atlantic Coastal Plain Maritime Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4322 EVT_fuel: 2379

ESP: 1379 NatureServe Id: CES203.302

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G495 North Atlantic Maritime Scrub Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses a range of woody vegetation present on barrier islands and near-coastal strands, from Virginia Beach, the northern range limit of *Quercus virginiana*, northward to the extent of the Atlantic Coastal Plain. It includes forests and shrublands whose structure and composition are influenced by proximity to marine environments, including both upland and wetlands. Vegetation includes narrow bands of forests with often stunted trees with contorted branches and wilted leaves and dense vine layers (Edinger et al. 2002). A range of trees may be present depending upon actual location and degree of protection from most extreme maritime influences.

Range: This system ranges from Virginia Beach northward to the extent of the Atlantic Coastal Plain.

States: DE, MA, MD, NJ, NY, VA

Map Zones: 60:C, 65:C

Similar: Central Atlantic Coastal Plain Maritime Forest (CES203.261), Northern Atlantic Coastal Plain Dune and Swale (CES203.264)

Descriptors:

Landforms : Coast
Major Physiognomy : Forest and Woodland (Tree)

3380: East Gulf Coastal Plain Maritime Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4323 EVT_fuel: 2380

ESP: 1380 NatureServe Id: CES203.503

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G798 Coastal Live Oak - Hickory - Palmetto Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system encompasses a mosaic of woody vegetation present on barrier islands and near-coastal strands along the northern Gulf of Mexico, from the Florida panhandle to southern Mississippi. Examples may include forests and/or shrublands that are found in somewhat more protected environments than ~East Gulf Coastal Plain Dune and Coastal Grassland (CES203.500)$$. Such areas include relatively stabilized coastal dunes, sometimes with a substantial shell component. Vegetation structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast. Stands may be dominated by a variety of needle-leaved and broad-leaved evergreen trees, including *Pinus clausa, Pinus elliottii var. elliottii, Pinus palustris, Quercus virginiana, Sabal palmetto, Carya glabra*, and *Carya pallida*. Wetland inclusions may be dominated by *Taxodium ascendens* and *Magnolia virginiana*. The most heavily salt-influenced examples may appear pruned or sculpted.

Range: This system is found along the northern Gulf of Mexico, from the Florida panhandle to southern Mississippi, restricted to the most coastward part of the "Gulf Coast Flatwoods" (Ecoregion 75a of EPA (2004)).

States: AL, FL, MS

Map Zones: 55:C, 99:C

Similar: East Gulf Coastal Plain Dune and Coastal Grassland (CES203.500)

Descriptors:

SCS Subregion : East Gulf Coastal Plain

Landforms : Coast

3381: Lower Mississippi River Dune Woodland and Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4324 EVT_fuel: 2381

ESP: 1381 NatureServe Id: CES203.531

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents the vegetation of sand dunes and related eolian features of the lower Mississippi River Alluvial Valley in Missouri and Arkansas. These Pleistocene dunes were overlooked or unrecognized until the late 1970s (Saucier 1978). This fact coupled with long periods of weathering and human disturbance, as well as proximity to a terrace mapped as "prairie" in General Land Office records, has led to considerable confusion regarding this type (T. Foti pers. comm.). These dunes are west of Crowley's Ridge and near the Black and White rivers, above the normal flood level of the Mississippi. Examples in Missouri occur amidst a series of low-lying, anastomosing channels that have helped to protect them from extensive alteration more typical in Arkansas where the uplands have been largely cleared. The uppermost portions of the dunes support a xeric community similar to sandhills of the West Gulf Coastal Plain (WGCP), but are outside the natural range of *Quercus incana*, a diagnostic species typical of the WGCP examples. Instead the dunes support very open *Quercus stellata* woodlands with *Schizachyrium scoparium* and abundant lichen cover (presumably *Cladonia* spp.), along with *Opuntia* sp. Less edaphically extreme slopes support more closed-canopied forests in which *Quercus stellata* is still important, along with *Quercus falcata* and possibly other species. In many instances, distinctive wetlands imbedded within this system are also present (~Lower Mississippi River Dune Pond (CES203.189)$$). Called "sand ponds" in Arkansas, these depressions have silty bottoms and perched water tables. The margins of these ponds are rimmed by *Quercus phellos* and have *Quercus lyrata* (Heineke 1987).

Range: Lower Mississippi River Alluvial Valley in Missouri (Ripley County, Sand Ponds Natural Area) and Arkansas. In Arkansas, examples occur in Clay, Jackson, Lawrence, and Woodruff counties.

States: AR, MO

Map Zones: 45:C

Similar: Crowley's Ridge Sand Forest (CES203.072)

Descriptors:

Soil Texture :	Sand
Specialized Substrates :	Dune
Major Physiognomy :	Forest and Woodland (Tree)

3382: Southern Atlantic Coastal Plain Maritime Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4325 EVT_fuel: 2382

ESP: 1382 NatureServe Id: CES203.537

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G798 Coastal Live Oak - Hickory - Palmetto Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system encompasses a range of woody vegetation present on stabilized upland dunes of barrier islands and near-coastal strands, from central South Carolina (approximately Cooper River) southward to approximately Volusia County, Florida. It includes vegetation whose structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast. Examples are known from the barrier islands of Georgia and Florida, such as Big Talbot Island, Florida, and probably Sapelo Island, Georgia. Most typical stands are dominated by oaks, primarily *Quercus virginiana* and/or *Quercus geminata*. Vegetation may also include different woodland communities often dominated by southern pine species. *Pinus palustris, Pinus serotina*, and *Pinus elliottii var. elliottii* are all important in documented examples. These examples tend to have densely shrubby subcanopies and understories with species such as *Quercus virginiana, Quercus geminata, Quercus hemisphaerica, Quercus chapmanii, Quercus myrtifolia*, and *Magnolia grandiflora*. Unlike maritime vegetation to the north, this system may be more heavily influenced by natural fire regimes that may help to explain the predominance of the fire-tolerant pine species. It has been postulated that the natural fire frequency is from 20-30 years.

Range: This system occurs from central South Carolina (Cooper River) southward to approximately Volusia County, Florida (ca. 28 degrees 30 minutes N latitude).

States: FL, GA, SC

Map Zones: 55:C, 58:C

Similar: Central Atlantic Coastal Plain Maritime Forest (CES203.261), Southern Atlantic Coastal Plain Dune and Maritime Grassland (CES203.273)

Descriptors:

Landforms : Coast
Major Physiognomy : Forest and Woodland (Tree)

3383: Edwards Plateau Limestone Woodland

Match Confidence: Good Match

Suggested Match: Edwards Plateau Limestone Savanna and Woodland

Codes: ESLF: 4326 EVT_fuel: 2383

ESP: 1383 NatureServe Id: CES303.660

BioGeographical Division : Western Great Plains

NVC MacroGroup: M015 Comanchian Forest & Woodland

NVC Group: G126 Southern Plateau Dry Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This upland system occurs primarily on limestone soils in the Edwards Plateau and forms the matrix within this ecoregion. It can also occur on limestone in the shortgrass regions of Texas and north into Oklahoma in areas such as the Arbuckle Mountains. This system is typified by a mosaic of evergreen oak forests, woodlands and savannas over shallow soils of rolling uplands and upper slopes within the Edwards Plateau and Lampasas Cutplain. *Quercus fusiformis* or *Juniperus ashei* typically dominate the canopy of this system. Other species may include *Quercus buckleyi, Quercus laceyi, Quercus stellata, Ulmus crassifolia, Fraxinus texensis, Quercus sinuata, Quercus vaseyana*, and *Diospyros texana*. Physiographic expression of this system varies from dense mottes (patches of forest where canopy cover approaches 100%) interspersed with grasslands to open savannalike woodlands with scattered individual or small groups of trees. Understories can contain various shrubs and graminoids, including *Cercis canadensis var. texensis, Forestiera pubescens, Sideroxylon lanuginosum, Diospyros texana, Rhus trilobata, Bouteloua* spp., *Schizachyrium scoparium, Nassella leucotricha, Carex planostachys, Aristida purpurea, Aristida oligantha, Liatris mucronata, Stillingia texana, Symphyotrichum ericoides, Hedyotis nigricans, Monarda citriodora*, and *Salvia texana*. Grasslands dominated by *Schizachyrium scoparium* occur in small patches within more closed woodlands and in larger patches between mottes or in open savannalike woodlands with scattered trees. Grasslands in this system tend to grade from shortgrass communities in the west to mixedgrass communities to the east. Substrate (limestone) determines the range of this system within given examples. Some disturbed areas of the western plateau are now dominated by mesquite woodland. Natural mesquite woodlands are believed to have occurred on the deeper soils of adjacent riparian systems.

Range: This system is found primarily within the Edwards Plateau ecoregion but can extend north into

Oklahoma and into portions of the Southern Shortgrass region of Texas.

States: OK, TX

Map Zones: 34:?, 35:C

Similar: Edwards Plateau Dry-Mesic Slope Forest and Woodland (CES303.656), Edwards Plateau Limestone Shrubland (CES303.041), Llano Uplift Acidic Forest, Woodland and Glade (CES303.657)

Descriptors:

Soil Moisture (NRCS) :	Ustic
Specialized Substrate Chemistry :	Calcareous
Soil pH :	Alkaline
Glacial History :	Unglaciated
Bioclimate :	Temperate
Specialized Substrates :	Sedimentary Rock
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)

3384: Mississippi Delta Maritime Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4327 EVT_fuel: 2384

ESP: 1384 NatureServe Id: CES203.513

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M885 Southeastern Coastal Plain Evergreen Oak & Mixed Hardwood Fores

NVC Group: G798 Coastal Live Oak - Hickory - Palmetto Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system includes forests on barrier islands and spits formed during the deltaic shifts of the Mississippi River. It also includes the woody vegetation of salt domes in the Mississippi River deltaic plain. Since natural deltaic processes have been altered, barrier island are no longer being formed in the Mississippi Delta region and existing barrier islands are undergoing subsidence and beach erosion. This system currently includes one forested beach ridge located at Grande Isle in Louisiana.

Range: This system is found on barrier islands and spits formed during the deltaic shifts of the Mississippi River, including one forested beach ridge located at Grande Isle in Louisiana. It is apparently restricted to Louisiana.

States: LA

Map Zones: 98:C

Similar:

Descriptors:

Landforms : Coast
Major Physiognomy : Forest and Woodland (Tree)

3385: Western Great Plains Wooded Draw and Ravine

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4328 EVT_fuel: 2385

ESP: 1385 NatureServe Id: CES303.680

BioGeographical Division : Western Great Plains

NVC MacroGroup: M151 Northern Great Plains Woodland

NVC Group: G145 Northern & Central Great Plains Mesic Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This ecological system is typically found associated with permanent or ephemeral streams and may occur on steep northern slopes or within canyon bottoms that do not experience periodic flooding, although soil moisture and topography allow greater than normal moisture conditions compared to the surrounding areas. Occurrences can be either tree-dominated or predominantly shrubland. *Fraxinus* spp. with *Ulmus rubra* or *Ulmus americana* typically dominate this system, although in some areas of the western Great Plains steppe province, *Juniperus scopulorum* can dominate the canopy. *Populus tremuloides, Betula papyrifera*, or *Acer negundo* are commonly present in portions of the northwestern Great Plains, for example in areas of central and eastern Montana. In south-central portions of the Great Plains, *Quercus macrocarpa* can also be present. Component shrubs can include *Cornus sericea, Crataegus douglasii, Crataegus chrysocarpa, Crataegus succulenta, Elaeagnus commutata, Prunus virginiana, Rhus* spp., *Rosa woodsii, Shepherdia argentea, Symphoricarpos occidentalis*, or *Viburnum lentago*. Common grasses can include *Calamagrostis stricta, Carex* spp., *Pascopyrum smithii, Piptatherum micranthum, Pseudoroegneria spicata*, or *Schizachyrium scoparium*. This system was often subjected to heavy grazing and trampling by both domestic animals and wildlife and can be heavily degraded in some areas. In addition, exotic species such as *Ulmus pumila* and *Elaeagnus angustifolia* can invade these systems.

Range: This system is found throughout more northern portions of the Western Great Plains Division. In Wyoming, it occurs in the northeastern foothills of the Bighorns and across far-northeastern Wyoming into the northern fringes of the Black Hills.

States: CO, KS, MT, ND, NE, OK, SD, TX, WY

Map Zones: 20:C, 27:P, 28:P, 29:C, 30:C, 31:C, 33:C, 34:C, 35:?, 38:C, 39:C, 40:C, 43:C

Similar:

Descriptors:

Grazing Intensity/Spatial Character :	Patch/Medium Intensity
Landforms :	Ravine
Landforms :	Draw
Major Physiognomy :	Forest and Woodland (Tree)

3386: Acadian-Appalachian Alpine Tundra

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5210 EVT_fuel: 2386

ESP: 1386 NatureServe Id: CES201.567

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M131 Eastern North American Alpine Shrub & Grassland

NVC Group: G104 Eastern Alpine Dwarf-Shrub - Herb Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Mixed evergreen-deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Na Eastern North American Alpine Dwarf-Shrub & Grassland

Summary: Restricted to the Northern Appalachians and the Gaspe Peninsula, this system encompasses vegetation above treeline on northeastern mountains. Wind, snow, and cloud-cover fog are prominent environmental factors. Most of the cover is dwarf-shrubland, lichen, or sparse vegetation; islands of taller shrubs may occur in protected spots. The dominant plants are ericads (*Vaccinium uliginosum* is diagnostic and often dominant, with several other alpine-restricted ericads such as *Phyllodoce caerulea* and *Loiseleuria procumbens*) and cushion-plants such as *Diapensia lapponica*. *Carex bigelowii* is a characteristic and, in some places, locally dominant sedge. This system includes wetland depressions, small alpine bogs, within the surrounding upland matrix.

Range: This system is found at higher summits of the northern Appalachian Mountains, from northern New England and the Adirondacks into the Canadian GaspÃ©.

States: ME, NH, NY, QC, VT

Map Zones: 64:C, 66:C

Similar:

Descriptors:

Soil Moisture (NRCS)	: Udic
Major Physiognomy	: Shrubland (Shrub)
Major Physiognomy	: Moss/Lichen (Non-Vascular)
Topography	: High Ridge/Upper Slope
Glacial History	: Glaciated

Soil Fertility :	Oligotrophic
Soil pH :	Acidic
Life Zones :	Alpine
Soil Moisture (NRCS) :	Aquic
Temporal Persistence :	Long (> 500 yrs)
Substrate Consolidation :	Consolidated
Mass Movement Type :	Landslide
Wind Intensity/Spatial Character :	Landscape/High Intensity
Lifeform :	Dwarf-Shrub
Lifeform :	Graminoid
Lifeform :	Lichen
Soil Depth :	Very Shallow

3387: Florida Peninsula Inland Scrub Shrubland

Match Confidence: Solid Match

Suggested Match: Florida Peninsula Inland Scrub

Codes: ESLF: 5318 EVT_fuel: 2387

ESP: 1387 NatureServe Id: CES203.057

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M162 Florida Peninsula Scrub & Herb

NVC Group: G177 Florida Xeric Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system appears in many forms, but generally consists of xeromorphic shrub vegetation (mostly oak species) with or without an emergent overstory of *Pinus clausa* (sand pine). Ground cover is always sparse, and bare soil patches are typically evident. It is found on a sequence of sand ridges and ancient dune fields which are oriented essentially north-south in the Florida Peninsula. This system has long been noted for its unique and interesting vegetation by authors such as Vignoles (1823), Harper (1914), Mulvania (1931), Kurz (1942), and Laessle (1958, 1968). More recent treatments by Myers (1990) and Menges (1999) have provided the most comprehensive summaries of scrub available. According to Harper (1927), "the nearly pure white sand of the ground surface, when viewed from a short distance, gives the impression of a thin rift of wind-driven snow. The vegetation is mostly dwarfed, gnarled and crooked, and presents a tangled, scraggly aspect." The appearance, floristics, and boundary of Florida scrub contrast dramatically with the "high pine" or sandhill vegetation which is often adjacent (Laessle 1968).

Range: This system is endemic to the Florida Peninsula. It is most common in two discrete islands or patches, the Big Scrub of Ocala and the Lake Wales Ridge.

States: FL

Map Zones: 55:C, 56:C

Similar:

Descriptors:

Lifeform : Needle-Leaved Tree

Fire Intensity/Spatial Character : Patch/High Intensity

Soil Moisture (NRCS) : Xeric
Major Physiognomy : Forest and Woodland (Tree)

3389: Acadian-Appalachian Subalpine Woodland

Match Confidence: Good Match

Suggested Match: Acadian-Appalachian Subalpine Woodland and Heath-Krummholz

Codes: ESLF: 5320 EVT_fuel: 2389

ESP: 1389 NatureServe Id: CES201.568

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M131 Eastern North American Alpine Shrub & Grassland

NVC Group: G087 Eastern Subalpine Shrub - Herb Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Na Eastern North American Alpine Dwarf-Shrub & Grassland

Summary: This system encompasses vegetation of varying physiognomy at upper elevations, near and slightly above treeline, in the northeastern U.S. and adjacent Canada. It may be a zone between montane spruce-fir forest and alpine systems or may cover the ridgelines and summits of lower mountains. In the Appalachians it occurs mostly above 915 m (3000 feet) elevation but can be at much lower elevations near the Atlantic Coast. Trees become progressively stunted as exposure increases, with *Picea rubens* being replaced by *Picea mariana* in a stunted form. Vegetation structure ranges from woodland to shrubland to sparsely vegetated dwarf-shrubs and herbs. Woodlands may be locally extensive, and patches of open rock support areas of shrub, dwarf-shrub or sparse vegetation. In the subalpine zone, shrublands may be extensive on the upper slopes, forming krummholz or, in somewhat more protected spots, deciduous shrub thickets. Ericads, including *Kalmia angustifolia, Ledum groenlandicum*, and *Vaccinium uliginosum*, are the most characteristic shrubs; *Empetrum nigrum* and *Empetrum eamesii ssp. atropurpureum (= Empetrum atropurpureum)* are indicative of the subalpine zone. *Vaccinium boreale* occurs rarely but is diagnostic where it is present. Subalpine fens are included here: these are heath-dominated and graminoid-dominated fens, often occurring in a mosaic surrounded by other subalpine vegetation. They are on gentle slopes (usually about 10%), usually at 732 to 915 m (2400-3000 feet) elevation. *Calamagrostis pickeringii* is dominant and characteristic in the graminoid fens, with northern sedges such as *Carex michauxiana, Carex wiegandii, Carex exilis*, etc. The montane heath fens contain *Alnus viridis ssp. crispa (= Alnus crispa), Nemopanthus mucronatus*, and ericads. Peat accumulation is in the range of 10-50 cm. Occurrences are usually about 5 acres in size but range up to about 20 acres.

Range: This system is found on the higher summits of the northern Appalachian mountains, from northern New England and the Adirondacks into the Canadian GaspÃ©, extending south in scattered

locations into southern New England.

States: ME, NB, NH, NY, QC, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Acadian-Appalachian Montane Spruce-Fir Forest (CES201.566), Northern Appalachian-Acadian Rocky Heath Outcrop (CES201.571)

Descriptors:

Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Life Zones :	Montane
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Topography :	High Ridge/Upper Slope
Glacial History :	Glaciated
Soil Fertility :	Mesotrophic Soil
Soil Fertility :	Oligotrophic
Soil pH :	Acidic
Life Zones :	Alpine
Soil Depth :	Shallow Soil
Temporal Persistence :	Long (> 500 yrs)
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Moisture (NRCS) :	Udic
Substrate Consolidation :	Consolidated
Disturbance Return Interval :	Intermediate
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Wind Intensity/Spatial Character :	Landscape/High Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Shrub
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Soil Depth :	Very Shallow

3390: Tamaulipan Mixed Deciduous Thornscrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5321 EVT_fuel: 2390

ESP: 1390 NatureServe Id: CES301.983

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M130 Tamaulipan Scrub & Grassland

NVC Group: G099 Tamaulipan Dry Mesquite & Thornscrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This thornscrub ecological system occurs throughout much of northeastern Mexico and southern Texas. It occurs on a variety of substrates and landforms. Dominant species include *Acacia roemeriana, Leucophyllum frutescens*, and *Prosopis glandulosa*. Other species present to codominant include *Acacia berlandieri, Acacia farnesiana, Amyris madrensis, Amyris texana, Celtis pallida, Parkinsonia texana*, and cacti such as *Opuntia engelmannii var. lindheimeri*.

Range: Occurs throughout much of northeastern Mexico and southern Texas.

States: MXCO, MXNU, MXTM, TX

Map Zones: 36:C

Similar:

Descriptors:

Bioclimate : Tropical/Subtropical
Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3391: Tamaulipan Mesquite Upland Tree

Match Confidence: Poor Match

Suggested Match: Tamaulipan Mesquite Upland Scrub

Codes: ESLF: EVT_fuel: 2391

ESP: NatureServe Id: A3169

BioGeographical Division :

NVC MacroGroup: M130 Tamaulipan Scrub & Grassland

NVC Group: G099 Tamaulipan Dry Mesquite & Thornscrub

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This alliance includes mixed deciduous shrublands (thornscrub) occurring on a variety of soil types in the Tamaulipan region of Texas and Mexico. *Prosopis glandulosa* is expected to be a constant and sometimes dominant or codominant species. It occurs in combination with a variety of other thorny shrubs depending on location, and may include *Acacia farnesiana, Acanthocereus tetragonus, Atriplex* spp., *Borrichia frutescens, Celtis laevigata, Celtis pallida, Cordia boissieri, Diospyros texana, Forestiera angustifolia, Koeberlinia spinosa, Opuntia engelmannii var. lindheimeri, Opuntia* spp., *Parkinsonia texana var. macra, Spartina spartinae, Xylothamia palmeri*, and *Zanthoxylum fagara*. Structure is typically a shrubland, but can approach a woodland in height in some cases. This alliance is a heterogeneous group of associations ranging from coastal sand and shell ridges that receive salt spray, to inland moderately saline sandy soils in the Tamaulipan and Trans Pecos regions, to heavy clay soils in the Rio Grande valley, to rocky slopes of the Stockton Plateau.

Range: This alliance occurs in the Tamaulipan region and nearby areas of Texas and adjacent Mexico.

States: TX

Map Zones:

Similar:

Descriptors:

3392: Tamaulipan Calcareous Thornscrub

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5323 EVT_fuel: 2392

ESP: 1392 NatureServe Id: CES301.986

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M130 Tamaulipan Scrub & Grassland

NVC Group: G099 Tamaulipan Dry Mesquite & Thornscrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This xeric thornscrub ecological system is restricted to limestone and calcareous sandstone hills and caliche substrates such as along the Bordas Scarp in southern Texas and northeastern Mexico. Soils are shallow, alkaline, strongly calcareous and underlain by bedrock or a caliche layer. It has a shorter, more open shrub canopy (usually less than 2 m) when compared to more typical thornscrub growing on more favorable sites. However, shrub cover is generally greater than 70% and often greater than 85%. Dominant species include *Leucophyllum frutescens, Acacia berlandieri*, and *Acacia farnesiana* with many other shrub species that may be locally dominant such as *Acacia rigidula, Amyris madrensis, Amyris texana, Castela erecta ssp. texana, Celtis pallida, Eysenhardtia texana, Helietta parvifolia, Koeberlinia spinosa, Parkinsonia texana var. macra, Sophora secundiflora*, or *Yucca* spp. The sparse to moderately dense herbaceous layer is dominated by perennial graminoids.

Range: Restricted to limestone and calcareous sandstone hills and caliche substrates such as along the Bordas Scarp in southern Texas and northeastern Mexico.

States: MXCO, MXNU, MXTM, TX

Map Zones: 26:C, 35:C, 36:C

Similar: Edwards Plateau Limestone Shrubland (CES303.041)

Descriptors:

Subsoil Structure : Caliche Layer

Soil Depth : Very Shallow

Specialized Substrate Chemistry : Calcareous

Soil pH	: Alkaline
Soil Fertility	: Oligotrophic
Bioclimate	: Tropical/Subtropical
Topography	: High Ridge/Upper Slope
Landforms	: Ridge
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Lowland

3393: Edwards Plateau Limestone Shrubland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5324 EVT_fuel: 2393

ESP: 1393 NatureServe Id: CES303.041

BioGeographical Division : Western Great Plains

NVC MacroGroup: M158 Southern Plains Scrub Woodland, Shrubland & Open Vegetation

NVC Group: G191 Southern Plains Oak - Juniper Scrub Woodland & Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This ecological system occurs as a matrix on relatively thin-soiled surfaces of plateaus of the massive limestones such as the Edwards limestone. These short to tall shrublands are variable in density depending on the relative amount of, and depth to, bedrock. *Quercus sinuata var. breviloba* is an important component of the system, with some areas dominated by *Quercus fusiformis*. *Juniperus ashei* is often an important component of this system. In the west, *Pinus remota* may also contribute to a scattered emergent overstory. Other shrub species may include *Rhus virens, Rhus lanceolata, Cercis canadensis var. texensis, Forestiera pubescens, Forestiera reticulata, Fraxinus texensis, Ungnadia speciosa, Sophora secundiflora, Diospyros texana, Salvia ballotiflora, Mimosa borealis, Condalia hookeri, Rhus trilobata, Opuntia engelmannii*, and *Mahonia trifoliolata*. This system also includes *Quercus mohriana*- or *Quercus vaseyana*-dominated shrublands that are more common to the west, often sharing dominance with *Juniperus pinchotii*. Herbaceous cover may be patchy and is generally graminoid with species including *Schizachyrium scoparium, Bouteloua curtipendula, Bouteloua rigidiseta, Bouteloua trifida, Hilaria belangeri, Bothriochloa laguroides ssp. torreyana, Nassella leucotricha, Erioneuron pilosum, Aristida* spp., and others. Disturbances such as fire may be important processes maintaining this system. However, it appears to persist on thin-soiled sites. In the western portions of the Edwards Plateau, more xeric conditions lead to the slow succession of sites to woodlands, resulting in long-persisting shrublands.

Range: This system is limited in occurrence to the Edwards Plateau of Texas.

States: TX

Map Zones: 26:C, 27:?, 34:?, 35:C

Similar: Edwards Plateau Limestone Savanna and Woodland (CES303.660), Llano Uplift Acidic Forest, Woodland and Glade (CES303.657), Tamaulipan Arroyo Shrubland (CES301.992), Tamaulipan Calcareous Thornscrub (CES301.986)

Descriptors:

Soil Moisture (NRCS) :	Xeric
Soil Depth :	Very Shallow
Specialized Substrate Chemistry :	Calcareous
Soil pH :	Alkaline
Landforms :	Plateau
Landforms :	Plain
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3394: North-Central Interior Oak Savanna

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5410 EVT_fuel: 2394

ESP: 1394 NatureServe Id: CES202.698

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M012 Central Midwest Oak Forest, Woodland & Savanna

NVC Group: G181 Central Midwest Oak Openings & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found primarily in the northern glaciated regions of the Midwest with the largest concentration in the prairie-forest border ecoregion. It is typically found on rolling outwash plains, hills and ridges. Soils are typically moderately well- to well-drained deep loams. This system is typified by scattered trees over a continual tallgrass prairie. *Quercus macrocarpa* is the most common tree species and can range from 10-60% cover. The understory is dominated by tallgrass prairie species such as *Andropogon gerardii* and *Schizachyrium scoparium* associated with several forb species. Historically, frequent fires maintained this savanna system within its range and would have restricted tree canopies to 10-30%. Fire suppression in the region has allowed trees to establish more dense canopies. Periodic, strong wind disturbances and browsing also impact this system. Much of this system has also been converted to agriculture, and thus its range has decreased considerably.

Range: This system is found throughout the northern glaciated regions of the Midwest. Its main concentration, where it was likely the matrix type, is within the Prairie Forest Border of Minnesota, Wisconsin, Iowa, and Illinois. Conversion to agriculture and fire suppression have significantly impacted the range of this system.

States: IA, IL, IN, MI?, MN, MO, WI

Map Zones: 39:P, 40:C, 41:C, 42:C, 43:P, 44:P, 49:C, 50:C, 51:P, 52:C

Similar:

Descriptors:

Major Physiognomy : Woody-Herbaceous

3395: North-Central Oak Barrens Woodland

Match Confidence: Good Match

Suggested Match: North-Central Oak Barrens

Codes: ESLF: 5411 EVT_fuel: 2395

ESP: 1395 NatureServe Id: CES202.727

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M012 Central Midwest Oak Forest, Woodland & Savanna

NVC Group: G181 Central Midwest Oak Openings & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This community occurs on well-drained, coarse-textured sandy soils derived from glacial outwash, end moraine formations, or lakeplain dune systems in the north-central U.S. into Ontario, Canada. Soils range from almost pure sand, to loamy sand, to sandy loam. The soils have low fertility, organic matter, and moisture-retention capacity. Factors which affect seasonal soil moisture are strongly related to variation in this type. This oak barrens system is a scrubby, open-treed system dominated by graminoids and shrubs. Canopy structure varies from a dominant herbaceous ground layer with sparse, scattered "savanna" canopy (5-30%), through oak-dominated scrub, to a more closed woodland canopy (30-80%). The canopy layer is dominated by *Quercus velutina*, with some *Quercus ellipsoidalis, Quercus macrocarpa*, and *Quercus alba* (the latter more common eastward and in woodland conditions). Occasional *Pinus banksiana* can occur in the northern parts of the range. Species found in the herb layer include *Ambrosia psilostachya, Amphicarpaea bracteata, Artemisia ludoviciana, Andropogon gerardii, Calamovilfa longifolia, Carex pensylvanica, Carex* spp., *Comandra umbellata, Sorghastrum nutans, Hesperostipa spartea (= Stipa spartea)*, and *Schizachyrium scoparium*. Fire was an important factor in maintaining this community. Oak wilt and droughts also reduce tree cover.

Range: This system is found in the north-central U.S. from North Dakota to western New York and westernmost Pennsylvania (mostly historic there) and into Ontario, Canada.

States: IL, IN, MI, MN, ND, NY, OH, ON, PA, WI

Map Zones: 39:C, 40:C, 41:C, 42:C, 43:C, 49:C, 50:C, 51:C, 52:C, 63:C

Similar: Laurentian Pine-Oak Barrens (CES201.718)

Descriptors:

Major Physiognomy : Woody-Herbaceous

3396: Gulf and Atlantic Coastal Plain Tidal Marsh Herbaceous

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Tidal Marsh Systems

Codes: ESLF: 9209 EVT_fuel: 2490

ESP: 1490 NatureServe Id: CES203.638

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: -

NVCS Division: -

Summary: This systems group includes tidal marshes in various settings along the Atlantic and Gulf coasts and barrier islands. Salt, brackish, and freshwater marshes are included. Regular tidal flooding occurs over most of the system, with irregular flooding in unusually high tides occurring in the upper zones. Tides bring nutrients, making the regularly flooded marshes fertile. Storms may push saltwater into brackish areas, acting as a disturbance to vegetation. The dominant factors in vegetation variability are salinity and geography. Salt marshes are often dominated by *Spartina* grasses, often forming large and low-diversity but high-productivity expanses. *Juncus roemerianus* is also common and, like *Spartina*, may be dominant over large areas. Local depressions in upper zones may be hypersaline due to concentration of salt by evaporation; *Salicornia* spp., *Sarcocornia* spp., and *Distichlis spicata* are characteristic in these salt pannes. In brackish settings, *Spartina* may be characteristic as well, but it is often mixed with or replaced by other graminoids such as *Schoenoplectus* spp. Brackish marshes may include large patches of flats with low forbs (along the northern Atlantic Coast); *Sagittaria subulata* and *Limosella australis* are typical. Fresh to oligohaline tidal marshes may be characterized by *Zizania* spp., *Zizaniopsis miliacea, Eleocharis* spp., *Sagittaria* spp., and *Typha* spp. They typically occur along bay margins near inflowing rivers, extending up the tidal reaches of those rivers.

While tidal marshes are characteristically herbaceous, they may support inclusions of shrublands dominated by*Baccharis halimifolia, Borrichia frutescens*, or other shrubs. Salt marsh "islands" of slightly higher elevation also support *Juniperus virginiana*. Fresh and oligohaline marshes can have a heterogeneous physiognomy including shrublands, grasslands, and aquatic herbs. Individual systems in this group are differentiated based on salinity, geography, and tidal dynamics and energy.

Range: This systems group is distributed along the tidal reaches of the Gulf and Atlantic coastal plains from southern Maine to Texas.

States: AL, CT, DE, FL, GA, LA, MA, MD, ME, MS, NC, NH, NJ, NY, RI, SC, TX, VA

Map Zones: 36:C, 37:C, 55:C, 56:C, 58:C, 60:C, 65:C, 66:C, 98:C, 99:C

Similar:

Descriptors:

Lifeform :	Graminoid
USFWS Wetland System :	Estuarine
Hydrogeomorphic Units :	Tidal / Estuarine
Bioclimate :	Temperate

3397: Nashville Basin Limestone Glade and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5413 EVT_fuel: 2397

ESP: 1397 NatureServe Id: CES202.334

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G179 Central Alkaline Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system encompasses a range of plant communities associated with thin soils on flat areas of Ordovician limestone in the Inner Nashville Basin of Tennessee (Ecoregion 71i of Griffith et al. (1998), EPA (2004); Subsection 222Ed of Keys et al. (1995)), with a few disjunct occurrences in Kentucky. The vegetation of this system includes sparsely vegetated rock outcrops, annual *Sporobolus* spp.-dominated grasslands, *Schizachyrium scoparium*-dominated perennial grasslands, seasonally wet herbaceous washes and seeps, shrublands, as well as woodlands dominated by *Juniperus virginiana* and oaks. *Echinacea tennesseensis* and *Astragalus bibullatus* are completely endemic to this system. There are numerous other disjunct and near-endemic plants.

Range: This system is restricted to flat areas of Ordovician limestone in the Inner Nashville Basin of Tennessee, as well as limited and disjunct examples on flat Mississippian limestones in Kentucky.

States: KY, TN

Map Zones: 47:C, 48:C

Similar: Central Interior Highlands Calcareous Glade and Barrens (CES202.691)

Descriptors:

Lifeform : Graminoid
Soil pH : Alkaline
Specialized Substrates : Rock Outcrops/Barrens/Glades
Major Physiognomy : Woody-Herbaceous

3398: Cumberland Sandstone Glade and Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5414 EVT_fuel: 2398

ESP: 1398 NatureServe Id: CES202.337

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M509 Central Interior & Piedmont Acidic Scrub & Grassland

NVC Group: G178 Central Interior Acidic Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system encompasses a complex of sparsely vegetated rock outcrops, perennial grasslands, and woodlands on shallow soils on the Cumberland Plateau of Kentucky, Tennessee, Alabama, and Georgia. Herbaceous plants, including *Diamorpha smallii* and *Minuartia glabra*, are typical of the outcrops in Tennessee. In Alabama, *Bigelowia nuttallii* and *Schizachyrium scoparium* are important. *Pinus virginiana* and *Acer rubrum* are typical of the current condition of many of the woodlands surrounding these outcrops on the Cumberland Plateau. This dominance pattern may be due to lack of disturbance. *Pinus rigida, Pinus echinata*, and/or *Quercus prinus* may also occur. Scattered shrubs, such as *Gaylussacia* spp., *Vaccinium arboreum*, and *Chionanthus virginicus*, occur on the margins in patches of deeper soil. Various mosses and fruticose lichens such as *Cladonia* spp. and *Cladina* spp. may be prominent in some examples. To the west, in the Interior Highlands (Ozark, Ouachita, and Interior Low Plateau regions), this system is replaced by ~Central Interior Highlands Dry Acidic Glade and Barrens (CES202.692)$$ (both are found in Kentucky, with the latter in the Shawnee Hills of the Interior Low Plateau).

Range: This system is found in the Cumberland Plateau of Kentucky, Tennessee, Virginia, Alabama, and Georgia.

States: AL, GA, KY, TN, VA

Map Zones: 48:C, 53:C

Similar: Central Interior Highlands Dry Acidic Glade and Barrens (CES202.692)

Descriptors:

Soil pH : Acidic

Specialized Substrates : Rock Outcrops/Barrens/Glades

Major Physiognomy : Woody-Herbaceous

3399: Northern Atlantic Coastal Plain Grassland

Match Confidence: Good Match

Suggested Match: Northern Atlantic Coastal Plain Heathland and Grassland

Codes: ESLF: 5275 EVT_fuel: 2522

ESP: 1522 NatureServe Id: CES203.895

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G493 North Atlantic Coastal Shrub & Grass Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: Sandplain grasslands and heathlands of the southern New England / New York coast are areas of graminoid- and shrub-dominated vegetation maintained by extreme conditions and periodic fire or other disturbance. Developing on acidic, nutrient-poor, and very well-drained soils within a few kilometers of the ocean, they may occur as heathlands, grasslands, or support a patchwork of grass and shrub vegetation. Characteristic species include *Gaylussacia baccata, Arctostaphylos uva-ursi, Corema conradii, Amelanchier nantucketensis, Hudsonia ericoides, Hudsonia tomentosa, Vaccinium angustifolium, Deschampsia flexuosa, Schizachyrium scoparium*, and *Carex pensylvanica*. They provide habitat for several rare or uncommon forbs including *Liatris scariosa var. novae-angliae* and *Agalinis acuta*. They are important habitat for several bird and other animal species including the short-eared owl and regal fritillary, and (along with brushy plains and woodlands) provided habitat for the extinct heath hen.

Range: This system is endemic to a small area ranging from the southern New York coastline north to Cape Cod, Massachusetts.

States: CT?, MA, NY, RI

Map Zones: 65:C

Similar: Northern Atlantic Coastal Plain Dune and Swale (CES203.264), Northern Atlantic Coastal Plain Pitch Pine Barrens (CES203.269)

Descriptors:

SCS Subregion : North Atlantic Coastal Plain

Disturbance Return Interval : Very Short

Soil Texture :	Sand
Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Temperate
Specialized Substrates :	Sandplains/Glacial Outwash or Flats
Landforms :	Coastal plain
Landforms :	Glaciated plains
Major Physiognomy :	Grassland, Savanna, Steppe
Major Physiognomy :	Shrubland (Shrub)

3400: Central Appalachian Alkaline Glade and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5416 EVT_fuel: 2400

ESP: 1400 NatureServe Id: CES202.602

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G179 Central Alkaline Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system occurs at low to moderate elevations from the Central Appalachians (with a few northward incursions into southernmost New York and New England possible) down into the Ridge and Valley. It consists of woodlands and open glades on thin soils over limestone, dolostone or similar calcareous rock. In some cases, the woodlands grade into closed-canopy forests. *Juniperus virginiana* is a common tree, filling in in the absence of fire, and *Quercus muehlenbergii* is indicative of the limestone substrate. *Rhus aromatica, Cercis canadensis*, and *Ostrya virginiana* may occur. Prairie grasses are the dominant herbs (*Andropogon gerardii, Schizachyrium scoparium, Bouteloua* spp.); forb richness is often high. Characteristic forbs include *Asclepias verticillata, Monarda fistulosa, Salvia lyrata, Symphyotrichum oblongifolium*, and *Brickellia eupatorioides* (Braun 1950). Fire is sometimes an important natural disturbance factor, but open physiognomies may also be maintained by drought and landslides.

Range: This system is known from Pennsylvania and northwestern New Jersey south through the Ridge and Valley to western Virginia, possibly extending to southeasternmost New York and the marble valleys of northwestern Connecticut.

States: CT?, MD, NJ, NY?, OH, PA, VA, WV

Map Zones: 57:C, 60:C, 61:C, 64:C, 65:P

Similar: Central Interior Highlands Calcareous Glade and Barrens (CES202.691), Laurentian-Acadian Calcareous Rocky Outcrop (CES201.572), North-Central Appalachian Circumneutral Cliff and Talus (CES202.603), Southern Ridge and Valley / Cumberland Dry Calcareous Forest (CES202.457), Southern Ridge and Valley Calcareous Glade and Woodland (CES202.024)

Descriptors:

Fire Intensity/Spatial Character :	Patch/Medium Intensity
Disturbance Return Interval :	Intermediate
Soil Moisture (NRCS) :	Ustic
Soil Depth :	Shallow Soil
Soil pH :	Circumneutral
Soil pH :	Alkaline
Soil Fertility :	Mesotrophic Soil
Glacial History :	Unglaciated
Bioclimate :	Temperate
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3401: Central Interior Highlands Calcareous Glade and Barrens Woodland

Match Confidence: Solid Match

Suggested Match: Central Interior Highlands Calcareous Glade and Barrens

Codes: ESLF: 5417 EVT_fuel: 2401

ESP: 1401 NatureServe Id: CES202.691

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G179 Central Alkaline Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system is found primarily in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions with scattered occurrences in northern Missouri. It occurs along moderate to steep slopes and steep valleys on primarily southerly to westerly facing slopes. Limestone and/or dolomite bedrock typify this system with shallow, moderately to well-drained soils interspersed with rocks. These soils often dry out during the summer and autumn, and then become saturated during the winter and spring. *Schizachyrium scoparium* dominates this system and is commonly associated with *Andropogon gerardii, Bouteloua curtipendula*, and calcium-loving plant species. Stunted woodlands primarily dominated by *Quercus muehlenbergii* interspersed with *Juniperus virginiana* occur on variable-depth-to-bedrock soils. Fire is the primary natural dynamic, and prescribed fires help manage this system by restricting woody growth and maintaining the more open glade structure.

Range: This system is found primarily in the Interior Highlands of the Ozark, Ouachita, and the Interior Low Plateau regions ranging east to southern Ohio and including the Knobs region and Cliff section of Kentucky, the Cumberland Plateau escarpment of Tennessee, the Western Valley of the Tennessee River, and the Moulton Valley of northern Alabama.

States: AL, AR, IL, IN, KY, MO, OH, OK, TN

Map Zones: 43:P, 44:C, 47:C, 48:C, 49:C, 53:C

Similar: Alabama Ketona Glade and Woodland (CES202.338), Bluegrass Savanna and Woodland (CES202.888), Central Appalachian Alkaline Glade and Woodland (CES202.602), Nashville Basin Limestone Glade and Woodland (CES202.334), Southern Ridge and Valley / Cumberland Dry Calcareous Forest (CES202.457), Southern Ridge and Valley Calcareous Glade and

Woodland (CES202.024)

Descriptors:

Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil pH :	Alkaline
Specialized Substrates :	Sedimentary Rock
Specialized Substrates :	Rock Outcrops/Barrens/Glades
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3402: Laurentian-Acadian Swamp Shrubland

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Swamp Systems

Codes: ESLF: 9150 EVT_fuel: 2526

ESP: 1526 NatureServe Id: CES201.637

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M054 Northern Flooded & Swamp Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This systems group includes coniferous to mixed swamps and adjacent sloping seepage forests in the temperate-boreal transition zone of the eastern half of the United States and adjacent Canada. They occupy basins and adjacent wet slopes in cool settings. The substrate is typically mineral soil with an organic fraction or peaty epipedon, in most cases constantly saturated. Basins may have seasonal standing water. Two expressions are characteristic, based on substrate pH and minerotrophy. In acidic and more nutrient-poor settings, *Picea rubens* or *Picea mariana, Acer rubrum, Fraxinus* spp., and *Abies balsamea* are the most typical trees. The herbaceous and shrub layers tend to be fairly species-poor, with *Nemopanthus mucronatus* and *Osmunda* spp. as typical shrub and herb species. In circumneutral settings or where seepage waters provide a greater supply of nutrients, *Thuja occidentalis* is characteristic and often dominant. It may be mixed with *Acer rubrum, Fraxinus nigra*, or *Picea rubens* (the latter especially in seepage slope forests). The herbaceous and bryophyte flora is typically extensive, and small open fenny areas may occur within the wetland. Peat may be well-developed in circumneutral basins (cedar swamps).

Range: This systems group ranges across the northeastern United States and adjacent Canada, from New England west to Minnesota, and south to New York and northern Pennsylvania.

States: ME, MI, MN, NB, NH, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Acadian Sub-boreal Spruce Flat (CES201.562)

Descriptors:

Soil Moisture Regime : Saturated

Floristics/Dominants : Thuja occidentalis - Fraxinus nigra

Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Lifeform :	Needle-Leaved Tree
USFWS Wetland System :	Palustrine
Hydrogeomorphic Units :	Seepage-Fed Sloping
Specialized Substrates :	Peaty gleyized
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3403: West Gulf Coastal Plain Catahoula Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5419 EVT_fuel: 2403

ESP: 1403 NatureServe Id: CES203.364

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M308 Southern Barrens & Glade

NVC Group: G584 Southeastern Coastal Plain Barrens & Glade

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system is confined to the Catahoula geologic formation of eastern Texas and western Louisiana. It includes a vegetational mosaic ranging from herbaceous-dominated areas on shallow soil and exposed sandstone to deeper soils with open woodland vegetation. Woodlands include a post oak-dominated overstory grading into longleaf pine-dominated areas. Seasonal droughtiness, shallow soils, aluminum toxicity, and periodic fires are important factors that influence the composition and structure of this system.

Range: This system is endemic to western Louisiana and eastern Texas.

States: LA, TX

Map Zones: 37:C

Similar:

Descriptors:

Soil Depth : Very Shallow
Specialized Substrates : Rock Outcrops/Barrens/Glades
Major Physiognomy : Woody-Herbaceous

3405: West Gulf Coastal Plain Nepheline Syenite Glade

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5421 EVT_fuel: 2405

ESP: 1405 NatureServe Id: CES203.371

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M308 Southern Barrens & Glade

NVC Group: G584 Southeastern Coastal Plain Barrens & Glade

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This glade system is present only in Saline and Pulaski counties, Arkansas, on distinctive, massive outcrops of igneous substrate ("nepheline syenite"). Zonal vegetation communities are present around the outcrops. Interior herbaceous-dominated zones can be mesic to wet as springs and small ephemeral streams flow across the rock outcrops and water pools in flat areas. Deeper, more heavily wooded vegetation develops along the flat or slightly sloping outcrop edges.

Range: This system is present only in the Upper West Gulf Coastal Plain of Saline and Pulaski counties, Arkansas. It may have existed historically in Garland and Hot Spring counties (at least partly in the Ouachita region).

States: AR

Map Zones: 37:C, 44:?

Similar:

Descriptors:

Soil Depth : Very Shallow
Specialized Substrates : Rock Outcrops/Barrens/Glades
Major Physiognomy : Woody-Herbaceous

3406: Southern Piedmont Dry Oak Forest

Match Confidence: Good Match

Suggested Match: Southern Piedmont Dry Oak-(Pine) Forest

Codes: ESLF: 4311 EVT_fuel: 2368

ESP: 1368 NatureServe Id: CES202.339

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G165 Piedmont & Central Atlantic Coastal Plain Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the deciduous hardwood expression of this ecological system. This system encompasses the prevailing upland forests of the southern Piedmont. High-quality and historic examples are typically dominated by combinations of upland oaks, sometimes with pines as a significant component, especially in the southern portions of the region. These forests occur in a variety of habitats and, under natural conditions, were the matrix vegetation type covering most of the landscape. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of original oak-hickory forests. Stands of these forests are dominated by combinations of upland oaks, particularly Quercus alba, Quercus rubra, Quercus velutina, Quercus stellata, Quercus coccinea, and *Quercus falcata*, along with *Carya glabra, Carya alba*, and other *Carya* spp. Other common tree species include *Pinus taeda, Pinus echinata, Pinus virginiana, Acer rubrum, Liquidambar styraciflua*, and *Liriodendron tulipifera*.

Range: This system ranges throughout the Piedmont from Alabama to Virginia. In Virginia, it is primarily central and southern, but extends into a narrow portion of northern Virginia in the Piedmont ecoregion.

States: AL, GA, NC, SC, VA

Map Zones: 54:C, 59:C, 60:C, 61:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Southeastern Interior Longleaf Pine Woodland (CES202.319), Southern Appalachian Low-Elevation Pine Forest (CES202.332), Southern Appalachian Montane Pine Forest and Woodland (CES202.331), Southern Piedmont Mesic Forest (CES202.342)

Descriptors:

Lifeform :	Broad-Leaved Tree
Lifeform :	Needle-Leaved Tree
Major Physiognomy :	Forest and Woodland (Tree)

3407: Laurentian Pine Barrens

Match Confidence: Good Match

Suggested Match: Laurentian Pine-Oak Barrens

Codes: ESLF: 5423 EVT_fuel: 2407

ESP: 1407 NatureServe Id: CES201.718

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G160 Great Lakes Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this ecological system. These pine-oak barrens occur in the northern and western Great Lakes region. They occur on sandplains/outwash habitats, with dry, frequent fires (every 10-50 years). *Pinus banksiana, Pinus resinosa, Quercus ellipsoidalis*, and *Pinus strobus* are common overstory dominants. Prairie species are common throughout much of the range of the type. Common shrub and field layer species include *Schizachyrium scoparium, Andropogon gerardii, Carex pensylvanica, Vaccinium angustifolium*, and *Corylus americana*. Oak grubs may be common under frequent burning. Catastrophic burns may create open bracken grasslands.

Range: Occurs in the northern and western Great Lakes region.

States: MI, MN, ON, WI

Map Zones: 41:C, 50:C, 51:C

Similar: Boreal Jack Pine-Black Spruce Forest (CES103.022), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), North-Central Oak Barrens (CES202.727), Northeastern Interior Pine Barrens (CES202.590)

Descriptors:

Major Physiognomy : Woody-Herbaceous

3408: Alabama Ketona Glade and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 5424 EVT_fuel: 2408

ESP: 1408 NatureServe Id: CES202.338

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G179 Central Alkaline Open Glade & Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system consists of open glades and related vegetation on Ketona dolomite slopes found in Bibb County, Alabama, in the vicinity of the Little Cahaba River. The vegetation includes herbaceous, shrubland, and open woodlands, which occur on thin soils or outcrops of Ketona dolomite. *Juniperus virginiana, Quercus muehlenbergii, Pinus palustris, Croton alabamensis, Sabal minor*, and *Leptopus phyllanthoides* are the dominant woody plants of the woodlands. The system supports eight endemic and numerous disjunct plant taxa and has very high conservation value based on rare plants.

Range: This small-patch system is restricted to Ketona dolomite slopes found in Bibb County, Alabama, in the vicinity of the Little Cahaba River.

States: AL

Map Zones: 48:C

Similar: Central Interior Highlands Calcareous Glade and Barrens (CES202.691)

Descriptors:

Specialized Substrates : Rock Outcrops/Barrens/Glades
Major Physiognomy : Woody-Herbaceous

3409: Great Lakes Alvar Shrubland

Match Confidence: Good Match

Suggested Match: Great Lakes Alvar

Codes: ESLF: 5458 EVT_fuel: 2409

ESP: 1409 NatureServe Id: CES201.721

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M507 Laurentian-Acadian Calcareous Scrub - Herb Vegetation

NVC Group: G061 Great Lakes Alvar

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: Alvars are natural systems of humid and subhumid climates, centered around areas of glaciated horizontal limestone/dolomite (dolostone) bedrock pavement with a discontinuous thin soil mantle. These communities are characterized by distinctive flora and fauna with less than 60% tree cover that is maintained by associated geologic, hydrologic, and other landscape processes. In particular, all forms of alvar tend to flood each spring, then experience moderate to severe drought in summer months. They include open pavement, grassland, and shrubland/woodland types. Alvar communities occur in an ecological matrix with similar bedrock and hydrologically influenced communities. Almost all of North America's alvars occur within the Great Lakes basin, primarily in an arc along the Niagaran Escarpment from northern Lake Michigan across northern Lake Huron and eastern Ontario and northwestern New York state.

Range:

States: MI, NY, OH, ON, WI

Map Zones: 41:C, 50:C, 51:C, 52:C, 63:P, 64:C

Similar:

Descriptors:

Flooding Return Interval :	Intermittent
Soil Depth :	Very Shallow
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Specialized Substrates :	Limestone

Specialized Substrates :	Rock Outcrops/Barrens/Glades
Landforms :	Glaciated uplands
Landforms :	Flat

3410: Llano Uplift Acidic Forest and Woodland

Match Confidence: Solid Match

Suggested Match: Llano Uplift Acidic Forest, Woodland and Glade

Codes: ESLF: 7159 EVT_fuel: 2410

ESP: 1410 NatureServe Id: CES303.657

BioGeographical Division : Western Great Plains

NVC MacroGroup: M015 Comanchian Forest & Woodland

NVC Group: G126 Southern Plateau Dry Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This upland matrix system occurs primarily on coarse soils derived from the weathering of underlying granites in the Llano Uplift region of Texas. The underlying granitic substrate determines the range of this system. It is composed of a mosaic of vegetation types, including closed-canopy forests, open woodlands, savannas and sparsely vegetated rock outcrops. Common trees include *Quercus marilandica, Quercus fusiformis, Quercus stellata, Carya texana, Ulmus crassifolia*, and *Prosopis glandulosa*. Subcanopy species may include *Diospyros texana, Aloysia gratissima, Ungnadia speciosa, Ziziphus obtusifolia var. obtusifolia, Eysenhardtia texana, Aesculus glabra var. arguta, Opuntia engelmannii var. lindheimeri (= Opuntia lindheimeri), Yucca elata, Nolina texana*, and *Opuntia leptocaulis*. Grasslands may be dominated by *Schizachyrium scoparium, Sorghastrum nutans, Panicum virgatum, Bouteloua hirsuta, Bouteloua curtipendula, Nassella leucotricha, Bothriochloa laguroides*, and *Plantago wrightiana*. Granitic glades and barrens are sparsely vegetated by crustose and foliose lichens, several ferns and fern allies, and cacti. This system also includes small (up to 16 m in diameter) shallow depressions that hold rainwater and support wetland flora including the Texas endemic, *Isoetes lithophila*.

Range: This system is restricted to the Llano Uplift region of Texas.

States: TX

Map Zones: 35:C

Similar: Edwards Plateau Limestone Savanna and Woodland (CES303.660), Edwards Plateau Limestone Shrubland (CES303.041)

Descriptors:

Specialized Substrates : Metamorphic Rock

Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Herbaceous
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Landforms :	Inselberg
Landforms :	Bald
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Specialized Substrates :	Granitic Rock
Soil Texture :	Sand
Specialized Substrates :	Igneous Rock
Bioclimate :	Temperate
Hydrogeomorphic Units :	Depressional
Wetland Isolation :	Isolated
Glacial History :	Unglaciated
Soil pH :	Acidic
Specialized Substrates :	Rock Outcrops/Barrens/Glades

3411: Great Lakes Wet-Mesic Lakeplain Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7124 EVT_fuel: 2411

ESP: 1411 NatureServe Id: CES202.027

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M069 Eastern North American Wet Meadow & Marsh

NVC Group: G770 Midwest Wet Prairie & Wet Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: This system is found on the lakeplain near the southern central Great Lakes of the United States and Canada. Stands occur on level, sandy glacial outwash, sandy glacial lakeplains, and deposits of dune sand in silty/clayey glacial lakeplains. The soils are sands and sandy loams, loams with poor to moderate water-retaining capacity, typically occurring over less permeable silty clays . There is often temporary inundations after heavy rains or in the spring, followed by dry conditions throughout much of the remaining growing season. The vegetation of this community is dominated by tallgrass species typically 1-2 m high. Trees and shrubs are very rare. There is very little bare ground. *Andropogon gerardii, Calamagrostis canadensis, Carex* spp. (*Carex aquatilis, Carex bicknellii, Carex buxbaumii, Carex pellita (= Carex lanuginosa)*), *Panicum virgatum, Spartina pectinata, Schizachyrium scoparium*, and *Sorghastrum nutans* are the most abundant graminoid species. Many of the sites that this system formerly occupied are now urban and/or agricultural. Areas around Chicago and Detroit were likely in this system but are heavily converted now and few sites remain.

Range: This system is found near the southern central Great Lakes of the United States and Canada, from southeastern Wisconsin and northeastern Illinois to southern Michigan and southwestern Ontario. This does not go farther east than northwestern Ohio (glacial Lake Maumee).

States: IL, IN, MI, OH, ON, WI

Map Zones: 41:?, 49:C, 50:C, 51:C, 52:C

Similar:

Descriptors:

Wetland Isolation : Isolated

Hydrogeomorphic Units : Depressional
Major Physiognomy : Herbaceous

3412: North-Central Interior Sand and Gravel Tallgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7125 EVT_fuel: 2412

ESP: 1412 NatureServe Id: CES202.695

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G151 Sand & Gravel Tallgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found in the northern Midwest, particularly in Minnesota, Wisconsin, Michigan, and possibly ranging into Ontario. It is often found on glacial features such as kames, eskers, moraines, lakeplains (though excluding the Great Lakes lakeplain) and sandplains, and along eolian dunes. In contrast to the deeper, richer soils supporting other tallgrass systems in the region, the underlying soils in this system tend to be more shallow, sandy, rocky, and/or gravelly outwash soils. Organic content is significantly lower. Grassland species such as *Schizachyrium scoparium, Andropogon gerardii*, and *Bouteloua* spp., varying in cover from sparse to moderately dense, dominate this system. *Hesperostipa spartea* and *Sporobolus heterolepis* are also common components of this system. Woody species more tolerant of droughty conditions may be found in some examples. The most common trees are *Pinus banksiana, Quercus ellipsoidalis, Quercus macrocarpa*, and *Populus tremuloides*. Fire and drought are the major dynamics influencing this system. If fire and periodic drought are not present, woody species begin to invade this system, especially in the eastern parts of its distribution. Wind can also play a role, especially on examples found on sandplains and/or eolian dunes.

Range: This system is found in the northern Midwest possibly ranging into Ontario.

States: IA, IL, IN, MI, MN, MO, ND, ON, SD, WI

Map Zones: 39:C, 40:C, 41:P, 42:C, 43:P, 49:P, 50:C, 51:C, 52:C

Similar:

Descriptors:

Wind Intensity/Spatial Character : Patch/High Intensity

Fire Intensity/Spatial Character : Patch/High Intensity

Soil Texture	: Sand
Glacial History	: Glaciated
Landforms	: Outwash terrace
Landforms	: Outwash plain
Landforms	: Moraine
Landforms	: Lakeplain
Landforms	: Kame
Landforms	: Esker
Major Physiognomy	: Herbaceous

3413: Bluegrass Savanna and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7126 EVT_fuel: 2413

ESP: 1413 NatureServe Id: CES202.888

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system represents deep soil savannas and woodlands of the Inner Bluegrass Basin of Kentucky (Ecoregion 71l and "S. Fork Licking River arm" of Ecoregion 71d of EPA (2004) and Woods et al. (2002)). Only remnants or stands undergoing restoration are currently extant. The original woodland-savanna aspect, especially on drier uplands, is believed to have been dominated by fire-resistant oaks, especially *Quercus muehlenbergii* and *Quercus macrocarpa*, but also with a variety of other species such as *Fraxinus quadrangulata, Robinia pseudoacacia, Gleditsia triacanthos, Acer saccharum, Fraxinus americana, Fraxinus pennsylvanica, Carya cordiformis, Juglans nigra*, and the rare *Gymnocladus dioicus*. The understory is composed of cool-season grasses, as far as known (e.g., *Elymus, Dichanthelium*) with *Arundinaria gigantea* (extensive canebrakes). Settlers referred to a "buffalo grass" of unknown identity (possibly *Dichanthelium clandestinum* or *Dichanthelium scoparium*). The fire regime is unknown. Characteristic remnant trees (e.g., *Fraxinus quadrangulata, Quercus macrocarpa*) are fire-tolerant.

Range: This system is restricted to the Inner Bluegrass Basin of Kentucky (Ecoregion 71l and "S. Fork Licking River arm" of Ecoregion 71d of EPA (2004) and Woods et al. (2002)). Only remnants or stands undergoing restoration are currently extant.

States: KY

Map Zones: 47:C

Similar: Central Interior Highlands Calcareous Glade and Barrens (CES202.691)

Descriptors:

Lifeform : Graminoid

Disturbance Return Interval : Very Short

Soil Depth : Deep

Major Physiognomy : Herbaceous

3414: Southern Appalachian Shrub Bald

Match Confidence: Good Match

Suggested Match: Southern Appalachian Grass and Shrub Bald

Codes: ESLF: 7127 EVT_fuel: 2414

ESP: 1414 NatureServe Id: CES202.294

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M506 Appalachian Rocky Felsic & Mafic Scrub & Grassland

NVC Group: G658 Southern Appalachian Shrub Bald

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This is the shrub dominated expression of this ecological system. This ecological system consists of dense herbaceous and shrubland communities in the highest elevational zone of the southern Appalachians, generally above 1524 m (5000 feet) but occasionally to 1220 m (4000 feet), and at slightly lower elevations at its northern limit in Virginia and West Virginia, and in the Cumberland Mountains along the Virginia-Kentucky border. Vegetation consists either of dense shrub-dominated areas (heath balds) or dense herbaceous cover dominated by grasses or sedges (grassy balds). The combination of high-elevation, non-wetland sites and dense herbaceous or shrub vegetation without appreciable rock outcrop conceptually distinguishes this system from all others in the southern Appalachians. However, the widespread areas of degraded spruce-fir with grass and shrub cover and the invasion of grassy balds by trees blur the distinction somewhat.

Range: This system ranges from the Balsam Mountains and Great Smoky Mountains of North Carolina and Tennessee northward to Virginia and West Virginia. The system is also of limited extent in the Cumberland Mountains along the Virginia-Kentucky border. The current status in Georgia is open to question and was apparently never extensive in any case.

States: GA, KY, NC, TN, VA, WV

Map Zones: 57:C, 61:C

Similar:

Descriptors:

Lifeform : Graminoid

Major Physiognomy : Herbaceous

3415: Arkansas Valley Prairie and Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7128 EVT_fuel: 2415

ESP: 1415 NatureServe Id: CES202.312

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G334 Southern Great Plains Tallgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system of prairies and associated woodlands is found in the Arkansas River Valley region of Arkansas and adjacent Oklahoma. This region is distinctly bounded by the Boston Mountains to the north and the Ouachita Mountains to the south, although it has been considered part of the Ouachita Ecoregion (TNC Ecoregion 39). The valley is characterized by broad, level to gently rolling uplands derived from shales and is much less rugged and more heavily impacted by Arkansas River erosional processes than the adjacent mountainous regions. In addition, the valley receives annual precipitation total of 2-6 inches less than the surrounding regions due to a rainshadow produced by a combination of prevailing western winds and mountain orographic effects. The shale-derived soils associated with the prairies are thin and droughty. The combined effect of droughty soils, reduced precipitation, and prevailing level topography create conditions highly conducive to the ignition and spread of fires. Stands are typically dominated by *Andropogon gerardii, Sorghastrum nutans, Panicum virgatum*, and *Schizachyrium scoparium*. Some extant examples of this system remain, but most are small and isolated. They were common on the western edge of the region bordering or possibly included in the Crosstimbers (TNC Ecoregion 32) where precipitation and agriculture conversion were lowest.

Range: This system occurs in the Arkansas River Valley region of Arkansas and adjacent Oklahoma.

States: AR, OK

Map Zones: 44:C

Similar: Southeastern Great Plains Tallgrass Prairie (CES205.685), Texas Blackland Tallgrass Prairie (CES205.684)

Descriptors:

Lifeform : Graminoid
Major Physiognomy : Herbaceous
Life Zones : Lowland

3416: Western Highland Rim Prairie and Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7129 EVT_fuel: 2416

ESP: 1416 NatureServe Id: CES202.352

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system includes open, fire-maintained vegetation (often called "barrens") on uplands in western middle Tennessee (USFS Subsection 223Eg and EPA Level IV Ecoregion 71f) (EPA 2004). Although parts of the region are highly dissected, extensive interfluvial areas formerly supported fire-adapted "barrens" vegetation. Haywood (1959) noted extensive prairie in the southern portion of Land Between the Lakes, and DeSelm (1988) noted the existence of barrens remnants in the region. These barrens occur, at least in part, on Cretaceous gravels which cap either Mississippian limestone strata on hills in the Tennessee counties of Dickson, Hickman, Lewis, and Lawrence. The general terrain is flat to gently sloping. Shanks (1958) also specifically refers to barrens on "cherty residuum, elsewhere characterized by Planosols with impeded drainage." Some proposed factors which have functioned to maintain the openness of this system include the droughty, gravelly soils and resulting stresses to vegetation, as well as fire. The same gravels are mapped in Land Between the Lakes, and this vegetation could be expected there (if all examples have not succeeded to woody vegetation due to lack of fire). There may be similar habitats in Kentucky, including relatively extensive areas of Tertiary age material in eastern Calloway and Marshall and southern Livingston counties. The areas are transitional between Highland Rim and Coastal Plain, but they are included in EPA 71f.

Range: This system is restricted to the Western Highland Rim of Tennessee and equivalent landforms in adjacent Alabama and Kentucky. Examples (good-condition examples are limited and of small size) are found in Dickson. Hickman, Lawrence, and Lewis counties of Tennessee (DeSelm 1988, NatureServe unpubl. data). These areas are scattered across Subsection 223Eg (USFS) and EPA Level IV Ecoregion 71f (EPA 2004).

States: KY?, TN

Map Zones: 47:C, 48:C

Similar: Cumberland Wet-Mesic Meadow and Savanna (CES202.053), East Gulf Coastal Plain Jackson Plain Prairie and Barrens (CES203.353), Eastern Highland Rim Prairie and Barrens (CES202.354), Pennyroyal Karst Plain Prairie and Barrens (CES202.355), Southern Ridge and Valley Patch Prairie (CES202.453)

Descriptors:

Lifeform : Graminoid
Soil Depth : Deep
Major Physiognomy : Herbaceous

3417: Eastern Highland Rim Prairie and Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7130 EVT_fuel: 2417

ESP: 1417 NatureServe Id: CES202.354

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system represents "The Barrens" of the Southeast Highland Rim of Tennessee. This is a distinctive part of the state and ecoregion (the "Dickson-Mountview-Guthrie" Soil Association of Elder and Springer 1978, Springer and Elder 1980). It includes a series of plant communities with open canopies, ranging from herbaceous-dominated barrens (some of which are maintained today by mowing instead of fire and grazing) through savanna and woodland types. Open ponds and other wetlands are scattered throughout the landscape. The variety of relatively open habitats which are present here include prairie-like areas, as well as savanna woodlands and upland depression ponds.

Range: This system is restricted to "The Barrens" of the southeastern Highland Rim of Tennessee (today primarily extant in Coffee, Franklin, and Warren counties, Tennessee). This is a small part of Subsection 223Eb (USFS) and EPA Level IV Ecoregion 71g.

States: TN

Map Zones: 48:C, 53:P

Similar: Cumberland Wet-Mesic Meadow and Savanna (CES202.053), Pennyroyal Karst Plain Prairie and Barrens (CES202.355), Southern Ridge and Valley Patch Prairie (CES202.453), Western Highland Rim Prairie and Barrens (CES202.352)

Descriptors:

Lifeform : Graminoid
Disturbance Return Interval : Very Short
Major Physiognomy : Herbaceous

3418: Pennyroyal Karst Plain Prairie and Barrens

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7131 EVT_fuel: 2418

ESP: 1418 NatureServe Id: CES202.355

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system consists of open, prairielike vegetation of the northwestern Highland Rim (Pennyroyal Plateau) of Tennessee and adjacent Kentucky (Ecoregion 71e [Western Pennyroyal Karst Plain] of Griffith et al. (1998) and Woods et al. (2002); part of Subsection 222Eh of Keys et al. (1995)). Stands are dominated by grasses and forbs with scattered shrubby vegetation and, occasionally, trees. The scattered trees are mainly *Quercus falcata* and *Quercus imbricaria*. *Quercus alba* and *Quercus marilandica* would also be expected. The primary dominant grass is *Schizachyrium scoparium*, with some *Sorghastrum nutans* present. Other more mesic grasses (*Andropogon gerardii, Tripsacum dactyloides*) are restricted to ditches. The largest extant examples are presently found on Fort Campbell Military Reservation, Tennessee, where ecological burning and fires from live munitions use result in open herbaceous-dominated landscapes. This vegetation was the predominant type here in the early 1800s and probably originated from burning by Native Americans.

Range: This system is found in the northern Highland Rim (Pennyroyal Plateau) of Tennessee and adjacent Kentucky.

States: KY, TN

Map Zones: 47:C

Similar: Cumberland Wet-Mesic Meadow and Savanna (CES202.053), Eastern Highland Rim Prairie and Barrens (CES202.354), Southern Ridge and Valley Patch Prairie (CES202.453), Western Highland Rim Prairie and Barrens (CES202.352)

Descriptors:

Major Physiognomy : Herbaceous

3419: Southern Ridge and Valley Patch Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7132 EVT_fuel: 2419

ESP: 1419 NatureServe Id: CES202.453

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This system is a collection of deep soil prairies and barrens found historically in the Coosa Valley of northwestern Georgia and adjacent Alabama and related areas including barrens at Oak Ridge, Tennessee. This system was formerly widespread, but is now found only in scattered and isolated remnants. Vegetation is typically prairie-like and may have supported scattered trees depending upon fire-return interval. Some typical species found in examples of this system include *Andropogon gerardii, Sorghastrum nutans, Panicum anceps, Panicum virgatum, Tripsacum dactyloides, Schizachyrium scoparium, Helianthus mollis, Helianthus occidentalis, Silphium trifoliatum*, and *Silphium terebinthinaceum*.

Range: This system occurs in the Coosa River valley of northwestern Georgia, Tennessee, and northeastern Alabama, and related areas of the Ridge and Valley physiographic province, including barrens at Oak Ridge, Tennessee.

States: AL, GA, TN

Map Zones: 48:C, 53:P

Similar: Eastern Highland Rim Prairie and Barrens (CES202.354), Pennyroyal Karst Plain Prairie and Barrens (CES202.355), Western Highland Rim Prairie and Barrens (CES202.352)

Descriptors:

Lifeform : Graminoid
Major Physiognomy : Herbaceous

3420: Northern Tallgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7133 EVT_fuel: 2420

ESP: 1420 NatureServe Id: CES205.686

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G075 Northern Great Plains Tallgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily in the Northern Tallgrass ecoregion ranging along the Red River basin in Minnesota and the Dakotas to Lake Manitoba in Canada. It constitutes the northernmost extension of the "true" prairies. Similar to ~Central Tallgrass Prairie (CES205.683)$$, this system is dominated by tallgrass species such as *Andropogon gerardii, Sorghastrum nutans*, and *Panicum virgatum*. However, the soils in this region are not as rich nor deep, and thus this system does not have as much species diversity as grasslands to the south. This system is often found on well-drained, drier soils and can grade into ~Eastern Great Plains Tallgrass Aspen Parkland (CES205.688)$$ to the north and east. Grazing and fire influenced this system historically. Much of this system has been converted to agriculture with very few unaltered and highly fragmented examples remaining.

Range: Found primarily in the Northern Tallgrass ecoregion ranging along the Red River basin in Minnesota and the Dakotas to Lake Manitoba in Canada.

States: IA, MB, MN, ND, SD

Map Zones: 39:C, 40:C, 41:?, 42:C

Similar: Central Tallgrass Prairie (CES205.683)

Descriptors:

Grazing Intensity/Spatial Character : Landscape/Medium Intensity

Fire Intensity/Spatial Character : Landscape/Low Intensity

Soil Texture : Loam

Soil Depth : Deep

Glacial History	: Glaciated
Landforms	: Glaciated plains
Major Physiognomy	: Herbaceous

3421: Central Tallgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7134 EVT_fuel: 2421

ESP: 1421 NatureServe Id: CES205.683

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G333 Central Great Plains Tallgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily in the Central Tallgrass Prairie ecoregion ranging from eastern Kansas and Nebraska to northwestern Indiana. This system differs from other prairie systems to the north and south by being the most mesic with primarily deep, rich Mollisol soils. These soils are usually greater than 1 meter deep. This system is dominated by tallgrass species such as *Andropogon gerardii, Sorghastrum nutans*, and *Panicum virgatum*. These species typically grow to 1-2 m tall in the rich soils found in this system. Other mid- and shortgrass species, such as *Bouteloua curtipendula, Hesperostipa spartea*, and *Schizachyrium scoparium*, are usually present and can be common or locally dominant on patches of this system, particularly slopes or other areas with drier habitats. Several forb species are also associated with this system making it one of the most diverse grassland systems. As many as 300 herbaceous plant species could occur in this system across its range. The environment and habitat of this system do not prevent invasion by shrubs and trees. High-quality examples of this system have trees and shrubs widely scattered or clustered in areas that are wetter and/or more sheltered from fire than the surrounding grassland. Fire, drought, and grazing are the primary natural dynamics influencing this system and help prevent woody species from invading. However, conversion to agriculture has been the prime disturbance since post-European settlement. The rich soils and long growing season make this an ideal location for farming row crops, and as a result very few examples of this system remain.

Range: This system is found primarily in the Central Tallgrass Prairie (TNC Ecoregion 36) ranging from eastern Kansas and Nebraska to north-central Missouri and northwestern Indiana. In Missouri, it is attributed to EPA 47d, 47f, 72f.

States: IA, IL, IN, KS, MO, NE, WI

Map Zones: 31:?, 38:C, 39:?, 42:C, 43:C, 44:P, 49:C, 50:C, 51:C, 52:C

Similar: Northern Tallgrass Prairie (CES205.686), Southeastern Great Plains Tallgrass Prairie (CES205.685), Texas Blackland Tallgrass Prairie (CES205.684)

Descriptors:

Soil Texture :	Loam
Soil Depth :	Deep
Glacial History :	Glaciated
Bioclimate :	Temperate
Landforms :	Glaciated plains
Major Physiognomy :	Herbaceous

3422: Texas Blackland Tallgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7135 EVT_fuel: 2422

ESP: 1422 NatureServe Id: CES205.684

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G335 South-Central Plains & Coastal Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily in the Blackland Prairie region of Texas but can range into southern Oklahoma. It is typified by the presence of dark alkaline Vertisol soils over calcareous parent material interspersed with patches of acidic, sandy loam Alfisols and Mollisols. Microtopography such as gilgai and mima mounds can occur and are important microhabitats that lead to a high degree of plant diversity in this system. *Schizachyrium scoparium* and *Sorghastrum nutans* are the most frequent species with *Andropogon gerardii* as a possible associate, especially on the patches of Mollisol soils. *Tripsacum dactyloides* and *Panicum virgatum* are common associates on the Vertisol soils, especially on the gilgai microtopography. Fire and grazing constitute the major natural dynamics influencing this system. Infrequent, but intense, fires prevent woody species from establishing. Fire suppression and over grazing have allowed woody species to invade, and heavy grazing has allowed species such as *Buchloe dactyloides* and *Bouteloua rigidiseta* to invade.

Range: This system is restricted to the Blackland Prairie region, part of the Crosstimbers and Southern Tallgrass Prairie Ecoregion, in Texas and possibly adjacent southern Oklahoma.

States: OK?, TX

Map Zones: 32:C, 35:C, 36:C, 37:C

Similar: Arkansas Valley Prairie and Woodland (CES202.312), Central Tallgrass Prairie (CES205.683), Lower Mississippi Alluvial Plain Grand Prairie (CES203.549), Ozark Prairie and Woodland (CES202.326), Southeastern Great Plains Tallgrass Prairie (CES205.685), West Gulf Coastal Plain Northern Calcareous Prairie (CES203.377)

Descriptors:

Grazing Intensity/Spatial Character : Landscape/Medium Intensity

Soil Texture	: Loam
Glacial History	: Unglaciated
Landforms	: Mima mound
Major Physiognomy	: Herbaceous

3423: Southeastern Great Plains Tallgrass Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7136 EVT_fuel: 2423

ESP: 1423 NatureServe Id: CES205.685

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G334 Southern Great Plains Tallgrass Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system is found primarily within the Flint Hills and Osage Plains of Kansas and Oklahoma. Small patches can be found in the Ozarks of Missouri and the Arbuckle Mountains of Oklahoma. In southern Oklahoma and Texas, this is the primary natural system of the "Grand Prairie" or "Fort Worth Prairie," ranging south into the Lampasas Cutplain of Texas (EPA 29d and 29e, respectively). It is distinguished from ~Central Tallgrass Prairie (CES205.683)$$ by having more species with southwestern geographic affinities and the presence of a thin soil layer over limestone beds ranging to more acidic substrates, although some areas of deeper soil are found within the region, especially on lower slopes, draws, and terraces. Because of the presence of the rocky substrate close to the surface and the rolling topography, this area is relatively unsuitable for agriculture. The Flint Hills contain one of the largest remaining, relatively intact pieces of tallgrass prairie. The vegetation in this system is typified by tallgrass species such as *Andropogon gerardii, Panicum virgatum, Schizachyrium scoparium*, and *Sorghastrum nutans* forming a dense cover. A moderate to high density of forb species also occurs. Species composition varies geographically, with *Oligoneuron rigidum (= Solidago rigida), Liatris punctata, Symphyotrichum ericoides, Lespedeza capitata*, and *Viola pedatifida* occurring in some localities. Areas of deeper soil, especially lower slopes along draws, slopes and terraces, can include *Baptisia alba var. macrophylla, Liatris pycnostachya*, and *Vernonia missurica*. Shrub and tree species are relatively infrequent and, if present, constitute less than 10% cover in the area. Fire and grazing constitute the major dynamic processes for this region. Although many of the native common plant species still occur, grazing does impact this region. Poor grazing practices can lead to soil erosion and invasion by cool-season grasses such as *Bromus inermis* within its range.

Range: This system is found primarily within the Flint Hills and Osage Plains of Kansas and Oklahoma.

Small patches can be found in the Ozarks of Missouri and the Arbuckle Mountains of Oklahoma. In southern Oklahoma and Texas, this is the primary natural system of the "Grand Prairie" or "Fort Worth Prairie," ranging south into the Lampasas Cutplain of Texas (EPA 29d and 29e, respectively). In Missouri, it is attributed to EPA 40c, 40d, and possibly 39k.

States: KS, MO, OK, TX

Map Zones: 32:P, 35:C, 38:P, 43:C, 44:C

Similar: Arkansas Valley Prairie and Woodland (CES202.312), Central Tallgrass Prairie (CES205.683), Lower Mississippi Alluvial Plain Grand Prairie (CES203.549), Ozark Prairie and Woodland (CES202.326), Texas Blackland Tallgrass Prairie (CES205.684), West Gulf Coastal Plain Northern Calcareous Prairie (CES203.377)

Descriptors:

Lifeform :	Graminoid
Grazing Intensity/Spatial Character :	Landscape/Medium Intensity
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Soil Depth :	Shallow Soil
Glacial History :	Unglaciated
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3425: Florida Dry Prairie Grassland

Match Confidence: Good Match

Suggested Match: Florida Dry Prairie

Codes: ESLF: 7138 EVT_fuel: 2425

ESP: 1425 NatureServe Id: CES203.380

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M162 Florida Peninsula Scrub & Herb

NVC Group: G176 Florida Dry Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system, which is endemic to subtropical Florida, is characterized by nearly treeless plains with dense cover of grasses and low shrubs, primarily *Serenoa repens*. Examples occur on flat, low-lying terrain over moderately to poorly drained soils with sandy surfaces overlying organic hardpans or clayey subsoil (FNAI 1990). This type was historically expansive in several regions of Florida (Harper 1927). Early surveyors noted large expanses of this system on the plains near the Kissimmee River, north from Lake Okeechobee, and in the area west of Lake Okeechobee (Fisheating Creek) (Huffman and Judd 1998). The original extent has been heavily reduced by clearing for agriculture and conversion for forage production. Intact examples have been further altered by fire suppression which changes the proportion of grasses and shrubs and may further alter species composition. Frequent fires were an important natural process in this system, with an estimated frequency of 1-4 years (FNAI 1990).

Range: This system occurs in southern Florida mainly north of the Everglades and Big Cypress area. For instance, it is found on the plains near the Myakka River, Kissimmee River, as well as north of Lake Okeechobee and near Fisheating Creek (west of Lake Okeechobee).

States: FL

Map Zones: 56:C

Similar: South Florida Pine Flatwoods (CES411.381)

Descriptors:

Lifeform : Graminoid

Disturbance Return Interval : Short

Major Physiognomy : Herbaceous

3426: Southern Atlantic Coastal Plain Dune and Maritime Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7139 EVT_fuel: 2426

ESP: 1426 NatureServe Id: CES203.273

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G494 South Atlantic & Gulf Shrub & Grass Coast & Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This system consists primarily of grasslands and related shrublands of Atlantic Coastal Plain barrier islands and related near-coastal areas from North Carolina southward to northern and central Florida. On the portion of the Florida Coast from south of Cape Canaveral to the sandy portions of the Florida Keys, this system occurs in a more attenuated fashion. A distinct system could be recognized, but this does not seem necessary. Upland plant communities and non-flooded wetlands (including "maritime wet grasslands") are included in this system as embedded or "inclusional" shrublands. The environment of this system is highly dynamic. Reworking of sand by storms or by slower eolian processes may completely change the local environment in a short time, and portions of the system may occupy sites fairly early in the process of primary succession. The combined effects of chronic and extreme salt spray and ocean overwash prevent or dramatically inhibit woody plant growth.

Range: This system ranges on the Atlantic Coast from northern North Carolina (Omernik ecoregion 63g) to central Florida. The northern limit is a transition zone from around Kitty Hawk, North Carolina, to the Virginia-North Carolina border.

States: FL, GA, NC, SC

Map Zones: 55:C, 56:?, 58:C

Similar: Central Atlantic Coastal Plain Maritime Forest (CES203.261), Northern Atlantic Coastal Plain Dune and Swale (CES203.264), Southeastern Coastal Plain Interdunal Wetland (CES203.258), Southern Atlantic Coastal Plain Maritime Forest (CES203.537), Southwest Florida Dune and Coastal Grassland (CES203.539)

Descriptors:

Lifeform : Graminoid
Landforms : Coast
Major Physiognomy : Herbaceous

3428: West Gulf Coastal Plain Northern Calcareous Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7141 EVT_fuel: 2428

ESP: 1428 NatureServe Id: CES203.377

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M309 Southeastern Coastal Plain Patch Prairie

NVC Group: G175 Southeastern Coastal Plain Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This is one of two described calcareous prairie ecological systems which occur within the pine-dominated portions of the Coastal Plain west of the Mississippi River. This type is the more northerly ranging of the two [compare against ~West Gulf Coastal Plain Southern Calcareous Prairie (CES203.379)$$]. This system includes natural grassland vegetation and associated wooded vegetation in a relatively small natural region of the Upper West Gulf Coastal Plain of Arkansas and adjacent Oklahoma. Although other calcareous prairies are found west of the Mississippi River, this system represents some of the largest known and highest quality remaining examples. Plant communities in this system occur over relatively deep soils (as well as shallow soils over chalk and limestone) with circumneutral surface soil pH, which is unusual given the predominance of acidic, generally forested soils in the region. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement, forming a mosaic of grassland and woodlands under frequent fire regimes. The flora has much in common with other prairie systems of the East Gulf Coastal Plains as well as classic Midwestern prairies.

Range: This system is known only from a relatively small natural region of the Upper West Gulf Coastal Plain of Arkansas and adjacent Oklahoma.

States: AR, OK

Map Zones: 37:?, 44:C

Similar: Southeastern Great Plains Tallgrass Prairie (CES205.685), Texas Blackland Tallgrass Prairie (CES205.684), West Gulf Coastal Plain Southern Calcareous Prairie (CES203.379)

Descriptors:

SCS Subregion :	West Gulf Coastal Plain
Lifeform :	Graminoid
Soil Depth :	Deep
Soil pH :	Circumneutral
Major Physiognomy :	Herbaceous

3429: West Gulf Coastal Plain Southern Calcareous Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7142 EVT_fuel: 2429

ESP: 1429 NatureServe Id: CES203.379

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M309 Southeastern Coastal Plain Patch Prairie

NVC Group: G175 Southeastern Coastal Plain Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This is one of two described calcareous prairie ecological systems which occur within the pine-dominated portions of the Coastal Plain west of the Mississippi River. This type is the more southerly ranging of the two [compare against ~West Gulf Coastal Plain Northern Calcareous Prairie (CES203.377)$$]. Examples include natural grassland vegetation and adjacent wooded vegetation in a relatively small natural region of Louisiana and Texas. Although most examples are typically upland, some include small stream bottoms or riparian areas that bisect the prairies. This system is found primarily within the historical range of *Pinus palustris*, or TNC Ecoregion 41, but it extends somewhat beyond this area to the north. In addition, examples occurring west to the eastern edge of the Post Oak Savanna region of eastern Texas are also included here. Plant communities in this system occur over relatively deep soils with circumneutral surface soil pH. These conditions are unusual in the local landscape which is predominantly one of acidic, generally forested soils. In most cases individual prairie openings are small and isolated from one another. Although they were formerly more extensive prior to European settlement, they apparently were much smaller than examples of ~West Gulf Coastal Plain Northern Calcareous Prairie (CES203.377)$$.

Range: This system is restricted to a relatively small natural region of Louisiana and Texas.

States: AR?, LA, TX

Map Zones: 37:C

Similar: West Gulf Coastal Plain Northern Calcareous Prairie (CES203.377)

Descriptors:

SCS Subregion : West Gulf Coastal Plain

Lifeform :	Graminoid
Soil Depth :	Deep
Soil pH :	Circumneutral
Major Physiognomy :	Herbaceous

3430: Southern Coastal Plain Blackland Prairie

Match Confidence: Good Match

Suggested Match: Southern Coastal Plain Blackland Prairie and Woodland

Codes: ESLF: 7143 EVT_fuel: 2430

ESP: 1430 NatureServe Id: CES203.478

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M309 Southeastern Coastal Plain Patch Prairie

NVC Group: G175 Southeastern Coastal Plain Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system includes natural grassland vegetation and associated wooded vegetation found primarily in two relatively small natural regions in the southeastern Coastal Plains, primarily in Alabama and Mississippi (with one of these extending barely into southern Tennessee), and a related area of southern Georgia. The larger of these, the so-called Black Belt, is approximately 480 km (300 miles) long and 40-50 km (25-30 miles) wide, and is delineated as the Black Belt Subsection 231Ba of Keys et al. (1995) and the Blackland Prairie Ecoregion 65a of Griffith et al. (2001). The smaller and more southerly one of the two is known as the Jackson Prairie region, is found on younger geologic strata and is delineated as the Jackson Hills Subsection (231Bj) of Keys et al. (1995) and as the Jackson Prairie Ecoregion (65r) of EPA (2004). The vegetation of this system is comprised of natural grasslands and associated wooded vegetation (woodlands and savannas). The Black Belt region derives its name from the nearly black, rich topsoil that developed over Selma Chalk, and has long been noted as a distinct topographic region in the state of Mississippi (Lowe 1921). In Alabama, the formations on which this system primarily occurs are Demopolis Chalk and Mooreville Chalk (members of the Selma Group). In Tennessee, only Demopolis Chalk is mapped (Hardeman 1966). Examples occur over relatively deep soils (as opposed to "glades and barrens" on or adjacent to rock outcrops), with circumneutral surface soil pH. Vegetation of this ecological system includes evergreen *Juniperus virginiana*-dominated forests and deciduous *Quercus*-dominated woodlands of varying densities, interspersed with native prairielike grasslands. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, but even old-field vegetation reflects the distinctive composition of the flora and ecological dynamics. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement, forming a mosaic of grasslands and woodlands under frequent fire regimes. The flora has much in common with other prairies of the

East Gulf Coastal Plains, as well as the classic Midwestern prairies. Within this natural region, there are pockets of acidic soils which produce more typical pine-oak woodland or forest vegetation. The Jackson Prairie component of the system includes natural grassland vegetation and associated wooded vegetation in the Jackson Hills Subsection (231Bj) of Keys et al. (1995) also called the Jackson Prairie Ecoregion (65r) of EPA (2004), a relatively small natural region of Mississippi and adjacent Alabama. This system occurs on montmorillonitic Vertisols, which are deep, slowly permeable soils formed in residuum weathered from marl or chalk. Examples occur in a larger matrix of primarily acidic soils and of generally *Pinus taeda*-dominated forest vegetation. In most cases individual prairie openings are small and isolated from one another but were formerly more extensive prior to European settlement, forming a mosaic of grassland and woodland under frequent fire regimes. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, with concomitant destruction of most prairie remnants.

Range: This system has several distinct components. The Black Belt Prairie component is primarily restricted to the Black Belt (Subsection 231Ba) (Keys et al. 1995) or Blackland Prairie area (Ecoregion 65a) and Flatwoods/Blackland Prairie Margins area (Ecoregion 65b) of Griffith et al. (2001). This region is primarily in Alabama and Mississippi, ranging north in a depauperate form to southern Tennessee (McNairy County) (DeSelm 1989b). The Jackson Prairie component of this system is found in a relatively small natural region of Mississippi, known as the Jackson Hills Subsection 231Bj of Keys et al. (1995) and the Jackson Prairie Ecoregion 65r of EPA (2004). There is also a recently recognized component found in limited parts of Georgia (e.g., on both sides of the Ocmulgee River on the Fort Valley Plateau of Bleckley, Houston, Peach, and Twiggs counties). There are also outlying occurrences southward in the Chunnenuggee Hills and Red Hills (both of these parts of the Southern Hilly Coastal Plain - Ecoregion 65d), and Buhrstone/Lime Hills (Ecoregion 65q) of southern Alabama (in Washington, Wilcox, Monroe, and Clark counties). There are some limited examples in Ecoregion 65i (Fall Line Hills; e.g., Jones Bluff in Alabama).

States: AL, GA, MS, TN

Map Zones: 46:C, 55:C

Similar:

Descriptors:

Lifeform :	Graminoid
Soil Texture :	Clay
Soil Depth :	Deep
Soil pH :	Circumneutral
Major Physiognomy :	Herbaceous

3433: East Gulf Coastal Plain Jackson Prairie

Match Confidence: Solid Match

Suggested Match: East Gulf Coastal Plain Jackson Plain Prairie and Barrens

Codes: ESLF: 7140 EVT_fuel: 2427

ESP: 1427 NatureServe Id: CES203.353

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nc Eastern North American Grassland & Shrubland

Summary: This ecological system was locally dominant in the Jackson Purchase area of western Kentucky, extending into limited areas of adjacent Tennessee. This central region, called "the Barrens," has been historically subdivided from the rest of the Coastal Plain region of Kentucky (Davis 1923, Bryant and Martin 1988). A number of early reports mentioned extensive prairies in this region and also emphasized the importance of annual fires in maintaining these grasslands [see references in Bryant and Martin (1988)]. Interspersed among the extensive grasslands were likely scattered groves of oaks, especially those tolerant of frequent fires (M. Evans pers. comm.). Among the most frequent trees historically present in the entire region were *Quercus stellata, Quercus velutina*, and *Quercus marilandica* (Bryant and Martin 1988). With fire suppression, groves of trees rapidly expanded and largely replaced the prairies. In general, this system was found on "poorly consolidated Tertiary deposits" (Evans 1991), which are capped by loess, in the northern part of the Upper East Gulf ecoregion. High-quality examples would support a dense herbaceous layer dominated by tall grasses such as *Andropogon gerardii* and *Schizachyrium scoparium*, but the floristic composition of this type is poorly known since so few extant examples remain (M. Evans pers. comm.). *Sassafras albidum* and *Diospyros virginiana* are present in current sample data from stands attributed to this type (Bryant and Held 2001), but their presence at higher cover values is probably a symptom of fire suppression.

Range: This system occurs in the Jackson Purchase area of western Kentucky (primarily Graves County and parts of Calloway County), extending into limited areas of adjacent Tennessee.

States: KY, TN?

Map Zones: 47:C

Similar: Western Highland Rim Prairie and Barrens (CES202.352)

Descriptors:

Major Physiognomy : Herbaceous

3434: Texas-Louisiana Coastal Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7147 EVT_fuel: 2434

ESP: 1434 NatureServe Id: CES203.550

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M054 Great Plains Tallgrass Prairie

NVC Group: G335 South-Central Plains & Coastal Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This system encompasses non-saline tallgrass prairie vegetation ranging along the coast of Louisiana and Texas. This vegetation is found on Vertisols and Alfisols which developed over Pleistocene terraces flanking the Gulf Coast. It is often characterized by a ridge-and-swale or mound-and-intermound microtopography and encompasses both upland and wetland plant communities. Upland dominants include *Schizachyrium scoparium, Paspalum plicatulum, Sorghastrum nutans*, and *Andropogon gerardii*. Wetland dominants in undisturbed occurrences include *Panicum virgatum* and *Tripsacum dactyloides*; disturbed occurrences may be dominated by *Andropogon glomeratus*. Some estimates state that 99% of coastal prairie has been lost through conversion to other uses and environmental degradation due to the interruption of important ecological processes, such as fire, needed to maintain this system. In the absence of regular fire, this system will be invaded by woody shrubs and trees.

Range: Along the coast of Louisiana and Texas

States: LA, TX

Map Zones: 36:C, 37:C

Similar: Texas-Louisiana Coastal Prairie Pondshore (CES203.541)

Descriptors:

Lifeform : Graminoid

Soil Depth : Deep

Wetland Isolation : Isolated

Hydrogeomorphic Units : Extensive Wet Flat

Major Physiognomy : Herbaceous

3435: East Gulf Coastal Plain Dune and Coastal Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7148 EVT_fuel: 2435

ESP: 1435 NatureServe Id: CES203.500

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G494 South Atlantic & Gulf Shrub & Grass Coast & Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This system includes vegetation of coastal dunes along the northern Gulf of Mexico, including the northwestern panhandle of Florida, southern Alabama, and southeastern Mississippi. The vegetation consists largely of herbaceous and embedded shrublands on barrier islands and other near-coastal areas where salt spray, saltwater overwash, and sand movement are important ecological forces. This vegetation differs from that of other regions of the Gulf, and this region forms a natural unit with similar climate and substrate (Johnson 1997). There are a number of diagnostic and endemic plant species which characterize this system, including *Ceratiola ericoides, Chrysoma pauciflosculosa, Schizachyrium maritimum, Paronychia erecta*, and *Helianthemum arenicola* (Johnson and Barbour 1990).

Range: Coastal dunes along the northern Gulf of Mexico, including the northwestern panhandle of Florida, southern Alabama, and southeastern Mississippi.

States: AL, FL, MS

Map Zones: 55:C, 99:C

Similar: East Gulf Coastal Plain Maritime Forest (CES203.503)

Descriptors:

Wetland Isolation : Isolated
Hydrogeomorphic Units : Depressional
Major Physiognomy : Herbaceous

3436: Northern Atlantic Coastal Plain Dune and Swale Shrubland

Match Confidence: Good Match

Suggested Match: Northern Atlantic Coastal Plain Dune and Swale

Codes: ESLF: 7149 EVT_fuel: 2436

ESP: 1436 NatureServe Id: CES203.264

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G493 North Atlantic Coastal Shrub & Grass Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This system consists of vegetation of barrier islands and other coastal areas, ranging from northernmost North Carolina northward to southern Maine (where extensive sandy coastlines are replaced by rocky coasts). A range of plant communities may be present, but natural vegetation is predominately herbaceous, with *Ammophila breviligulata* diagnostic. Shrublands resulting from succession from grasslands may occur in limited areas. Both dune uplands and non-flooded wetland vegetation of interdunal swales are included in this system. Small patches of natural woodland may also be present in limited areas, especially in the northern range of this system. Dominant ecological processes are those associated with the maritime environment, including frequent salt spray, saltwater overwash, and sand movement.

Range: This system ranges from northernmost North Carolina (EPA ecoregion 63d) and southeastern Virginia to southern Maine. The southern portion is a transition zone from around Kitty Hawk, North Carolina, to the Virginia-North Carolina border. The northern limit is Merrymeeting Bay, Maine.

States: CT, DE, MA, MD, ME, NC, NH, NJ, NY, RI, VA

Map Zones: 60:C, 65:C, 66:C

Similar: Northern Atlantic Coastal Plain Heathland and Grassland (CES203.895), Northern Atlantic Coastal Plain Maritime Forest (CES203.302), Northern Atlantic Coastal Plain Sandy Beach (CES203.301), Southeastern Coastal Plain Interdunal Wetland (CES203.258), Southern Atlantic Coastal Plain Dune and Maritime Grassland (CES203.273)

Descriptors:

SCS Subregion : North Atlantic Coastal Plain

Lifeform :	Graminoid
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Specialized Substrates :	Beach
Landforms :	Coast
Major Physiognomy :	Herbaceous

3437: Central and Upper Texas Coast Dune and Coastal Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7150 EVT_fuel: 2437

ESP: 1437 NatureServe Id: CES203.465

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G494 South Atlantic & Gulf Shrub & Grass Coast & Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This system consists of wetland and upland herbaceous and shrubland vegetation of barrier islands and near-coastal areas in the northern Gulf of Mexico along the upper Texas coast, at least to Galveston Bay. Plant communities of primary and secondary dunes, interdunal swales and adjacent mainland are included. Salt spray, saltwater overwash, and sand movement are important ecological forces.

Range: Northern Gulf of Mexico along the upper Texas coast.

States: TX

Map Zones: 36:C, 37:?

Similar: Central and South Texas Coastal Fringe Forest and Woodland (CES203.464), South Texas Sand Sheet Grassland (CES301.538)

Descriptors:

Wetland Isolation : Isolated
Hydrogeomorphic Units : Depressional
Major Physiognomy : Herbaceous

3438: Tamaulipan Savanna Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7151 EVT_fuel: 2438

ESP: 1438 NatureServe Id: CES301.985

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M130 Tamaulipan Scrub & Grassland

NVC Group: G100 Tamaulipan Dry Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This Tamaulipan ecological system is dominated by perennial grasses with sparse overstory of mesquite or oak trees and thornscrub. Dominant grasses are *Cynodon* spp. This system was once a common matrix system, but has largely been converted to desert scrub and exists as remnant patches. Degraded subtropical forests and woodlands may have similar structure but are not included in this system because different ecological processes maintain them.

Range:

States: MXCO, MXNU, MXTM, TX

Map Zones: 36:C

Similar:

Descriptors:

Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3439: South Texas Lomas

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7152 EVT_fuel: 2439

ESP: 1439 NatureServe Id: CES301.462

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M130 Tamaulipan Scrub & Grassland

NVC Group: G099 Tamaulipan Dry Mesquite & Thornscrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This system occurs on well-drained portions of clay dunes (lomas) rising above surrounding coastal tidal flats. It is a xeric, subtropical shrubland dominated by thorny evergreen shrubs, generally 2-4 m tall. Composition of this system is extremely variable, and there is usually no clear dominant, except locally. Local dominants may include *Citharexylum berlandieri, Leucophyllum frutescens, Havardia pallens (= Pithecellobium pallens)*, and *Ebenopsis ebano*. While there is often no clear dominant, *Yucca treculeana* is a constant and conspicuous emergent in many occurrences (Johnston 1952). Some lomas may be flooded by the sea during severe storm events. Vegetation in this system is sometimes influenced by salt spray, high winds, limited rooting depth, saline water table, and extreme xeric conditions. Soils are typically Point Isabel clay loam.

Range: This coastal system is known from Aransas County, Texas, south to Mexico.

States: TX

Map Zones: 36:C

Similar:

Descriptors:

Major Physiognomy : Herbaceous

3440: Tamaulipan Clay Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7153 EVT_fuel: 2440

ESP: 1440 NatureServe Id: CES301.987

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This Tamaulipan ecological system occurs on clay prairies near the Gulf Coast and drier sites further inland. Substrates are fine calcareous clays and clay loam. Occasional fires and root pruning from montmorillonitic clay limit shrub invasion, if the grassland is not overgrazed. If overgrazed the land will convert to stable thornscrub dominated by *Prosopis glandulosa* and *Celtis pallida*. Vegetation is dominated by perennial mid and short grasses such as *Schizachyrium scoparium, Paspalum* spp., *Chloris pluriflora, Buchloe dactyloides*, with other grasses such as *Bothriochloa saccharoides, Bouteloua curtipendula, Chloris andropogonoides, Nassella leucotricha, Schedonnardus paniculatus, Setaria leucopila*, and clumps of *Andropogon gerardii* on less clayey sites. *Prosopis glandulosa* or *Quercus fusiformis* are often present as scattered mottes or are restricted to drainages. *Opuntia engelmannii var. lindheimeri* is often present.

Range: Occurs on clay prairies near the Gulf Coast and drier sites further inland.

States: MXCO?, MXNU?, MXTM, TX

Map Zones: 36:C

Similar:

Descriptors:

Soil Texture :	Clay
Specialized Substrate Chemistry :	Calcareous
Soil pH :	Alkaline
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley

Landforms : Plain
Major Physiognomy : Herbaceous
Life Zones : Lowland

3442: South Texas Sand Sheet Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7155 EVT_fuel: 2442

ESP: 1442 NatureServe Id: CES301.538

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This system occurs on the ridge-and-swale topography within 100 km of the Texas coast on the Holocene-aged eolian sand deposits of the South Texas Sand Sheet (primarily Kenedy and Brooks counties and extending into adjacent Jim Hogg, Hidalgo, and Willacy counties). While the vegetation of the ridges and swales is somewhat distinct, they are not separated here. In general, ridges are dominated by *Schizachyrium littorale* and a mixture of forbs, and swales are dominated by *Paspalum monostachyum, Andropogon gerardii, Muhlenbergia capillaris*, and *Sorghastrum nutans*. *Paspalum plicatulum* may be important in both environments. In addition to the dominants, common herbaceous components include *Eragrostis* spp., *Acalypha radians, Argythamnia mercurialina var. pilosissima, Chamaecrista flexuosa var. texana, Cnidoscolus texanus, Croton argyranthemus, Dalea phleoides, Froelichia floridana, Galactia canescens, Gaura mckelveyae, Helianthemum georgianum, Monarda fruticulosa (= Monarda punctata var. fruticulosa), Phlox cuspidata, Rhynchosia americana, Stillingia sylvatica*, and *Thelesperma nuecense*. These grasslands occur intermixed with woodlands dominated by *Quercus fusiformis* and/or *Prosopis glandulosa var. glandulosa*.

Range: This system is endemic to Texas. It is found within 100 km of the coast on the Holocene-aged eolian sand deposits of the South Texas Sand Sheet primarily Kenedy and Brooks counties and extending into adjacent Jim Hogg, Hidalgo, and Willacy counties.

States: TX

Map Zones: 36:C

Similar: Central and South Texas Coastal Fringe Forest and Woodland (CES203.464), Central and Upper Texas Coast Dune and Coastal Grassland (CES203.465)

Descriptors:

Major Physiognomy : Herbaceous

3443: South Texas Dune and Coastal Grassland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 7156 EVT_fuel: 2443

ESP: 1443 NatureServe Id: CES301.460

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system includes non-tidal maritime grasslands occurring on barrier islands and mainland areas near the coast of southern Texas, from Matagorda Island and Padre Island south along the northern Gulf of Mexico. This includes grasslands of primary and secondary dunes, interdune swales, barrier flats, and the mainland. Some examples of this system naturally occurred as an open matrix of midgrass species within native mesquite - acacia shrublands dominated by *Prosopis glandulosa, Acacia farnesiana*, and *Acacia rigidula* but have become shrub-dominated due to the lack of fire. In many areas this system has been virtually eliminated due to conversion to tame pasture, cropland, or due to lack of burning.

Range: This system ranges from Matagorda Island south along the northern Gulf of Mexico.

States: TX

Map Zones: 36:C

Similar:

Descriptors:

Wetland Isolation : Isolated
Hydrogeomorphic Units : Depressional
Major Physiognomy : Herbaceous

3444: Eastern Boreal Floodplain Woodland

Match Confidence: Good Match

Suggested Match: Eastern Boreal Floodplain

Codes: ESLF: 9113 EVT_fuel: 2444

ESP: 1444 NatureServe Id: CES103.588

BioGeographical Division : Boreal

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G052 Eastern Boreal Hardwood Floodplain & Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This is the low density expression of this floodplain system. These southern boreal floodplains are found in the extreme northern portions of the eastern U.S., and believed to be more widespread in Canada. They consist of floodplains along medium-sized northern rivers, in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. (*Acer saccharinum* is uncommon or absent.) Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. The distribution in Division 201 appears to be primarily Canadian, with incursions into northern Maine and northern Minnesota.

Range: This system is found primarily in Canada, with distribution extending into far-northern New England and the northern Great Lakes region.

States: ME, MI, MN, NB, NH, NY, ON, QC, VT

Map Zones: 40:?, 41:P, 50:P, 51:P, 63:P, 64:P, 66:C

Similar:

Descriptors:

Soil Depth : Deep

Major Physiognomy : Forest and Woodland (Tree)

Major Physiognomy : Shrubland (Shrub)

Topography : Toeslope/Bottom/Valley

Hydrogeomorphic Units :	Riverine / Alluvial
Glacial History :	Glaciated
Soil Fertility :	Mesotrophic Soil
Soil Fertility :	Oligotrophic
Life Zones :	Lowland
Soil pH :	Acidic
Flooding Return Interval :	Short (<5 yrs)
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Texture :	Silt
Disturbance Return Interval :	Very Short
Mass Movement Type :	Flood Scouring
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Water Nutrient Status :	Mesotrophic Water
Water pH :	Circumneutral
Water pH :	Acidic
Soil pH :	Circumneutral

3446: South Florida Pine Flatwoods

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9115 EVT_fuel: 2446

ESP: 1446 NatureServe Id: CES411.381

BioGeographical Division : Caribbean

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system is endemic to Florida, ranging from approximately Lee, Desoto, Highlands, and Okeechobee counties southward. It was once an extensive system within its historic range. The vegetation is naturally dominated by *Pinus elliottii var. densa*, being largely outside the natural range of *Pinus serotina, Pinus elliottii var. elliottii*, and *Pinus palustris*. In natural condition, examples are generally open with a variety of low shrub and grass species forming a dense ground cover. Frequent, low-intensity fire was the dominant natural ecological force, but most areas have undergone long periods of fire suppression resulting in greater dominance of shrubs and saw palmetto, as well as denser canopies of slash pine (Huffman and Judd 1998, Noel et al. 1998).

Range: This system is found in southern Florida, extending north to mid-peninsula.

States: FL

Map Zones: 56:C

Similar: Florida Dry Prairie (CES203.380), South Florida Pine Rockland (CES411.367)

Descriptors:

Lifeform :	Needle-Leaved Tree
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Woody-Herbaceous

3447: South Florida Cypress Dome

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9116 EVT_fuel: 2447

ESP: 1447 NatureServe Id: CES411.365

BioGeographical Division : Caribbean

NVC MacroGroup: M617 Caribbean Swamp

NVC Group: G002 Caribbean Lowland Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.4 Tropical Flooded & Swamp Forest

NVCS Division: 1.A.4.Ed Caribbean & Central American Flooded & Swamp Forest

Summary: This system is found primarily in the Everglades and Big Cypress regions. This system consists of small forested wetlands in poorly drained depressions which are underlain by an impervious layer that impedes drainage and traps precipitation. They receive their common name from the unique dome-shaped appearance in which trees in the center are higher than those around the sides (Monk and Brown 1965). *Taxodium ascendens* is the dominant tree, with the oldest and largest individuals characteristically occupying the center, and smaller and younger individuals around the margins. Pools of stagnant, highly acidic water may stand in the center of these depressions ranging from 1-4 feet in depth, but becoming increasingly shallow along the margins. The understory flora is typified by species with tropical affinities.

Range: Endemic to south Florida.

States: FL

Map Zones: 56:C

Similar:

Descriptors:

Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Forest and Woodland (Tree)

3448: Southern Piedmont Dry Oak-Pine Forest

Match Confidence: Solid Match

Suggested Match: Southern Piedmont Dry Oak-(Pine) Forest

Codes: ESLF: 4311 EVT_fuel: 2368

ESP: 1368 NatureServe Id: CES202.339

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G165 Piedmont & Central Atlantic Coastal Plain Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system encompasses the prevailing upland forests of the southern Piedmont. High-quality and historic examples are typically dominated by combinations of upland oaks, sometimes with pines as a significant component, especially in the southern portions of the region. These forests occur in a variety of habitats and, under natural conditions, were the matrix vegetation type covering most of the landscape. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of original oak-hickory forests. Stands of these forests are dominated by combinations of upland oaks, particularly Quercus alba, Quercus rubra, Quercus velutina, Quercus stellata, Quercus coccinea, and *Quercus falcata*, along with *Carya glabra, Carya alba*, and other *Carya* spp. Other common tree species include *Pinus taeda, Pinus echinata, Pinus virginiana, Acer rubrum, Liquidambar styraciflua*, and *Liriodendron tulipifera*.

Range: This system ranges throughout the Piedmont from Alabama to Virginia. In Virginia, it is primarily central and southern, but extends into a narrow portion of northern Virginia in the Piedmont ecoregion.

States: AL, GA, NC, SC, VA

Map Zones: 54:C, 59:C, 60:C, 61:C

Similar: Central Appalachian Dry Oak-Pine Forest (CES202.591), Southeastern Interior Longleaf Pine Woodland (CES202.319), Southern Appalachian Low-Elevation Pine Forest (CES202.332), Southern Appalachian Montane Pine Forest and Woodland (CES202.331), Southern Piedmont Mesic Forest (CES202.342)

Descriptors:

Lifeform : Broad-Leaved Tree

Lifeform : Needle-Leaved Tree
Major Physiognomy : Forest and Woodland (Tree)

3449: Central Atlantic Coastal Plain Wet Longleaf Pine Savanna and Flatwoods

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9118 EVT_fuel: 2449

ESP: 1449 NatureServe Id: CES203.265

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system of wet *Pinus palustris*-dominated savannas and flatwoods ranges from southern Virginia to southern South Carolina. It was once one of the most extensive systems in the coastward part of its range. Examples and associations share the common features of wet, seasonally saturated, mineral soils and exposure to frequent fire. They occur on a wide range of soil textures, which is an important factor in distinguishing different associations. The vegetation is naturally dominated by *Pinus palustris* or, less frequently, other wetland pines. There is a dense ground cover of herbs and low shrubs; grasses dominate but there is often a large diversity of other herbs. Frequent, low-intensity fire is the dominant natural ecological force.

Range: This system ranges from southern Virginia to southern South Carolina. To the south, the equivalent system is ~Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods (CES203.536)$$, the range of which includes Georgia.

States: NC, SC, VA

Map Zones: 58:C, 60:C

Similar: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254), Atlantic Coastal Plain Sandhill Seep (CES203.253), Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281), Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods (CES203.536)

Descriptors:

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Short

Hydrogeomorphic Units : Extensive Wet Flat

3450: Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9119 EVT_fuel: 2450

ESP: 1450 NatureServe Id: CES203.536

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system of pine-dominated savannas and/or flatwoods ranges from southern South Carolina to northeastern Florida where it was the former matrix system, centered in southeastern Georgia, near the coast. This general area has been referred to as the Longleaf Pine Wiregrass Savannas region (Platt 1999) and the Sea Island Flatwoods Ecoregion (75f of Griffith et al. (2001, 2002)). Examples of this system and component community associations share the common features of wet, seasonally saturated, mineral soils and historic exposure to frequent low-intensity fire. They occur on a wide range of soil textures, which is an important factor in distinguishing different associations. The vegetation is naturally dominated by *Pinus palustris* or, on wetter sites, *Pinus elliottii* or less commonly *Pinus serotina*. Understory conditions may be dramatically altered by fire frequency and seasonality. In natural condition (frequent fires, including a growing-season component) there tends to be a dense ground cover of herbs and low shrubs; grasses can dominate, but there is often a large diversity of other herbs and shrubs.

Range: Southern South Carolina to northeastern Florida.

States: FL, GA, SC

Map Zones: 55:C, 58:C

Similar: Central Atlantic Coastal Plain Wet Longleaf Pine Savanna and Flatwoods (CES203.265), East Gulf Coastal Plain Near-Coast Pine Flatwoods (CES203.375)

Descriptors:

Hydrogeomorphic Units : Extensive Wet Flat
Major Physiognomy : Woody-Herbaceous

3451: West Gulf Coastal Plain Wet Longleaf Pine Savanna and Flatwoods

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9120 EVT_fuel: 2451

ESP: 1451 NatureServe Id: CES203.191

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system was the historical matrix vegetation of the outer portions of the West Gulf Coastal Plain in Louisiana and eastern Texas, occurring most frequently on relatively recent geologic formations within the range of longleaf pine. These areas are characterized by poorly drained upland soils with high water tables (Bridges and Orzell 1990). In natural condition, monospecific stands of *Pinus palustris* and species-rich herbaceous layers characterize this system. Widespread alterations following European settlement, including changes to natural fire regimes, have produced drastic changes to this system, and few large examples are extant. Examples appear to be somewhat more common in western Louisiana than eastern Texas.

Range: This system is endemic to western Louisiana and eastern Texas.

States: LA, TX

Map Zones: 37:C

Similar: West Gulf Coastal Plain Stream Terrace Sandyland Longleaf Pine Woodland (CES203.891), West Gulf Coastal Plain Upland Longleaf Pine Forest and Woodland (CES203.293)

Descriptors:

SCS Subregion :	West Gulf Coastal Plain
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Very Short
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Forest and Woodland (Tree)

3452: Atlantic Coastal Plain Peatland Pocosin and Canebrake Woodland

Match Confidence: Good Match

Suggested Match: Atlantic Coastal Plain Peatland Pocosin and Canebrake

Codes: ESLF: 9121 EVT_fuel: 2452

ESP: 1452 NatureServe Id: CES203.267

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M065 Atlantic & Gulf Coastal Plain Bog & Fen

NVC Group: G186 Southeastern Coastal Plain Pocosin & Shrub Bog

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Nb Southeastern North American Coastal Bog & Fen

Summary: This system includes wetlands of organic soils, occurring on broad flats or gentle basins, primarily on the outer terraces of the Atlantic Coastal Plain of the Carolinas and southeastern Virginia. Under current conditions, the vegetation is predominantly dense shrubland and very shrubby open woodlands. A characteristic suite of primarily evergreen shrubs, greenbriars, and *Pinus serotina* dominates. These shrubs include *Ilex glabra, Lyonia lucida, Lyonia mariana, Cyrilla racemiflora, Ilex coriacea*, and *Zenobia pulverulenta*, along with *Smilax laurifolia*. *Pinus serotina* is the characteristic tree, along with *Gordonia lasianthus, Magnolia virginiana*, and *Persea palustris*. Herbs are scarce and largely limited to small open patches. Under pre-European settlement fire regimes, stands of *Arundinaria gigantea ssp. tecta* (canebrakes) would have been more common and extensive. Soil saturation, sheet flow, and peat depth create a distinct zonation, with the highest stature woody vegetation on the edges and lowest in the center. Catastrophic fires are important in this system, naturally occurring at moderate frequency. Fires generally kill all above-ground vegetation in large patches, creating a shifting mosaic. Vegetation structure and biomass recover rapidly in most of the burned areas, primarily by sprouting.

Range: This systems is found primarily in North Carolina, extending into northern South Carolina and southeastern Virginia.

States: GA, NC, SC, VA

Map Zones: 58:C, 60:C

Similar: Atlantic Coastal Plain Streamhead Seepage Swamp, Pocosin and Baygall (CES203.252), Southern Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest (CES203.304)

Descriptors:

Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)

3453: Central Florida Pine Flatwoods

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9122 EVT_fuel: 2453

ESP: 1453 NatureServe Id: CES203.382

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G596 Mesic Longleaf Pine Flatwoods - Spodosol Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system is endemic to Florida, ranging in the north from approximately Levy and St. Johns counties (ca. 30 degrees N latitude) southward to approximately Hillsborough, Osceola and Polk counties. It was once an extensive system within its historic range. As currently conceived, this system includes both "scrubby flatwoods" that occur on well-drained soils and typical flatwoods that occur on more poorly drained soils. The vegetation is naturally dominated by either *Pinus palustris* or *Pinus elliottii var. elliottii*, and less frequently includes *Pinus serotina*. Examples vary in aspect from well-developed understory layers or scrub species to more herbaceous, savanna-like conditions. There is a dense ground cover of low shrubs, grasses, and herbs. Frequent, low-intensity fire is the dominant natural ecological force.

Range: Endemic to Florida, ranging in the north from approximately Levy and St. Johns counties southward to approximately Hillsborough and Polk counties.

States: FL

Map Zones: 55:C, 56:C

Similar: East Gulf Coastal Plain Near-Coast Pine Flatwoods (CES203.375)

Descriptors:

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Forest and Woodland (Tree)

3454: East Gulf Coastal Plain Near-Coast Pine Flatwoods

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9123 EVT_fuel: 2454

ESP: 1454 NatureServe Id: CES203.375

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G596 Mesic Longleaf Pine Flatwoods - Spodosol Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system of open forests or woodlands occupies broad, sandy flatlands in a relatively narrow band along the northern Gulf of Mexico coast east of the Mississippi River [see map in Peet and Allard (1993)]. This range corresponds roughly to Ecoregion 75a (EPA 2004). These areas, often called "flatwoods" or "flatlands," are subject to high fire-return intervals even though they are subject to seasonally high water tables. Overstory vegetation is characterized by *Pinus palustris* and to a lesser degree by *Pinus elliottii*. Understory conditions range from densely shrubby to open and herbaceous-dominated, based largely upon fire history. Fire is naturally frequent, with a fire-return time of from one to four years.

Range: This system is conceived of as including wet and dry pine flatwoods of the near-coastal zone of the East Gulf Coastal Plain. For a definition of this range, see map in Peet and Allard (1993). It corresponds roughly to Ecoregion 75a (EPA 2004).

States: AL, FL, GA, LA, MS

Map Zones: 55:C, 99:C

Similar: Central Florida Pine Flatwoods (CES203.382), East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496), Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods (CES203.536)

Descriptors:

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Short

Hydrogeomorphic Units : Extensive Wet Flat

3455: East Gulf Coastal Plain Southern Loblolly Flatwoods

Match Confidence: Good Match

Suggested Match: East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods

Codes: ESLF: 9124 EVT_fuel: 2455

ESP: 1455 NatureServe Id: CES203.557

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This is the pine dominated expression of this ecological system. This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Alabama and Mississippi, as well as western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes"; 74d of EPA) of Louisiana, and likely occurs in other parts of the region as well. Its status and extent in this intervening terrain is unknown. Known examples in the Alabama/Mississippi parts of the range include a mosaic of open forests dominated by *Pinus taeda* interspersed with patches of *Quercus phellos* and sometimes other tree species. The ground surface displays an evident microtopography of alternating mounds and swales occurring in a tight local mosaic. These mounds are most likely "gilgai" (R. Wieland pers. comm.) resulting from vertic or shrink-swell properties of the Luinn soil series. Known examples display a range of moisture conditions from dry to wet. The wettest examples trap significant moisture from local rainfall events. These areas have ponded water for a minimum of several days at an interval and potentially for long periods of the year, especially when evapotranspiration is lowest. The vegetation of this system supports a relatively low vascular plant diversity and thus may appear floristically similar to other pine-hardwood vegetation of the region. The dry portion of this vegetational mosaic is dominated by grassy ground cover (*Chasmanthium sessiliflorum*) with scattered emergent greenbriars (*Smilax* spp.) underneath a nearly pure *Pinus taeda* overstory. The historical composition of this type is unknown, but it seems likely that *Pinus taeda* was a natural and even dominant component of this system, as it is in related systems in the West Gulf Coastal Plain (R. Evans pers. obs., T. Foti pers. comm.). Wetter areas are dominated by an overstory of *Quercus phellos* with an abundance of *Sabal minor* in the understory. Although the specific role of fire in this system is unknown, low-intensity ground fires may have been ecologically important. Such fires could have originated in the surrounding ~East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506)$$.

In the western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes") of Louisiana (74d and adjacent 75a of EPA), the flatwoods vegetation tends to be dominated primarily by hardwoods in the most western portion, and a mixture of*Pinus glabra* and *Pinus taeda* in the intermediate portion to the east of this (Smith 1996b). In this "Louisiana Florida Parishes Spruce Pine Flatwoods Forest" some characteristic species include *Pinus glabra, Quercus laurifolia, Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus virginiana, Pinus taeda*, and *Magnolia grandiflora*. Some important understory trees and shrubs include *Crataegus opaca, Sabal minor* (which may often be very abundant or dominant), and *Arundinaria gigantea ssp. tTecta*

Range: This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Alabama and Mississippi, as well as western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes") in Louisiana. The complete and detailed range of this system is being developed and is not completely understood. It is not thought to extend into the Mississippi River Alluvial Plain of Louisiana (P. Faulkner pers. comm.).

States: AL, GA?, LA, MS

Map Zones: 46:C, 99:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Landforms :	Pimple mounds
Major Physiognomy :	Forest and Woodland (Tree)

3456: Northern Atlantic Coastal Plain Pitch Pine Lowland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9125 EVT_fuel: 2456

ESP: 1456 NatureServe Id: CES203.374

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G039 Northern Atlantic Coastal Hardwood & Conifer Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This system is comprised of wetland Pine Barrens vegetation and Coastal Plain peatlands from the New Jersey Pine Barrens south into the Delmarva Peninsula and upper Chesapeake Bay. Although this system can be extensive, components often co-occur as a mosaic with upland pine barrens vegetation as well. The vegetation is characterized by associations having variable hydroperiods, occurring on a range of substrates from saturated deep peats to seasonally saturated mineral soils. Physiognomy of the component associations is similarly widely variable, ranging from wet grasslands dominated by *Calamovilfa brevipilis*, to boggy shrublands, to seasonally saturated pine forests characterized by mesic species. Fire frequency, as well as hydrology, has a profound influence on the vegetation. Where fire frequency is high, woody vegetation is impeded, favoring the development of large wet grasslands.

Range: This system is best developed in the New Jersey Pine Barrens, but occurrences are present south to the inner Coastal Plain of Maryland.

States: DE?, MD, NJ

Map Zones: 60:C

Similar: Atlantic Coastal Plain Northern Bog (CES203.893), Northern Atlantic Coastal Plain Pond (CES203.518)

Descriptors:

Hydrogeomorphic Units : Extensive Wet Flat
Major Physiognomy : Woody-Herbaceous

3457: South-Central Interior/Upper Coastal Plain Wet Flatwoods

Match Confidence: Solid Match

Suggested Match: South-Central Interior / Upper Coastal Plain Wet Flatwoods

Codes: ESLF: 9126 EVT_fuel: 2457

ESP: 1457 NatureServe Id: CES203.480

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M503 Central & Appalachian Swamp Forest

NVC Group: G654 South-Central Flatwoods & Pond Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This system represents predominantly wet flatwoods of limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky, as well as related broad, flat areas of the western Interior Low Plateau. This part of the Coastal Plain is referred to as the Jackson Purchase or "Jackson Plain." Flatwoods have long been recognized as a distinctive subdivision within this region (Davis 1923, Bryant and Martin 1988). Examples in the Pennyroyal Plain (of the western Interior Low Plateau) have been known for many years and referred to as "pondywoods" or "crawfishy land" (Chester et al. 1995). They are also known from the Shawnee Hills of Kentucky, on Periglacial lakebeds (M. Evans pers. comm. 2006), and from the Moulton Valley of Alabama (A. Schotz pers. comm. 2006). They tend to be confined to relatively small areas near the eastern flank of the region where loess deposits thin out. Unlike ~South-Central Interior / Upper Coastal Plain Flatwoods (CES203.479)$$ of the same general region (which is typified by complex microtopography), this system occupies broad flats underlain by fragipans. These fragipans impede the downward migration of water, resulting in wet conditions for portions of the year. Fire was an important natural process in this system, probably maintaining relatively open-canopied stands (M. Evans pers. comm.). Stands are dominated by hardwood trees, including *Quercus* spp., *Liquidambar styraciflua, Carya* spp., and *Acer rubrum* (Chester et al. 1995). Related wet flatwoods are apparently present in the Moulton Valley of Alabama and these are provisionally placed here.

Range: The primary range of this system is limited areas of the "Jackson Purchase" or "Jackson Plain" of Kentucky and possibly related areas in adjacent western Tennessee, as well as related broad, flat areas of the western Interior Low Plateau. It is assumed to cross the Ohio River into adjacent Indiana. It has been discerned from wetland modeling and confirmed by observation in the Moulton Valley of Alabama.

States: AL, IL?, IN?, KY, TN

Map Zones: 46:P, 47:C, 48:C, 49:?

Similar: South-Central Interior / Upper Coastal Plain Flatwoods (CES203.479)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Forest and Woodland (Tree)

3458: West Gulf Coastal Plain Pine Flatwoods

Match Confidence: Unmatched

Suggested Match: West Gulf Coastal Plain Pine-Hardwood Flatwoods

Codes: ESLF: 4314 EVT_fuel: 2371

ESP: 1371 NatureServe Id: CES203.378

BioGeographical Division :

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the pine dominated expression of this ecological system. This West Gulf Coastal Plain ecological system consists of forests and woodlands dominated by *Pinus taeda* and/or *Pinus echinata* in combination with a variety of dry to dry-mesic site hardwood species. This type was the historical matrix vegetation (dominant vegetation type) for large portions of the West Gulf Coastal Plain landward of the range of *Pinus palustris*, where it replaced *Pinus palustris*-dominated vegetation. In this region of southern Arkansas, northwestern Louisiana, and parts of eastern Texas, this type was historically present on nearly all uplands in the region except on the most edaphically limited sites (droughty sands, calcareous clays, and shallow soil barrens/rock outcrops). Such sites are underlain by loamy to fine-textured soils of variable depths. These are upland sites on ridgetops and adjacent sideslopes, with moderate fertility and moisture retention. This type was also present in more limited areas within the range of *Pinus palustris* (in the West Gulf Coastal Plain), where it was confined more typically to sideslopes and other locations not dominated by *Pinus palustris*. There are no known "Fidel" herbaceous species or any local endemic or globally rare plant species, and overall this system may have supported relatively low levels of vascular plant species diversity. This system has undergone major transformations since European settlement of the region.

Range: This system is restricted to the West Gulf Coastal Plain of Arkansas, Louisiana and Texas.

States: AR, LA, TX

Map Zones: 37, 44

Similar:

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3459: Atlantic Coastal Plain Clay-Based Carolina Bay Wetland

Match Confidence: Direct Match

Suggested Match: Atlantic Coastal Plain Clay-Based Carolina Bay Wetland

Codes: ESLF: 9128 EVT_fuel: 2459

ESP: 1459 NatureServe Id: CES203.245

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M161 Pond-cypress Basin Swamp

NVC Group: G036 Pond-cypress Basin Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system consists of wetlands associated with ovoid, shallow depressions with nearly flat bottoms in parts of the Atlantic Coastal Plain. Often called Carolina bays, these areas are most numerous and extensive in South Carolina but are also present in adjacent Georgia and the Inner Coastal Plain of North Carolina. The depressions have mineral soils with clay hardpans that trap and retain water from a combination of rainfall and exposure of a high regional water table. Some examples are essentially permanently flooded, while others support water levels that vary substantially from year to year and over longer climatic cycles. Vegetation includes a series of primarily herbaceous and woodland associations. The wettest sites have open water and floating-leaved aquatic vegetation, or marsh vegetation of tall graminoids. Drier sites often have an open canopy of *Taxodium ascendens*, with a dense, often fairly species-rich herbaceous layer beneath. A few occurrences are shrubby, but none contain the dense shrub layers of characteristic pocosin species that occur in the bays with organic soils. Vegetational composition often varies substantially from year to year, in response to differences in water levels and drawdown times. Variation in hydroperiod is the most important dynamic, causing rapid major changes in the herbaceous vegetation. Unlike the steeper-sided solution depressions, where many different hydroperiods are present within a short distance and vegetation zones simply shift, the flat-bottomed Carolina bays experience drastic yearly changes in hydroperiod over most of their extent. Fire periodically spreads into the bays from adjacent uplands when conditions are dry, helps prevents invasion by less water-tolerant trees during dry periods, and interacts with flooding to affect vegetational composition. Where fire is removed, *Pinus taeda* often invades the bays. Fire may also be important in preventing buildup of organic matter on the soil surface.

Range: This system is found in the Inner to Middle Coastal Plain, from southern North Carolina, through

South Carolina, and into adjacent Georgia. It is most numerous and extensive in South Carolina.

States: GA, NC, SC

Map Zones: 55:C, 58:C

Similar: East Gulf Coastal Plain Depression Pondshore (CES203.558), Northern Atlantic Coastal Plain Pond (CES203.518), Southeastern Coastal Plain Natural Lakeshore (CES203.044), Southern Atlantic Coastal Plain Depression Pondshore (CES203.262)

Descriptors:

Lifeform :	Graminoid
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Forest and Woodland (Tree)

3460: Southern Coastal Plain Nonriverine Cypress Dome Woodland

Match Confidence: Good Match

Suggested Match: Southern Coastal Plain Nonriverine Cypress Dome

Codes: ESLF: 9129 EVT_fuel: 2460

ESP: 1460 NatureServe Id: CES203.251

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M161 Pond-cypress Basin Swamp

NVC Group: G036 Pond-cypress Basin Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system consists of small forested wetlands, typically dominated by *Taxodium ascendens*, with a characteristic and unique dome-shaped appearance in which trees in the center are higher than those around the sides (Monk and Brown 1965). Examples are known from the Southern Coastal Plain (Omernik Ecoregion 75 and adjacent 65) (EPA 2004) of Florida and Georgia, extending into Alabama, Mississippi and Louisiana. Examples occupy poorly drained depressions which are most often embedded in a matrix of pine flatwoods. The oldest and largest individual trees typically occupy the center of these domed wetlands, with smaller and younger individuals around the margins. Pools of stagnant, highly acidic water may stand in the center of these depressions ranging from 1-4 feet in depth, but becoming increasingly shallow along the margins. These sites are underlain by an impervious clay pan which impedes drainage and traps precipitation. Some examples may have thick (50-100 cm) organic layers. In addition to *Taxodium ascendens*, other woody species may include *Nyssa biflora, Hypericum chapmanii, Hypericum myrtifolium, Ilex myrtifolia, Leucothoe racemosa, Morella cerifera, Cephalanthus occidentalis, Liquidambar styraciflua, Clethra alnifolia, Lyonia lucida*, and *Styrax americanus*.

Range: This system is found primarily in Florida and adjacent areas of Georgia, extending into Alabama, Mississippi and Louisiana.

States: AL, FL, GA, LA, MS

Map Zones: 55:C, 56:C, 99:C

Similar:

Descriptors:

Lifeform : Needle-Leaved Tree

Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Forest and Woodland (Tree)

3461: Southern Coastal Plain Seepage Swamp and Baygall Woodland

Match Confidence: Good Match

Suggested Match: Southern Coastal Plain Seepage Swamp and Baygall

Codes: ESLF: 9130 EVT_fuel: 2461

ESP: 1461 NatureServe Id: CES203.505

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M032 Southern Coastal Plain Evergreen Hardwood & Conifer Swamp

NVC Group: G037 Coastal Plain Mixed Evergreen Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This wetland system consists of forested wetlands in acidic, seepage-influenced habitats of the East Gulf Coastal Plain, extending into central Florida. These are mostly evergreen forests generally found at the base of slopes or other habitats where seepage flow is concentrated. Resulting moisture conditions are saturated or even inundated. The vegetation is characterized by *Magnolia virginiana* and *Nyssa biflora*. Examples occur in the outer portions of the Coastal Plain within the range of *Persea palustris*, and where *Magnolia virginiana* is an important or even dominant species. To the north this system grades into ~East Gulf Coastal Plain Northern Seepage Swamp (CES203.554)$$, where evergreen species are largely replaced by deciduous species in the canopy. Due to excessive wetness, these habitats are normally protected from fire except those which occur during extreme droughty periods. These environments are prone to long-duration standing water, and tend to occur on highly acidic, nutrient-poor soils.

Range: This system occurs in the East Gulf Coastal Plain, extending into central Florida and southwestern Georgia, and includes the southern parts of Alabama and Mississippi.

States: AL, FL, GA, LA, MS

Map Zones: 55:C, 56:C, 99:C

Similar: East Gulf Coastal Plain Northern Seepage Swamp (CES203.554)

Descriptors:

SCS Subregion : East Gulf Coastal Plain

Lifeform : Broad-Leaved Evergreen Tree

Hydrogeomorphic Units : Seepage-Fed Sloping

3462: West Gulf Coastal Plain Seepage Swamp and Baygall

Match Confidence: Direct Match

Suggested Match: West Gulf Coastal Plain Seepage Swamp and Baygall

Codes: ESLF: 9131 EVT_fuel: 2462

ESP: 1462 NatureServe Id: CES203.372

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M032 Southern Coastal Plain Evergreen Hardwood & Conifer Swamp

NVC Group: G037 Coastal Plain Mixed Evergreen Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This West Gulf Coastal Plain ecological system consists of forested wetlands (often densely wooded) in acidic, seepage influenced wetland habitats. These wetlands may occur in poorly developed upland drainages, toe-slopes, and small headwaters stream bottoms. These environments are prone to long duration standing water, and tend to occur on highly acidic, nutrient-poor soils. The vegetation is characterized by an overstory of *Magnolia virginiana, Nyssa sylvatica, Nyssa biflora*, and *Acer rubrum*, although there is some variation according to latitude. Understory vegetation throughout the region consistently supports the vine *Smilax laurifolia* and a dense abundance of ferns, such as *Osmunda cinnamomea, Osmunda regalis var. spectabilis*, and *Woodwardia areolata*. In most cases, these wetlands are embedded in uplands with deep sandy soils. When these communities are associated with streams, they tend to be low gradient, with narrow, often braided channels and diffuse drainage patterns. Due to excessive wetness, these habitats are normally protected from fire except those which occur during extreme droughty periods. The limited examples in Oklahoma are somewhat depauperate and lack some of the more southern and eastern taxa (e.g., *Magnolia virginiana, Nyssa biflora*).

Range: This system is restricted to eastern Texas, western Louisiana, southern Arkansas, and extreme southeastern Oklahoma.

States: AR, LA, OK, TX

Map Zones: 37:C, 44:P

Similar:

Descriptors:

SCS Subregion : West Gulf Coastal Plain

Lifeform : Broad-Leaved Tree
Hydrogeomorphic Units : Seepage-Fed Sloping
Major Physiognomy : Shrubland (Shrub)

3463: Central Appalachian Dry Oak Forest

Match Confidence: Good Match

Suggested Match: Central Appalachian Dry Oak-Pine Forest

Codes: ESLF: 4312 EVT_fuel: 2369

ESP: 1369 NatureServe Id: CES202.591

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G015 Appalachian Oak / Chestnut Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the deciduous hardwood dominated expression of this ecological system. These oak and oak-pine forests cover large areas in the low- to mid-elevation Central Appalachians and middle Piedmont. The topography and landscape position range from rolling hills to steep slopes, with occasional occurrences on more level, ancient alluvial fans. In the highly dissected fall zone of Maryland and the District of Columbia, where the Piedmont and Coastal Plain meet, it is also found on dry knolls capped with Pleistocene- and Tertiary-aged fluvial cobble and gravel terrace deposits. Soils are typically coarse and infertile; they may be deep (on glacial deposits in the northern and terrace deposits in the southern parts of the system's range), or more commonly shallow, on rocky slopes of acidic rock (shale, sandstone, other acidic igneous or metamorphic rock). The well-drained soils and exposure create dry conditions. The forest is mostly closed-canopy but can include patches of more open woodlands. It is dominated by a variable mixture of dry-site oak and pine species, most typically *Quercus prinus, Pinus virginiana*, and *Pinus strobus*, but sometimes *Quercus alba* and/or *Quercus coccinea*. The system may include areas of oak forest, pine forest (usually small), and mixed oak-pine forest. Heath shrubs such as *Vaccinium pallidum, Gaylussacia baccata*, and *Kalmia latifolia* are common in the understory and often form a dense layer. Embedded submesic ravines and concave landforms support slightly more diverse forests characterized by mixtures of oaks, several hickories, *Cornus florida*, and sometimes *Liriodendron tulipifera*. Small hillslope pockets with impeded drainage may support small isolated wetlands with *Acer rubrum* and *Nyssa sylvatica* characteristic. Disturbance agents include fire, windthrow, and ice damage. Increased site disturbance generally leads to secondary forest vegetation with a greater proportion of *Pinus virginiana* and weedy hardwoods such as *Acer rubrum*.

Range: This system is found from central New England through Pennsylvania and south to the Roanoke

River in southern Virginia. It is primarily Appalachian but overlaps slightly into the upper Piedmont and fall zone in Virginia, Maryland and the District of Columbia.

States: CT, DC, MA, MD, ME, NH, NJ, NY, PA, RI, VA, VT, WV

Map Zones: 57:P, 60:C, 61:C, 63:C, 64:C, 65:C, 66:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central Appalachian Pine-Oak Rocky Woodland (CES202.600), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), Northeastern Interior Dry-Mesic Oak Forest (CES202.592), Northern Atlantic Coastal Plain Hardwood Forest (CES203.475), Southern Appalachian Oak Forest (CES202.886), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339)

Descriptors:

Floristics/Dominants :	Pinus (strobus, rigida, echinata, virginiana) - Quercus p
Lifeform :	Broad-Leaved Tree
Lifeform :	Needle-Leaved Tree
Wind Intensity/Spatial Character :	Patch/Low Intensity
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Soil Texture :	Loam
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil pH :	Acidic
Soil Fertility :	Oligotrophic
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3464: Acadian Near-Boreal Spruce Barrens

Match Confidence: Solid Match

Suggested Match: Acadian Sub-boreal Spruce Barrens

Codes: ESLF: 9133 EVT_fuel: 2464

ESP: 1464 NatureServe Id: CES201.561

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M159 Laurentian & Acadian Pine - Oak Forest & Woodland

NVC Group: G047 Laurentian Sub-Boreal Pine - Black Spruce - Hardwood Dry-Mesic Fo

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These barrens occur at the southeastern periphery of the boreal forest in northeastern North America. They form on sandplains and coarse outwash that often have undulating topography. Substrate microtopography can result in wetland pockets interspersed with upland areas. North of the range of most pine (except *Pinus banksiana*), *Picea mariana* tends to be the dominant tree. *Picea rubens* and red/black spruce hybrids are also common in the southern part of the range. Dwarf heath shrubs are extensive and diagnostic. Lichens, especially reindeer lichens, are often abundant in the ground layer. Vegetation physiognomy can vary within sites and can range from nearly closed forest to sparse trees over a dense dwarf heath understory. Fire is an important disturbance vector.

Range: This system is found in far-northern New England and is more widely distributed in adjacent eastern Canada.

States: ME, NB, NH, QC, VT

Map Zones: 66:C

Similar: Boreal Jack Pine-Black Spruce Forest (CES103.022)

Descriptors:

Substrate Consolidation	Unconsolidated
Major Physiognomy	Forest and Woodland (Tree)
Topography	Toeslope/Bottom/Valley
Specialized Substrates	Sandplains/Glacial Outwash or Flats
Glacial History	Glaciated

Soil Fertility :	Oligotrophic
Soil pH :	Acidic
Life Zones :	Lowland
Soil Moisture (NRCS) :	Udic
Water pH :	Acidic
Disturbance Return Interval :	Long
Fire Intensity/Spatial Character :	Landscape/Medium Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Shrub
Lifeform :	Broad-Leaved Evergreen Shrub
Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Soil Organic Matter :	Mineral: W/A Horizon >10 cm

3466: Great Lakes Wooded Dune and Swale

Match Confidence: Direct Match

Suggested Match: Great Lakes Wooded Dune and Swale

Codes: ESLF: 9135 EVT_fuel: 2466

ESP: 1466 NatureServe Id: CES201.726

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G089 Great Lakes Shrub & Grass Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This system is found in nearly 100 occurrences throughout the Great Lakes shorelines of the United States and Canada. It consists of a foredune, followed by a series of low to high dunes (uplands) and swales (wetlands). The system is often best developed where post-glacial streams entered an embayment and provide a dependable sand source. The combination of along-shore currents, waves, and winds form foredunes along the shoreline. The foredunes of most dune-and-swale complexes are commonly 1-2 m high, with *Ammophila breviligulata, Calamovilfa longifolia, Salix serissima, Salix cordata*, and *Populus balsamifera* most common. The swale immediately behind the foredune is influenced by short-term variation in lake levels and can be partially or occasionally completely filled by dune sands following major storm events. Species common to this first swale include *Juncus balticus, Juncus pelocarpus, Juncus nodosus, Eleocharis acicularis*, and *Schoenoplectus americanus (= Scirpus americanus)*. Occasionally, such swales may contain lake-influenced, calcareous sands and may contain moderately alkaline indicators.

A low dune field with more advanced plant succession often follows the first open dunes and swales.*Pinus banksiana, Pinus strobus*, and *Pinus resinosa* often form a scattered overstory canopy, while *Juniperus communis, Juniperus horizontalis, Arctostaphylos uva-ursi*, and *Koeleria macrantha* form a scattered ground layer. Following the dune-field zone, both dunes and swales are typically forested. Moist swales are often forested, and soil organic material has often begun to accumulate. *Thuja occidentalis, Alnus incana, Salix* spp., and *Acer rubrum* dominate the partial overstory canopy and understory. In contrast to the dry or moist swales, wetter swales (where standing water is present through most of the year) may be dominated by Carices, such as *Carex aquatilis* and *Carex stricta*. Forested beach ridges, with soils of medium to course sand, tend to be dominated by species common to dry-mesic and mesic northern forest. Complexes located in

embayments protected from prevailing winds tend to be formed entirely of low, water-lain beach ridges. As a result, even the beach ridges within these complexes support wetland vegetation.

Six major subtypes of Great Lakes Dune and Swale were described for Michigan, including the Lake Superior high dune type, the Lake Superior low dune type, the North Lake Michigan high dune type, Northern Lake Huron-Lake Michigan low dune type, the Southern Lake Huron type, and the Northern Great Lakes low dune type. These subtypes represent patterns of floristic variation resulting from latitude and sand dune/beach ridge characteristics that constrain floristic and structural attributes. High dune types may support predominantly upland vegetation, while low dune types may support predominantly wetland vegetation.

Range: This system occurs throughout the Great Lakes shorelines of the United States and Canada. In Pennsylvania, this is only on Presque Isle.

States: IL, IN, MI, MN, NY, OH?, ON, PA, WI

Map Zones: 41:C, 49:C, 50:C, 51:C, 52:C, 62:C, 63:C, 64:C

Similar: Great Lakes Dune (CES201.026), Northern Great Lakes Interdunal Wetland (CES201.034)

Descriptors:

Juxtaposition :	Coastal Dune mosaic
Hydroperiod :	30-180 days
Water Depth :	Shallow (<15 cm)
Wind Intensity/Spatial Character :	Patch/High Intensity
Disturbance Return Interval :	Intermediate
Soil Texture :	Sand
Glacial History :	Glaciated
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Specialized Substrates :	Dune
Major Physiognomy :	Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3467: Tamaulipan Floodplain Forest

Match Confidence: Good Match

Suggested Match: Tamaulipan Floodplain

Codes: ESLF: 9136 EVT_fuel: 2467

ESP: 1467 NatureServe Id: CES301.990

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G549 Tamaulipan Wet-Mesic Scrub Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nd Interior Lowland West Flooded & Swamp Forest

Summary: This ecological system is limited to riparian areas of the lower Rio Grande Valley and Rio Corona in southern Texas and northeastern Mexico. Stands occur on riverbanks, floodplains and deltas. These woodlands are a unique mix of species from southeastern North America and subtropical Central America and are often dominated by *Acacia farnesiana, Carya ovata, Celtis laevigata, Diospyros texana, Ebenopsis ebano, Ehretia anacua, Fraxinus berlandieriana, Populus deltoides*, or *Ulmus crassifolia*, and many other tree species present to locally dominant, with *Carya illinoinensis, Carya texana, Quercus stellata*, and *Quercus fusiformis* more common in the northern extent. The highly variable understory is dependent on canopy density and may include dense shrub or herbaceous layers.

Range: Riparian areas of the lower Rio Grande Valley and Rio Corona in southern Texas and northeastern Mexico.

States: MXCO, MXNU, MXTM, TX

Map Zones: 36:C

Similar:

Descriptors:

Flooding Return Interval :	Intermediate (5-25 yrs)
Lifeform :	Broad-Leaved Tree
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Forest and Woodland (Tree)

Life Zones : Lowland

3468: Atlantic Coastal Plain Streamhead Seepage Swamp-Pocosin-Baygall

Match Confidence: Solid Match

Suggested Match: Atlantic Coastal Plain Streamhead Seepage Swamp, Pocosin and Baygall

Codes: ESLF: 9137 EVT_fuel: 2468

ESP: 1468 NatureServe Id: CES203.252

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M032 Southern Coastal Plain Evergreen Hardwood & Conifer Swamp

NVC Group: G037 Coastal Plain Mixed Evergreen Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system encompasses seepage-fed wetlands in dissected Coastal Plain landscapes, from southeastern Virginia to northeastern Florida. Examples are usually associated with ravines or along headwater streams. Overbank flooding is a negligible influence. Fire may be an important force in some associations and not in others. Vegetation consists of open to closed forest of acid-tolerant wetland hardwoods or pine. Generally there is a dense shrub layer consisting primarily of species shared with ~Atlantic Coastal Plain Peatland Pocosin and Canebrake (CES203.267)$$.

Range: Primarily in the Fall-line Sandhills region of the Atlantic Coastal Plain; rarely in dissected terrain in the Outer Coastal Plain.

States: FL, GA, NC, SC, VA

Map Zones: 55:C, 58:C, 59:C, 60:C

Similar: Atlantic Coastal Plain Blackwater Stream Floodplain Forest (CES203.247), Atlantic Coastal Plain Peatland Pocosin and Canebrake (CES203.267), Atlantic Coastal Plain Sandhill Seep (CES203.253), Piedmont Seepage Wetland (CES202.298)

Descriptors:

Hydrogeomorphic Units : Seepage-Fed Sloping

Major Physiognomy : Forest and Woodland (Tree)

3469: Eastern Great Plains Floodplain Woodland

Match Confidence: Good Match

Suggested Match: Eastern Great Plains Floodplain Systems

Codes: ESLF: 9138 EVT_fuel: 2469

ESP: 1469 NatureServe Id: CES205.625

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary:

Range: These aggregated systems occur in Iowa, Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

States: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI

Map Zones: 38:C, 39:C, 40:C, 42:C, 43:C, 49:C, 52:P

Similar:

Descriptors:

3470: Caribbean Coastal Wetland Systems

Match Confidence: Direct Match

Suggested Match: Caribbean Coastal Wetland Systems

Codes: ESLF: 9139 EVT_fuel: 2470

ESP: 1470 NatureServe Id: CES411.626

BioGeographical Division : Caribbean

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This systems group includes mangrove and other tidal wetlands of tropical southern Florida. It occurs along intertidal and supratidal shorelines in southern and western Florida, north to Tampa Bay. The primary species comprising this system are *Rhizophora mangle, Avicennia germinans, Laguncularia racemosa*, and *Conocarpus erectus*, each with essentially tropical affinities and poor survival in cold temperatures. Other salt-tolerant species may also be present, although the combined stresses of flooding and salinity tend to result in limited competition (FNAI 1990), lack of plant species richness, and relatively simple stand structure (Mendelssohn and McKee 1988). This system group attains best development in low wave-energy, depositional environments, including barrier islands developed on remnant limestone reefs. Examples occur on soils generally saturated with brackish water at all times and which become inundated during high tides. The brackish environment tends to limit competition from other species. At least four broad variants of this system can be recognized, i.e., riverine mangrove forests, fringe mangrove forests, basin mangrove forests (Lugo et al. 1988), and barrier mangrove forests (Montague and Wiegert 1990).

Range: This systems group occurs along the western and southern coast of Florida from Tampa south.

States: FL

Map Zones: 56:C

Similar:

Descriptors:

Hydrogeomorphic Units : Tidal / Estuarine

Bioclimate : Tropical/Subtropical

3471: Central Interior and Appalachian Floodplain Forest

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Floodplain Systems

Codes: ESLF: 9140 EVT_fuel: 2471

ESP: 1471 NatureServe Id: CES202.627

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M503 Central & Appalachian Swamp Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This systems group encompasses large-river floodplains over much of the eastern United States. Mostly forested, these systems occur on floodplains of medium to large rivers where topography and process have resulted in the development of a relatively flat, well-developed floodplain with a complex of upland and wetland temperate alluvial vegetation. Many examples of these systems will contain well-drained levees, terraces and stabilized bars, and some will include herbaceous sloughs and shrub wetlands, particularly in abandoned channels. The substrate is primarily alluvium. The generally fertile soils are usually sandy to loamy but include local clayey and gravelly areas. This complex includes floodplain forests as well as herbaceous sloughs and shrub wetlands. Emergent and vegetated bars of gravel to cobble are included here as well, as are scoured bedrock areas. The dominant structure is forest, where characteristic trees include *Acer saccharinum, Populus deltoides, Betula nigra, Celtis laevigata, Liquidambar styraciflua* (in the southern half of this group's range), willows, especially *Salix nigra* in the wettest areas, and *Platanus occidentalis*, with *Fraxinus pennsylvanica, Ulmus americana, Liriodendron tulipifera, Quercus michauxii, Quercus pagoda*, and (at least in the Midwest) *Quercus macrocarpa* in more well-drained areas. The particular mix of tree species will vary across the geographic range of this systems group, with some trees absent over parts of the range; for example, *Celtis, Liquidambar*, and *Quercus macrocarpa* are absent from the Susquehanna drainage in Pennsylvania. Understory species are mixed but include shrubs, such as *Cephalanthus occidentalis, Cornus drummondii*, and *Asimina triloba*, sedges (*Carex* spp.) and grasses (such as *Elymus hystrix, Elymus canadensis, Chasmanthium latifolium*, and others) which sometimes form savanna-like vegetation. Oxbows may support herbaceous vegetation dominated by species including *Nelumbo lutea* and *Typha latifolia*. Canebrakes dominated by *Arundinaria gigantea ssp. gigantea* are present in some areas. Frequently reworked gravelbars may be dominated by young *Salix nigra, Platanus occidentalis*, or

Betula nigra, or they may have sparse vegetation of a wide variety of annual and perennial herbs of weedy habits. Occasional bedrock-scour areas in gorges have distinctive vegetation dominated by perennial herbs rooted in pockets and crevices. Most floodplains are underwater each spring, and some areas may be submerged by high-water events during the growing season. Microtopography determines how long the various habitats are inundated. Floodplain morphology can be altered by occasional severe floods. Depositional and erosional features may both be present depending on the particular floodplain, although there is a history of deposition in the floodplain formation.

Range: This systems group encompasses large-river floodplains over much of the eastern United States, from southern New England south to Georgia, and west to the Dakotas and eastern Oklahoma.

States: AL, AR, CT, GA, IA, IL, IN, KS, KY, MA, MD, MI, MN, MO, NC, ND, NE, NH, NJ, NY, OH, OK, PA, SC,

Map Zones: 32:P, 38:C, 39:?, 40:?, 41:P, 42:C, 43:C, 44:C, 47:C, 48:C, 49:C, 50:C, 51:C, 52:C, 53:C, 54:C, 57:C, 59:C, 60:C, 61:C, 62:C, 63:P, 64:C, 65:C

Similar:

Descriptors:

Flooding Return Interval :	Short (<5 yrs)
Flooding Return Interval :	Very Short
Lifeform :	Broad-Leaved Deciduous Tree
Mass Movement Type :	Flood Scouring
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Specialized Substrates :	Aluvial
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)

3472: Central Interior and Appalachian Riparian Forest

Match Confidence: Good Match

Suggested Match:

Codes: ESLF: 9141 EVT_fuel: 2472

ESP: 1472 NatureServe Id: CES202.628

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M029 Central & Appalachian Floodplain Forest

NVC Group: G673 Silver Maple - Sugarberry - Sweetgum Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This riverscour-influenced systems group occurs on moderately to very high-gradient streams over a wide range of elevations. It develops on small floodplains and shores along river channels that lack a broad, flat floodplain due to steeper sideslopes, higher gradient, or both. Flooding is the major process affecting the vegetation, with the substrate more rapidly drained than in flat floodplain areas. These systems are affected by flood-scouring in some areas and deposition in others. The vegetation is often a mosaic including various combinations of forest, woodland, shrubland, and herbaceous communities. The non-forested components are particularly distinctive. The succession of woody plants (particularly trees) is retarded by the force of "flashy," high-velocity water traveling down the stream channels. Common trees include *Betula nigra, Platanus occidentalis*, and *Acer negundo*. Where somewhat more stable, linear forests develop; typical trees include *Liriodendron tulipifera, Liquidambar styraciflua, Acer rubrum, Celtis laevigata, Fraxinus pennsylvanica, Quercus michauxii*, and *Quercus pagoda*. Some common shrubs, occurring as forest/woodland understory or as non-forested shrublands, include *Alnus serrulata, Cephalanthus occidentalis, Cornus amomum, Lindera benzoin, Salix caroliniana* and other *Salix* spp., *Toxicodendron radicans*, and, over parts of the range, *Fothergilla major, Hypericum densiflorum, Itea virginica*, and *Rhododendron arborescens*. More southern examples may contain *Hydrangea quercifolia, Hypericum densiflorum*, and *Morella cerifera (= Myrica cerifera var. cerifera); Hamamelis vernalis* is characteristic in the Ozark/Ouachita region. Open, flood-scoured rivershore prairies feature *Andropogon gerardii, Sorghastrum nutans, Schizachyrium scoparium, Chasmanthium latifolium, Tripsacum dactyloides*, and/or *Panicum virgatum*. *Carex torta* is typical of wetter areas near the channel. Forbs are diverse and variable from occurrence to occurrence. Some characteristic forbs are *Baptisia australis, Conoclinium coelestinum (= Eupatorium coelestinum), Coreopsis pubescens, Coreopsis tripteris, Elephantopus carolinianus, Helenium*

autumnale, Hydrocotyle sp., *Ludwigia leptocarpa, Lycopus* spp., *Orontium aquaticum, Osmunda regalis var. spectabilis, Oxypolis rigidior, Phlox carolina, Pityopsis graminifolia var. latifolia, Rudbeckia laciniata*, and *Vernonia gigantea*. Distinctive shoals with *Hymenocallis coronaria* and/or *Justicia americana* may be present as well. Small seeps and fens can often be found within these habitats, especially at the headwaters and terraces of streams. These areas are typically dominated by primarily wetland obligate species of sedges (*Carex* spp.), ferns (*Osmunda* spp.), and other herbaceous species such as *Impatiens capensis*. Flood-scouring is a powerful and ecologically important abrasive force along these riparian habitats. However, in contrast to larger floodplain systems, these systems have little to no floodplain development (i.e., floodplains, if present, are not differentiated into levees, sloughs, ridges, terraces, and abandoned channel segments) and often contain cobblebars and steep banks. They are typically higher gradient than larger floodplains and experience periodic, strong flooding of short duration.

Range: This systems group encompasses small stream riparian systems over much of the eastern United States, from southern New England south to Georgia, and west to Illinois and eastern Oklahoma.

States: AL, AR, CT, GA, IL, IN, KY, MA, MD, MO, NC, NH, NJ?, NY, OH, OK, PA, SC, TN, VA, VT, WV

Map Zones: 44:C, 46:C, 47:C, 48:C, 49:C, 53:C, 54:C, 57:C, 59:C, 60:C, 61:C, 62:C, 63:P, 64:C, 65:C

Similar:

Descriptors:

Juxtaposition :	Riparian mosaic
Flooding Return Interval :	Short (<5 yrs)
Flooding Return Interval :	Intermittent
Mass Movement Type :	Flood Scouring
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Life Zones :	Lowland

3473: Gulf and Atlantic Coastal Plain Floodplain Forest

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Floodplain Systems

Codes: ESLF: 9142 EVT_fuel: 2473

ESP: 1473 NatureServe Id: CES203.629

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M031 Southern Coastal Plain Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This systems group comprises floodplain forests in the southeastern United States, from southern Virginia south to central Florida and west to the Gulf Coast, Mississippi River, and eastern Texas. It includes broad gradients of river size, soil nutrient levels, and flood frequency. Flooding ranges from semipermanent in the wettest areas to intermittent and short on the higher portions of the floodplain. Some of the major geomorphic features associated with different community types include natural levees, point bars, meander scrolls, oxbows, and sloughs. Small river floodplain forests have fewer major geomorphic floodplain features typically associated with large river floodplains. Those features that are present tend to be smaller and more closely intermixed with one another, resulting in less obvious vegetational zonation. Large rivers have greater variation in water levels and have flood regimes that integrate the effects of very large watersheds. Depositional landforms are larger, and communities can be more segregated. Along the Mississippi River and other very large rivers, low bottomlands are characteristic. These are seasonally flooded backswamps, with flooding usually more frequently than every two years, generally by still water that may be impounded behind natural levees.

Vegetation generally includes forests dominated by bottomland hardwood species and other trees tolerant of flooding. However, herbaceous and shrub vegetation may be present in certain areas, particularly on recently deposited bars and in oxbow lakes. Most examples are nearly contiguous over large areas, broken only by the river itself. Higher terraces may have a mosaic of floodplain and upland systems, and may include nonriverine wetland systems. Some of the most typical and characteristic tree species found in stands of this systems group include*Taxodium distichum, Nyssa aquatica, Acer saccharinum, Platanus occidentalis, Populus deltoides, Acer negundo*, and *Salix nigra*. Other trees may include *Celtis laevigata, Carya illinoinensis, Fraxinus pennsylvanica,*

Gleditsia triacanthos, Liquidambar styraciflua, Nyssa biflora, Quercus laurifolia, Quercus lyrata, Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus phellos, Quercus similis, Quercus texana, Quercus virginiana, Salix nigra, Ulmus americana, and *Ulmus crassifolia*. Three distinct groups of associations can be recognized. The lowest, wettest areas have some combination of *Taxodium distichum* and *Nyssa aquatica* dominating. Natural levees and riverfronts have a diverse mixture of trees that typically includes *Platanus occidentalis, Celtis laevigata, Fraxinus pennsylvanica, Acer saccharinum, Acer negundo*, and other species that benefit from the high light levels and heavy alluvial deposition of these sites. Soils are typically sandier than those of the lower bottomlands. *Arundinaria gigantea* (giant cane) is a common understory in these forests on natural levees and higher point bars, and may become dominant after thinning or removal of the overstory. Willow and cottonwood sandbars may have an open-canopy (woodland-type) structure. Moderate to high parts of the floodplain away from the levee are usually dominated by bottomland hardwoods, various mixtures of wetland oaks, including *Quercus laurifolia, Quercus michauxii, Quercus pagoda*, and sometimes a number of other oak species, along with *Liquidambar styraciflua* or other species. The wettest forests can be simple in structure, with an understory but little shrub or herb layer; others tend to have well-developed subcanopy, shrub, and herb layers. Woody vines are usually prominent. Shrubs and small trees include *Alnus serrulata, Arundinaria gigantea, Carpinus caroliniana, Cephalanthus occidentalis, Clethra alnifolia, Cornus foemina, Crataegus viridis, Forestiera acuminata, Ilex decidua, Itea virginica, Morella cerifera, Planera aquatica, Sabal minor*, and *Sebastiania fruticosa*. Vines may include *Berchemia scandens* and *Smilax bona-nox*. Herbaceous species may include *Boehmeria cylindrica, Carex complanata, Carex debilis, Carex intumescens, Carex joorii, Leersia virginica, Lycopus virginicus, Mikania scandens, Saccharum baldwinii*, and *Typha latifolia*. Aquatic and floating herbs include *Lemna minor, Nelumbo lutea, Nuphar advena (= Nuphar lutea ssp. advena)*, and *Nymphaea odorata*.

Range: This systems group ranges across much of the southeastern United States, from the Chesapeake Bay to southern Illinois and Missouri, south to central Florida and west to the Gulf Coast and Mississippi River, Oklahoma, and Texas.

States: AL, AR, DE, FL, GA, IL, KY, LA, MD, MO, MS, NC, OK, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 98:C, 99:C

Similar: Gulf and Atlantic Coastal Plain Small Stream Riparian Systems (CES203.630)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)

3474: Gulf and Atlantic Coastal Plain Small Stream Riparian Woodland

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Small Stream Riparian Systems

Codes: ESLF: 9143 EVT_fuel: 2474

ESP: 1474 NatureServe Id: CES203.630

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M031 Southern Coastal Plain Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This systems group encompasses the floodplains of small streams in the Gulf and Atlantic coastal plains of the southeastern United States, north to southern New Jersey. Compared to larger river systems, flooding tends to be variable and of shorter duration. These landscapes usually encompass a variety of habitats resulting from natural hydrological spatial patterns (i.e., meander scars, sloughs, gravel bars, old depressions, and/or oxbows are present). Most of the communities are temporarily flooded, with the possible addition of smaller-scale seasonally flooded features such as beaver-created herbaceous wetlands and shrub-dominated features. The vegetation generally consists almost entirely of forests of wetland trees, but occasional, small shrubby or herbaceous sloughs may also be present.

Examples of these systems may include a number of different plant communities, each with distinctive floristic compositions. Wetter examples may be strongly dominated by*Taxodium distichum* and *Nyssa biflora*. Other canopy trees include *Betula nigra, Celtis laevigata, Diospyros virginiana, Fraxinus pennsylvanica, Gleditsia triacanthos, Liquidambar styraciflua, Pinus taeda, Platanus occidentalis, Quercus laurifolia, Quercus lyrata* (in longer hydroperiod stands), *Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus phellos, Quercus texana, Ulmus americana, Ulmus crassifolia*, and *Ulmus rubra*. Except in the very wet examples, subcanopy, shrub, and herb layers are generally well-developed and woody vines are also prominent. Associated species vary to some extent with geography but include *Carya glabra, Magnolia grandiflora, Quercus virginiana, Liquidambar styraciflua, Acer barbatum, Fraxinus americana, Fraxinus caroliniana, Celtis laevigata, Sabal minor, Sebastiania fruticosa, Serenoa repens*, and *Itea virginica*. Shrubs and understory trees may include (depending on length of hydroperiod) *Carpinus caroliniana, Cephalanthus occidentalis, Cornus obliqua, Crataegus marshallii, Ilex opaca, Ostrya virginiana, Salix*

nigra, and *Vaccinium fuscatum*. In addition, *Arundinaria gigantea* may be present. Vines may include *Berchemia scandens, Smilax bona-nox*, and *Toxicodendron radicans*. Some herbs may include *Bidens aristosa, Boehmeria cylindrica, Carex cherokeensis, Carex debilis, Carex digitalis, Carex joorii, Chasmanthium latifolium, Geum canadense, Glyceria striata, Leersia virginica*, and *Polygonum hydropiperoides*. Smaller-scale features may be dominated by shrubs (*Cephalanthus occidentalis, Decodon verticillatus*) and/or perennial and annual herbs. In the Gulf Coastal Plain, this systems group includes small streams and sloughs that course through the coastal prairie in Louisiana and Texas.

Range: This systems group ranges along the Atlantic and Gulf coastal plains from the Chesapeake Bay south to central Florida and west to eastern Texas, with peripheral examples extending north to southern New Jersey.

States: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, NJ, OK, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 98:C, 99:C

Similar: Gulf and Atlantic Coastal Plain Floodplain Systems (CES203.629)

Descriptors:

Flooding Return Interval :	Intermittent
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)

3475: Laurentian-Acadian Floodplain Forest

Match Confidence: Direct Match

Suggested Match: Laurentian-Acadian Floodplain Forest

Codes: ESLF: 9328 EVT_fuel:

ESP: NatureServe Id: CES201.587

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G653 Silver Maple - Green Ash - Black Ash Floodplain Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This system encompasses north-temperate floodplains in the northeastern and north-central U.S. and adjacent Canada at the northern end of the range of silver maple. They occur along medium to large rivers where topography and process have resulted in the development of a complex of upland and wetland temperate alluvial vegetation on generally flat topography. This complex includes floodplain forests, with *Acer saccharinum* characteristic, as well as herbaceous sloughs and shrub wetlands. In areas subject to more scour, sparse non-wetland vegetation may develop on sandbars or exposed rock. Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. Associated trees include *Acer rubrum* and *Carpinus caroliniana*, the latter frequent but never abundant. On terraces or in more calcareous areas, *Acer saccharum* or *Quercus rubra* may be locally prominent, with *Betula alleghaniensis* and *Fraxinus* spp. *Salix nigra* is characteristic of the levees adjacent to the channel. Common shrubs include *Cornus amomum* and *Viburnum* spp. The herb layer in the forested portions often features abundant spring ephemerals, giving way to a fern-dominated understory in many areas by mid-summer. Non-forested wetlands associated with these systems include shrub-dominated and graminoid-herbaceous vegetation.

Range: Central and northern New England and adjacent Canada west to the Great Lakes.

States: MA?, ME, MI, MN, NB, NH, NY, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Central Appalachian River Floodplain (CES202.608), North-Central Interior Floodplain (CES202.694)

Descriptors:

Soil Organic Matter	Mineral: W/A Horizon >10 cm
Major Physiognomy	Forest and Woodland (Tree)
Major Physiognomy	Shrubland (Shrub)
Major Physiognomy	Woody-Herbaceous
Major Physiognomy	Herbaceous
Topography	Toeslope/Bottom/Valley
Hydrogeomorphic Units	Riverine / Alluvial
Glacial History	Glaciated
Soil Fertility	Eutrophic
Soil Fertility	Mesotrophic Soil
Soil pH	Circumneutral
Life Zones	Lowland
Soil Depth	Deep
Temporal Persistence	Moderate (100-500 yrs)
Soil Texture	Silt
Soil Moisture (NRCS)	Udic
Substrate Consolidation	Unconsolidated
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Lifeform	Broad-Leaved Deciduous Tree
Lifeform	Broad-Leaved Shrub
Lifeform	Graminoid
Water Nutrient Status	Mesotrophic Water
Flooding Return Interval	Short (<5 yrs)
Soil pH	Acidic

3476: Tamaulipan Riparian Woodland

Match Confidence: Good Match

Suggested Match: Tamaulipan Riparian Systems

Codes: ESLF: 9145 EVT_fuel: 2476

ESP: 1476 NatureServe Id: CES301.632

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G549 Tamaulipan Wet-Mesic Scrub Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This Tamaulipan riparian systems group occurs along the lower Rio Grande and Rio Corona in southern Texas and northeastern Mexico. Palm grove riparian forests and woodlands are found on riverbanks and floodplains, while arroyo shrublands are restricted to drainages in upland areas or ramaderos that are only intermittently flooded and often dry. Soils are typically somewhat deeper than those of the surrounding landscape. Palm grove characteristic species are the neotropical *Sabal mexicana* with *Ebenopsis ebano, Ehretia anacua, Leucaena pulverulenta*, and many other riparian plants. In the shrublands, the dense shrub canopy is a mix of species often including *Acacia farnesiana, Celtis pallida, Haematoxylum brasiletto, Prosopis glandulosa*, or *Tecoma stans*.

Range: This systems group occurs along the lower Rio Grande and Rio Corona in southern Texas and northeastern Mexico. It is restricted to the central and southern part of the Tamaulipan region.

States: MXCO, MXNU, MXTM, TX

Map Zones: 36:C

Similar:

Descriptors:

Flooding Return Interval :	Intermittent
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Tropical/Subtropical
Landforms :	Arroyo
Life Zones :	Lowland

3477: Boreal Acidic Peatland Forest

Match Confidence: Good Match

Suggested Match: Boreal Acidic Peatland Systems

Codes: ESLF: 9146 EVT_fuel: 2477

ESP: 1477 NatureServe Id: CES103.633

BioGeographical Division : Boreal

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group:

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This systems group includes peatlands that are found at the near-boreal latitudes of the northeastern and north-central United States and adjacent Canada, where climate allows the rate of peat accumulation to exceed its decomposition, resulting in acidic peatlands. They vary from ombrotrophic to weakly minerotrophic, often within the same peatland, with various arrangements of raised bog (ombrotrophic) and poor fen (minerotrophic) portions; most are at least partly ombrotrophic. The surface morphology of the bog may be more-or-less level, domed, or eccentric, but typically is over the water table. A maritime version along the north Atlantic Coast south to easternmost Maine develops distinctive raised plateaus when occurring in basins, or occurs as a "blanket bog" over a sloping rocky substrate in extreme maritime settings. The vegetation physiognomy varies from forest to low-shrub dominance, often with patches of graminoids and bryophyte lawns. The maritime bogs are almost always non-forested and often feature lawns of *Trichophorum caespitosum*. In settings where trees form a partial to moderate cover, stunted (or less frequently well-developed) *Picea mariana* and *Larix laricina* are the dominant trees, and dwarf-shrubs (*Chamaedaphne calyculata, Ledum groenlandicum*) and sedges are common in the understory. Dwarf-shrub-dominated areas are dominated by low ericaceous shrubs (including *Kalmia angustifolia, Kalmia polifolia, Ledum groenlandicum, Chamaedaphne calyculata*, and, near the coast, *Empetrum nigrum* and *Gaylussacia dumosa*), with patches of stunted conifers. In the raised portions, secondary bog pools may be present. These peatlands are sometimes referred to as a "muskeg," a flat boggy peatland with scattered trees and a fairly dense shrub layer on mounded or hummocky peat.

Range: This systems group is primarily Canadian in distribution, ranging from the Maritimes west to Manitoba, and extending south into the northernmost United States from Maine to Minnesota.

Very few examples occur south of the Laurentian-Acadian Division.

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:P, 66:C

Similar:

Descriptors:

Juxtaposition :	Bog and Fen mosaic
Water Nutrient Status :	Oligotrophic
Floristics/Dominants :	Picea mariana - Larix laricina
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Boreal
Major Physiognomy :	Woody-Herbaceous

3478: Caribbean Forested Swamp

Match Confidence: Unmatched

Suggested Match: Caribbean Swamp Systems

Codes: ESLF: 9147 EVT_fuel: 2478

ESP: 1478 NatureServe Id: CES411.634

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.4 Tropical Flooded & Swamp Forest

NVCS Division: 1.A.4.Ed Caribbean & Central American Flooded & Swamp Forest

Summary: These raised hammocks of southern Florida are dominated by hardwood tree species. They occur on slightly elevated sites, either as "tree islands" amid the Everglades marshes (bayhead swamps) or adjacent to floodplains where they are only infrequently subject to overbank flooding (hydric hammocks). These wetlands have high water tables and/or ponded surface water, and peaty or mucky soils. Patches range in size from one-quarter acre to 300 or more acres. Some examples, particularly the bayhead swamps, are adjacent to fire-prone marshes, but these swamps burn only under extreme drought conditions. *Quercus laurifolia, Magnolia virginiana*, and *Sabal palmetto* are characteristic species.

Range: This systems group is endemic to southern Florida.

States: FL

Map Zones: 56:C

Similar:

Descriptors:

Floristics/Dominants :	Palm or sabal
Lifeform :	Broad-Leaved Tree
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Tropical/Subtropical

3479: Central Interior and Appalachian Swamp Forest

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Swamp Systems

Codes: ESLF: 9148 EVT_fuel: 2479

ESP: 1479 NatureServe Id: CES202.635

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M503 Central & Appalachian Swamp Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This systems group includes swamps that occur primarily in the glaciated landscape of the eastern United States, with outliers found to the south of the periglacial landscape. Most are small-patch features, but some may be more extensive in larger basins or wet flats; in either case, they are usually discrete elements of the landscape. The acidic substrate is typically mineral soil with a component of organic muck; there may be a peaty epipedon. In some cases, such as kettleholes, a true peat substrate develops. Vegetation physiognomy ranges from forested swamps to semi-open fens. Forested swamps may be dominated by *Tsuga canadensis* mixed with deciduous wetland trees such as *Acer rubrum* or *Nyssa sylvatica*; or in areas with higher pH and/or nutrient levels, by *Acer rubrum* and *Fraxinus nigra*, with calciphilic herbs and sometimes with *Larix laricina*. High-elevation wetlands in the Allegheny Mountains are characterized by additional northern elements such as *Abies balsamea* and *Picea rubens*, with open shrub- and graminoid-dominated fens and occasional bogs. Common species in the understory layers of these wetlands include *Carex* spp., *Osmunda cinnamomea, Cephalanthus occidentalis, Alnus* spp., *Rhododendron maximum, Hypericum densiflorum*, and *Ilex* spp. The hemlock-dominated swamps generally develop in larger lowland basins. In kettleholes or other deep glacial depressions, semi-open fens develop (colloquially called kettlehole "bogs"), where the nutrient-poor substrate and the reduced throughflow of water create oligotrophic conditions fostering the development of *Sphagnum* peat and the growth of peatland vegetation. Ericaceous shrubs and dwarf-shrubs (e.g., *Chamaedaphne calyculata*) dominate, with patches of graminoid dominance. Some may have a sparse tree layer, with *Acer rubrum* and/or *Nyssa sylvatica* characteristic. Many, though not all, of these swamps have a bryoid layer featuring *Sphagnum*.

Range: This systems group of the eastern United States is found from New England south to West Virginia,

west to Minnesota and Ohio, as well as in adjacent Ontario, Canada. Its range is primarily north of the glacial terminus, as well as in periglacial areas. It extends southward at higher elevations in the mountains of western Virginia and eastern West Virginia.

States: CT, DE?, IA, IL, IN, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, ON, PA, RI, VA, VT, WI, WV

Map Zones: 38:C, 41:?, 42:C, 43:P, 44:P, 47:C, 49:C, 50:C, 51:C, 52:C, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Temperate
Specialized Substrates :	Histosoles
Major Physiognomy :	Forest and Woodland (Tree)

3480: Gulf and Atlantic Coastal Plain Swamp Systems

Match Confidence: Direct Match

Suggested Match: Gulf and Atlantic Coastal Plain Swamp Systems

Codes: ESLF: 9149 EVT_fuel: 2480

ESP: 1480 NatureServe Id: CES203.636

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This systems group consists of poorly drained, organic or mineral soil flats and basins of the Atlantic and Gulf coastal plains. These areas are saturated by rainfall and seasonal high water tables. Most are not associated with river floodplains, although one component system is a tidal swamp. Dominant tree species vary with geography. South of Virginia, *Taxodium distichum* and *Nyssa* spp. are the most characteristic trees in many of these swamps. In the North Atlantic Coastal Plain, *Chamaecyparis thyoides, Acer rubrum, Liquidambar styraciflua, Nyssa sylvatica, Quercus phellos*, and *Fraxinus pennsylvanica* are characteristic dominants. Tidal wooded swamps from Virginia to Florida are dominated by *Taxodium, Nyssa*, or *Fraxinus*. In the Mississippi River Valley, along with *Taxodium distichum* and *Nyssa* spp., characteristic trees include *Acer rubrum, Carya aquatica, Fraxinus profunda, Gleditsia aquatica, Planera aquatica, Quercus lyrata, Quercus palustris*, and *Salix nigra*. At the southern edge of this group's range, hydric hammocks in northern to central Florida are characterized by *Chamaecyparis thyoides* and *Sabal palmetto*. Important wetland oaks throughout much of the range include *Quercus michauxii, Quercus pagoda, Quercus phellos*, and *Quercus laurifolia*.

Range: This systems group occurs along the Gulf and Atlantic coastal plains from Massachusetts to Texas, extending up the Mississippi River to the southernmost part of Illinois. They are also found rarely north to southern Maine.

States: AL, AR, CT, DE, FL, GA, IL, KY, LA, MA, MD, ME, MO, MS, NC, NJ, NY, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 65:C, 66:C, 98:C, 99:C

Similar:

Descriptors:

Hydrogeomorphic Units : Extensive Wet Flat
Bioclimate : Temperate
Major Physiognomy : Forest and Woodland (Tree)

3481: Laurentian-Acadian Alkaline Conifer-Hardwood Swamp Forest

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Alkaline Conifer-Hardwood Swamp

Codes: ESLF: 9345 EVT_fuel: 2481

ESP: 1481 NatureServe Id: CES201.575

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G046 Laurentian-Acadian-Allegheny Alkaline Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: These forested wetlands are found across northern New England and the upper Midwest and eastern to south-central Canada in basins where higher pH and/or nutrient levels are associated with a rich flora. The substrate is typically mineral soil, but there may be some peat; often, there is an organic epipedon over mineral soil. *Thuja occidentalis* is a diagnostic canopy species and may dominate the canopy or be mixed with other conifers or with deciduous trees, most commonly *Acer rubrum* or *Fraxinus nigra*. Some examples can be almost entirely deciduous and dominated by *Fraxinus nigra*. *Cornus sericea* is a common shrub. The herb layer tends to be more diverse than in acidic swamps. Small open fenny areas may occur within the wetland. Seepage may influence parts of the wetland, but the hydrology is dominated by the basin setting.

Range: Scattered locations from New England and adjacent Canada west to the Great Lakes and northern Minnesota.

States: CT, ME, MI, MN, NY, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Laurentian-Acadian Alkaline Fen (CES201.585), North-Central Interior and Appalachian Rich Swamp (CES202.605), Northern Appalachian-Acadian Conifer-Hardwood Acidic Swamp (CES201.574)

Descriptors:

Temporal Persistence : Moderate (100-500 yrs)

Soil Moisture Regime : Saturated

Water pH : Circumneutral

Water Nutrient Status :	Mesotrophic Water
Floristics/Dominants :	Thuja occidentalis - Fraxinus nigra
Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Forest and Woodland (Tree)

3482: Great Plains Prairie Pothole

Match Confidence: Direct Match

Suggested Match: Great Plains Prairie Pothole

Codes: ESLF: 9203 EVT_fuel: 2482

ESP: 1482 NatureServe Id: CES303.661

BioGeographical Division : Western Great Plains

NVC MacroGroup: M071 Great Plains Wet Meadow, Marsh & Playa

NVC Group: G336 Great Plains Wet Prairie, Wet Meadow & Seepage Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: The prairie pothole system is found primarily in the glaciated northern Great Plains of the United States and Canada, and is dominated by depressional wetlands formed by glaciers scraping the landscape during the Pleistocene era. This system is typified by several classes of wetlands distinguished by changes in topography, soils and hydrology. Many of the basins within this system are closed basins and receive irregular inputs of water from their surroundings (groundwater and precipitation), and export water as groundwater. Hydrology of the potholes is complex. Precipitation and runoff from snowmelt are often the principal water sources, with groundwater inflow secondary. Evapotranspiration is the major water loss, with seepage loss secondary. Most of the wetlands and lakes contain water that is alkaline (pH >7.4). The concentration of dissolved solids result in water that ranges from fresh to extremely saline. The flora and vegetation of this system are a function of the topography, water regime, and salinity. In addition, because of periodic droughts and wet periods, many wetlands within this system may undergo vegetation cycles. This system includes elements of emergent marshes and wet, sedge meadows that develop into a pattern of concentric rings. This system is responsible for a significant percentage of the annual production of many economically important waterfowl in North America and houses more than 50% of North American's migratory waterfowl, with several species reliant on this system for breeding and feeding. Much of the original extent of this system has been converted to agriculture, and only approximately 40-50% of the system remains undrained.

Range: This system can be found throughout the northern Great Plains ranging from central Iowa northeast to southern Saskatchewan and Alberta, and extending west into north-central Montana. It encompasses approximately 870,000 square km with approximately 80% of its range in southern Canada. It is also prevalent in North Dakota, South Dakota, and northern Minnesota.

States: AB, IA?, MB, MN, MT, ND, SD, SK

Map Zones: 20:C, 29:C, 38:?, 39:C, 40:C, 41:C, 42:P

Similar:

Descriptors:

Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Landforms :	Pothole
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3483: South Florida Everglades Sawgrass Marsh

Match Confidence: Direct Match

Suggested Match: South Florida Everglades Sawgrass Marsh

Codes: ESLF: 9204 EVT_fuel: 2483

ESP: 1483 NatureServe Id: CES411.286

BioGeographical Division : Caribbean

NVC MacroGroup: M710 Caribbean Freshwater Marsh, Wet Meadow & Shrubland

NVC Group: G129 South Florida Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.3 Tropical Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.3.Ef Caribbeo-Mesoamerican Freshwater Marsh, Wet Meadow & Shrubland

Summary: This marsh system was a dominant type throughout much of the Everglades region of southeastern Florida. It consists largely of herbaceous marsh vegetation across a range of soil and hydrologic conditions, but generally falls within conditions outlined by Duever et al. (1986), i.e., hydroperiod of 225-275 days per year, maximum wet-season water level of 40 cm., and occurrence on peat soils. Several individual marsh community associations have been recognized based on species composition, structure, and aspect. Variations are largely due to the interrelated effects of fire, soils, and hydroperiod. Sawgrass beds or "glades" may have been the single most extensive component of this system (Hilsenbeck et al. 1979), and large areas may have the appearance of nearly monotypic stands of *Cladium mariscus ssp. jamaicense*. However, local variation in composition and stature are also often apparent. For example, two broad aspect types of *Cladium* marsh are often recognized based on density and/or height (Kushlan 1990, Gunderson and Loftus 1993) with denser and taller stands typically occurring on higher topographic positions and deeper organic soils, while sparser, shorter stands occur in lower topography on shallower soils. In addition, other marsh types are also interfingered in the sawgrass matrix where wetter depressions are found and/or where fires have burned away peat soils.

Range: This system is endemic to south Florida.

States: FL

Map Zones: 56:C

Similar: South Florida Slough, Gator Hole and Willow Head (CES411.485), South Florida Wet Marl Prairie (CES411.370)

Descriptors:

Lifeform : Graminoid
Hydrogeomorphic Units : Extensive Wet Flat
Major Physiognomy : Herbaceous

3485: East Gulf Coastal Plain Savanna and Wet Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9206 EVT_fuel: 2485

ESP: 1485 NatureServe Id: CES203.192

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M067 Atlantic & Gulf Coastal Plain Wet Prairie & Marsh

NVC Group: G111 Atlantic & Gulf Coastal Plain Pondshore & Wet Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Ne Atlantic & Gulf Coast Freshwater Wet Prairie, Marsh & Shrubland

Summary: This ecological system of western Florida and adjacent Alabama and Mississippi, may be considered a "lush grassland" (Kindell et al. 1997), "grass-sedge savannah" (Clewell 1981), wet prairie (FNAI 1990), or wet savanna (Collins et al. 2001). As implied by these names, this system consists of primarily herbaceous vegetation with relatively thick cover of grasses and sedge species. Examples occupy low, flat plains on poorly drained soils, often saturated for 50-100 days per year. Frequent fires, including growing-season burns, are essential for maintenance of this system. Some examples have a sparse tree component of *Pinus elliottii* or *Pinus palustris* and scattered shrubs, such as *Morella cerifera*.

Range: Western Florida and adjacent Alabama and Mississippi.

States: AL, FL, MS

Map Zones: 55:C, 99:C

Similar: Central Florida Wet Prairie and Herbaceous Seep (CES203.491)

Descriptors:

Lifeform :	Graminoid
Disturbance Return Interval :	Very Short
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Herbaceous

3486: Texas Saline Coastal Prairie

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9207 EVT_fuel: 2486

ESP: 1486 NatureServe Id: CES203.543

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M079 North American Atlantic & Gulf Coast Salt Marsh

NVC Group: G123 Atlantic & Gulf Coast Saline Flat & Panne

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.5 Salt Marsh

NVCS Division: 2.C.5.Nb Temperate & Boreal Atlantic Coastal Salt Marsh

Summary: This system encompasses grassland vegetation occurring on saline soils that are often saturated by local rainfall and periodically flooded by saline waters during major storm events. It is located along the Gulf Coast of Texas. Saline prairie continues to occupy extensive areas, though quality of the system is often degraded by the invasion of woody shrubs due to the absence of regular fire. Fire is an important ecological process needed to maintain this system, though periodic submersion with saltwater during storm events also helps to control the invasion of woody species. This system is characteristically dominated by *Spartina spartinae*; other dominants may include *Schizachyrium littorale* and *Muhlenbergia capillaris*. This system includes depressions often dominated by *Spartina patens*.

Range: This system is only found along the Gulf Coast of Texas.

States: TX

Map Zones: 36:C, 37:P

Similar:

Descriptors:

SCS Subregion :	West Gulf Coastal Plain
Specialized Substrate Chemistry :	Saline
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Herbaceous

3488: Eastern Great Plains Wet Meadow-Prairie-Marsh

Match Confidence: Unmatched

Suggested Match: Eastern Great Plains Wet Meadow, Prairie and Marsh

Codes: ESLF: 9213 EVT_fuel: 2488

ESP: 1488 NatureServe Id: CES205.687

BioGeographical Division :

NVC MacroGroup: M069 Eastern North American Wet Meadow & Marsh

NVC Group: G770 Midwest Wet Prairie & Wet Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: This system is found along creeks and streams from Nebraska and Iowa to Illinois, and from Minnesota to Texas. It is also found in depressions and along lake borders, especially in the northern extension of its range into Minnesota. It is often adjacent to a floodplain system but is devoid of trees and riparian vegetation. It is also distinguished from upland prairie systems by having more hydrology, especially associated with silty, dense clay soils that are often hydric, classified as Vertic Haplaquolls. The landform is usually floodplain or poorly drained, relatively level land. The vegetation is dominated by *Spartina pectinata, Tripsacum dactyloides*, numerous large sedges, such as *Carex frankii* and *Carex hyalinolepis*, and in wetter areas, *Eleocharis* spp. Other emergent marsh species such as *Typha* spp. can be associated with this system. Forbs can include *Helianthus grosseserratus, Vernonia fasciculata*, and *Physostegia virginiana*. Some parts of this system may be saline and have species such as *Distichlis spicata* and *Schoenoplectus maritimus*. Fire has been the primary influence in keeping these wet areas free of trees. Other dynamic processes include grazing and flooding (often in late spring). Many areas have been converted to agricultural, but this usually requires some sort of drainage.

Range: This system is found throughout the northeastern Great Plains ranging from eastern Kansas to western Illinois and north into Minnesota.

States: IA, IL, KS, MN, MO, ND, NE, OK, SD, TX?

Map Zones: 31:P, 38:C, 39:C, 40:C, 41:P, 42:C, 43:C, 49:C, 50:C, 51:P, 52:P

Similar:

Descriptors:

Wetland Isolation : Isolated

Hydrogeomorphic Units :	Depressional
Landforms :	Shoreline
Landforms :	Depression
Major Physiognomy :	Herbaceous

3489: Floridian Highlands Freshwater Marsh Herbaceous

Match Confidence: Good Match

Suggested Match: Floridian Highlands Freshwater Marsh

Codes: ESLF: 9214 EVT_fuel: 2489

ESP: 1489 NatureServe Id: CES203.077

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M067 Atlantic & Gulf Coastal Plain Wet Prairie & Marsh

NVC Group: G188 Coastal Plain River & Basin Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Ne Atlantic & Gulf Coast Freshwater Wet Prairie, Marsh & Shrubland

Summary: This system represents non-tidal marsh vegetation in the peninsula of Florida and in the Tallahassee area. These highland marshes occupy different types of depressions such as former lake basins, shallow peat-filled valleys, and zones around existing natural lakes (Kushlan 1990). The marshes and the basins they occur within are unstable over time due to subsurface subsidence and drainage pattern changes. In some examples, surface waterflow is generally lacking due to the presence of limestone near the surface, but water levels have fluctuated greatly over time (Patton and Judd 1986). Soils range from mucky surfaces to sandy loams or sands, but slowly permeable subsoils contribute to the presence of standing water for much of the year. The vegetation mosaic includes a range of mostly herbaceous plant communities that may be referred to as marshes, meadows, and prairies, collectively comprising a relatively diverse number of associations. Permanent water bodies support a range of submerged and floating aquatic species. Areas with approximately a meter of standing water tend to support dense stands of emergent herbaceous perennials, often in monospecific stands; species include *Typha latifolia, Pontederia cordata, Nelumbo lutea*, and others. Where there is less water (usually present only during wet season), more graminoid vegetation is present, with species such as *Panicum hemitomon, Leersia hexandra*, and other species. With historic water level fluctuations, the vegetation mosaic has also changed, sometimes quite rapidly.

Range: This system is found in the Florida Peninsula and in the Tallahassee Hills/Valdosta Limesink area, possibly ranging into adjacent Georgia.

States: FL, GA?

Map Zones: 55:C, 56:C

Similar: Florida River Floodplain Marsh (CES203.055), South Florida Slough, Gator Hole and Willow Head (CES411.485)

Descriptors:

Lifeform :	Graminoid
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Herbaceous

3490: Gulf and Atlantic Coastal Plain Tidal Marsh Shrubland

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Tidal Marsh Systems

Codes: ESLF: 9209 EVT_fuel: 2490

ESP: 1490 NatureServe Id: CES203.638

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: -

NVCS Division: -

Summary: This systems group includes tidal marshes in various settings along the Atlantic and Gulf coasts and barrier islands. Salt, brackish, and freshwater marshes are included. Regular tidal flooding occurs over most of the system, with irregular flooding in unusually high tides occurring in the upper zones. Tides bring nutrients, making the regularly flooded marshes fertile. Storms may push saltwater into brackish areas, acting as a disturbance to vegetation. The dominant factors in vegetation variability are salinity and geography. Salt marshes are often dominated by *Spartina* grasses, often forming large and low-diversity but high-productivity expanses. *Juncus roemerianus* is also common and, like *Spartina*, may be dominant over large areas. Local depressions in upper zones may be hypersaline due to concentration of salt by evaporation; *Salicornia* spp., *Sarcocornia* spp., and *Distichlis spicata* are characteristic in these salt pannes. In brackish settings, *Spartina* may be characteristic as well, but it is often mixed with or replaced by other graminoids such as *Schoenoplectus* spp. Brackish marshes may include large patches of flats with low forbs (along the northern Atlantic Coast); *Sagittaria subulata* and *Limosella australis* are typical. Fresh to oligohaline tidal marshes may be characterized by *Zizania* spp., *Zizaniopsis miliacea, Eleocharis* spp., *Sagittaria* spp., and *Typha* spp. They typically occur along bay margins near inflowing rivers, extending up the tidal reaches of those rivers.

While tidal marshes are characteristically herbaceous, they may support inclusions of shrublands dominated by*Baccharis halimifolia, Borrichia frutescens*, or other shrubs. Salt marsh "islands" of slightly higher elevation also support *Juniperus virginiana*. Fresh and oligohaline marshes can have a heterogeneous physiognomy including shrublands, grasslands, and aquatic herbs. Individual systems in this group are differentiated based on salinity, geography, and tidal dynamics and energy.

Range: This systems group is distributed along the tidal reaches of the Gulf and Atlantic coastal plains from southern Maine to Texas.

States: AL, CT, DE, FL, GA, LA, MA, MD, ME, MS, NC, NH, NJ, NY, RI, SC, TX, VA

Map Zones: 36:C, 37:C, 55:C, 56:C, 58:C, 60:C, 65:C, 66:C, 98:C, 99:C

Similar:

Descriptors:

Lifeform :	Graminoid
USFWS Wetland System :	Estuarine
Hydrogeomorphic Units :	Tidal / Estuarine
Bioclimate :	Temperate

3491: Acadian Salt Marsh and Estuary Systems

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 9210 EVT_fuel: 2491

ESP: 1491 NatureServe Id: CES201.639

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M079 North American Atlantic & Gulf Coast Salt Marsh

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.5 Salt Marsh

NVCS Division: 2.C.5.Nb Temperate & Boreal Atlantic Coastal Salt Marsh

Summary: This systems group covers marshes of the Gulf of Maine and parts of the southern New England coastline, along the immediate ocean shore and near estuary mouths, where salinity regime is polyhaline to mesohaline. True salt marshes, sometimes called "salt meadows," display strong graminoid dominance, with patchy forbs. *Spartina patens* and *Spartina alterniflora* are the major dominants. These marshes may be extensive where the local topography allows their development, which is primarily in the southern portion of the system's range (Merrymeeting Bay, Maine, southward). Eastward, where the coastal topography becomes more dissected, they are more commonly seen as a fairly narrow fringe along tidal shorelines. These salt marshes are typically less extensive and with some different floristic elements than the marshes southward along the Atlantic Coast from Cape Cod to Chesapeake Bay. Brackish marshes are found along mesohaline reaches of estuaries of the Gulf of Maine and parts of the southern New England coastline, and feature emergent and submergent vegetation. Dominance ranges from extensive grasslands (tall *Schoenoplectus* spp., etc.) to sparsely vegetated mudflats, all tidally influenced. Brackish marshes grade into the salt marshes at the mouth of estuaries.

Range: This systems group occurs along the northern Atlantic Coast north of the Atlantic Coastal Plain region, from north of Cape Cod to the Canadian Maritimes.

States: MA, ME, NB, NH, NS

Map Zones: 65:C, 66:C

Similar:

Descriptors:

Floristics/Dominants : Spartina (patens, alterniflora)

Lifeform :	Graminoid
Hydrogeomorphic Units :	Tidal / Estuarine
Specialized Substrates :	Rocks/Derived Substrates of immediate coast

3492: Great Lakes Coastal Marsh Herbaceous

Match Confidence: Good Match

Suggested Match: Great Lakes Coastal Marsh Systems

Codes: ESLF: 9211 EVT_fuel: 2492

ESP: 1492 NatureServe Id: CES201.640

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M069 Eastern North American Wet Meadow & Marsh

NVC Group: G125 Eastern North American Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: This systems group is found throughout the Great Lakes Basin in the United States and Canada. It can include a complex variety of wetlands occurring along the Great Lakes shorelines, as well as portions of tributary rivers and streams that are directly affected by Great Lakes water regimes. It also forms much of the St. Clair River delta. Species distributions and community patterns are determined by multiple abiotic factors, including the type of aquatic system (lakeshore, major river channels, smaller tributary rivers, major deltas, or estuarine), Great Lakes water-level fluctuations, surficial bedrock, glacial landform, climate, and land use. Although wetland species are generally widely distributed, those of more temperate prairie regions are found in the southern parts of the basin, while those of more boreal and subarctic regions are found in the northern parts of the basin. Vegetation types found across this diverse set of abiotic factors can be placed into a number of zones, though not all are present at a given site. The first four zones are typically inundated directly by lake waters: (a) submergent marsh - containing submergent and/or floating vegetation; (b) emergent marsh - characterized by shallow water or semipermanently flooded soils, and typically dominated by bulrushes, cattails, and other emergent species, but also containing submergent and/or floating vegetation; (c) shore fen - saturated vegetation mats characterized by groundwater influence from shoreline habitats but affected by lake-level fluctuations, and dominated by herbaceous or shrubby species; and (d) shoreline or strand - a narrow zone at or just above the water level where seasonal water-level fluctuations and waves cause erosion, and which is dominated by annual or pioneer herbaceous species. The next set of zones are inland from the water's edge and include: (e) herbaceous and shrubby wet meadows - characterized by saturated or seasonally flooded soils, and typically dominated by sedges, grasses, and other herbs, but occasionally dominated by shrubs; and (f) shrub or wooded swamps - characterized by seasonal flooding and dominated by woody species. Species assemblages in these zones change depending

on the interaction of factors across the Great Lakes Basin. These systems can be divided into a number of geographical variants, based on the various community types found across the range of the system: (1) Lake Michigan Lacustrine Estuary; (2) Lake Erie-St. Clair Lakeplain Marsh; (3) Lake Ontario Lagoon Marsh; (4) St. Lawrence River Estuary; (5) Lake Superior Poor Fen; (6) Northern Rich Fen; (7) Northern Great Lakes Marsh; (8) Green Bay Disturbed Marsh; and (9) Saginaw Bay Lakeplain Marsh.

Range: This systems group is found throughout the northern Great Lakes Basin in the United States and Canada from New York west to Minnesota. In Pennsylvania, this is only on Presque Isle.

States: MI, MN, NY, OH, ON, PA, WI

Map Zones: 41:C, 49:P, 50:C, 51:C, 52:C, 62:C, 63:C, 64:C

Similar:

Descriptors:

Hydrogeomorphic Units :	Tidal / Estuarine
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous

3493: Central Interior and Appalachian Herbaceous Wetlands

Match Confidence: Good Match

Suggested Match: Central Interior and Appalachian Shrub-Herbaceous Wetland Systems

Codes: ESLF: 9212 EVT_fuel: 2493

ESP: 1493 NatureServe Id: CES202.641

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: -

NVCS Division: -

Summary: This systems group is typically found on glacial potholes, along small streams, ponds, channels in glacial outwash and on lakeplains. These wetlands consist of deep to shallow areas of freshwater marsh dominated by emergent and submergent species that may be surrounded by a zone of wet meadow. Stands may be open ponds with floating or rooted aquatics, deep marsh with bulrush or cattails, or wet meadow. They range in size from fairly small to several acres. The hydric soils are flooded by water at depths of several centimeters to over 1 meter for most of the growing season. Emergent marsh species such as *Typha* spp. and *Schoenoplectus* spp. dominate the core of this system, with an occasional scattering of tall *Carex* spp. and forbs that can vary from dense to open cover. Wet meadows can surround the emergent marsh core along wet mineral soils or shallow peat with the water table typically just below the surface for most of the growing season. The vegetation in the wet meadow zone is dominated by sedges (*Carex* spp.) and grasses such as *Calamagrostis canadensis*. These systems also can contain a zone of wet prairie species such as *Spartina pectinata*. Shrub swamps can also be associated with the wet meadows within these systems. Typical shrub species include *Cornus* spp., *Salix* spp., and/or *Cephalanthus occidentalis*. Trees are generally absent and, if present, are scattered.

Range: This systems group ranges throughout the upper midwestern United States from northwestern Pennsylvania to Missouri and the Dakotas and into adjacent Canada.

States: IA, IL, IN, MI, MN, MO, ND, OH, ON, PA, SD, WI

Map Zones: 39:P, 40:P, 41:C, 42:C, 43:C, 44:P, 47:C, 49:C, 50:C, 51:C, 52:C, 53:C, 62:C

Similar: Laurentian-Acadian Shrub-Herbaceous Wetland Systems (CES201.642)

Descriptors:

Hydroperiod :	>180 days
Water Depth :	Shallow (<15 cm)
Lifeform :	Graminoid
Lifeform :	Broad-Leaved Shrub
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate

3494: Laurentian-Acadian Forested Wetlands

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Floodplain Forest

Codes: ESLF: 9328 EVT_fuel: 2494

ESP: 1494 NatureServe Id: CES201.587

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: G653 Silver Maple - Green Ash - Black Ash Floodplain Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This system encompasses north-temperate floodplains in the northeastern and north-central U.S. and adjacent Canada at the northern end of the range of silver maple. They occur along medium to large rivers where topography and process have resulted in the development of a complex of upland and wetland temperate alluvial vegetation on generally flat topography. This complex includes floodplain forests, with *Acer saccharinum* characteristic, as well as herbaceous sloughs and shrub wetlands. In areas subject to more scour, sparse non-wetland vegetation may develop on sandbars or exposed rock. Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. Associated trees include *Acer rubrum* and *Carpinus caroliniana*, the latter frequent but never abundant. On terraces or in more calcareous areas, *Acer saccharum* or *Quercus rubra* may be locally prominent, with *Betula alleghaniensis* and *Fraxinus* spp. *Salix nigra* is characteristic of the levees adjacent to the channel. Common shrubs include *Cornus amomum* and *Viburnum* spp. The herb layer in the forested portions often features abundant spring ephemerals, giving way to a fern-dominated understory in many areas by mid-summer. Non-forested wetlands associated with these systems include shrub-dominated and graminoid-herbaceous vegetation.

Range: Central and northern New England and adjacent Canada west to the Great Lakes.

States: MA?, ME, MI, MN, NB, NH, NY, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Central Appalachian River Floodplain (CES202.608), North-Central Interior Floodplain (CES202.694)

Descriptors:

Soil Organic Matter	Mineral: W/A Horizon >10 cm
Major Physiognomy	Forest and Woodland (Tree)
Major Physiognomy	Shrubland (Shrub)
Major Physiognomy	Woody-Herbaceous
Major Physiognomy	Herbaceous
Topography	Toeslope/Bottom/Valley
Hydrogeomorphic Units	Riverine / Alluvial
Glacial History	Glaciated
Soil Fertility	Eutrophic
Soil Fertility	Mesotrophic Soil
Soil pH	Circumneutral
Life Zones	Lowland
Soil Depth	Deep
Temporal Persistence	Moderate (100-500 yrs)
Soil Texture	Silt
Soil Moisture (NRCS)	Udic
Substrate Consolidation	Unconsolidated
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Lifeform	Broad-Leaved Deciduous Tree
Lifeform	Broad-Leaved Shrub
Lifeform	Graminoid
Water Nutrient Status	Mesotrophic Water
Flooding Return Interval	Short (<5 yrs)
Soil pH	Acidic

3495: Western Great Plains Depressional Wetland Systems

Match Confidence: Direct Match

Suggested Match: Western Great Plains Depressional Wetland Systems

Codes: ESLF: 9216 EVT_fuel: 2495

ESP: 1495 NatureServe Id: CES303.643

BioGeographical Division : Western Great Plains

NVC MacroGroup: M071 Great Plains Wet Meadow, Marsh & Playa

NVC Group: G336 Great Plains Wet Prairie, Wet Meadow & Seepage Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nd Eastern North American Wet Meadow, Marsh & Shrubland

Summary: This systems group includes wetlands that form in upland and lowland depressions across the western Great Plains. Isolated depression wetlands (including playa lakes) form in small basins within upland landscapes that are rarely linked to outside groundwater sources and do not have an extensive watershed. Open depression wetlands form in lowlands, including lake borders and stream margins, that have more open basins, usually have a larger watershed, and a permanent water source throughout most of the year (except during exceptional drought years). The isolated depressions are typified by the presence of an impermeable layer such as a dense clay, hydric soil and are usually recharged by rainwater and nearby runoff. Isolated ponds and lakes can experience periodic drawdowns during drier seasons and years and are often replenished by spring rains. *Eleocharis* spp., *Hordeum jubatum*, and common forbs such as *Coreopsis tinctoria, Symphyotrichum subulatum (= Aster subulatus)*, and *Polygonum pensylvanicum (= Polygonum bicorne)* are common vegetation in the wetter and deeper depressions, while *Pascopyrum smithii* and *Buchloe dactyloides* are more common in shallow depressions in rangeland. Open depression wetlands include submergent and emergent marshes with *Typha* spp. and *Schoenoplectus* spp., and associated wet meadows and wet prairies. In areas of saline soils, both isolated and open depressions will be more brackish, with associated vegetation differences. Salt encrustations can occur on the surface in some depressions, and the soils are severely affected and have poor structure. Species that typify these systems are salt-tolerant and halophytic species such as *Distichlis spicata, Sporobolus airoides*, and *Hordeum jubatum*. Other commonly occurring taxa include *Puccinellia nuttalliana, Salicornia rubra, Suaeda calceoliformis, Spartina* spp., and shrubs such as *Sarcobatus vermiculatus* and *Krascheninnikovia lanata*.

Range: This systems group occurs across the western Great Plains from North Dakota and Kansas west to

Montana and south to Texas.

States: CO, KS, MT, ND, NE, NM, OK, SD, TX, WY

Map Zones: 20:C, 22:C, 25:P, 26:P, 27:C, 29:C, 30:C, 31:C, 32:P, 33:C, 34:C, 35:C, 36:C, 38:C, 39:C, 40:C, 43:?

Similar:

Descriptors:

USFWS Wetland System :	Palustrine
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Major Physiognomy :	Herbaceous

3497: Central Interior and Appalachian Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: Central Interior and Appalachian Sparsely Vegetated Systems

Codes: ESLF: 3110 EVT_fuel: 2497

ESP: 1497 NatureServe Id: CES202.645

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M111 Eastern North American Cliff & Rock Vegetation

NVC Group: G106 Eastern North American Temperate Cliff

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Na Eastern North American Temperate Cliff, Scree & Rock Vegetation

Summary: This systems group occurs on rock outcrops in the southern and central Appalachians (and less commonly on the adjacent Piedmont) and is distinguished by having sparse vegetation amid large expanses of bare rock. The outcrops may be vertical to horizontal, smooth or fractured rock outcrops or (in periglacial areas) boulderfields of peaks, ridgetops, monadnocks, upper slopes, and other topographically exposed locations. Most of the substrate is dry and exposed, but small areas of seepage may be present. Vegetation is confined to thin soil mats developing in local pockets and protected spots. Vegetation occurs as a series of small patches in the thin soil mats, with the kind of vegetation closely related to depth of the mat. Expanses of bare rock are characterized by crustose or other lichens and may have moss patches. The thinnest soils usually have a set of fine forbs, many of them annual. Slightly deeper soils often have grasses dominating. The few pockets of deeper soil support shrubs or occasionally small trees. The overall character is one of sparse herb-dominated vegetation and lichen-encrusted rocks. Higher elevation examples occur from 1200 to 2030 m; other examples may be found at elevations of 305 m (1000 feet) in foothills or as low as 75 m (245 feet) in the Piedmont. Typical rock outcrop herbs in the southern Appalachians include *Saxifraga michauxii, Carex misera, Paronychia argyrocoma, Minuartia glabra, Heuchera villosa, Krigia montana, Talinum teretifolium, Selaginella* spp., and *Hylotelephium telephioides (= Sedum telephioides)*; more widespread herbs include *Danthonia spicata, Danthonia compressa, Schizachyrium scoparium, Potentilla canadensis, Polypodium virginianum*, and *Houstonia caerulea*. *Toxicodendron radicans* is a characteristic woody vine at some locations.

Range: This systems group occurs in the southern Appalachian Mountains from the Carolinas to Georgia and Tennessee, and in the central Appalachians north through Pennsylvania to the New Jersey line.

States: GA, NC, NJ, PA, SC, TN, VA, WV

Map Zones: 53:P, 54:P, 57:C, 59:P, 60:P, 61:C

Similar:

Descriptors:

Glacial History	: Unglaciated
Specialized Substrates	: Rock Outcrops/Barrens/Glades
Topography	: High Ridge/Upper Slope

3498: Gulf and Atlantic Coastal Plain Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 3111 EVT_fuel: 2498

ESP: 1498 NatureServe Id: CES203.646

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M060 Eastern North American Coastal Beach

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This systems group includes ocean beaches along the Gulf and Atlantic coasts from southern Maine to Texas. Examples generally include the outermost zone of coastal vegetation extending seaward from foredunes on barrier islands and also limited overwash flats behind breached foredunes. Substrates consist of unconsolidated sand and shell sediments that are constantly shifting. Although these habitats are situated just above the mean high tide limit, they are constantly impacted by wind and salt spray and may be flooded by storm surges or altered by hurricane events. Under normal conditions, constant salt spray and rainwater maintain generally moist conditions. Dynamic disturbance regimes largely limit vegetation to pioneering, salt-tolerant, succulent annuals and strongly rooted perennial grasses. Individual systems within this group are distinguished by geography, differences in wave energy affecting geomorphology, substrate texture and mineralogy, and dominant plant species. Substrates range from fine-textured beaches of the Sea Islands region, where clay may be an important component, to sandy beaches of the Florida panhandle that are rich in pyroxene, epidote, and garnet and low in potassium, to beaches combining sand and shell fractions. Characteristic plants of the North Atlantic beaches include *Cakile edentula ssp. edentula, Salsola kali (= Salsola caroliniana), Suaeda linearis, Suaeda maritima*, and *Atriplex cristata (= Atriplex pentandra)*. *Uniola paniculata* is the classic grass on beaches from the Carolinas to the Florida panhandle. Louisiana beaches are distinguished by dominance of *Spartina patens* instead of *Uniola paniculata*. Also characteristic are *Cenchrus spinifex (= Cenchrus incertus)* and *Sporobolus virginicus*. On Texas beaches, characteristic dominants are xerophytes and include the perennials *Ipomoea pes-caprae* and *Ipomoea imperati* and the annual *Cakile geniculata*.

Range: This systems group is distributed along the coast of the Gulf and Atlantic coastal plains from

southern Maine to Texas.

States: AL, CT, DE, FL, GA, LA, MA, MD, ME, MS, NC, NH, NJ, NY, RI, SC, TX, VA

Map Zones: 36:C, 37:C, 46:C, 55:C, 56:C, 58:C, 60:C, 65:C, 66:C, 98:C, 99:C

Similar: Caribbean Coastal Beach Systems (CES411.644)

Descriptors:

Bioclimate :	Temperate
Specialized Substrates :	Beach
Major Physiognomy :	Herbaceous

3499: Laurentian-Acadian Sparsely Vegetated Systems

Match Confidence: Direct Match

Suggested Match: Laurentian-Acadian Sparsely Vegetated Systems

Codes: ESLF: 3112 EVT_fuel: 2499

ESP: 1499 NatureServe Id: CES201.647

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M060 Eastern North American Coastal Beach

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass :

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: This systems group occupies sparsely vegetated (generally treeless) shorelines in the glaciated regions of the northeastern and north-central United States and adjacent Canada. Most are along the Atlantic or Great Lakes coastlines, but a few may occur on the shores of larger lakes in the region. In many cases the sparse vegetation forms a narrow zone between water and upland forest, in others, notably the Great Lakes dunefields, it covers a more extensive area. Substrates vary from bedrock (generally acidic) to cobble/gravel to sand. On rocky substrates, small pockets of soil may develop in local depressions, with vascular vegetation essentially limited to these patches. Tree growth is generally prevented by exposure to any of several agents, depending on setting: salt spray, mechanical damage by ice, wave action, shifting rocky substrate, and/or wind. (A few stunted trees may be present in some settings.) Vegetation is sparse overall and consists of patches of shrubs, dwarf-shrubs, and herbs. Crustose lichens are prominent in some areas. Cobble shores along the Atlantic Coast are characterized by algal rather than vascular vegetation.

Along sandy Great Lakes shorelines, dunes may sit several hundred feet above current lake levels. Depositional areas such as foredunes are dominated by*Ammophila breviligulata* (or in the eastern part of the range by *Ammophila champlainensis*); erosional areas, such as slacks in blowouts and dune fields, by *Calamovilfa longifolia*; and stabilized areas by *Schizachyrium scoparium*. In dune fields and on the most stable dune ridges, especially around northern Lake Michigan and Lake Huron, low evergreen shrubs (*Arctostaphylos uva-ursi, Juniperus communis, Juniperus horizontalis*) occupy dune crests and also the ground layer in the savanna edge of dunes; elsewhere, deciduous shrubs are dominant, including *Prunus pumila, Salix cordata*, and *Salix myricoides (= Salix glaucophylloides)*.

Range: central United States and adjacent Canada. They range from Nova Scotia south across New England and west to Illinois and Minnesota. Most are along the Atlantic or Great Lakes coastlines, but a few may occur on the shores of larger lakes in the region.

States: CT?, IL, IN, LB, MA, ME, MI, MN, NB, NH, NS, NY, OH, ON, QC, VT, WI

Map Zones: 41:C, 49:P, 50:C, 51:C, 52:P, 62:P, 63:C, 64:C, 65:C, 66:C

Similar:

Descriptors:

Juxtaposition :	Coastal Dune mosaic
Soil Depth :	Very Shallow
Glacial History :	Glaciated
Bioclimate :	Temperate
Specialized Substrates :	Rocks/Derived Substrates of immediate coast
Specialized Substrates :	Beach
Specialized Substrates :	Dune
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3501: Southern Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest

Match Confidence: Direct Match

Suggested Match: Southern Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Fore

Codes: ESLF: 9310 EVT_fuel: 2501

ESP: 1501 NatureServe Id: CES203.304

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G038 Coastal Plain Hardwood Basin Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system consists of poorly drained, organic or mineral soil flats of the outer Atlantic Coastal Plain. These areas are saturated by rainfall and seasonal high water tables without influence of river or tidal flooding. Fire is generally infrequent but may be important for some associations. Vegetation consists of hardwood or mixed forests of *Taxodium distichum, Nyssa* spp., bottomland oaks, *Acer rubrum*, or other wetland trees of similar tolerance. The lower strata have affinities with pocosin or baygall systems rather than the river floodplain systems that have affinities with the canopy. The combination of hardwood/deciduous canopy dominants and nonriverine, non-seepage hydrology distinguishes this system from other Coastal Plain systems. Stands with a high cover of *Chamaecyparis thyoides* formerly occupied much of the acreage of this system. This phase is presently only present in high-quality examples, and it helps distinguish this system from other Coastal Plain systems. Disturbed and fire-disrupted examples (those dominated by *Nyssa* spp., bottomland oaks, *Acer rubrum*) may be hard to distinguish from other wetland forests based purely on canopy composition.

Range: This system ranges from southeastern Virginia to Georgia. This system is most abundant in the Embayed Region of northeastern North Carolina and southeastern Virginia (south of the James River), where it covers large expanses.

States: GA, NC, SC, VA

Map Zones: 55:C, 58:C, 60:C

Similar: Atlantic Coastal Plain Peatland Pocosin and Canebrake (CES203.267), Northern Atlantic Coastal Plain Basin Peat Swamp (CES203.522), Southern Atlantic White-cedar Peatland Forest [Provisional] (CES203.068), Southern Coastal Plain Nonriverine Basin Swamp (CES203.384)

Descriptors:

Lifeform :	Broad-Leaved Tree
Lifeform :	Needle-Leaved Tree
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Forest and Woodland (Tree)

3502: Central Appalachian Dry Oak-Pine Forest

Match Confidence: Direct Match

Suggested Match: Central Appalachian Dry Oak-Pine Forest

Codes: ESLF: 4312 EVT_fuel: 2369

ESP: 1369 NatureServe Id: CES202.591

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G015 Appalachian Oak / Chestnut Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: These oak and oak-pine forests cover large areas in the low- to mid-elevation Central Appalachians and middle Piedmont. The topography and landscape position range from rolling hills to steep slopes, with occasional occurrences on more level, ancient alluvial fans. In the highly dissected fall zone of Maryland and the District of Columbia, where the Piedmont and Coastal Plain meet, it is also found on dry knolls capped with Pleistocene- and Tertiary-aged fluvial cobble and gravel terrace deposits. Soils are typically coarse and infertile; they may be deep (on glacial deposits in the northern and terrace deposits in the southern parts of the system's range), or more commonly shallow, on rocky slopes of acidic rock (shale, sandstone, other acidic igneous or metamorphic rock). The well-drained soils and exposure create dry conditions. The forest is mostly closed-canopy but can include patches of more open woodlands. It is dominated by a variable mixture of dry-site oak and pine species, most typically *Quercus prinus, Pinus virginiana*, and *Pinus strobus*, but sometimes *Quercus alba* and/or *Quercus coccinea*. The system may include areas of oak forest, pine forest (usually small), and mixed oak-pine forest. Heath shrubs such as *Vaccinium pallidum, Gaylussacia baccata*, and *Kalmia latifolia* are common in the understory and often form a dense layer. Embedded submesic ravines and concave landforms support slightly more diverse forests characterized by mixtures of oaks, several hickories, *Cornus florida*, and sometimes *Liriodendron tulipifera*. Small hillslope pockets with impeded drainage may support small isolated wetlands with *Acer rubrum* and *Nyssa sylvatica* characteristic. Disturbance agents include fire, windthrow, and ice damage. Increased site disturbance generally leads to secondary forest vegetation with a greater proportion of *Pinus virginiana* and weedy hardwoods such as *Acer rubrum*.

Range: This system is found from central New England through Pennsylvania and south to the Roanoke River in southern Virginia. It is primarily Appalachian but overlaps slightly into the upper Piedmont

and fall zone in Virginia, Maryland and the District of Columbia.

States: CT, DC, MA, MD, ME, NH, NJ, NY, PA, RI, VA, VT, WV

Map Zones: 57:P, 60:C, 61:C, 63:C, 64:C, 65:C, 66:C

Similar: Allegheny-Cumberland Dry Oak Forest and Woodland (CES202.359), Central Appalachian Pine-Oak Rocky Woodland (CES202.600), Laurentian-Acadian Northern Pine-(Oak) Forest (CES201.719), Northeastern Interior Dry-Mesic Oak Forest (CES202.592), Northern Atlantic Coastal Plain Hardwood Forest (CES203.475), Southern Appalachian Oak Forest (CES202.886), Southern Piedmont Dry Oak-(Pine) Forest (CES202.339)

Descriptors:

Floristics/Dominants :	Pinus (strobus, rigida, echinata, virginiana) - Quercus p
Lifeform :	Broad-Leaved Tree
Lifeform :	Needle-Leaved Tree
Wind Intensity/Spatial Character :	Patch/Low Intensity
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Soil Moisture (NRCS) :	Ustic
Soil Texture :	Sand
Soil Texture :	Loam
Soil Organic Matter :	Mineral: W/A Horizon <10 cm
Soil pH :	Acidic
Soil Fertility :	Oligotrophic
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3503: Chihuahuan Loamy Plains Desert Grassland

Match Confidence: Direct Match

Suggested Match: Chihuahuan Loamy Plains Desert Grassland

Codes: ESLF: 7164 EVT_fuel: 2503

ESP: 1503 NatureServe Id: CES302.061

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M087 Chihuahuan Semi-Desert Grassland

NVC Group: G489 Chihuahuan Semi-Desert Lowland Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system occurs in the northern Chihuahuan Desert and extends into limited areas of the southern Great Plains on alluvial flats, loamy plains, and basins sometimes extending up into lower piedmont slopes. Sites are typically flat or gently sloping so precipitation does not run off and may be somewhat mesic if they receive runoff from adjacent areas, but these are not wetlands. Soils are non-saline, finer textured loams or clay loam. Vegetation is characterized by perennial grasses and is typically dominated by *Pleuraphis mutica* (tobosa) or with *Bouteloua eriopoda* codominant (more historically) or *Bouteloua gracilis*. In degraded stands, *Scleropogon brevifolius, Dasyochloa pulchella (= Erioneuron pulchellum)*, or *Aristida* spp. may codominate. *Pleuraphis jamesii* may become important in northern stands and *Bouteloua gracilis* in the Great Plains and on degraded stands. If present, mesic graminoids such as *Pascopyrum smithii, Panicum obtusum, Sporobolus airoides*, and *Sporobolus wrightii* typically have low cover and are restricted to drainages and moist depressions (inclusions). Scattered shrubs such as *Ephedra torreyana, Flourensia cernua, Gutierrezia sarothrae, Larrea tridentata, Opuntia imbricata, Prosopis glandulosa*, and *Yucca* spp. may be present, especially on degraded sites.

Range: This grassland system is found from the northern to central Chihuahuan Desert and extends across the Trans-Pecos and into areas of the southwestern Great Plains. It extends from western Texas across New Mexico and into southeastern Arizona. Stands are described from Jornada del Muerto Basin, Marfa grasslands and Marathon Basin, south to central Chihuahua and Coahuila, Mexico.

States: AZ, MXCH, MXCO, NM, TX

Map Zones: 25:C, 26:C

Similar: Chihuahuan-Sonoran Desert Bottomland and Swale Grassland (CES302.746)

Descriptors:

Landforms : Valley
Landforms : Alluvial flat
Landforms : Plain
Life Zones : Lowland

3504: Chihuahuan-Sonoran Desert Bottomland and Swale Grassland

Match Confidence: Direct Match

Suggested Match: Chihuahuan-Sonoran Desert Bottomland and Swale Grassland

Codes: ESLF: 9411 EVT_fuel: 2504

ESP: 1504 NatureServe Id: CES302.746

BioGeographical Division : North American Warm Desert

NVC MacroGroup: M087 Chihuahuan Semi-Desert Grassland

NVC Group: G489 Chihuahuan Semi-Desert Lowland Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system occurs in relatively small depressions or swales and along drainages throughout the northern and central Chihuahuan Desert and adjacent Sky Islands and Sonoran Desert, as well as limited areas of the southern Great Plains on broad mesas, plains and valley bottoms that receive runoff from adjacent areas. Occupying low topographic positions, these sites generally have deep, fine-textured soils that are neutral to slightly or moderately saline/alkaline. During summer rainfall events, ponding is common. Vegetation is typically dominated by *Sporobolus airoides, Sporobolus wrightii, Pleuraphis mutica* (tobosa swales), or other mesic graminoids such as *Pascopyrum smithii* or *Panicum obtusum*. With tobosa swales, sand-adapted species such as *Yucca elata* may grow at the swale's edge in the deep sandy alluvium that is deposited there from upland slopes. *Sporobolus airoides* and *Sporobolus wrightii* are more common in alkaline soils and along drainages. Other grass species may be present, but these mesic species are diagnostic. Scattered shrubs such as *Atriplex canescens, Prosopis glandulosa, Ericameria nauseosa, Fallugia paradoxa, Krascheninnikovia lanata*, or *Rhus microphylla* may be present.

Range: This system is found in the central and northern Chihuahuan Desert and adjacent Sky Islands and Sonoran Desert, as well as limited areas of the southern Great Plains.

States: AZ, MXCH, MXCO, MXSO, NM, TX

Map Zones: 14:C, 25:C, 26:P, 34:?, 35:?

Similar: Chihuahuan Loamy Plains Desert Grassland (CES302.061)

Descriptors:

Flooding Return Interval : Intermittent

Subsoil Texture :	Clay
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Bioclimate :	Temperate
Bioclimate :	Temperate
Bioclimate :	Tropical/Subtropical
Topography :	Toeslope/Bottom/Valley
Landforms :	Swale
Landforms :	Plain
Landforms :	Mesa
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3506: West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods

Match Confidence: Direct Match

Suggested Match: West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods

Codes: ESLF: 9350 EVT_fuel: 2506

ESP: 1506 NatureServe Id: CES203.548

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This ecological system represents predominantly wet hardwood flatwoods of the West Gulf Coastal Plain of southern Arkansas, eastern Texas, and western Louisiana. Examples may be somewhat more common in the inland portions of the region but are also found in the Outer Coastal Plain as well. These areas are usually found on Pleistocene high terraces (EPA 35c) primarily associated with the Red and Mississippi rivers that are located above the current floodplain. Hydrology is controlled by local rainfall events and not overbank flooding. Soils are fine-textured, and hardpans may be present in the subsurface. The limited permeability of these soils contributes to perched water tables during fairly substantial portions of the year (when precipitation is greatest and evapotranspiration is lowest). Saturation occurs not from overbank flooding but typically whenever precipitation events occur. The local landscape is often a complex of ridges and swales, usually occurring in close proximity. There is vegetation variability related to soil texture and moisture and disturbance history. Most examples support hardwood forests or swamps, which are often heavily oak-dominated. Important species are tolerant of inundation. They include *Quercus michauxii, Quercus phellos, Quercus laurifolia*, and *Liquidambar styraciflua*, with sparse coverage of wetland herbs such as *Carex glaucescens*. Some swales support unusual pockets of *Fraxinus caroliniana* and *Crataegus* spp. Some examples can contain *Pinus taeda*.

Range: This system is found in the West Gulf Coastal Plain, Upper West Gulf Coastal Plain, and Mississippi River Alluvial Plain (P. Faulkner pers. comm.).

States: AR, LA, TX

Map Zones: 36:?, 37:C, 44:C, 45:C, 98:P

Similar: Lower Mississippi River Flatwoods (CES203.193), West Gulf Coastal Plain Flatwoods Pond

(CES203.547), West Gulf Coastal Plain Pine-Hardwood Flatwoods (CES203.278)

Descriptors:

SCS Subregion :	West Gulf Coastal Plain
Soil Texture :	Silt
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Specialized Substrates :	Hardpan
Major Physiognomy :	Forest and Woodland (Tree)

3507: Ozark-Ouachita Shortleaf Pine-Bluestem Woodland

Match Confidence: Direct Match

Suggested Match: Ozark-Ouachita Shortleaf Pine-Bluestem Woodland

Codes: ESLF: 4281 EVT_fuel: 2507

ESP: 1507 NatureServe Id: CES202.325

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents woodlands of the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri in which *Pinus echinata* is the canopy dominant, and the understory is characterized by *Andropogon gerardii, Schizachyrium scoparium*, and other prairie elements. Although examples of this system occur throughout this region, there is local variation in the extent to which they were present. For example, this system was historically prominent in the Ozark Highlands where sandstone derived soils were common, being excluded from or diminished in other areas by inadequate winter precipitation and non-conducive soils. In Missouri and Oklahoma, this system occurs on gently dissected upland cherty plains (in addition to sandstone ridges). The center of distribution would be the northern and western Ouachita Mountains. In the Ouachitas, the system occurs on the northern Hogback Ridges excluding the Novaculite areas to the south. In nearly all cases, *Pinus echinata* occurs with a variable mixture of hardwood species. The exact composition of the hardwoods is much more closely related to aspect and topographic factors than is the pine component.

Range: This system occurs in the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri.

States: AR, MO, OK

Map Zones: 44:C

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313), Southern Appalachian Low-Elevation Pine Forest (CES202.332)

Descriptors:

SCS Subregion :	Ozark/Ouachita
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Very Short
Major Physiognomy :	Forest and Woodland (Tree)

3509: Mississippi River Alluvial Plain Dry-Mesic Loess Slope Forest

Match Confidence: Direct Match

Suggested Match: Mississippi River Alluvial Plain Dry-Mesic Loess Slope Forest

Codes: ESLF: 4155 EVT_fuel: 2509

ESP: 1509 NatureServe Id: CES203.071

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system of dry-mesic upland forests occurs most extensively on west-facing loess slopes on southern Crowley's Ridge, with more limited occurrences on northern Crowley's Ridge and in the erosional slopes and hills that bound the Grand Prairie terrace of Arkansas and Macon Ridge in Louisiana and Arkansas. The vegetation is very distinctive from that of the adjacent alluvial plain, and the sites themselves, which occur on distinct slopes that rise above the alluvial plain surface, also contrast sharply with it. Occurrences of this system generally comprise dry-mesic forests that occupy west-facing slopes and narrow, "finger" ridgetops in a highly dissected landscape. In many cases, these slopes provide habitat for plant species that are uncommon in other parts of the alluvial plain. Forests on the ridgetops are dominated by *Quercus alba, Quercus rubra* (Crowley's Ridge only), *Quercus falcata, Quercus pagoda, Quercus stellata, Carya texana, Quercus shumardii*, and *Quercus velutina*.

Range: This system is endemic to well-drained sites on Crowley's Ridge (Arkansas, Missouri) and Macon Ridge (Louisiana/Arkansas), along the eastern slopes of the Grand Prairie terrace in Arkansas, and perhaps other such sites in the Mississippi River Alluvial Plain, including Missouri and extreme western Kentucky and Tennessee.

States: AR, KY, LA, MO, TN

Map Zones: 45:C, 47:C

Similar: Crowley's Ridge Mesic Loess Slope Forest (CES203.079), Crowley's Ridge Sand Forest (CES203.072)

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Glacial History	:	Unglaciated
Specialized Substrates	:	Loess
Major Physiognomy	:	Forest and Woodland (Tree)

3510: Crowley's Ridge Sand Forest

Match Confidence: Direct Match

Suggested Match: Crowley's Ridge Sand Forest

Codes: ESLF: 4332 EVT_fuel: 2510

ESP: 1510 NatureServe Id: CES203.072

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G159 South-Central Interior Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system of upland shortleaf pine - hardwood forests is confined to Crowley's Ridge on the western side of the Mississippi River. This vegetation is very distinctive from that of the adjacent alluvial plain, and the ridge itself also contrasts sharply with the adjacent alluvial plain. Crowley's Ridge is a remnant loess-capped feature rising from 30 m to over 60 m (100-200 feet) above the alluvial plain surface, to about 150 m (450 feet) above sea level. The base of the northern ridge is comprised of Tertiary substrates overlain by alluvial deposits and capped with generally thin layers of Pleistocene loess. The Pleistocene alluvial deposits are often sandy, and in a very limited area, there are outcrops of sandstone of uncertain origin. Forests on the ridgetops are dominated by *Pinus echinata* with varying amounts of *Quercus alba, Quercus rubra, Quercus falcata, Quercus stellata, Carya texana*, and *Quercus velutina*. Loess slopes and ravines are dominated by mesic or dry-mesic hardwood forests such as those of the southern ridge, but are of relatively limited extent.

Range: This system is endemic to Crowley's Ridge in the Mississippi River Alluvial Plain of Arkansas and Missouri (Nelson 2005).

States: AR, MO

Map Zones: 45:C

Similar: Lower Mississippi River Dune Woodland and Forest (CES203.531), Mississippi River Alluvial Plain Dry-Mesic Loess Slope Forest (CES203.071)

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Lifeform : Needle-Leaved Tree

Glacial History	:	Unglaciated
Specialized Substrates	:	Sand
Major Physiognomy	:	Forest and Woodland (Tree)

3511: Appalachian Northern Hardwood Forest

Match Confidence: Good Match

Suggested Match: Appalachian (Hemlock)-Northern Hardwood Forest

Codes: ESLF: 4313 EVT_fuel: 2370

ESP: 1370 NatureServe Id: CES202.593

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G742 Appalachian & Allegheny Northern Hardwood - Conifer Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the hardwood dominated expression of this ecological system. This forested system of the northeastern U.S. ranges from central New England west to Lake Erie and south to the higher elevations of Virginia and West Virginia. It is one of the matrix forest types in the northern part of the Central Interior and Appalachian Division. Northern hardwoods such as *Acer saccharum, Betula alleghaniensis*, and *Fagus grandifolia* are characteristic, either forming a deciduous canopy or mixed with *Tsuga canadensis* (or in some cases *Pinus strobus*). Other common and sometimes dominant trees include *Quercus* spp. (most commonly *Quercus rubra*), *Liriodendron tulipifera, Prunus serotina*, and *Betula lenta*. It is of more limited extent and more ecologically constrained in the southern part of its range, in northern parts of Virginia and West Virginia.

Range: This system is found from central New England south to Virginia and West Virginia, and probably in adjacent Kentucky.

States: CT, KY?, MA, MD, ME?, NH, NJ, NY, OH?, PA, VA, VT, WV

Map Zones: 53:C, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar: Laurentian-Acadian Northern Hardwoods Forest (CES201.564), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563), North-Central Interior Beech-Maple Forest (CES202.693), South-Central Interior Mesophytic Forest (CES202.887), Southern Appalachian Northern Hardwood Forest (CES202.029), Southern and Central Appalachian Cove Forest (CES202.373)

Descriptors:

Soil Depth : Deep

Major Physiognomy : Forest and Woodland (Tree)

Topography	: High-Low Slope
Topography	: Toeslope/Bottom/Valley
Bioclimate	: Temperate
Soil Fertility	: Mesotrophic Soil
Life Zones	: Lowland
Soil Depth	: Shallow Soil
Temporal Persistence	: Moderate (100-500 yrs)
Soil Organic Matter	: Mineral: W/A Horizon >10 cm
Soil Moisture (NRCS)	: Ustic
Disturbance Return Interval	: Long
Lifeform	: Needle-Leaved Tree
Lifeform	: Broad-Leaved Deciduous Tree
Floristics/Dominants	: Pinus spp. - Tsuga canadensis
Soil pH	: Acidic

3512: Appalachian Hemlock-Northern Hardwood Forest

Match Confidence: Good Match

Suggested Match: Appalachian (Hemlock)-Northern Hardwood Forest

Codes: ESLF: 4313 EVT_fuel: 2370

ESP: 1370 NatureServe Id: CES202.593

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M883 Appalachian, Interior & Northeastern Mesic Forest

NVC Group: G742 Appalachian & Allegheny Northern Hardwood - Conifer Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This forested system of the northeastern U.S. ranges from central New England west to Lake Erie and south to the higher elevations of Virginia and West Virginia. It is one of the matrix forest types in the northern part of the Central Interior and Appalachian Division. Northern hardwoods such as *Acer saccharum, Betula alleghaniensis*, and *Fagus grandifolia* are characteristic, either forming a deciduous canopy or mixed with *Tsuga canadensis* (or in some cases *Pinus strobus*). Other common and sometimes dominant trees include *Quercus* spp. (most commonly *Quercus rubra*), *Liriodendron tulipifera, Prunus serotina*, and *Betula lenta*. It is of more limited extent and more ecologically constrained in the southern part of its range, in northern parts of Virginia and West Virginia.

Range: This system is found from central New England south to Virginia and West Virginia, and probably in adjacent Kentucky.

States: CT, KY?, MA, MD, ME?, NH, NJ, NY, OH?, PA, VA, VT, WV

Map Zones: 53:C, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar: Laurentian-Acadian Northern Hardwoods Forest (CES201.564), Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563), North-Central Interior Beech-Maple Forest (CES202.693), South-Central Interior Mesophytic Forest (CES202.887), Southern Appalachian Northern Hardwood Forest (CES202.029), Southern and Central Appalachian Cove Forest (CES202.373)

Descriptors:

Soil Depth : Deep

Major Physiognomy : Forest and Woodland (Tree)

Topography	: High-Low Slope
Topography	: Toeslope/Bottom/Valley
Bioclimate	: Temperate
Soil Fertility	: Mesotrophic Soil
Life Zones	: Lowland
Soil Depth	: Shallow Soil
Temporal Persistence	: Moderate (100-500 yrs)
Soil Organic Matter	: Mineral: W/A Horizon >10 cm
Soil Moisture (NRCS)	: Ustic
Disturbance Return Interval	: Long
Lifeform	: Needle-Leaved Tree
Lifeform	: Broad-Leaved Deciduous Tree
Floristics/Dominants	: Pinus spp. - Tsuga canadensis
Soil pH	: Acidic

3513: Lower Mississippi River Flatwoods

Match Confidence: Direct Match

Suggested Match: Lower Mississippi River Flatwoods

Codes: ESLF: 9191 EVT_fuel: 2513

ESP: 1513 NatureServe Id: CES203.193

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system is comprised of forests, prairies and woodlands on Pleistocene terraces in the Mississippi Alluvial Plain of Arkansas, Missouri and Louisiana. It occurs primarily west of Crowley's Ridge on Pleistocene glacial outwash deposits in Arkansas and Missouri, and on Macon Ridge in Louisiana and adjacent Arkansas. The sites are above modern floodplains, but have poor internal drainage and are flat with poor runoff, leading to very wet conditions in winter and spring. They also often have a claypan that restricts both internal drainage and, later in the year, water availability. Therefore, they are very wet in the winter/spring and very dry in the summer, a moisture regime termed hydroxeric. Because of this moisture regime, the communities are variable, ranging from willow oak flats to post oak flats to prairies. In the 1940s, the Arkansas Game and Fish Commission produced a wildlife habitat map of Arkansas in which these sites were classified as "terrace hardwood forests." These communities have a large variety of upland and lowland tree species, ranging from post oak to overcup oak in a small area. Such species diversity may be explained by regeneration of species with dramatically different moisture tolerances on the same site in dry and wet years on these hydroxeric sites. Because the sites are above current floodplains and susceptible to being drained, they have been cleared at an even greater rate than nearby floodplain forests.

Range: This system is found in the Mississippi Alluvial Plain from the Missouri "bootheel" south to Louisiana. In Louisiana it is found on Macon Ridge (Ecoregion 73j (EPA 2004)). It is not reported from Kentucky, Tennessee, or Mississippi.

States: AR, LA, MO

Map Zones: 45:C, 98:P

Similar: Lower Mississippi Alluvial Plain Grand Prairie (CES203.549), Mississippi River High Floodplain (Bottomland) Forest (CES203.196), West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods (CES203.548)

Descriptors:

Major Physiognomy : Forest and Woodland (Tree)

3517: Paleozoic Plateau Bluff and Talus Woodland

Match Confidence: Good Match

Suggested Match: Paleozoic Plateau Bluff and Talus

Codes: ESLF: 5430 EVT_fuel: 2517

ESP: 1517 NatureServe Id: CES202.704

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G741 Laurentian & Acadian Hemlock - White Pine - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Mixed evergreen-deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is found in the driftless regions of southeastern Minnesota, southwestern Wisconsin, and northern Iowa and Illinois. This region was not glaciated like the surrounding areas and thus is predominated by rolling hills and bluff outcrops. This system is found primarily on blufftops and dry upper slopes along the Upper Mississippi River, although it can range into bordering regions such as the Baraboo Hills in Wisconsin. This system contains a mosaic of woodlands, savannas, prairies and sparsely vegetated limestone, dolomite, and/or sandstone outcrops, with occasional talus, especially algific talus. Soils range from thin to moderately deep and are moderately to excessively well-drained with a high mineral content. Woodlands consist of primarily a mixture of oak species such as *Quercus macrocarpa, Quercus rubra, Quercus muehlenbergii*, and *Quercus alba*. *Acer saccharum, Betula alleghaniensis*, and conifer species such as *Pinus* spp. and *Tsuga canadensis* may occur on more mesic and protected areas within this system. Prairie openings (also called "goat prairies") contain *Schizachyrium scoparium* and *Bouteloua curtipendula* with scattered *Juniperus virginiana*. Historically, fire was the most important dynamic maintaining these systems, however, fire suppression within the region has allowed more canopy cover and thus very few prairie openings remain. Algific talus harbors a number of unusual Pleistocene relict species, including plants and snails.

Range: This system is found within the Paleozoic Plateau (aka Driftless Region) of southeastern Minnesota, southwestern Wisconsin and northern Iowa and Illinois.

States: IA, IL, MN, WI

Map Zones: 42:C, 49:C, 50:C

Similar: Central Interior Calcareous Cliff and Talus (CES202.690)

Descriptors:

Glacial History	: Unglaciated
Landforms	: Bluff
Major Physiognomy	: Herbaceous
Major Physiognomy	: Woody-Herbaceous
Major Physiognomy	: Forest and Woodland (Tree)

3518: North-Central Interior Wet Flatwoods

Match Confidence: Direct Match

Suggested Match: North-Central Interior Wet Flatwoods

Codes: ESLF: 9186 EVT_fuel: 2518

ESP: 1518 NatureServe Id: CES202.700

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M503 Central & Appalachian Swamp Forest

NVC Group: G597 North-Central Flatwoods & Swamp Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This small-patch system is found throughout the northern glaciated Midwest ranging east into Lower New England and the Champlain Valley. It usually occurs on somewhat poorly drained uplands or in depressions associated with glacial features such as tillplains, lakeplains or outwash plains. Soils often have an impermeable or nearly impermeable clay layer that can create a shallow, perched water table. Saturation can vary, with ponding common during wetter seasons, and drought possible during the summer and autumn months. Microtopography and fluctuating moisture levels can lead to complexes of forest upland and wetland species occurring within this system. *Quercus palustris* and/ or *Quercus bicolor* typically dominate the wetter portions and are often associated with *Acer rubrum*. *Quercus alba, Quercus rubra*, and *Fagus grandifolia* are common in the better-drained areas. *Carya ovata* is a characteristic tree in the Champlain Valley. *Liquidambar styraciflua, Nyssa sylvatica, Fraxinus americana*, and *Fraxinus pennsylvanica* are also common associates, though their occurrence varies somewhat by region. Understory herbaceous and shrub species present in examples of this system can vary. Stands with more dense tree cover have less shrub and herbaceous cover, while those with moderate tree canopy cover tend to have a dense understory. Some common species in the wetter portions include *Carex* spp., *Osmunda cinnamomea, Cephalanthus occidentalis, Alnus* spp., and *Ilex* spp. Flooding, drought and fire can influence this system.

Range: This system is found in the northern Midwest, southern Ontario, and portions of the northeastern U.S.

States: CT, IA, IL, IN, MA, MI, MO, NY, OH, ON, PA, VT

Map Zones: 41:?, 42:C, 43:C, 44:P, 47:C, 49:?, 50:?, 51:C, 52:C, 53:P, 61:C, 62:P, 63:C, 64:P, 65:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Landforms :	Flat
Major Physiognomy :	Forest and Woodland (Tree)

3519: East-Central Texas Plains Post Oak Savanna and Woodland

Match Confidence: Direct Match

Suggested Match: East-Central Texas Plains Post Oak Savanna and Woodland

Codes: ESLF: 4158 EVT_fuel: 2519

ESP: 1519 NatureServe Id: CES205.679

BioGeographical Division : Eastern Great Plains

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G017 Southeastern Great Plains Post Oak - Blackjack Oak Forest & Woodl

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system is primarily found within eastern Texas, lying in a broad band west of the Upper West Gulf Coastal Plain and Gulf Coast Prairies and Marshes ecoregions, ranging from Live Oak and Atascosa counties in the south and trending in a northeasterly band to the Red River along the Oklahoma-Texas border. It exhibits some floristic and physiognomic variation across this northeast-southwest gradient. Its range is roughly co-incident with (parts of) the "East Central Texas Plains" (Level III Ecoregion 33) of EPA (Griffith et al. 2004). It is distinguished from the surrounding prairie by the higher density of trees and diversity of woody species. The system differs from the floristically similar ~Crosstimbers Oak Forest and Woodland (CES205.682)$$ in that it generally occurs on Tertiary (primarily Eocene) geologic formations on the East-Central Texas Plains, while the related Crosstimbers ecological system occupies Cretaceous and older formations of the interior plains (EPA Level III Ecoregion 29). Floristically, Post Oak Savanna (at least north of the Colorado River) contains species of more eastern affinities such as *Callicarpa americana, Sassafras albidum, Cornus florida, Vaccinium arboreum, Ulmus alata*, and particularly *Ilex vomitoria*, the latter species being absent from ~Crosstimbers Oak Forest and Woodland (CES205.682)$$. Post Oak Savanna generally occurs on sandy or loamy soils, often underlain by a claypan subsoil. Rainfall ranges from about 120 cm in the northeastern part of the range to about 70 cm in the southwest, where it becomes increasingly erratic. Therefore moisture is often limiting during part of the growing season. The system was historically characterized as having significant areas of graminoid cover with species composition resembling that of nearby prairie systems, punctuated by short, stunted woodlands and forests dominated by *Quercus stellata* and *Quercus marilandica*. Other species, such as *Carya texana, Quercus incana* (on more xeric sites), *Quercus fusiformis, Ulmus alata, Juniperus virginiana*, and *Prosopis glandulosa*, can also be present. In some sites, particularly in the south, *Quercus fusiformis* may codominate the woodlands. Shrubs

may attain significant cover in the understory, with species including *Ilex vomitoria* (often dominant), *Callicarpa americana, Vaccinium arboreum, Sideroxylon lanuginosum, Ilex decidua, Toxicodendron radicans*, and *Symphoricarpos orbiculatus*. Where light penetration allows the development of an herbaceous understory or in areas with reduced woody canopy, the understory contains species typical of the surrounding prairies, in particular *Schizachyrium scoparium*, but also including *Andropogon gerardii, Bothriochloa laguroides ssp. torreyana, Paspalum plicatulum* (to the south), *Sorghastrum nutans*, and *Sporobolus cryptandrus*. Drought, grazing, and fire are the primary natural processes that affect this system. Much of this system has been impacted by conversion to improved pasture or crop production. Overgrazing and fire suppression have led to increased woody cover on most extant occurrences and the invasion of some areas by problematic brush species such as *Juniperus virginiana var. virginiana* and *Prosopis glandulosa* in the southern part of the system's range. These factors have also led to decreases in native grass cover allowing for annual grasses and forbs to invade.

Range: This system is primarily found within eastern Texas, lying in a broad band west of the Upper West Gulf Coastal Plain from Live Oak and Atascosa counties in the south and trending in a northeasterly band to the Red River along the Oklahoma-Texas border. Its range is roughly co-incident with (parts of) the East Central Texas Plains (level III ecoregion 33) of EPA (Griffith et al. 2004).

States: OK, TX

Map Zones: 32:P, 35:P, 36:C, 37:C

Similar: Crosstimbers Oak Forest and Woodland (CES205.682), East-Central Texas Plains Xeric Sandyland (CES205.897)

Descriptors:

Soil Texture : Sand
Soil Texture : Loam
Major Physiognomy : Forest and Woodland (Tree)

3522: Northern Atlantic Coastal Plain Heathland

Match Confidence: Good Match

Suggested Match: Northern Atlantic Coastal Plain Heathland and Grassland

Codes: ESLF: 5275 EVT_fuel: 2522

ESP: 1522 NatureServe Id: CES203.895

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M057 Eastern North American Dune & Coastal Grassland & Shrubland

NVC Group: G493 North Atlantic Coastal Shrub & Grass Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Na Eastern North American Coast Scrub & Herb Vegetation

Summary: Sandplain grasslands and heathlands of the southern New England / New York coast are areas of graminoid- and shrub-dominated vegetation maintained by extreme conditions and periodic fire or other disturbance. Developing on acidic, nutrient-poor, and very well-drained soils within a few kilometers of the ocean, they may occur as heathlands, grasslands, or support a patchwork of grass and shrub vegetation. Characteristic species include *Gaylussacia baccata, Arctostaphylos uva-ursi, Corema conradii, Amelanchier nantucketensis, Hudsonia ericoides, Hudsonia tomentosa, Vaccinium angustifolium, Deschampsia flexuosa, Schizachyrium scoparium*, and *Carex pensylvanica*. They provide habitat for several rare or uncommon forbs including *Liatris scariosa var. novae-angliae* and *Agalinis acuta*. They are important habitat for several bird and other animal species including the short-eared owl and regal fritillary, and (along with brushy plains and woodlands) provided habitat for the extinct heath hen.

Range: This system is endemic to a small area ranging from the southern New York coastline north to Cape Cod, Massachusetts.

States: CT?, MA, NY, RI

Map Zones: 65:C

Similar: Northern Atlantic Coastal Plain Dune and Swale (CES203.264), Northern Atlantic Coastal Plain Pitch Pine Barrens (CES203.269)

Descriptors:

SCS Subregion : North Atlantic Coastal Plain

Disturbance Return Interval : Very Short

Soil Texture :	Sand
Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Temperate
Specialized Substrates :	Sandplains/Glacial Outwash or Flats
Landforms :	Coastal plain
Landforms :	Glaciated plains
Major Physiognomy :	Grassland, Savanna, Steppe
Major Physiognomy :	Shrubland (Shrub)

3523: Edwards Plateau Dry-Mesic Slope Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Edwards Plateau Dry-Mesic Slope Forest and Woodland

Codes: ESLF: 4331 EVT_fuel: 2523

ESP: 1523 NatureServe Id: CES303.656

BioGeographical Division : Western Great Plains

NVC MacroGroup: M015 Comanchian Forest & Woodland

NVC Group: G126 Southern Plateau Dry Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This system occurs on dry-mesic, middle slopes of the rolling uplands of the Edwards Plateau of Texas. The canopy is typically dominated by deciduous trees, including *Quercus buckleyi, Fraxinus texensis*, or *Ulmus crassifolia*. *Quercus fusiformis* and *Juniperus ashei* are often present but not dominant in this system. Canopy closure is variable, and this system can be expressed as forests and woodlands.

Range: This system is expected to occur on dry-mesic slopes in the Edwards Plateau and Lampasas Cutplain.

States: TX

Map Zones: 35:C

Similar: Edwards Plateau Limestone Savanna and Woodland (CES303.660), Edwards Plateau Mesic Canyon (CES303.038)

Descriptors:

Lifeform :	Broad-Leaved Evergreen Tree
Lifeform :	Broad-Leaved Deciduous Tree
Landforms :	Midslope
Major Physiognomy :	Forest and Woodland (Tree)

3524: Edwards Plateau Mesic Canyon

Match Confidence: Direct Match

Suggested Match: Edwards Plateau Mesic Canyon

Codes: ESLF: 4153 EVT_fuel: 2524

ESP: 1524 NatureServe Id: CES303.038

BioGeographical Division : Western Great Plains

NVC MacroGroup: M015 Comanchian Forest & Woodland

NVC Group: G028 Southern Plateau Dry-Mesic Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This system is largely endemic to the Edwards Plateau ecoregion and occurs on canyon bottoms, mesic lower slopes and steep canyons, primarily in the Southern Balcones Escarpment, but also in the Eastern Balcones Escarpment. This system also includes cliff faces and lower slopes of boxed canyons occurring as narrow, sometimes long bands in areas often with seeps where moisture is consistently more available than on adjacent slopes. The tree canopy is generally closed. Common components include *Ulmus crassifolia, Juglans major, Quercus buckleyi, Quercus laceyi, Prunus serotina var. eximia* (becoming less common to the north), *Fraxinus texensis* (dominant in the northeastern plateau), *Quercus muehlenbergii*, and *Acer grandidentatum*. Canyon bottoms may have scattered *Quercus macrocarpa*. Substrate (limestone) and topographic position (north and east aspects and lower slopes) are the dominant characteristics of this system. Small seepage areas are often dominated by *Adiantum capillus-veneris*, with *Thelypteris ovata var. lindheimeri* on nearby moist habitats. Other prominent species include *Buddleja racemosa, Ungnadia speciosa*, and *Toxicodendron radicans ssp. eximium*. Fire probably plays little role in the system, while grazing and browsing (by native as well as exotic ungulates) may play an important role in recruitment and understory composition. Adjacent, drier slopes are usually dominated by various *Quercus* species and *Juniperus ashei*.

Range: Largely endemic to the Edwards Plateau ecoregion and occurs on canyon bottoms, mesic lower slopes and steep canyons, primarily in the Southern Balcones Escarpment, but also in the Eastern Balcones Escarpment.

States: TX

Map Zones: 35:C

Similar: Edwards Plateau Cliff (CES303.653), Edwards Plateau Dry-Mesic Slope Forest and Woodland (CES303.656)

Descriptors:

Juxtaposition :	Canyon mosaic
Mass Movement Type :	Landslide
Mass Movement Type :	Flood Scouring
Soil Moisture (NRCS) :	Ustic
Specialized Substrate Chemistry :	Calcareous
Soil pH :	Alkaline
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Landforms :	Canyon
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland

3525: Edwards Plateau Riparian Woodland

Match Confidence: Good Match

Suggested Match: Edwards Plateau Riparian

Codes: ESLF: 9165 EVT_fuel: 2525

ESP: 1525 NatureServe Id: CES303.652

BioGeographical Division : Western Great Plains

NVC MacroGroup: M154 Southern Great Plains Floodplain & Riparian Forest & Woodland

NVC Group: G784 Southeastern Great Plains Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system occurs in various situations along small and intermittent streams of the Edwards Plateau, with drier representatives occurring in the western plateau and the Stockton Plateau, and moister representatives (such as communities dominated by *Juglans microcarpa* and *Brickellia laciniata*) in the eastern plateau. Representatives of this system typically occur in stream-scoured situations and vary in the openness of the habitat and physiognomy.

Range: This system is found along minor streams and tributaries throughout the Edwards Plateau.

States: TX

Map Zones: 35:C

Similar: Edwards Plateau Floodplain (CES303.651), North American Warm Desert Riparian Woodland and Shrubland (CES302.753), Southeastern Great Plains Riparian Forest (CES205.709)

Descriptors:

Mass Movement Type : Flood Scouring
Landforms : Streambed
Major Physiognomy : Herbaceous
Major Physiognomy : Woody-Herbaceous
Major Physiognomy : Shrubland (Shrub)
Major Physiognomy : Forest and Woodland (Tree)

3526: Laurentian-Acadian Swamp Woodland

Match Confidence: Good Match

Suggested Match: Laurentian-Acadian Swamp Systems

Codes: ESLF: 9150 EVT_fuel: 2526

ESP: 1526 NatureServe Id: CES201.637

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M504 Northern Flooded & Swamp Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Na Eastern North American & Great Plains Flooded & Swamp Forest

Summary: This systems group includes coniferous to mixed swamps and adjacent sloping seepage forests in the temperate-boreal transition zone of the eastern half of the United States and adjacent Canada. They occupy basins and adjacent wet slopes in cool settings. The substrate is typically mineral soil with an organic fraction or peaty epipedon, in most cases constantly saturated. Basins may have seasonal standing water. Two expressions are characteristic, based on substrate pH and minerotrophy. In acidic and more nutrient-poor settings, *Picea rubens* or *Picea mariana, Acer rubrum, Fraxinus* spp., and *Abies balsamea* are the most typical trees. The herbaceous and shrub layers tend to be fairly species-poor, with *Nemopanthus mucronatus* and *Osmunda* spp. as typical shrub and herb species. In circumneutral settings or where seepage waters provide a greater supply of nutrients, *Thuja occidentalis* is characteristic and often dominant. It may be mixed with *Acer rubrum, Fraxinus nigra*, or *Picea rubens* (the latter especially in seepage slope forests). The herbaceous and bryophyte flora is typically extensive, and small open fenny areas may occur within the wetland. Peat may be well-developed in circumneutral basins (cedar swamps).

Range: This systems group ranges across the northeastern United States and adjacent Canada, from New England west to Minnesota, and south to New York and northern Pennsylvania.

States: ME, MI, MN, NB, NH, NY, ON, PA, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:C, 66:C

Similar: Acadian Sub-boreal Spruce Flat (CES201.562)

Descriptors:

Soil Moisture Regime : Saturated

Floristics/Dominants : Thuja occidentalis - Fraxinus nigra

Floristics/Dominants :	Picea (glauca, mariana, rubens) - Abies
Lifeform :	Needle-Leaved Tree
USFWS Wetland System :	Palustrine
Hydrogeomorphic Units :	Seepage-Fed Sloping
Specialized Substrates :	Peaty gleyized
Topography :	Toeslope/Bottom/Valley
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3527: East Gulf Coastal Plain Interior Oak Forest

Match Confidence: Good Match

Suggested Match: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest

Codes: ESLF: 4315 EVT_fuel: 2372

ESP: 1372 NatureServe Id: CES203.506

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This forested ecological system of the East Gulf Coastal Plain occurs most extensively on generally rolling uplands north of the range of *Pinus palustris*. It was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude (the approximate local northern limit of the historic range of *Pinus palustris*), and about 35 degrees N latitude (the approximate limit where relatively extensive examples of *Pinus echinata* are replaced by predominantly hardwood-dominated systems, although isolated examples of this system may occur both north and south of these boundaries in limited areas. Stands tend to occur on generally well-drained sandy or clayey soils with dry to dry-mesic moisture regimes. *Pinus echinata* is the dominant pine species of the generalized "dry and dry-mesic oak-pine" forest type in the Gulf Coastal Plain (White and Lloyd 1998) and is the most characteristic floristic component of this system. The actual amount of *Pinus echinata* present varies based on a number of factors, but intact examples of this system often include stands that are dominated by *Pinus echinata* grading into stands with a mixture of upland hardwoods. Locally, on mid to lower slopes, *Pinus taeda* may be a component, extending further upslope in the absence of fire. Fire is possibly the most important natural process affecting the floristic composition and vegetation structure of this system, although fire-return intervals are lower than those associated with the ~East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496)$$. *Pinus echinata* may have difficulty replacing itself in the absence of fire, particularly on sites other than the driest ones. Landers (1989) inferred a fire-return interval of 10 times per century for *Pinus echinata*. Local topographic conditions affecting natural fire compartment size generally lend themselves to this fire frequency, although some examples may have more frequent fires and some less than this generalized value. Where fire is most frequent the system may develop a relatively pure canopy of *Pinus echinata* typified by a very open woodland structure with scattered overstory trees and an herbaceous-

dominated understory; such examples are rare on the modern landscape. More typical are areas in which *Quercus* spp., *Carya* spp., *Liquidambar styraciflua, Liriodendron tulipifera, Acer* spp., and *Nyssa sylvatica* have become prominent in the midstory and even overstory and in which herbaceous patches are rare. Although the general distributional boundaries described above indicate where this system formed an historical landscape matrix, smaller patches of the system may also be present in limited areas both north and south of these boundaries. Although Lawson (1990) maps the native range of shortleaf throughout a relatively large area of western Tennessee, the actual distribution of the species appears to be much more confined and almost absent from the Coastal Plain (Chester et al. 1993); when present, it occurs in only small stands on dry southwestern aspects.

Range: This system is restricted to the East Gulf Coastal Plain; it was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude and about 35 degrees N latitude. In southwestern Mississippi, this system is apparently dominant on the landscape west of 91 degrees W longitude to the limits of the alluvial plain and northwest of a line running approximately from the intersection of 31 degrees N latitude and 91 degrees W longitude, northeastward to the city of Jackson, Mississippi, extending at least to about 34 degrees N latitude. This is consistent with the ranges of Oak-Pine vegetation (generally equivalent to this system) versus Longleaf-Loblolly-Slash Pines in Shantz and Zon (1924).

States: AL, MS, TN?

Map Zones: 46:C, 47:?, 99:C

Similar: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496), East Gulf Coastal Plain Northern Dry Upland Hardwood Forest (CES203.483), East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland (CES203.482), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313)

Descriptors:

Disturbance Return Interval : Short
Major Physiognomy : Forest and Woodland (Tree)

3528: Ruderal Upland Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2531

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3529: Ruderal Upland Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2531

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbaceous vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3531: Ruderal Upland Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2532

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3532: Ruderal Forest-Northern and Central Hardwood and Conifer

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2532

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3533: Ruderal Forest-Southeast Hardwood and Conifer

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2533

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3534: Managed Tree Plantation-Northern and Central Hardwood and Conifer Plantati

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2534

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Even-aged, regularly spaced forest stands established by planting and/or seeding in the process of afforestation or reforestation where individual trees are generally > 5 meters in height. Specifically, this class refers to plantations dominated by evergreen species.

Range:

States:

Map Zones:

Similar:

Descriptors:

3535: Managed Tree Plantation-Southeast Conifer and Hardwood Plantation Group

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2535

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Even-aged, regularly spaced forest stands established by planting and/or seeding in the process of afforestation or reforestation where individual trees are generally > 5 meters in height. Specifically, this class refers to plantations dominated by evergreen species.

Range:

States:

Map Zones:

Similar:

Descriptors:

3536: Introduced Wetland Vegetation-Tree

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2536

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3538: Introduced Wetland Vegetation-Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2538

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated (typically >60% canopy cover) by introduced species. These are spontaneous, self-perpetuating, and not (immediately) the result of planting, cultivation, or human maintenance. Land occupied by introduced vegetation is generally permanently altered (converted) unless restoration efforts are undertaken. Specifically, land cover is significantly altered/disturbed by introduced riparian and wetland vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3539: Modified/Managed Northern Tallgrass Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2539

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced perennial forb or grassland species such as: Circium arvense, C. vulgare, Centaurea spp., Euphorbia esula, Isatis tinctora, Lepidium sp., Melilotus albus, M. officinalis, Onopordum acanthium, Agropyron cristatum, Bromus inermis, Eragrostis lehmannianna, Pennisetum spp., Poa bulbosa, P. pratensis, Thinopyrum intermedium.

Range:

States:

Map Zones:

Similar:

Descriptors:

3540: Modified/Managed Southern Tallgrass Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2540

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced perennial forb or grassland species such as: Circium arvense, C. vulgare, Centaurea spp., Euphorbia esula, Isatis tinctora, Lepidium sp., Melilotus albus, M. officinalis, Onopordum acanthium, Agropyron cristatum, Bromus inermis, Eragrostis lehmannianna, Pennisetum spp., Poa bulbosa, P. pratensis, Thinopyrum intermedium.

Range:

States:

Map Zones:

Similar:

Descriptors:

3546: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest

Match Confidence: Direct Match

Suggested Match: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest

Codes: ESLF: 4315 EVT_fuel: 2372

ESP: 1372 NatureServe Id: CES203.506

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This forested ecological system of the East Gulf Coastal Plain occurs most extensively on generally rolling uplands north of the range of *Pinus palustris*. It was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude (the approximate local northern limit of the historic range of *Pinus palustris*), and about 35 degrees N latitude (the approximate limit where relatively extensive examples of *Pinus echinata* are replaced by predominantly hardwood-dominated systems, although isolated examples of this system may occur both north and south of these boundaries in limited areas. Stands tend to occur on generally well-drained sandy or clayey soils with dry to dry-mesic moisture regimes. *Pinus echinata* is the dominant pine species of the generalized "dry and dry-mesic oak-pine" forest type in the Gulf Coastal Plain (White and Lloyd 1998) and is the most characteristic floristic component of this system. The actual amount of *Pinus echinata* present varies based on a number of factors, but intact examples of this system often include stands that are dominated by *Pinus echinata* grading into stands with a mixture of upland hardwoods. Locally, on mid to lower slopes, *Pinus taeda* may be a component, extending further upslope in the absence of fire. Fire is possibly the most important natural process affecting the floristic composition and vegetation structure of this system, although fire-return intervals are lower than those associated with the ~East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496)$$. *Pinus echinata* may have difficulty replacing itself in the absence of fire, particularly on sites other than the driest ones. Landers (1989) inferred a fire-return interval of 10 times per century for *Pinus echinata*. Local topographic conditions affecting natural fire compartment size generally lend themselves to this fire frequency, although some examples may have more frequent fires and some less than this generalized value. Where fire is most frequent the system may develop a relatively pure canopy of *Pinus echinata* typified by a very open woodland structure with scattered overstory trees and an herbaceous-

dominated understory; such examples are rare on the modern landscape. More typical are areas in which *Quercus* spp., *Carya* spp., *Liquidambar styraciflua, Liriodendron tulipifera, Acer* spp., and *Nyssa sylvatica* have become prominent in the midstory and even overstory and in which herbaceous patches are rare. Although the general distributional boundaries described above indicate where this system formed an historical landscape matrix, smaller patches of the system may also be present in limited areas both north and south of these boundaries. Although Lawson (1990) maps the native range of shortleaf throughout a relatively large area of western Tennessee, the actual distribution of the species appears to be much more confined and almost absent from the Coastal Plain (Chester et al. 1993); when present, it occurs in only small stands on dry southwestern aspects.

Range: This system is restricted to the East Gulf Coastal Plain; it was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude and about 35 degrees N latitude. In southwestern Mississippi, this system is apparently dominant on the landscape west of 91 degrees W longitude to the limits of the alluvial plain and northwest of a line running approximately from the intersection of 31 degrees N latitude and 91 degrees W longitude, northeastward to the city of Jackson, Mississippi, extending at least to about 34 degrees N latitude. This is consistent with the ranges of Oak-Pine vegetation (generally equivalent to this system) versus Longleaf-Loblolly-Slash Pines in Shantz and Zon (1924).

States: AL, MS, TN?

Map Zones: 46:C, 47:?, 99:C

Similar: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496), East Gulf Coastal Plain Northern Dry Upland Hardwood Forest (CES203.483), East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland (CES203.482), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland (CES202.313)

Descriptors:

Disturbance Return Interval : Short
Major Physiognomy : Forest and Woodland (Tree)

3550: Pinus taeda Forest Alliance

Match Confidence: Unmatched

Suggested Match: Pinus taeda - Liriodendron tulipifera - Liquidambar styraciflua Ruderal Forest

Codes: ESLF: EVT_fuel: 2550

ESP: NatureServe Id: A3231

BioGeographical Division :

NVC MacroGroup: M305 Southeastern North American Ruderal Forest

NVC Group: G031 Southeastern Native Ruderal Forest

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 - Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na - Southeastern North American Warm Temperate Forest

Summary: This alliance includes semi-natural forests of Pinus taeda, which develop following cropping or site conversion. Other canopy and subcanopy species that may be present in semi-natural stands are Acer rubrum, Carya spp., Cornus florida, Juniperus virginiana var. virginiana, Liquidambar styraciflua, Liriodendron tulipifera, Nyssa sylvatica, Pinus virginiana, Prunus serotina var. serotina, Quercus alba, Quercus stellata, Quercus velutina, Ulmus alata, and Ulmus rubra. In the shrub layer, Vaccinium spp., especially Vaccinium stamineum, are common in these forests. Vines and lianas are always present in abundance, especially Vitis rotundifolia. The herbaceous layer may be sparse, particularly if shrubs and vines are dense, but Chasmanthium laxum may be fairly abundant in this community. Other herbs include Panicum amarum var. amarulum, Eupatorium hyssopifolium, and Elephantopus nudatus. In southern Virginia and North Carolina, Quercus virginiana and Gelsemium sempervirens may also be present.

Range: This alliance is found in the Cumberland Plateau, Piedmont, Interior Low Plateau, and Gulf and Atlantic coastal plains of the southeastern United States, from Delaware and Maryland south and west to Texas, and in the interior to Tennessee and possibly West Virginia.

States: DE, MD, VA, NC, SC, GA, FL, AL, MS, LA, TX, TN, WV?

Map Zones:

Similar:

Descriptors:

3551: Pinus elliottii Saturated Temperate Woodland Alliance

Match Confidence: Unmatched

Suggested Match: Pinus palustris - Pinus elliottii East Gulf Coastal Plain Wet Savanna Alliance

Codes: ESLF: EVT_fuel: 2551

ESP: NatureServe Id: A4104

BioGeographical Division :

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This alliance includes mesic to wet savannas of the East Gulf Coastal Plain dominated by Pinus palustris, sometimes with Pinus elliottii var. elliottii. They contain a diverse and variable field (herb) stratum, with much endemism of forb and graminoid plants. The herbaceous layer in this woodland is well-developed and very species-rich. Lyonia lucida is a characteristic shrub. Ctenium aromaticum is a characteristic grass. Soils are fine-textured and include wet Alfisols and Ultisols. Heavily shrubby examples may be indicative of lower fire frequencies than are more herbaceous-dominated examples. This alliance is found in the East Gulf Coastal Plain from Florida and southern Georgia west to the Florida parishes of southeastern Louisiana.

Range: This alliance is found in the East Gulf Coastal Plain from Florida and southern Georgia west to the Florida parishes of southeastern Louisiana.

States: FL, GA, , AL, MS, LA

Map Zones:

Similar:

Descriptors:

3552: Pinus palustris-Pinus elliottii Forest Alliance

Match Confidence: Unmatched

Suggested Match: Pinus palustris-Pinus elliottii Forest Alliance

Codes: ESLF: EVT_fuel: 2552

ESP: NatureServe Id: A4104

BioGeographical Division :

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This alliance includes mesic to wet savannas of the East Gulf Coastal Plain dominated by *Pinus palustris*, sometimes with *Pinus elliottii var. elliottii*. They contain a diverse and variable field (herb) stratum, with much endemism of forb and graminoid plants. The herbaceous layer in this woodland is well-developed and very species-rich. *Lyonia lucida* is a characteristic shrub. *Ctenium aromaticum* is a characteristic grass. Soils are fine-textured and include wet Alfisols and Ultisols. Heavily shrubby examples may be indicative of lower fire frequencies than are more herbaceous-dominated examples. This alliance is found in the East Gulf Coastal Plain from Florida and southern Georgia west to the Florida parishes of southeastern Louisiana.

Range: This alliance is found in the East Gulf Coastal Plain from Florida and southern Georgia west to the Florida parishes of southeastern Louisiana.

States: FL, GA, , AL, MS, LA

Map Zones:

Similar:

Descriptors:

3553: Mixed Loblolly-Slash Pine

Match Confidence: Unmatched

Suggested Match: Pinus elliottii - Pinus taeda - (Pinus palustris) / Aristida beyrichiana Managed

Codes: ESLF: EVT_fuel: 2553

ESP: NatureServe Id: A3160

BioGeographical Division :

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G596 Mesic Longleaf Pine Flatwoods - Spodosol Woodland

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: 1 - Forest & Woodland

NVCS Subclass: 1.B - Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 - Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na - Southeastern North American Warm Temperate Forest

Summary: This alliance accommodates mesic and wet-mesic (moist or saturated) Longleaf Pine woodlands and savannas found in the Southern Coastal Plain, from South Carolina to Mississippi and eastern Louisiana, including northern Florida. Related vegetation of other alliances is found to the north from southeastern Virginia into South Carolina, in the west gulf coastal plains, and in southern Florida. Examples are dominated by Pinus palustris, with Ilex glabra and Serenoa repens as typical shrubs and Aristida beyrichiana (in contrast to Aristida stricta (sensu stricto) as a characteristic herb in many of the component associations. Pinus serotina may be present within its natural range (from southeastern Virginia south to panhandle Florida) but tends to be codominant only on the wettest, often organic soils. Pinus elliottii var. elliottii may be present or codominant within its natural range from South Carolina to eastern Louisiana. In parts of the range, Pinus taeda may also be present, and may represent a substantial component of the stand. In examples with longer fire return times, an understory of Acer rubrum, Liquidambar styraciflua, and Morella cerifera (= Myrica cerifera) is likely to develop. Typical shrubs may include Gaylussacia spp., Ilex coriacea, Ilex glabra, Ilex vomitoria, Morella cerifera, Osmanthus americanus var. americanus, Serenoa repens, Symplocos tinctoria, and Vaccinium spp. Herbaceous diversity and cover are greater where the canopy and shrub layers are relatively open. Grasses usually make up the majority of total cover. Many soils contain a spodic horizon occasionally underlain by a clay hardpan, which additionally restricts drainage. Soils include Alfisols, Spodosols, and Ultisols. Sites vary in the presence or absence of a hardpan, in soil pH (range from 3.1-7.8), and in drainage.

Range: This vegetation ranges across the Southern Coastal Plain, from southern South Carolina to Mississippi and eastern Louisiana. This range includes the Florida panhandle and the northern portion of the Florida peninsula north of the Lake Wales Ridge.

States: SC, GA, MS, LA, FL

Map Zones:

Similar:

Descriptors:

3554: Acadian Low-Elevation Hardwood Forest

Match Confidence: Good Match

Suggested Match: Acadian Low-Elevation Spruce-Fir-Hardwood Forest

Codes: ESLF: 4316 EVT_fuel: 2373

ESP: 1373 NatureServe Id: CES201.565

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G744 Northern Appalachian & Acadian Red Spruce - Fir - Hardwood Fores

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents the Acadian and northern Appalachian red spruce-fir forest that extends to the southern boreal region of southeastern Canada. The low- to mid-elevation forests are dominated by *Picea rubens* and *Abies balsamea*. *Picea mariana* and *Picea glauca* may be present. *Betula alleghaniensis* is the most common codominant, and *Acer rubrum, Acer saccharum*, and *Fagus grandifolia* are sometimes present. The upland soils are acidic and usually rocky, mostly well- to moderately well-drained but with some somewhat poorly drained patches at the slope bottoms. This is the matrix forest type in the lower-elevation northern portions of this division. This system may include earlier successional patches in which *Populus* spp. and *Betula* spp. are dominant or mixed with *Picea* and *Abies* that will develop into spruce-fir forests. Blowdowns with subsequent gap regeneration are the most frequent form of natural disturbance, with large-scale fires important at longer return intervals.

Range: This system is found in northern New England, northern New York and adjacent Canada and is occasional southwards.

States: ME, NB, NH, NY, PA, QC?, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Acadian Sub-boreal Spruce Flat (CES201.562), Boreal Aspen-Birch Forest (CES103.020), Laurentian-Acadian Northern Hardwoods Forest (CES201.564)

Descriptors:

Soil Texture : Loam

Major Physiognomy : Forest and Woodland (Tree)

Topography	High-Low Slope
Topography	Toeslope/Bottom/Valley
Glacial History	Glaciated
Soil Fertility	Mesotrophic Soil
Soil Fertility	Oligotrophic
Life Zones	Lowland
Soil Organic Matter	Mineral: W/A Horizon >10 cm
Temporal Persistence	Moderate (100-500 yrs)
Soil Texture	Sand
Soil Moisture (NRCS)	Udic
Disturbance Return Interval	Long
Wind Intensity/Spatial Character	Patch/Medium Intensity
Lifeform	Needle-Leaved Tree
Floristics/Dominants	Picea (glauca, mariana, rubens) - Abies
Soil pH	Acidic

3555: Acadian Low-Elevation Spruce-Fir-Hardwood Forest

Match Confidence: Direct Match

Suggested Match: Acadian Low-Elevation Spruce-Fir-Hardwood Forest

Codes: ESLF: 4316 EVT_fuel: 2373

ESP: 1373 NatureServe Id: CES201.565

BioGeographical Division : Laurentian-Acadian

NVC MacroGroup: M014 Laurentian & Acadian Northern Hardwood - Conifer Mesic Forest

NVC Group: G744 Northern Appalachian & Acadian Red Spruce - Fir - Hardwood Fores

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents the Acadian and northern Appalachian red spruce-fir forest that extends to the southern boreal region of southeastern Canada. The low- to mid-elevation forests are dominated by *Picea rubens* and *Abies balsamea*. *Picea mariana* and *Picea glauca* may be present. *Betula alleghaniensis* is the most common codominant, and *Acer rubrum, Acer saccharum*, and *Fagus grandifolia* are sometimes present. The upland soils are acidic and usually rocky, mostly well- to moderately well-drained but with some somewhat poorly drained patches at the slope bottoms. This is the matrix forest type in the lower-elevation northern portions of this division. This system may include earlier successional patches in which *Populus* spp. and *Betula* spp. are dominant or mixed with *Picea* and *Abies* that will develop into spruce-fir forests. Blowdowns with subsequent gap regeneration are the most frequent form of natural disturbance, with large-scale fires important at longer return intervals.

Range: This system is found in northern New England, northern New York and adjacent Canada and is occasional southwards.

States: ME, NB, NH, NY, PA, QC?, VT

Map Zones: 64:C, 65:C, 66:C

Similar: Acadian Sub-boreal Spruce Flat (CES201.562), Boreal Aspen-Birch Forest (CES103.020), Laurentian-Acadian Northern Hardwoods Forest (CES201.564)

Descriptors:

Soil Texture : Loam

Major Physiognomy : Forest and Woodland (Tree)

Topography	: High-Low Slope
Topography	: Toeslope/Bottom/Valley
Glacial History	: Glaciated
Soil Fertility	: Mesotrophic Soil
Soil Fertility	: Oligotrophic
Life Zones	: Lowland
Soil Organic Matter	: Mineral: W/A Horizon >10 cm
Temporal Persistence	: Moderate (100-500 yrs)
Soil Texture	: Sand
Soil Moisture (NRCS)	: Udic
Disturbance Return Interval	: Long
Wind Intensity/Spatial Character	: Patch/Medium Intensity
Lifeform	: Needle-Leaved Tree
Floristics/Dominants	: Picea (glauca, mariana, rubens) - Abies
Soil pH	: Acidic

3556: Central Appalachian Rocky Oak Woodland

Match Confidence: Good Match

Suggested Match: Central Appalachian Pine-Oak Rocky Woodland

Codes: ESLF: 4320 EVT_fuel: 2377

ESP: 1377 NatureServe Id: CES202.600

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G161 Pitch Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the deciduous hardwood expression of this ecological system. This system encompasses open or patchily wooded hilltops and outcrops or rocky slopes in the Central Appalachians, High Allegheny Plateau, and Lower New England / Northern Piedmont. It occurs mostly at lower elevations, but occasionally up to 1220 m (4000 feet) in West Virginia. The substrate rock is generally granitic or of other acidic lithology, although near the northern limit of its range in New England, examples can also occur on intermediate, base-rich, or mafic bedrock including traprock. The vegetation is patchy, with woodland as well as open portions. *Pinus rigida* (and within its range *Pinus virginiana*) is diagnostic and often mixed with xerophytic *Quercus* spp. and sprouts of *Castanea dentata*. In New England, some examples lack pine and feature *Juniperus virginiana* or *Ostrya virginiana* as important codominants with oak. Some areas have a fairly well-developed heath shrub layer, others a graminoid layer, the latter particularly common under oaks or other deciduous trees. Conditions are dry and for the most part nutrient-poor, and at many, if not most, sites, a history of fire is evident. In the Central Appalachians ecoregion, this system is rarely found on sandy soils rather than rock.

Range: This system occurs from central New England south to Virginia and West Virginia, with peripheral occurrences in southeastern Ohio and easternmost Kentucky.

States: CT, KY, MA, MD?, ME, NH, NJ, NY, OH, PA, VA, VT, WV

Map Zones: 53:C, 57:P, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar: Appalachian Shale Barrens (CES202.598), Central Appalachian Dry Oak-Pine Forest (CES202.591), Northern Appalachian-Acadian Rocky Heath Outcrop (CES201.571), Southern Appalachian Montane Pine Forest and Woodland (CES202.331)

Descriptors:

Soil Depth :	Shallow Soil
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Woody-Herbaceous
Topography :	High Ridge/Upper Slope
Bioclimate :	Temperate
Life Zones :	Lowland
Soil pH :	Acidic
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Ustic
Substrate Consolidation :	Consolidated
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Floristics/Dominants :	Pinus (strobus, rigida, echinata, virginiana) - Quercus p
Soil Fertility :	Oligotrophic

3557: Central Appalachian Rocky Pine-Oak Woodland

Match Confidence: Good Match

Suggested Match: Central Appalachian Pine-Oak Rocky Woodland

Codes: ESLF: 4320 EVT_fuel: 2377

ESP: 1377 NatureServe Id: CES202.600

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M502 Appalachian & Northeastern Oak - Hardwood & Pine Forest

NVC Group: G161 Pitch Pine Barrens

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the mixed and pine dominated expressions of this system. This system encompasses open or patchily wooded hilltops and outcrops or rocky slopes in the Central Appalachians, High Allegheny Plateau, and Lower New England / Northern Piedmont. It occurs mostly at lower elevations, but occasionally up to 1220 m (4000 feet) in West Virginia. The substrate rock is generally granitic or of other acidic lithology, although near the northern limit of its range in New England, examples can also occur on intermediate, base-rich, or mafic bedrock including traprock. The vegetation is patchy, with woodland as well as open portions. *Pinus rigida* (and within its range *Pinus virginiana*) is diagnostic and often mixed with xerophytic *Quercus* spp. and sprouts of *Castanea dentata*. In New England, some examples lack pine and feature *Juniperus virginiana* or *Ostrya virginiana* as important codominants with oak. Some areas have a fairly well-developed heath shrub layer, others a graminoid layer, the latter particularly common under oaks or other deciduous trees. Conditions are dry and for the most part nutrient-poor, and at many, if not most, sites, a history of fire is evident. In the Central Appalachians ecoregion, this system is rarely found on sandy soils rather than rock.

Range: This system occurs from central New England south to Virginia and West Virginia, with peripheral occurrences in southeastern Ohio and easternmost Kentucky.

States: CT, KY, MA, MD?, ME, NH, NJ, NY, OH, PA, VA, VT, WV

Map Zones: 53:C, 57:P, 60:C, 61:C, 62:C, 63:C, 64:C, 65:C, 66:C

Similar: Appalachian Shale Barrens (CES202.598), Central Appalachian Dry Oak-Pine Forest (CES202.591), Northern Appalachian-Acadian Rocky Heath Outcrop (CES201.571), Southern Appalachian Montane Pine Forest and Woodland (CES202.331)

Descriptors:

Soil Depth :	Shallow Soil
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Woody-Herbaceous
Topography :	High Ridge/Upper Slope
Bioclimate :	Temperate
Life Zones :	Lowland
Soil pH :	Acidic
Temporal Persistence :	Moderate (100-500 yrs)
Soil Moisture (NRCS) :	Ustic
Substrate Consolidation :	Consolidated
Fire Intensity/Spatial Character :	Patch/Medium Intensity
Lifeform :	Needle-Leaved Tree
Lifeform :	Broad-Leaved Deciduous Tree
Floristics/Dominants :	Pinus (strobus, rigida, echinata, virginiana) - Quercus p
Soil Fertility :	Oligotrophic

3558: Edwards Plateau Limestone Grassland

Match Confidence: Good Match

Suggested Match: Edwards Plateau Limestone Savanna and Woodland

Codes: ESLF: 4326 EVT_fuel: 2383

ESP: 1383 NatureServe Id: CES303.660

BioGeographical Division : Western Great Plains

NVC MacroGroup: M015 Comanchian Forest & Woodland

NVC Group: G126 Southern Plateau Dry Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This upland system occurs primarily on limestone soils in the Edwards Plateau and forms the matrix within this ecoregion. It can also occur on limestone in the shortgrass regions of Texas and north into Oklahoma in areas such as the Arbuckle Mountains. This system is typified by a mosaic of evergreen oak forests, woodlands and savannas over shallow soils of rolling uplands and upper slopes within the Edwards Plateau and Lampasas Cutplain. *Quercus fusiformis* or *Juniperus ashei* typically dominate the canopy of this system. Other species may include *Quercus buckleyi, Quercus laceyi, Quercus stellata, Ulmus crassifolia, Fraxinus texensis, Quercus sinuata, Quercus vaseyana*, and *Diospyros texana*. Physiographic expression of this system varies from dense mottes (patches of forest where canopy cover approaches 100%) interspersed with grasslands to open savannalike woodlands with scattered individual or small groups of trees. Understories can contain various shrubs and graminoids, including *Cercis canadensis var. texensis, Forestiera pubescens, Sideroxylon lanuginosum, Diospyros texana, Rhus trilobata, Bouteloua* spp., *Schizachyrium scoparium, Nassella leucotricha, Carex planostachys, Aristida purpurea, Aristida oligantha, Liatris mucronata, Stillingia texana, Symphyotrichum ericoides, Hedyotis nigricans, Monarda citriodora*, and *Salvia texana*. Grasslands dominated by *Schizachyrium scoparium* occur in small patches within more closed woodlands and in larger patches between mottes or in open savannalike woodlands with scattered trees. Grasslands in this system tend to grade from shortgrass communities in the west to mixedgrass communities to the east. Substrate (limestone) determines the range of this system within given examples. Some disturbed areas of the western plateau are now dominated by mesquite woodland. Natural mesquite woodlands are believed to have occurred on the deeper soils of adjacent riparian systems.

Range: This system is found primarily within the Edwards Plateau ecoregion but can extend north into

Oklahoma and into portions of the Southern Shortgrass region of Texas.

States: OK, TX

Map Zones: 34:?, 35:C

Similar: Edwards Plateau Dry-Mesic Slope Forest and Woodland (CES303.656), Edwards Plateau Limestone Shrubland (CES303.041), Llano Uplift Acidic Forest, Woodland and Glade (CES303.657)

Descriptors:

Soil Moisture (NRCS) :	Ustic
Specialized Substrate Chemistry :	Calcareous
Soil pH :	Alkaline
Glacial History :	Unglaciated
Bioclimate :	Temperate
Specialized Substrates :	Sedimentary Rock
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)

3559: DRAFT Edwards Plateau Limestone Shrubland DRAFT

Match Confidence: Solid Match

Suggested Match: Edwards Plateau Limestone Shrubland

Codes: ESLF: 5324 EVT_fuel: 2393

ESP: 1393 NatureServe Id: CES303.041

BioGeographical Division : Western Great Plains

NVC MacroGroup: M158 Southern Plains Scrub Woodland, Shrubland & Open Vegetation

NVC Group: G191 Southern Plains Oak - Juniper Scrub Woodland & Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Nb Great Plains Grassland & Shrubland

Summary: This ecological system occurs as a matrix on relatively thin-soiled surfaces of plateaus of the massive limestones such as the Edwards limestone. These short to tall shrublands are variable in density depending on the relative amount of, and depth to, bedrock. *Quercus sinuata var. breviloba* is an important component of the system, with some areas dominated by *Quercus fusiformis*. *Juniperus ashei* is often an important component of this system. In the west, *Pinus remota* may also contribute to a scattered emergent overstory. Other shrub species may include *Rhus virens, Rhus lanceolata, Cercis canadensis var. texensis, Forestiera pubescens, Forestiera reticulata, Fraxinus texensis, Ungnadia speciosa, Sophora secundiflora, Diospyros texana, Salvia ballotiflora, Mimosa borealis, Condalia hookeri, Rhus trilobata, Opuntia engelmannii*, and *Mahonia trifoliolata*. This system also includes *Quercus mohriana*- or *Quercus vaseyana*-dominated shrublands that are more common to the west, often sharing dominance with *Juniperus pinchotii*. Herbaceous cover may be patchy and is generally graminoid with species including *Schizachyrium scoparium, Bouteloua curtipendula, Bouteloua rigidiseta, Bouteloua trifida, Hilaria belangeri, Bothriochloa laguroides ssp. torreyana, Nassella leucotricha, Erioneuron pilosum, Aristida* spp., and others. Disturbances such as fire may be important processes maintaining this system. However, it appears to persist on thin-soiled sites. In the western portions of the Edwards Plateau, more xeric conditions lead to the slow succession of sites to woodlands, resulting in long-persisting shrublands.

Range: This system is limited in occurrence to the Edwards Plateau of Texas.

States: TX

Map Zones: 26:C, 27:?, 34:?, 35:C

Similar: Edwards Plateau Limestone Savanna and Woodland (CES303.660), Llano Uplift Acidic Forest, Woodland and Glade (CES303.657), Tamaulipan Arroyo Shrubland (CES301.992), Tamaulipan Calcareous Thornscrub (CES301.986)

Descriptors:

Soil Moisture (NRCS) :	Xeric
Soil Depth :	Very Shallow
Specialized Substrate Chemistry :	Calcareous
Soil pH :	Alkaline
Landforms :	Plateau
Landforms :	Plain
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3560: Tamaulipan Mesquite Upland Shrub

Match Confidence: Solid Match

Suggested Match: Tamaulipan Mesquite Upland Scrub

Codes: ESLF: 5322 EVT_fuel: 2391

ESP: 1391 NatureServe Id: CES301.983

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M130 Tamaulipan Scrub & Grassland

NVC Group: G099 Tamaulipan Dry Mesquite & Thornscrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 3 Desert & Semi-Desert

NVCS Subclass: 3.A Warm Desert & Semi-Desert Woodland, Scrub & Grassland

NVCS Formation: 3.A.2 Warm Desert & Semi-Desert Scrub & Grassland

NVCS Division: 3.A.2.Na North American Warm Desert Scrub & Grassland

Summary: This ecological system occurs throughout much of the lower Rio Grande plains and plateaus of northeastern Mexico and southern Texas. It is dominated by thorn scrub that was limited to rocky, broken uplands and drainages, but has become widespread in the last 100-150 years as the result of disturbance to adjacent mesquite savanna grasslands. Severe overgrazing in the mid-1800s, with subsequent shifts in fire processes and changes in edaphic conditions, has allowed this thornscrub ecological system to be the new steady-state. The vegetation is characterized by an open to dense tall-shrub layer dominated by *Prosopis glandulosa* with many other species present to codominant such as *Acacia berlandieri, Acacia farnesiana, Acacia rigidula, Amyris madrensis, Amyris texana, Celtis pallida, Leucophyllum frutescens, Opuntia* spp., *Parkinsonia texana*, *Yucca* spp., and *Zanthoxylum fagara*. The herbaceous layer is generally sparse, but dense graminoids may dominate the herbaceous layer of stands with open shrub canopies or remnant patches of savanna.

Range: This system occurs throughout much of the lower Rio Grande plains and plateaus of northeastern Mexico and south Texas, ranging north into the southwestern portion of the Edwards Plateau of Texas.

States: MXCO, MXNU, MXTM, TX

Map Zones: 26:P, 35:C, 36:C

Similar: Apacherian-Chihuahuan Mesquite Upland Scrub (CES302.733)

Descriptors:

Floristics/Dominants : Prosopis spp. dominates

Bioclimate : Tropical/Subtropical

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3561: Llano Uplift Acidic Herbaceous Glade

Match Confidence: Solid Match

Suggested Match: Llano Uplift Acidic Forest, Woodland and Glade

Codes: ESLF: 7159 EVT_fuel: 2410

ESP: 1410 NatureServe Id: CES303.657

BioGeographical Division : Western Great Plains

NVC MacroGroup: M015 Comanchian Forest & Woodland

NVC Group: G126 Southern Plateau Dry Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Nd Madrean & Southwest Great Plains Warm Temperate Woodland & Scrub

Summary: This upland matrix system occurs primarily on coarse soils derived from the weathering of underlying granites in the Llano Uplift region of Texas. The underlying granitic substrate determines the range of this system. It is composed of a mosaic of vegetation types, including closed-canopy forests, open woodlands, savannas and sparsely vegetated rock outcrops. Common trees include *Quercus marilandica, Quercus fusiformis, Quercus stellata, Carya texana, Ulmus crassifolia*, and *Prosopis glandulosa*. Subcanopy species may include *Diospyros texana, Aloysia gratissima, Ungnadia speciosa, Ziziphus obtusifolia var. obtusifolia, Eysenhardtia texana, Aesculus glabra var. arguta, Opuntia engelmannii var. lindheimeri (= Opuntia lindheimeri), Yucca elata, Nolina texana*, and *Opuntia leptocaulis*. Grasslands may be dominated by *Schizachyrium scoparium, Sorghastrum nutans, Panicum virgatum, Bouteloua hirsuta, Bouteloua curtipendula, Nassella leucotricha, Bothriochloa laguroides*, and *Plantago wrightiana*. Granitic glades and barrens are sparsely vegetated by crustose and foliose lichens, several ferns and fern allies, and cacti. This system also includes small (up to 16 m in diameter) shallow depressions that hold rainwater and support wetland flora including the Texas endemic, *Isoetes lithophila*.

Range: This system is restricted to the Llano Uplift region of Texas.

States: TX

Map Zones: 35:C

Similar: Edwards Plateau Limestone Savanna and Woodland (CES303.660), Edwards Plateau Limestone Shrubland (CES303.041)

Descriptors:

Specialized Substrates : Metamorphic Rock

Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Herbaceous
Major Physiognomy :	Moss/Lichen (Non-Vascular)
Landforms :	Inselberg
Landforms :	Bald
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Specialized Substrates :	Granitic Rock
Soil Texture :	Sand
Specialized Substrates :	Igneous Rock
Bioclimate :	Temperate
Hydrogeomorphic Units :	Depressional
Wetland Isolation :	Isolated
Glacial History :	Unglaciated
Soil pH :	Acidic
Specialized Substrates :	Rock Outcrops/Barrens/Glades

3562: Tamaulipan Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Tamaulipan Riparian Systems

Codes: ESLF: 9145 EVT_fuel: 2476

ESP: 1476 NatureServe Id: CES301.632

BioGeographical Division : Madrean Semidesert

NVC MacroGroup: M036 Southwest Riparian Forest

NVC Group: G549 Tamaulipan Wet-Mesic Scrub Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nd Interior Lowland West Flooded & Swamp Forest

Summary: This Tamaulipan riparian systems group occurs along the lower Rio Grande and Rio Corona in southern Texas and northeastern Mexico. Palm grove riparian forests and woodlands are found on riverbanks and floodplains, while arroyo shrublands are restricted to drainages in upland areas or ramaderos that are only intermittently flooded and often dry. Soils are typically somewhat deeper than those of the surrounding landscape. Palm grove characteristic species are the neotropical *Sabal mexicana* with *Ebenopsis ebano, Ehretia anacua, Leucaena pulverulenta*, and many other riparian plants. In the shrublands, the dense shrub canopy is a mix of species often including *Acacia farnesiana, Celtis pallida, Haematoxylum brasiletto, Prosopis glandulosa*, or *Tecoma stans*.

Range: This systems group occurs along the lower Rio Grande and Rio Corona in southern Texas and northeastern Mexico. It is restricted to the central and southern part of the Tamaulipan region.

States: MXCO, MXNU, MXTM, TX

Map Zones: 36:C

Similar:

Descriptors:

Flooding Return Interval :	Intermittent
Hydrogeomorphic Units :	Riverine / Alluvial
Bioclimate :	Tropical/Subtropical
Landforms :	Arroyo
Life Zones :	Lowland

3563: Edwards Plateau Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Edwards Plateau Riparian

Codes: ESLF: 9165 EVT_fuel: 2525

ESP: 1525 NatureServe Id: CES303.652

BioGeographical Division : Western Great Plains

NVC MacroGroup: M154 Southern Great Plains Floodplain & Riparian Forest & Woodland

NVC Group: G784 Southeastern Great Plains Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system occurs in various situations along small and intermittent streams of the Edwards Plateau, with drier representatives occurring in the western plateau and the Stockton Plateau, and moister representatives (such as communities dominated by *Juglans microcarpa* and *Brickellia laciniata*) in the eastern plateau. Representatives of this system typically occur in stream-scoured situations and vary in the openness of the habitat and physiognomy.

Range: This system is found along minor streams and tributaries throughout the Edwards Plateau.

States: TX

Map Zones: 35:C

Similar: Edwards Plateau Floodplain (CES303.651), North American Warm Desert Riparian Woodland and Shrubland (CES302.753), Southeastern Great Plains Riparian Forest (CES205.709)

Descriptors:

Mass Movement Type :	Flood Scouring
Landforms :	Streambed
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)

3564: Modified/Managed Southern Tallgrass Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2540

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas that are dominated by introduced perennial forb or grassland species such as: Circium arvense, C. vulgare, Centaurea spp., Euphorbia esula, Isatis tinctora, Lepidium sp., Melilotus albus, M. officinalis, Onopordum acanthium, Agropyron cristatum, Bromus inermis, Eragrostis lehmannianna, Pennisetum spp., Poa bulbosa, P. pratensis, Thinopyrum intermedium.

Range:

States:

Map Zones:

Similar:

Descriptors:

3565: Florida Peninsula Inland Scrub Woodland

Match Confidence: Good Match

Suggested Match: Florida Peninsula Inland Scrub

Codes: ESLF: 5318 EVT_fuel: 2387

ESP: 1387 NatureServe Id: CES203.057

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M162 Florida Peninsula Scrub & Herb

NVC Group: G177 Florida Xeric Scrub

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Mixed evergreen-deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system appears in many forms, but generally consists of xeromorphic shrub vegetation (mostly oak species) with or without an emergent overstory of *Pinus clausa* (sand pine). Ground cover is always sparse, and bare soil patches are typically evident. It is found on a sequence of sand ridges and ancient dune fields which are oriented essentially north-south in the Florida Peninsula. This system has long been noted for its unique and interesting vegetation by authors such as Vignoles (1823), Harper (1914), Mulvania (1931), Kurz (1942), and Laessle (1958, 1968). More recent treatments by Myers (1990) and Menges (1999) have provided the most comprehensive summaries of scrub available. According to Harper (1927), "the nearly pure white sand of the ground surface, when viewed from a short distance, gives the impression of a thin rift of wind-driven snow. The vegetation is mostly dwarfed, gnarled and crooked, and presents a tangled, scraggly aspect." The appearance, floristics, and boundary of Florida scrub contrast dramatically with the "high pine" or sandhill vegetation which is often adjacent (Laessle 1968).

Range: This system is endemic to the Florida Peninsula. It is most common in two discrete islands or patches, the Big Scrub of Ocala and the Lake Wales Ridge.

States: FL

Map Zones: 55:C, 56:C

Similar:

Descriptors:

Lifeform : Needle-Leaved Tree

Fire Intensity/Spatial Character : Patch/High Intensity

Soil Moisture (NRCS) : Xeric
Major Physiognomy : Forest and Woodland (Tree)

3566: Florida Dry Prairie Shruband

Match Confidence: Good Match

Suggested Match: Florida Dry Prairie

Codes: ESLF: 7138 EVT_fuel: 2425

ESP: 1425 NatureServe Id: CES203.380

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M162 Florida Peninsula Scrub & Herb

NVC Group: G176 Florida Dry Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system, which is endemic to subtropical Florida, is characterized by nearly treeless plains with dense cover of grasses and low shrubs, primarily *Serenoa repens*. Examples occur on flat, low-lying terrain over moderately to poorly drained soils with sandy surfaces overlying organic hardpans or clayey subsoil (FNAI 1990). This type was historically expansive in several regions of Florida (Harper 1927). Early surveyors noted large expanses of this system on the plains near the Kissimmee River, north from Lake Okeechobee, and in the area west of Lake Okeechobee (Fisheating Creek) (Huffman and Judd 1998). The original extent has been heavily reduced by clearing for agriculture and conversion for forage production. Intact examples have been further altered by fire suppression which changes the proportion of grasses and shrubs and may further alter species composition. Frequent fires were an important natural process in this system, with an estimated frequency of 1-4 years (FNAI 1990).

Range: This system occurs in southern Florida mainly north of the Everglades and Big Cypress area. For instance, it is found on the plains near the Myakka River, Kissimmee River, as well as north of Lake Okeechobee and near Fisheating Creek (west of Lake Okeechobee).

States: FL

Map Zones: 56:C

Similar: South Florida Pine Flatwoods (CES411.381)

Descriptors:

Lifeform : Graminoid

Disturbance Return Interval : Short

Major Physiognomy : Herbaceous

3567: Southern Coastal Plain Blackland Prairie Woodland

Match Confidence: Good Match

Suggested Match: Southern Coastal Plain Blackland Prairie and Woodland

Codes: ESLF: 7143 EVT_fuel: 2430

ESP: 1430 NatureServe Id: CES203.478

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M309 Southeastern Coastal Plain Patch Prairie

NVC Group: G175 Southeastern Coastal Plain Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Ne Southeastern North American Grassland & Shrubland

Summary: This system includes natural grassland vegetation and associated wooded vegetation found primarily in two relatively small natural regions in the southeastern Coastal Plains, primarily in Alabama and Mississippi (with one of these extending barely into southern Tennessee), and a related area of southern Georgia. The larger of these, the so-called Black Belt, is approximately 480 km (300 miles) long and 40-50 km (25-30 miles) wide, and is delineated as the Black Belt Subsection 231Ba of Keys et al. (1995) and the Blackland Prairie Ecoregion 65a of Griffith et al. (2001). The smaller and more southerly one of the two is known as the Jackson Prairie region, is found on younger geologic strata and is delineated as the Jackson Hills Subsection (231Bj) of Keys et al. (1995) and as the Jackson Prairie Ecoregion (65r) of EPA (2004). The vegetation of this system is comprised of natural grasslands and associated wooded vegetation (woodlands and savannas). The Black Belt region derives its name from the nearly black, rich topsoil that developed over Selma Chalk, and has long been noted as a distinct topographic region in the state of Mississippi (Lowe 1921). In Alabama, the formations on which this system primarily occurs are Demopolis Chalk and Mooreville Chalk (members of the Selma Group). In Tennessee, only Demopolis Chalk is mapped (Hardeman 1966). Examples occur over relatively deep soils (as opposed to "glades and barrens" on or adjacent to rock outcrops), with circumneutral surface soil pH. Vegetation of this ecological system includes evergreen *Juniperus virginiana*-dominated forests and deciduous *Quercus*-dominated woodlands of varying densities, interspersed with native prairielike grasslands. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, but even old-field vegetation reflects the distinctive composition of the flora and ecological dynamics. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement, forming a mosaic of grasslands and woodlands under frequent fire regimes. The flora has much in common with other prairies of the

East Gulf Coastal Plains, as well as the classic Midwestern prairies. Within this natural region, there are pockets of acidic soils which produce more typical pine-oak woodland or forest vegetation. The Jackson Prairie component of the system includes natural grassland vegetation and associated wooded vegetation in the Jackson Hills Subsection (231Bj) of Keys et al. (1995) also called the Jackson Prairie Ecoregion (65r) of EPA (2004), a relatively small natural region of Mississippi and adjacent Alabama. This system occurs on montmorillonitic Vertisols, which are deep, slowly permeable soils formed in residuum weathered from marl or chalk. Examples occur in a larger matrix of primarily acidic soils and of generally *Pinus taeda*-dominated forest vegetation. In most cases individual prairie openings are small and isolated from one another but were formerly more extensive prior to European settlement, forming a mosaic of grassland and woodland under frequent fire regimes. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, with concomitant destruction of most prairie remnants.

Range: This system has several distinct components. The Black Belt Prairie component is primarily restricted to the Black Belt (Subsection 231Ba) (Keys et al. 1995) or Blackland Prairie area (Ecoregion 65a) and Flatwoods/Blackland Prairie Margins area (Ecoregion 65b) of Griffith et al. (2001). This region is primarily in Alabama and Mississippi, ranging north in a depauperate form to southern Tennessee (McNairy County) (DeSelm 1989b). The Jackson Prairie component of this system is found in a relatively small natural region of Mississippi, known as the Jackson Hills Subsection 231Bj of Keys et al. (1995) and the Jackson Prairie Ecoregion 65r of EPA (2004). There is also a recently recognized component found in limited parts of Georgia (e.g., on both sides of the Ocmulgee River on the Fort Valley Plateau of Bleckley, Houston, Peach, and Twiggs counties). There are also outlying occurrences southward in the Chunnenuggee Hills and Red Hills (both of these parts of the Southern Hilly Coastal Plain - Ecoregion 65d), and Buhrstone/Lime Hills (Ecoregion 65q) of southern Alabama (in Washington, Wilcox, Monroe, and Clark counties). There are some limited examples in Ecoregion 65i (Fall Line Hills; e.g., Jones Bluff in Alabama).

States: AL, GA, MS, TN

Map Zones: 46:C, 55:C

Similar:

Descriptors:

Lifeform :	Graminoid
Soil Texture :	Clay
Soil Depth :	Deep
Soil pH :	Circumneutral
Major Physiognomy :	Herbaceous

3568: East Gulf Coastal Plain Jackson Prairie Woodland

Match Confidence: Unmatched

Suggested Match: East Gulf Coastal Plain Jackson Plain Prairie and Barrens

Codes: ESLF: 7140 EVT_fuel: 2427

ESP: 1427 NatureServe Id: CES203.353

BioGeographical Division :

NVC MacroGroup: M508 Central Interior Calcareous Scrub & Grassland

NVC Group: G174 South-Central Patch Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2 Temperate Grassland & Shrubland

Summary: This ecological system was locally dominant in the Jackson Purchase area of western Kentucky, extending into limited areas of adjacent Tennessee. This central region, called "the Barrens," has been historically subdivided from the rest of the Coastal Plain region of Kentucky (Davis 1923, Bryant and Martin 1988). A number of early reports mentioned extensive prairies in this region and also emphasized the importance of annual fires in maintaining these grasslands [see references in Bryant and Martin (1988)]. Interspersed among the extensive grasslands were likely scattered groves of oaks, especially those tolerant of frequent fires (M. Evans pers. comm.). Among the most frequent trees historically present in the entire region were *Quercus stellata, Quercus velutina*, and *Quercus marilandica* (Bryant and Martin 1988). With fire suppression, groves of trees rapidly expanded and largely replaced the prairies. In general, this system was found on "poorly consolidated Tertiary deposits" (Evans 1991), which are capped by loess, in the northern part of the Upper East Gulf ecoregion. High-quality examples would support a dense herbaceous layer dominated by tall grasses such as *Andropogon gerardii* and *Schizachyrium scoparium*, but the floristic composition of this type is poorly known since so few extant examples remain (M. Evans pers. comm.). *Sassafras albidum* and *Diospyros virginiana* are present in current sample data from stands attributed to this type (Bryant and Held 2001), but their presence at higher cover values is probably a symptom of fire suppression.

Range: This system occurs in the Jackson Purchase area of western Kentucky (primarily Graves County and parts of Calloway County), extending into limited areas of adjacent Tennessee.

States: KY, TN?

Map Zones: 47:C

Similar: Western Highland Rim Prairie and Barrens (CES202.352)

Descriptors:

Major Physiognomy : Herbaceous

3569: Central Atlantic Coastal Plain Wet Longleaf Pine Savanna and Shrubland

Match Confidence: Good Match

Suggested Match: Central Atlantic Coastal Plain Wet Longleaf Pine Savanna and Flatwoods

Codes: ESLF: 9118 EVT_fuel: 2449

ESP: 1449 NatureServe Id: CES203.265

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M007 Longleaf Pine Woodland

NVC Group: G190 Wet-Mesic Longleaf Pine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.1 Warm Temperate Forest & Woodland

NVCS Division: 1.B.1.Na Southeastern North American Warm Temperate Forest

Summary: This system of wet *Pinus palustris*-dominated savannas and flatwoods ranges from southern Virginia to southern South Carolina. It was once one of the most extensive systems in the coastward part of its range. Examples and associations share the common features of wet, seasonally saturated, mineral soils and exposure to frequent fire. They occur on a wide range of soil textures, which is an important factor in distinguishing different associations. The vegetation is naturally dominated by *Pinus palustris* or, less frequently, other wetland pines. There is a dense ground cover of herbs and low shrubs; grasses dominate but there is often a large diversity of other herbs. Frequent, low-intensity fire is the dominant natural ecological force.

Range: This system ranges from southern Virginia to southern South Carolina. To the south, the equivalent system is ~Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods (CES203.536)$$, the range of which includes Georgia.

States: NC, SC, VA

Map Zones: 58:C, 60:C

Similar: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254), Atlantic Coastal Plain Sandhill Seep (CES203.253), Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281), Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods (CES203.536)

Descriptors:

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Short

Hydrogeomorphic Units : Extensive Wet Flat

3570: Southern Coastal Plain Nonriverine Cypress Dome Herbaceous

Match Confidence: Good Match

Suggested Match: Southern Coastal Plain Nonriverine Cypress Dome

Codes: ESLF: 9129 EVT_fuel: 2460

ESP: 1460 NatureServe Id: CES203.251

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M161 Pond-cypress Basin Swamp

NVC Group: G036 Pond-cypress Basin Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This system consists of small forested wetlands, typically dominated by *Taxodium ascendens*, with a characteristic and unique dome-shaped appearance in which trees in the center are higher than those around the sides (Monk and Brown 1965). Examples are known from the Southern Coastal Plain (Omernik Ecoregion 75 and adjacent 65) (EPA 2004) of Florida and Georgia, extending into Alabama, Mississippi and Louisiana. Examples occupy poorly drained depressions which are most often embedded in a matrix of pine flatwoods. The oldest and largest individual trees typically occupy the center of these domed wetlands, with smaller and younger individuals around the margins. Pools of stagnant, highly acidic water may stand in the center of these depressions ranging from 1-4 feet in depth, but becoming increasingly shallow along the margins. These sites are underlain by an impervious clay pan which impedes drainage and traps precipitation. Some examples may have thick (50-100 cm) organic layers. In addition to *Taxodium ascendens*, other woody species may include *Nyssa biflora, Hypericum chapmanii, Hypericum myrtifolium, Ilex myrtifolia, Leucothoe racemosa, Morella cerifera, Cephalanthus occidentalis, Liquidambar styraciflua, Clethra alnifolia, Lyonia lucida*, and *Styrax americanus*.

Range: This system is found primarily in Florida and adjacent areas of Georgia, extending into Alabama, Mississippi and Louisiana.

States: AL, FL, GA, LA, MS

Map Zones: 55:C, 56:C, 99:C

Similar:

Descriptors:

Lifeform : Needle-Leaved Tree

Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Forest and Woodland (Tree)

3571: Southern Coastal Plain Seepage Swamp and Baygall Shrubland

Match Confidence: Good Match

Suggested Match: Southern Coastal Plain Seepage Swamp and Baygall

Codes: ESLF: 9130 EVT_fuel: 2461

ESP: 1461 NatureServe Id: CES203.505

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M032 Southern Coastal Plain Evergreen Hardwood & Conifer Swamp

NVC Group: G037 Coastal Plain Mixed Evergreen Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This wetland system consists of forested wetlands in acidic, seepage-influenced habitats of the East Gulf Coastal Plain, extending into central Florida. These are mostly evergreen forests generally found at the base of slopes or other habitats where seepage flow is concentrated. Resulting moisture conditions are saturated or even inundated. The vegetation is characterized by *Magnolia virginiana* and *Nyssa biflora*. Examples occur in the outer portions of the Coastal Plain within the range of *Persea palustris*, and where *Magnolia virginiana* is an important or even dominant species. To the north this system grades into ~East Gulf Coastal Plain Northern Seepage Swamp (CES203.554)$$, where evergreen species are largely replaced by deciduous species in the canopy. Due to excessive wetness, these habitats are normally protected from fire except those which occur during extreme droughty periods. These environments are prone to long-duration standing water, and tend to occur on highly acidic, nutrient-poor soils.

Range: This system occurs in the East Gulf Coastal Plain, extending into central Florida and southwestern Georgia, and includes the southern parts of Alabama and Mississippi.

States: AL, FL, GA, LA, MS

Map Zones: 55:C, 56:C, 99:C

Similar: East Gulf Coastal Plain Northern Seepage Swamp (CES203.554)

Descriptors:

SCS Subregion : East Gulf Coastal Plain

Lifeform : Broad-Leaved Evergreen Tree

Hydrogeomorphic Units : Seepage-Fed Sloping

Major Physiognomy : Forest and Woodland (Tree)

3572: South Florida Cypress Dome Herbaceous

Match Confidence: Good Match

Suggested Match: South Florida Cypress Dome

Codes: ESLF: 9116 EVT_fuel: 2447

ESP: 1447 NatureServe Id: CES411.365

BioGeographical Division : Caribbean

NVC MacroGroup: M617 Caribbean Swamp

NVC Group: G002 Caribbean Lowland Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.4 Tropical Flooded & Swamp Forest

NVCS Division: 1.A.4.Ed Caribbean & Central American Flooded & Swamp Forest

Summary: This system is found primarily in the Everglades and Big Cypress regions. This system consists of small forested wetlands in poorly drained depressions which are underlain by an impervious layer that impedes drainage and traps precipitation. They receive their common name from the unique dome-shaped appearance in which trees in the center are higher than those around the sides (Monk and Brown 1965). *Taxodium ascendens* is the dominant tree, with the oldest and largest individuals characteristically occupying the center, and smaller and younger individuals around the margins. Pools of stagnant, highly acidic water may stand in the center of these depressions ranging from 1-4 feet in depth, but becoming increasingly shallow along the margins. The understory flora is typified by species with tropical affinities.

Range: Endemic to south Florida.

States: FL

Map Zones: 56:C

Similar:

Descriptors:

Wetland Isolation : Isolated

Hydrogeomorphic Units : Depressional

Major Physiognomy : Forest and Woodland (Tree)

3573: Gulf and Atlantic Coastal Plain Small Stream Riparian Herbaceous

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Small Stream Riparian Systems

Codes: ESLF: 9143 EVT_fuel: 2474

ESP: 1474 NatureServe Id: CES203.630

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M031 Southern Coastal Plain Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This systems group encompasses the floodplains of small streams in the Gulf and Atlantic coastal plains of the southeastern United States, north to southern New Jersey. Compared to larger river systems, flooding tends to be variable and of shorter duration. These landscapes usually encompass a variety of habitats resulting from natural hydrological spatial patterns (i.e., meander scars, sloughs, gravel bars, old depressions, and/or oxbows are present). Most of the communities are temporarily flooded, with the possible addition of smaller-scale seasonally flooded features such as beaver-created herbaceous wetlands and shrub-dominated features. The vegetation generally consists almost entirely of forests of wetland trees, but occasional, small shrubby or herbaceous sloughs may also be present.

Examples of these systems may include a number of different plant communities, each with distinctive floristic compositions. Wetter examples may be strongly dominated by*Taxodium distichum* and *Nyssa biflora*. Other canopy trees include *Betula nigra, Celtis laevigata, Diospyros virginiana, Fraxinus pennsylvanica, Gleditsia triacanthos, Liquidambar styraciflua, Pinus taeda, Platanus occidentalis, Quercus laurifolia, Quercus lyrata* (in longer hydroperiod stands), *Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus phellos, Quercus texana, Ulmus americana, Ulmus crassifolia*, and *Ulmus rubra*. Except in the very wet examples, subcanopy, shrub, and herb layers are generally well-developed and woody vines are also prominent. Associated species vary to some extent with geography but include *Carya glabra, Magnolia grandiflora, Quercus virginiana, Liquidambar styraciflua, Acer barbatum, Fraxinus americana, Fraxinus caroliniana, Celtis laevigata, Sabal minor, Sebastiania fruticosa, Serenoa repens*, and *Itea virginica*. Shrubs and understory trees may include (depending on length of hydroperiod) *Carpinus caroliniana, Cephalanthus occidentalis, Cornus obliqua, Crataegus marshallii, Ilex opaca, Ostrya virginiana, Salix*

nigra, and *Vaccinium fuscatum*. In addition, *Arundinaria gigantea* may be present. Vines may include *Berchemia scandens, Smilax bona-nox*, and *Toxicodendron radicans*. Some herbs may include *Bidens aristosa, Boehmeria cylindrica, Carex cherokeensis, Carex debilis, Carex digitalis, Carex joorii, Chasmanthium latifolium, Geum canadense, Glyceria striata, Leersia virginica*, and *Polygonum hydropiperoides*. Smaller-scale features may be dominated by shrubs (*Cephalanthus occidentalis, Decodon verticillatus*) and/or perennial and annual herbs. In the Gulf Coastal Plain, this systems group includes small streams and sloughs that course through the coastal prairie in Louisiana and Texas.

Range: This systems group ranges along the Atlantic and Gulf coastal plains from the Chesapeake Bay south to central Florida and west to eastern Texas, with peripheral examples extending north to southern New Jersey.

States: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, NJ, OK, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 98:C, 99:C

Similar: Gulf and Atlantic Coastal Plain Floodplain Systems (CES203.629)

Descriptors:

Flooding Return Interval :	Intermittent
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)

3574: Gulf and Atlantic Coastal Plain Small Stream Riparian Shrubland

Match Confidence: Good Match

Suggested Match: Gulf and Atlantic Coastal Plain Small Stream Riparian Systems

Codes: ESLF: 9143 EVT_fuel: 2474

ESP: 1474 NatureServe Id: CES203.630

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M031 Southern Coastal Plain Floodplain Forest

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This systems group encompasses the floodplains of small streams in the Gulf and Atlantic coastal plains of the southeastern United States, north to southern New Jersey. Compared to larger river systems, flooding tends to be variable and of shorter duration. These landscapes usually encompass a variety of habitats resulting from natural hydrological spatial patterns (i.e., meander scars, sloughs, gravel bars, old depressions, and/or oxbows are present). Most of the communities are temporarily flooded, with the possible addition of smaller-scale seasonally flooded features such as beaver-created herbaceous wetlands and shrub-dominated features. The vegetation generally consists almost entirely of forests of wetland trees, but occasional, small shrubby or herbaceous sloughs may also be present.

Examples of these systems may include a number of different plant communities, each with distinctive floristic compositions. Wetter examples may be strongly dominated by*Taxodium distichum* and *Nyssa biflora*. Other canopy trees include *Betula nigra, Celtis laevigata, Diospyros virginiana, Fraxinus pennsylvanica, Gleditsia triacanthos, Liquidambar styraciflua, Pinus taeda, Platanus occidentalis, Quercus laurifolia, Quercus lyrata* (in longer hydroperiod stands), *Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus phellos, Quercus texana, Ulmus americana, Ulmus crassifolia*, and *Ulmus rubra*. Except in the very wet examples, subcanopy, shrub, and herb layers are generally well-developed and woody vines are also prominent. Associated species vary to some extent with geography but include *Carya glabra, Magnolia grandiflora, Quercus virginiana, Liquidambar styraciflua, Acer barbatum, Fraxinus americana, Fraxinus caroliniana, Celtis laevigata, Sabal minor, Sebastiania fruticosa, Serenoa repens*, and *Itea virginica*. Shrubs and understory trees may include (depending on length of hydroperiod) *Carpinus caroliniana, Cephalanthus occidentalis, Cornus obliqua, Crataegus marshallii, Ilex opaca, Ostrya virginiana, Salix*

nigra, and *Vaccinium fuscatum*. In addition, *Arundinaria gigantea* may be present. Vines may include *Berchemia scandens, Smilax bona-nox*, and *Toxicodendron radicans*. Some herbs may include *Bidens aristosa, Boehmeria cylindrica, Carex cherokeensis, Carex debilis, Carex digitalis, Carex joorii, Chasmanthium latifolium, Geum canadense, Glyceria striata, Leersia virginica*, and *Polygonum hydropiperoides*. Smaller-scale features may be dominated by shrubs (*Cephalanthus occidentalis, Decodon verticillatus*) and/or perennial and annual herbs. In the Gulf Coastal Plain, this systems group includes small streams and sloughs that course through the coastal prairie in Louisiana and Texas.

Range: This systems group ranges along the Atlantic and Gulf coastal plains from the Chesapeake Bay south to central Florida and west to eastern Texas, with peripheral examples extending north to southern New Jersey.

States: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, NJ, OK, SC, TN, TX, VA

Map Zones: 36:C, 37:C, 44:C, 45:C, 46:C, 47:C, 55:C, 56:C, 58:C, 60:C, 98:C, 99:C

Similar: Gulf and Atlantic Coastal Plain Floodplain Systems (CES203.629)

Descriptors:

Flooding Return Interval :	Intermittent
Hydrogeomorphic Units :	Riverine / Alluvial
Major Physiognomy :	Forest and Woodland (Tree)

3575: Caribbean Herbaceous Swamp

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2470

ESP: 1470 NatureServe Id:

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 - Emergent Wetlands, Tidally flooded evergreen dwarf-shrubland and forg vegetation. Gould et al. 2007 Puerto Rico Gap Analysis Project Final Report - Class 53 Seasonally flooded herbaceous nonsaline wetlands. Nonsaline alluvial deposits, plains depressions and valleys. Seasonally or temporarily flooded nonsaline subtropical grassland with a shrub layer. Class 51 - emergent herbaceous nonsaline wetlands, flooded, nonsaline alluvial deposits, perennielly flooded nonsaline aquatic herbaceous vegetation. 1997 NVCS Areces-Mallea et al. V. Seasonal Swamp Formations - 24. Savanna, VI Swamp Formations 28. Herbaceous Swamp. V.A.1.N.f. Temporarily flooded tropical or subtropical grassland. i.e. V.A.1.N.f Cyperus heterophyllus Temporarity Flooded Herbaceous Alliance. V.A.1.N.g. Seasonally flooded tropical or subtropical grassland V.A.1.N.g. Cladium mariscus spp. Jamaicense seasonally flooded herbacesous alliance. V.A.1.N.h. Semi-permenently flooded grassland.

Range: Cuba, Bahamas, Florida, Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3576: South Florida Everglades Forest

Match Confidence: Poor Match

Suggested Match: South Florida Hardwood Hammock

Codes: ESLF: 4139 EVT_fuel: 2333

ESP: 1333 NatureServe Id: CES411.287

BioGeographical Division :

NVC MacroGroup: M134 Caribbean Coastal Lowland Dry Forest

NVC Group: G765 Caribbean Hardwood Hammock & Coastal Strand Forest-

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.A Tropical Forest & Woodland

NVCS Formation: 1.A.1 Tropical Dry Forest & Woodland

NVCS Division: 1.A.1.Ea Caribbeo-Mesoamerican Dry Forest

Summary: This rockland tropical hammock system, as currently defined, occurs only in extreme southern Florida. It consists of upland hardwood forest on elevated ridges of limestone in three discrete major regions; the Keys, southeastern Big Cypress, and the Miami Rock Ridge. Tropical hardwood species are diagnostic of the system, although few are common or dominant in all regions where these hammocks occur (Snyder et al. 1990). Among the species likely to be encountered throughout are *Bursera simaruba, Coccoloba diversifolia*, and *Eugenia axillaris*. The northward ranges of these species are limited by the incidence of frosts (Drew and Schomer 1984). *Quercus laurifolia* is one of the few temperate species which attains prominence in this system. These forests tend to have a dense canopy that produces deeper shade, less evaporation, and lower air temperature than surrounding vegetation. This microclimate, in combination with high water tables, tends to keep humidity levels high and the community quite mesic (FNAI 1990). A number of orchid and bromeliad species thrive in such conditions. Unlike most coastal plain systems, fire is a major threat to ~South Florida Hardwood Hammock (CES411.287)$$. For this reason, many examples occur alongside natural firebreaks, such as the leeward side of exposed limestone (Robertson 1955), moats created by limestone solution (Duever et al. 1986), and elevated outcrops above marshes, scrub cypress, or sometimes mangrove swamps (Snyder et al. 1990).

Range: This system is endemic to south Florida.

States: FL

Map Zones: 56:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Evergreen Tree
Soil pH :	Alkaline
Major Physiognomy :	Forest and Woodland (Tree)

3577: East Gulf Coastal Plain Wet Prairie Grassland

Match Confidence: Good Match

Suggested Match: East Gulf Coastal Plain Savanna and Wet Prairie

Codes: ESLF: 9206 EVT_fuel: 2485

ESP: 1485 NatureServe Id: CES203.192

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M067 Atlantic & Gulf Coastal Plain Wet Prairie & Marsh

NVC Group: G111 Atlantic & Gulf Coastal Plain Pondshore & Wet Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Ne Atlantic & Gulf Coast Freshwater Wet Prairie, Marsh & Shrubland

Summary: This ecological system of western Florida and adjacent Alabama and Mississippi, may be considered a "lush grassland" (Kindell et al. 1997), "grass-sedge savannah" (Clewell 1981), wet prairie (FNAI 1990), or wet savanna (Collins et al. 2001). As implied by these names, this system consists of primarily herbaceous vegetation with relatively thick cover of grasses and sedge species. Examples occupy low, flat plains on poorly drained soils, often saturated for 50-100 days per year. Frequent fires, including growing-season burns, are essential for maintenance of this system. Some examples have a sparse tree component of *Pinus elliottii* or *Pinus palustris* and scattered shrubs, such as *Morella cerifera*.

Range: Western Florida and adjacent Alabama and Mississippi.

States: AL, FL, MS

Map Zones: 55:C, 99:C

Similar: Central Florida Wet Prairie and Herbaceous Seep (CES203.491)

Descriptors:

Lifeform :	Graminoid
Disturbance Return Interval :	Very Short
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Herbaceous

3578: East Gulf Coastal Plain Wet Prairie Shrubland

Match Confidence: Unmatched

Suggested Match: East Gulf Coastal Plain Savanna and Wet Prairie

Codes: ESLF: 9206 EVT_fuel: 2485

ESP: 1485 NatureServe Id: CES203.192

BioGeographical Division :

NVC MacroGroup: M067 Atlantic & Gulf Coastal Plain Wet Prairie & Marsh

NVC Group: G111 Atlantic & Gulf Coastal Plain Pondshore & Wet Prairie

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Ne Atlantic & Gulf Coast Freshwater Wet Prairie, Marsh & Shrubland

Summary: This ecological system of western Florida and adjacent Alabama and Mississippi, may be considered a "lush grassland" (Kindell et al. 1997), "grass-sedge savannah" (Clewell 1981), wet prairie (FNAI 1990), or wet savanna (Collins et al. 2001). As implied by these names, this system consists of primarily herbaceous vegetation with relatively thick cover of grasses and sedge species. Examples occupy low, flat plains on poorly drained soils, often saturated for 50-100 days per year. Frequent fires, including growing-season burns, are essential for maintenance of this system. Some examples have a sparse tree component of *Pinus elliottii* or *Pinus palustris* and scattered shrubs, such as *Morella cerifera*.

Range: Western Florida and adjacent Alabama and Mississippi.

States: AL, FL, MS

Map Zones: 55:C, 99:C

Similar: Central Florida Wet Prairie and Herbaceous Seep (CES203.491)

Descriptors:

Lifeform :	Graminoid
Disturbance Return Interval :	Very Short
Hydrogeomorphic Units :	Extensive Wet Flat
Major Physiognomy :	Herbaceous

3579: Floridian Highlands Freshwater Marsh Shrubland

Match Confidence: Good Match

Suggested Match: Floridian Highlands Freshwater Marsh

Codes: ESLF: 9214 EVT_fuel: 2489

ESP: 1489 NatureServe Id: CES203.077

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M067 Atlantic & Gulf Coastal Plain Wet Prairie & Marsh

NVC Group: G188 Coastal Plain River & Basin Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Ne Atlantic & Gulf Coast Freshwater Wet Prairie, Marsh & Shrubland

Summary: This system represents non-tidal marsh vegetation in the peninsula of Florida and in the Tallahassee area. These highland marshes occupy different types of depressions such as former lake basins, shallow peat-filled valleys, and zones around existing natural lakes (Kushlan 1990). The marshes and the basins they occur within are unstable over time due to subsurface subsidence and drainage pattern changes. In some examples, surface waterflow is generally lacking due to the presence of limestone near the surface, but water levels have fluctuated greatly over time (Patton and Judd 1986). Soils range from mucky surfaces to sandy loams or sands, but slowly permeable subsoils contribute to the presence of standing water for much of the year. The vegetation mosaic includes a range of mostly herbaceous plant communities that may be referred to as marshes, meadows, and prairies, collectively comprising a relatively diverse number of associations. Permanent water bodies support a range of submerged and floating aquatic species. Areas with approximately a meter of standing water tend to support dense stands of emergent herbaceous perennials, often in monospecific stands; species include *Typha latifolia, Pontederia cordata, Nelumbo lutea*, and others. Where there is less water (usually present only during wet season), more graminoid vegetation is present, with species such as *Panicum hemitomon, Leersia hexandra*, and other species. With historic water level fluctuations, the vegetation mosaic has also changed, sometimes quite rapidly.

Range: This system is found in the Florida Peninsula and in the Tallahassee Hills/Valdosta Limesink area, possibly ranging into adjacent Georgia.

States: FL, GA?

Map Zones: 55:C, 56:C

Similar: Florida River Floodplain Marsh (CES203.055), South Florida Slough, Gator Hole and Willow Head (CES411.485)

Descriptors:

Lifeform :	Graminoid
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Herbaceous

3580: Floridian Highlands Freshwater Marsh Woodland

Match Confidence: Good Match

Suggested Match: Floridian Highlands Freshwater Marsh

Codes: ESLF: 9214 EVT_fuel: 2489

ESP: 1489 NatureServe Id: CES203.077

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M067 Atlantic & Gulf Coastal Plain Wet Prairie & Marsh

NVC Group: G188 Coastal Plain River & Basin Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Ne Atlantic & Gulf Coast Freshwater Wet Prairie, Marsh & Shrubland

Summary: This system represents non-tidal marsh vegetation in the peninsula of Florida and in the Tallahassee area. These highland marshes occupy different types of depressions such as former lake basins, shallow peat-filled valleys, and zones around existing natural lakes (Kushlan 1990). The marshes and the basins they occur within are unstable over time due to subsurface subsidence and drainage pattern changes. In some examples, surface waterflow is generally lacking due to the presence of limestone near the surface, but water levels have fluctuated greatly over time (Patton and Judd 1986). Soils range from mucky surfaces to sandy loams or sands, but slowly permeable subsoils contribute to the presence of standing water for much of the year. The vegetation mosaic includes a range of mostly herbaceous plant communities that may be referred to as marshes, meadows, and prairies, collectively comprising a relatively diverse number of associations. Permanent water bodies support a range of submerged and floating aquatic species. Areas with approximately a meter of standing water tend to support dense stands of emergent herbaceous perennials, often in monospecific stands; species include *Typha latifolia, Pontederia cordata, Nelumbo lutea*, and others. Where there is less water (usually present only during wet season), more graminoid vegetation is present, with species such as *Panicum hemitomon, Leersia hexandra*, and other species. With historic water level fluctuations, the vegetation mosaic has also changed, sometimes quite rapidly.

Range: This system is found in the Florida Peninsula and in the Tallahassee Hills/Valdosta Limesink area, possibly ranging into adjacent Georgia.

States: FL, GA?

Map Zones: 55:C, 56:C

Similar: Florida River Floodplain Marsh (CES203.055), South Florida Slough, Gator Hole and Willow Head (CES411.485)

Descriptors:

Lifeform :	Graminoid
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Major Physiognomy :	Herbaceous

3581: South Florida Everglades Shrubland

Match Confidence: Poor Match

Suggested Match: South Florida Wet Marl Prairie

Codes: ESLF: 9205 EVT_fuel: 2484

ESP: 1484 NatureServe Id: CES411.370

BioGeographical Division :

NVC MacroGroup: M710 Caribbean Freshwater Marsh, Wet Meadow & Shrubland

NVC Group: G129 South Florida Freshwater Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.3 Tropical Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.3.Ef Caribbeo-Mesoamerican Freshwater Marsh, Wet Meadow & Shrubland

Summary: This system includes marl prairies of the southern Florida Everglades region and related vegetation of the Florida Keys. This system occurs only on shallower soils with bedrock close to the surface (Gunderson and Loftus 1993). Composition and variability in this system is heavily influenced by hydrology, with the predominant community types occurring on seasonally flooded (3-7 months per year) soils; with diminished hydroperiod species composition changes (Hilsenbeck et al. 1979). Possibly the most unique vegetational component are small-patch communities found on elevated areas of oolitic rocks referred to as pinnacle rock (Gunderson and Loftus 1993) or table rock (Hilsenbeck et al. 1979). This system also includes embedded solution holes (depressions formed from limestone collapse).

Range: Southern Florida Everglades region and related vegetation of the Florida Keys.

States: FL

Map Zones: 56:C

Similar: South Florida Everglades Sawgrass Marsh (CES411.286)

Descriptors:

Lifeform : Graminoid
Hydrogeomorphic Units : Extensive Wet Flat
Major Physiognomy : Herbaceous

3582: Ozark-Ouachita Oak Forest and Woodland

Match Confidence: Good Match

Suggested Match: Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland

Codes: ESLF: 4310 EVT_fuel: 2367

ESP: 1367 NatureServe Id: CES202.313

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents forests and woodlands of the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri in which *Pinus echinata* is an important or dominant component. Although examples of this system occur throughout this region, there is local variation in the extent to which they were present. For example, this system was historically prominent only in the southeastern part of the Ozark Highlands where sandstone derived soils were common, being excluded from or diminished in other areas by inadequate winter precipitation and non-conducive soils. In contrast, pine was virtually ubiquitous in the historical forests of the Ouachitas. In nearly all cases (at least in the Ouachitas), *Pinus echinata* occurs with a variable mixture of hardwood species. The exact composition of the hardwoods is much more closely related to aspect and topographic factors than is the pine component. In some examples of this system, the aggregate importance of hardwoods may be greater than pine, especially on subxeric and mesic sites.

Range: This system occurs in the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri.

States: AR, MO, OK

Map Zones: 44:C

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506), Ouachita Novaculite Glade and Woodland (CES202.314), Ozark-Ouachita Dry Oak Woodland (CES202.707), Ozark-Ouachita Dry-Mesic Oak Forest (CES202.708), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Southern Appalachian Low-Elevation Pine Forest (CES202.332)

Descriptors:

SCS Subregion :	Ozark/Ouachita
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3583: Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Ozark-Ouachita Shortleaf Pine-Oak Forest and Woodland

Codes: ESLF: 4310 EVT_fuel: 2367

ESP: 1367 NatureServe Id: CES202.313

BioGeographical Division : Central Interior and Appalachian

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G012 Shortleaf Pine - Oak Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This system represents forests and woodlands of the Ouachita and Ozark mountains region of Arkansas, adjacent Oklahoma, and southern Missouri in which *Pinus echinata* is an important or dominant component. Although examples of this system occur throughout this region, there is local variation in the extent to which they were present. For example, this system was historically prominent only in the southeastern part of the Ozark Highlands where sandstone derived soils were common, being excluded from or diminished in other areas by inadequate winter precipitation and non-conducive soils. In contrast, pine was virtually ubiquitous in the historical forests of the Ouachitas. In nearly all cases (at least in the Ouachitas), *Pinus echinata* occurs with a variable mixture of hardwood species. The exact composition of the hardwoods is much more closely related to aspect and topographic factors than is the pine component. In some examples of this system, the aggregate importance of hardwoods may be greater than pine, especially on subxeric and mesic sites.

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States: AR, MO, OK

Map Zones: 44:C

Similar: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506), Ouachita Novaculite Glade and Woodland (CES202.314), Ozark-Ouachita Dry Oak Woodland (CES202.707), Ozark-Ouachita Dry-Mesic Oak Forest (CES202.708), Ozark-Ouachita Shortleaf Pine-Bluestem Woodland (CES202.325), Southern Appalachian Low-Elevation Pine Forest (CES202.332)

Descriptors:

SCS Subregion :	Ozark/Ouachita
Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3584: West Gulf Coastal Plain Hardwood Forest

Match Confidence: Unmatched

Suggested Match: West Gulf Coastal Plain Pine-Hardwood Forest

Codes: ESLF: 4314 EVT_fuel: 2371

ESP: 1371 NatureServe Id: CES203.378

BioGeographical Division :

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This West Gulf Coastal Plain ecological system consists of forests and woodlands dominated by *Pinus taeda* and/or *Pinus echinata* in combination with a host of dry to dry-mesic site hardwood species. This type was the historical matrix (dominant vegetation type) for large portions of the Upper West Gulf Coastal Plain (TNC ecoregion 40) where it replaced *Pinus palustris*-dominated vegetation. In this region of southern Arkansas, northwestern Louisiana, and parts of eastern Texas, this type was historically present on nearly all uplands in the region except on the most edaphically limited sites (droughty sands, calcareous clays, and shallow soil barrens/rock outcrops). Such sites are underlain by loamy to fine-textured soils of variable depths. These are upland sites on ridgetops and adjacent sideslopes, with moderate fertility and moisture retention. This type was also present in more limited areas of the West Gulf Coastal Plain (TNC ecoregion 41), where it was confined more typically to sideslopes and other locations not dominated by *Pinus palustris*. There are no known "fidel" herbaceous species or any local endemic or globally rare plant species, and overall this system may have supported relatively low levels of vascular plant species diversity. This system has undergone major transformations since European settlement of the region.

Range: West Gulf Coastal Plain.

States: AR, LA, TX

Map Zones: 37:C, 44:C

Similar: West Gulf Coastal Plain Stream Terrace Sandyland Longleaf Pine Woodland (CES203.891)

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3585: West Gulf Coastal Plain Pine-Hardwood Forest

Match Confidence: Direct Match

Suggested Match: West Gulf Coastal Plain Pine-Hardwood Forest

Codes: ESLF: 4314 EVT_fuel: 2371

ESP: 1371 NatureServe Id: CES203.378

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This West Gulf Coastal Plain ecological system consists of forests and woodlands dominated by *Pinus taeda* and/or *Pinus echinata* in combination with a host of dry to dry-mesic site hardwood species. This type was the historical matrix (dominant vegetation type) for large portions of the Upper West Gulf Coastal Plain (TNC ecoregion 40) where it replaced *Pinus palustris*-dominated vegetation. In this region of southern Arkansas, northwestern Louisiana, and parts of eastern Texas, this type was historically present on nearly all uplands in the region except on the most edaphically limited sites (droughty sands, calcareous clays, and shallow soil barrens/rock outcrops). Such sites are underlain by loamy to fine-textured soils of variable depths. These are upland sites on ridgetops and adjacent sideslopes, with moderate fertility and moisture retention. This type was also present in more limited areas of the West Gulf Coastal Plain (TNC ecoregion 41), where it was confined more typically to sideslopes and other locations not dominated by *Pinus palustris*. There are no known "fidel" herbaceous species or any local endemic or globally rare plant species, and overall this system may have supported relatively low levels of vascular plant species diversity. This system has undergone major transformations since European settlement of the region.

Range: West Gulf Coastal Plain.

States: AR, LA, TX

Map Zones: 37:C, 44:C

Similar: West Gulf Coastal Plain Stream Terrace Sandyland Longleaf Pine Woodland (CES203.891)

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Short
Major Physiognomy :	Forest and Woodland (Tree)

3586: West Gulf Coastal Plain Sandhill Oak Forest and Woodland

Match Confidence: Unmatched

Suggested Match: West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest and Woodlan

Codes: ESLF: 4321 EVT_fuel: 2378

ESP: 1378 NatureServe Id: CES203.056

BioGeographical Division :

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Vegetated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This is the hardwood dominated expression of this system. This ecological system occurs west of the Mississippi River primarily outside the natural range of longleaf pine and less commonly within. Like other sandhill systems of the Gulf and Atlantic coastal plains, this type is found on uplands underlain with deep, coarse sandy soils. These sites are typified by low fertility and moisture retention, which contribute to open tree canopies with usually<60% canopy closure. Sparse understory vegetation and abundant patches of bare soil are indicative of this system. Vegetation indicators are species tolerant of droughty sites, especially > *Quercus incana* and *Quercus arkansana*, but also *Quercus marilandica* and *Quercus stellata*. *Pinus palustris* is absent (or perhaps at low frequency within its range); *Pinus echinata* is usually present. This system supports a large concentration of vascular plant endemics, near endemics, and a number of plant species with high fidelity to sandhills in the region. Elsewhere in the Atlantic and Gulf coastal plains, including most of the adjacent ecoregion (41), these site conditions are closely associated with longleaf pine.

Range: This system occurs west of the Mississippi River primarily outside the natural range of longleaf pine.

States: AR, LA, TX

Map Zones: 37:C

Similar:

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Short

Major Physiognomy : Forest and Woodland (Tree)

3587: West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest and Woodland

Match Confidence: Direct Match

Suggested Match: West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest and Woodlan

Codes: ESLF: 4321 EVT_fuel: 2378

ESP: 1378 NatureServe Id: CES203.056

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M016 Southern & South-Central Oak - Hickory - Pine Forest

NVC Group: G013 Western Gulf Coastal Plain Pine - Oak Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Na Eastern North American & Great Plains Cool Temperate Forest & Woodland

Summary: This ecological system occurs west of the Mississippi River primarily outside the natural range of longleaf pine and less commonly within. Like other sandhill systems of the Gulf and Atlantic coastal plains, this type is found on uplands underlain with deep, coarse sandy soils. These sites are typified by low fertility and moisture retention, which contribute to open tree canopies with usually<60% canopy closure. Sparse understory vegetation and abundant patches of bare soil are indicative of this system. Vegetation indicators are species tolerant of droughty sites, especially > *Quercus incana* and *Quercus arkansana*, but also *Quercus marilandica* and *Quercus stellata*. *Pinus palustris* is absent (or perhaps at low frequency within its range); *Pinus echinata* is usually present. This system supports a large concentration of vascular plant endemics, near endemics, and a number of plant species with high fidelity to sandhills in the region. Elsewhere in the Atlantic and Gulf coastal plains, including most of the adjacent ecoregion (41), these site conditions are closely associated with longleaf pine.

Range: This system occurs west of the Mississippi River primarily outside the natural range of longleaf pine.

States: AR, LA, TX

Map Zones: 37:C

Similar:

Descriptors:

Lifeform : Broad-Leaved Deciduous Tree

Lifeform : Needle-Leaved Tree

Disturbance Return Interval : Short

Major Physiognomy : Forest and Woodland (Tree)

3588: East Gulf Coastal Plain Southern Hardwood Flatwoods

Match Confidence: Good Match

Suggested Match: East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods

Codes: ESLF: 9124 EVT_fuel: 2455

ESP: 1455 NatureServe Id: CES203.557

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This is the hardwood dominated expression of this ecological system. This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Alabama and Mississippi, as well as western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes"; 74d of EPA) of Louisiana, and likely occurs in other parts of the region as well. Its status and extent in this intervening terrain is unknown. Known examples in the Alabama/Mississippi parts of the range include a mosaic of open forests dominated by *Pinus taeda* interspersed with patches of *Quercus phellos* and sometimes other tree species. The ground surface displays an evident microtopography of alternating mounds and swales occurring in a tight local mosaic. These mounds are most likely "gilgai" (R. Wieland pers. comm.) resulting from vertic or shrink-swell properties of the Luinn soil series. Known examples display a range of moisture conditions from dry to wet. The wettest examples trap significant moisture from local rainfall events. These areas have ponded water for a minimum of several days at an interval and potentially for long periods of the year, especially when evapotranspiration is lowest. The vegetation of this system supports a relatively low vascular plant diversity and thus may appear floristically similar to other pine-hardwood vegetation of the region. The dry portion of this vegetational mosaic is dominated by grassy ground cover (*Chasmanthium sessiliflorum*) with scattered emergent greenbriars (*Smilax* spp.) underneath a nearly pure *Pinus taeda* overstory. The historical composition of this type is unknown, but it seems likely that *Pinus taeda* was a natural and even dominant component of this system, as it is in related systems in the West Gulf Coastal Plain (R. Evans pers. obs., T. Foti pers. comm.). Wetter areas are dominated by an overstory of *Quercus phellos* with an abundance of *Sabal minor* in the understory. Although the specific role of fire in this system is unknown, low-intensity ground fires may have been ecologically important. Such fires could have originated in the surrounding ~East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506)$$.

In the western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes") of Louisiana (74d and adjacent 75a of EPA), the flatwoods vegetation tends to be dominated primarily by hardwoods in the most western portion, and a mixture of*Pinus glabra* and *Pinus taeda* in the intermediate portion to the east of this (Smith 1996b). In this "Louisiana Florida Parishes Spruce Pine Flatwoods Forest" some characteristic species include *Pinus glabra, Quercus laurifolia, Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus virginiana, Pinus taeda*, and *Magnolia grandiflora*. Some important understory trees and shrubs include *Crataegus opaca, Sabal minor* (which may often be very abundant or dominant), and *Arundinaria gigantea ssp. tTecta*

Range: This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Alabama and Mississippi, as well as western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes") in Louisiana. The complete and detailed range of this system is being developed and is not completely understood. It is not thought to extend into the Mississippi River Alluvial Plain of Louisiana (P. Faulkner pers. comm.).

States: AL, GA?, LA, MS

Map Zones: 46:C, 99:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Landforms :	Pimple mounds
Major Physiognomy :	Forest and Woodland (Tree)

3589: East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods

Match Confidence: Direct Match

Suggested Match: East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods

Codes: ESLF: 9124 EVT_fuel: 2455

ESP: 1455 NatureServe Id: CES203.557

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Alabama and Mississippi, as well as western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes"; 74d of EPA) of Louisiana, and likely occurs in other parts of the region as well. Its status and extent in this intervening terrain is unknown. Known examples in the Alabama/Mississippi parts of the range include a mosaic of open forests dominated by *Pinus taeda* interspersed with patches of *Quercus phellos* and sometimes other tree species. The ground surface displays an evident microtopography of alternating mounds and swales occurring in a tight local mosaic. These mounds are most likely "gilgai" (R. Wieland pers. comm.) resulting from vertic or shrink-swell properties of the Luinn soil series. Known examples display a range of moisture conditions from dry to wet. The wettest examples trap significant moisture from local rainfall events. These areas have ponded water for a minimum of several days at an interval and potentially for long periods of the year, especially when evapotranspiration is lowest. The vegetation of this system supports a relatively low vascular plant diversity and thus may appear floristically similar to other pine-hardwood vegetation of the region. The dry portion of this vegetational mosaic is dominated by grassy ground cover (*Chasmanthium sessiliflorum*) with scattered emergent greenbriars (*Smilax* spp.) underneath a nearly pure *Pinus taeda* overstory. The historical composition of this type is unknown, but it seems likely that *Pinus taeda* was a natural and even dominant component of this system, as it is in related systems in the West Gulf Coastal Plain (R. Evans pers. obs., T. Foti pers. comm.). Wetter areas are dominated by an overstory of *Quercus phellos* with an abundance of *Sabal minor* in the understory. Although the specific role of fire in this system is unknown, low-intensity ground fires may have been ecologically important. Such fires could have originated in the surrounding ~East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506)$$.

In the western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes") of Louisiana (74d and adjacent 75a of EPA), the flatwoods vegetation tends to be dominated primarily by hardwoods in the most western portion, and a mixture of*Pinus glabra* and *Pinus taeda* in the intermediate portion to the east of this (Smith 1996b). In this "Louisiana Florida Parishes Spruce Pine Flatwoods Forest" some characteristic species include *Pinus glabra, Quercus laurifolia, Quercus michauxii, Quercus nigra, Quercus pagoda, Quercus virginiana, Pinus taeda*, and *Magnolia grandiflora*. Some important understory trees and shrubs include *Crataegus opaca, Sabal minor* (which may often be very abundant or dominant), and *Arundinaria gigantea ssp. tecta*.

Range: This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Alabama and Mississippi, as well as western parts of the lower terraces of the East Gulf Coastal Plain ("Florida Parishes") in Louisiana. The complete and detailed range of this system is being developed and is not completely understood. It is not thought to extend into the Mississippi River Alluvial Plain of Louisiana (P. Faulkner pers. comm.).

States: AL, GA?, LA, MS

Map Zones: 46:C, 99:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Landforms :	Pimple mounds
Major Physiognomy :	Forest and Woodland (Tree)

3590: West Gulf Coastal Plain Hardwood Flatwoods

Match Confidence: Unmatched

Suggested Match: West Gulf Coastal Plain Pine-Hardwood Flatwoods

Codes: ESLF: 9127 EVT_fuel: 2458

ESP: 1458 NatureServe Id: CES203.278

BioGeographical Division :

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This is the hardwood expression of this ecological system. This ecological system represents predominantly mesic to dry flatwoods of limited areas of inland portions of the West Gulf Coastal Plain. These areas are usually found on Pleistocene high terraces that are located above current floodplains. Hydrology is controlled by local rainfall events and not overbank flooding. Soils are fine-textured, and hardpans may be present in the subsurface. The limited permeability of these soils contributes to shallowly perched water tables during portions of the year when precipitation is greatest and evapotranspiration is lowest. Soil moisture fluctuates widely throughout the growing season, from saturated to very dry, a condition sometimes referred to elsewhere as xerohydric. Saturation occurs not from overbank flooding but typically whenever precipitation events occur. Local topography is a complex of ridges and swales, often in close proximity to one another. Ridges tend to be much drier than swales, which may hold water for varying periods of time. Within both ridges and swales, there is vegetation variability relating to soil texture and moisture and disturbance history. The driest ridges support *Pinus taeda* and *Quercus stellata*; more mesic ridges have *Pinus taeda* with *Quercus alba* and species such as *Symplocos tinctoria* and *Viburnum dentatum*. Fire may have been an important natural process in some examples of this system (T. Foti pers. comm.).

Range: This system is found in the inland portions of the West Gulf Coastal Plain, on nonriverine, Pleistocene high terraces.

States: AR, LA, OK, TX

Map Zones: 37:C, 44:C

Similar: West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods (CES203.548)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Landforms :	Pimple mounds
Major Physiognomy :	Forest and Woodland (Tree)

3591: West Gulf Coastal Plain Pine-Hardwood Flatwoods

Match Confidence: Direct Match

Suggested Match: West Gulf Coastal Plain Pine-Hardwood Flatwoods

Codes: ESLF: 9127 EVT_fuel: 2458

ESP: 1458 NatureServe Id: CES203.278

BioGeographical Division : Gulf and Atlantic Coastal Plain

NVC MacroGroup: M033 Southern Coastal Plain Basin Swamp & Flatwoods

NVC Group: G130 Nonriverine Wet Oak Flatwoods

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Nb Southeastern North American Flooded & Swamp Forest

Summary: This ecological system represents predominantly mesic to dry flatwoods of limited areas of inland portions of the West Gulf Coastal Plain. These areas are usually found on Pleistocene high terraces that are located above current floodplains. Hydrology is controlled by local rainfall events and not overbank flooding. Soils are fine-textured, and hardpans may be present in the subsurface. The limited permeability of these soils contributes to shallowly perched water tables during portions of the year when precipitation is greatest and evapotranspiration is lowest. Soil moisture fluctuates widely throughout the growing season, from saturated to very dry, a condition sometimes referred to elsewhere as xerohydric. Saturation occurs not from overbank flooding but typically whenever precipitation events occur. Local topography is a complex of ridges and swales, often in close proximity to one another. Ridges tend to be much drier than swales, which may hold water for varying periods of time. Within both ridges and swales, there is vegetation variability relating to soil texture and moisture and disturbance history. The driest ridges support *Pinus taeda* and *Quercus stellata*; more mesic ridges have *Pinus taeda* with *Quercus alba* and species such as *Symplocos tinctoria* and *Viburnum dentatum*. Fire may have been an important natural process in some examples of this system (T. Foti pers. comm.).

Range: This system is found in the inland portions of the West Gulf Coastal Plain, on nonriverine, Pleistocene high terraces.

States: AR, LA, OK, TX

Map Zones: 37:C, 44:C

Similar: West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods (CES203.548)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Tree
Lifeform :	Needle-Leaved Tree
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Extensive Wet Flat
Landforms :	Pimple mounds
Major Physiognomy :	Forest and Woodland (Tree)

3600: Western North American Boreal White Spruce Forest

Match Confidence: Direct Match

Suggested Match: Western North American Boreal White Spruce Forest

Codes: ESLF: 4290 EVT_fuel: 2600

ESP: 1600 NatureServe Id: CES105.104

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This system is common throughout interior Alaska. Mature stands are dominated by open stands of *Picea glauca*, and *Picea mariana, Betula papyrifera*, and *Populus tremuloides* may be subdominant in the overstory. Ericaceous shrubs and feathermosses often dominate the understory. The disturbance regime is characterized by large crown fires, though other disturbances, such as insect infestations and blowdown are common.

Range: This systems occurs in the boreal region may also occur in the northern portion of the boreal transition region of Alaska.

States: AK

Map Zones: 68:?, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar: Alaska Sub-boreal White Spruce-Hardwood Forest (CES105.136), Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Boreal White Spruce Forest and Woodland (CES105.848), Montane Boreal White and Black Spruce Forest (CES105.800), Western North American Boreal Spruce-Lichen Woodland (CES105.105), Western North American Boreal Treeline White Spruce Woodland (CES105.137), Western North American Boreal White Spruce-Hardwood Forest (CES105.106)

Descriptors:

Landforms : Kettle

Life Zones : Lowland

Life Zones : Lowland

Major Physiognomy : Forest and Woodland (Tree)

Landforms :	Drumlin
Landforms :	Esker
Life Zones :	Montane
Landforms :	Kame moraine
Floristics/Dominants :	Picea glauca
Landforms :	Loess deposit (undifferentiated)
Landforms :	Moraine
Bioclimate :	Boreal
Disturbance Return Interval :	Very Long
Fire Intensity/Spatial Character :	Landscape/High Intensity
Floristics/Dominants :	Sphagnum spp.
Landforms :	Kame

3601: Western North American Boreal Treeline White Spruce Woodland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Treeline White Spruce Woodland

Codes: ESLF: 4289 EVT_fuel: 2601

ESP: 1601 NatureServe Id: CES105.137

BioGeographical Division : Montane Boreal

NVC MacroGroup: M179 North American Boreal Subarctic-Subalpine Woodland

NVC Group: G633 Western Subarctic Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This ecological system occurs primarily near the elevational and latitudinal limits of white spruce tree growth. Soils are cold, but peat-forming mosses are not common in the ground layer. Forest canopy is dominated by *Picea glauca* and cover is generally between 10% and 25% (40%). In some locations *Alnus viridis* is the dominant understory shrub. The shrub layer typically features *Betula nana*, but other low shrubs such as *Vaccinium uliginosum, Ledum groenlandicum*, and *Salix* spp. may be common or dominant. In the western and southwestern portions of the boreal transition region, lichens are commonly abundant in the understory.

Range: This system occurs in the boreal and boreal transition regions of Alaska, although it is not common in the Kenai Mountains where *Tsuga mertensiana* dominates treeline forest systems.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar: Boreal White Spruce Forest and Woodland (CES105.848), Western North American Boreal Spruce-Lichen Woodland (CES105.105), Western North American Boreal White Spruce Forest (CES105.104)

Descriptors:

Floristics/Dominants : Picea glauca
Bioclimate : Boreal
Life Zones : Montane

3602: Western North American Boreal Spruce-Lichen Woodland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Spruce-Lichen Woodland

Codes: ESLF: 4288 EVT_fuel: 2602

ESP: 1602 NatureServe Id: CES105.105

BioGeographical Division : Montane Boreal

NVC MacroGroup: M179 North American Boreal Subarctic-Subalpine Woodland

NVC Group: G633 Western Subarctic Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This system occurs primarily in the northern and western portion of boreal Alaska (west, northeast and northwest boreal) and less commonly in the western and southwestern boreal transition (Nulato Hills and Ahklun Mountains). These are cool dry sites on well-drained to excessively well-drained substrates. Soils are thin and develop on gravels, sandy loess deposits, or bedrock and are likely free of permafrost. Forest canopy is dominated by *Picea glauca* or *Picea mariana*, and cover is generally between 10% and 25%. The shrub layer is open and typically features low and dwarf-shrubs including *Betula nana, Shepherdia canadensis, Arctostaphylos rubra, Arctostaphylos uva-ursi, Vaccinium uliginosum*, or *Empetrum nigrum*. Lichens (primarily *Cladina* spp.) are an important component of the understory in mature stands. Feathermosses are not as important as in other white spruce systems.

Range: This system occurs in the boreal and, less commonly, boreal transition regions of Alaska. It is most common in the northern and western portion of the boreal region and also occurs in the western and southwestern portion of the boreal transition region (Nulato Hills and Ahklun Mountains).

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C

Similar: Boreal White Spruce Forest and Woodland (CES105.848), Western North American Boreal Treeline White Spruce Woodland (CES105.137), Western North American Boreal White Spruce Forest (CES105.104)

Descriptors:

Floristics/Dominants : Picea mariana

Floristics/Dominants : Picea glauca

Lifeform :	Lichen
Soil Depth :	Very Shallow
Bioclimate :	Boreal
Major Physiognomy :	Forest and Woodland (Tree)

3603: Alaska Boreal White Spruce Forest

Match Confidence: Good Match

Suggested Match: Alaska Sub-boreal White Spruce-Hardwood Forest

Codes: ESLF: 4334 EVT_fuel: 2679

ESP: 1679 NatureServe Id: CES105.136

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This ecological system is widespread in south-central Alaska on well-drained upland terrain. *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy Environment: This system typically occurs on well-drained upland terrain. Soils generally develop on surficial deposits including glacial till, colluvium, and loess. Permafrost is rare. Vegetation: *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. *Populus tremuloides* and *Populus balsamifera* are common canopy trees and *Picea mariana* may also be present. Common understory shrubs include *Alnus viridis ssp. sinuata, Viburnum edule, Rosa acicularis, Ribes triste, Vaccinium vitis-idaea*, and *Linnaea borealis*. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Gymnocarpium dryopteris*, and *Cornus canadensis*.

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 73:C, 74:C, 75:C, 76:C, 77:?

Similar: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Western North American Boreal Mesic Birch-Aspen Forest (CES105.108), Western North American Boreal White Spruce Forest (CES105.104)

Descriptors:

Floristics/Dominants : Picea glauca

Fire Intensity/Spatial Character : Landscape/High Intensity

Disturbance Return Interval : Very Long

Bioclimate	:	Boreal
Topography	:	High-Low Slope
Major Physiognomy	:	Forest and Woodland (Tree)
Life Zones	:	Montane

3604: Western North American Boreal Mesic Black Spruce Forest

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Mesic Black Spruce Forest

Codes: ESLF: 4287 EVT_fuel: 2604

ESP: 1604 NatureServe Id: CES105.107

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G350 Western Boreal Mesic-Moist Black Spruce Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This ecological system is common throughout upland slopes and inactive alluvial deposits in the boreal region of Alaska east into the Yukon Territory, and probably elsewhere in western Canada. It is widespread in south-central Alaska on well-drained sites, including old alluvial plains, abandoned floodplains, and inactive terraces. Soils are well-drained, and permafrost may be absent. *Picea mariana* is typically the dominant species in mature stands, though *Picea glauca* may be codominant on some sites. Common understory species include *Vaccinium vitis-idaea, Empetrum nigrum*, and *Linnaea borealis*. Feathermosses (*Hylocomium splendens* and *Pleurozium schreberi*) are common in mature stands. Lichens may be an important component in late-seral stages.

Range: This system is found in the subarctic regions of Alaska and northern Yukon Territory, and the North Pacific Coast of south-central Alaska. It may also occur in northern British Columbia, and further east into Alberta and the Northwest Territories.

States: AB?, AK, BC?, NT?, SK?, YT

Map Zones: 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar: Montane Boreal White and Black Spruce Forest (CES105.800)

Descriptors:

Floristics/Dominants : Picea mariana

Disturbance Return Interval : Long

Soil Organic Matter : Mineral: W/A Horizon >10 cm

Soil pH : Acidic

Bioclimate :	Boreal
Landforms :	Alluvial terrace
Landforms :	Alluvial fan
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland
Life Zones :	Montane
Life Zones :	Montane

3605: Western North American Boreal Mesic Birch-Aspen Forest

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Mesic Birch-Aspen Forest

Codes: ESLF: 4162 EVT_fuel: 2605

ESP: 1605 NatureServe Id: CES105.108

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G579 Western Boreal Mesic White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This hardwood system is common on well-drained upland terrain on south, west, and east aspects in the boreal region, and is widespread in the boreal transition region in south-central Alaska on well-drained upland terrain. *Betula papyrifera* is typically dominant in the canopy, but other dominants or subdominants include *Populus balsamifera* and *Populus tremuloides*. This type represents a persistent, often self-replacing, hardwood system and may represent a long-term seral stage of ~Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102)$$, ~Alaska Sub-boreal Mountain Hemlock-White Spruce Forest (CES204.103)$$, or ~Western North American Boreal White Spruce-Hardwood Forest(CES105.106)$$. Spruce may be present in the canopy and, in the absence of fire, could potentially occupy the site.

Range: This system occurs in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar: Alaska Sub-boreal Mountain Hemlock-White Spruce Forest (CES105.103), Alaska Sub-boreal White Spruce-Hardwood Forest (CES105.136), Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Montane Boreal Aspen-Birch Forest and Woodland (CES105.851), Western North American Boreal White Spruce-Hardwood Forest (CES105.106)

Descriptors:

Temporal Persistence : Moderate (100-500 yrs)

Floristics/Dominants : Betula spp.

Floristics/Dominants : Aspen

Floristics/Dominants :	Populus tremuloides
Lifeform :	Broad-Leaved Deciduous Tree
Disturbance Return Interval :	Long
Disturbance Return Interval :	Intermediate
Bioclimate :	Boreal
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Lowland
Life Zones :	Montane
Life Zones :	Montane

3606: Western North American Boreal Dry Aspen-Steppe Bluff

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Dry Aspen-Steppe Bluff

Codes: ESLF: 5431 EVT_fuel: 2606

ESP: 1606 NatureServe Id: CES105.109

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G349 Western Boreal Dry Aspen Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Sparse tree canopy

FGDC Subclass : Deciduous sparse tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This ecological system occurs commonly on moderately steep to very steep, south-facing slopes and windswept bluffs throughout the boreal and boreal transition regions of Alaska. Generally, the substrate is steep, unstable, dry mineral soil. This system is common above major rivers and is often associated with river bluffs above treeline. Soils are typically well-drained to excessively well-drained and develop on glacial, loess, or fluvial deposits or residual material. Soils are often unstable and rocky; outcrops are common. The system is a mosaic of open forests or woodlands, low shrub-dominated patches, or dry meadows. At increasing elevation, trees become less important, and at subalpine or low alpine locations, shrubs are the dominant lifeform. Tree patches are dominated by *Populus tremuloides*, but *Picea glauca* may also be present. Patches of low-shrub and dry herbaceous communities are interspersed within the aspen forest, where it occurs. Common shrubs include *Artemisia frigida, Artemisia alaskana, Juniperus communis*, and *Arctostaphylos uva-ursi*. Important grasses include *Pseudoroegneria spicata (= Agropyron spicatum), Bromus inermis var. pumpellianus (= Bromus pumpellianus), Calamagrostis purpurascens, Festuca altaica*, and *Poa* spp.

Range: This system is found in the boreal and boreal transition (low elevation through alpine) regions of Alaska. It probably occurs further east into the Yukon Territories of Canada.

States: AK, YT?

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar: Western North American Boreal Dry Grassland (CES105.115)

Descriptors:

Floristics/Dominants : Low Artemisia spp.

Floristics/Dominants	: Populus tremuloides
Soil Moisture (NRCS)	: Xeric
Soil Depth	: Shallow Soil
Bioclimate	: Boreal
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Landforms	: Soil creep slope
Landforms	: Slump and topple prone slope
Landforms	: Slope
Landforms	: Bluff
Life Zones	: Montane
Life Zones	: Montane

3607: Western North American Boreal Subalpine Balsam Poplar-Aspen Woodland

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4163 EVT_fuel: 2607

ESP: 1607 NatureServe Id: CES105.110

BioGeographical Division : Montane Boreal

NVC MacroGroup: M179 North American Boreal Subarctic-Subalpine Woodland

NVC Group: G646 Boreal Subalpine Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: Stands of *Populus balsamifera ssp. balsamifera* and *Populus tremuloides* occur along south-facing upper slopes with trees generally persisting in smaller size classes (seedling, sapling and pole). Clones often grow above the elevation limit of *Picea glauca* and into the subalpine zone. This system occurs commonly throughout the mountain ranges of south-central Alaska and also near the northern and western limit of the boreal region, and may be advancing in some areas. Small stands of *Populus balsamifera* occur on the north slope of the Brooks Range on valley bottoms and on sideslopes.

Range: This system occurs beyond the coniferous treeline in western and northern Alaska (boreal and boreal transition regions).

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:P, 73:C, 74:C, 75:C, 76:P

Similar:

Descriptors:

Floristics/Dominants :	Populus tremuloides
Bioclimate :	Boreal
Landforms :	Slope
Life Zones :	Montane

3608: Alaska Sub-boreal Avalanche Slope Shrubland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Dry Aspen-Steppe Bluff

Codes: ESLF: 5329 EVT_fuel: 2608

ESP: 1608 NatureServe Id: CES105.111

BioGeographical Division : Montane Boreal

NVC MacroGroup: M055 North American Boreal Shrubland & Grassland

NVC Group: G357 Western Boreal Mesic Alder - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.3 Boreal Grassland & Shrubland

NVCS Division: 2.B.3.Na North American Boreal Grassland & Shrubland

Summary: This system occurs commonly throughout the boreal transition region and infrequently in boreal Alaska on mountain slopes where slopes are steep enough to produce frequent snow slides thus preventing forest development. Slopes that produce regular avalanches typically have an upper slope angle of at least 70%, but the lower slopes and run-out zones may be much less steep. The dominant shrub species is typically *Alnus viridis ssp. sinuata*, but other shrubs, including *Sambucus racemosa, Salix* spp., and *Spiraea stevenii*, may be common. Herbaceous patches are often dominated by *Calamagrostis canadensis* and *Chamerion angustifolium*; other common herbs include *Athyrium filix-femina, Dryopteris expansa*, and *Veratrum viride*. Tree seedlings and saplings may be common on some slopes but do not emerge as an overstory due to frequent snow avalanche.

Range: Boreal transition is the dominant region, but this system also occurs infrequently in boreal Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar: Alaska Sub-boreal Mesic Subalpine Alder Shrubland (CES105.112), Alaskan Pacific Maritime Avalanche Slope Shrubland (CES204.162)

Descriptors:

Lifeform : Broad-Leaved Deciduous Shrub

Mass Movement Type : Avalanche

Bioclimate : Boreal

Landforms : Avalanche chute

Major Physiognomy : Shrubland (Shrub)
Life Zones : Montane

3609: Alaska Sub-boreal Mesic Subalpine Alder Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Sub-boreal Mesic Subalpine Alder Shrubland

Codes: ESLF: 5330 EVT_fuel: 2609

ESP: 1609 NatureServe Id: CES105.112

BioGeographical Division : Montane Boreal

NVC MacroGroup: M055 North American Boreal Shrubland & Grassland

NVC Group: G357 Western Boreal Mesic Alder - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.3 Boreal Grassland & Shrubland

NVCS Division: 2.B.3.Na North American Boreal Grassland & Shrubland

Summary: This system is widespread on upper mountain slopes above treeline throughout south-central and southwestern Alaska. It occurs less commonly throughout the northern boreal region to the southern slopes of the Brooks Range. This system often appears as a band of alder above treeline and below alpine systems. Low shrub replaces this system as the dominant subalpine shrub type in the northern boreal region of the state. *Alnus viridis ssp. sinuata* is the dominant shrub species, but other shrubs including *Salix* spp. (sometimes the dominant shrub), *Sambucus racemosa*, and *Spiraea stevenii (= Spiraea beauverdiana)* may be common. In the boreal transition region, the alder zone is intermixed with mesic herbaceous meadows (*Calamagrostis canadensis* and *Chamerion angustifolium*); in boreal Alaska, low-shrub tundra is more common in the gaps between alder patches.

Range: This system occurs at mid-elevation through subalpine in the boreal transition and, less commonly, boreal regions of Alaska.

States: AK

Map Zones: 68:C, 69:?, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C

Similar: Alaska Sub-boreal Avalanche Slope Shrubland (CES105.111), Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland (CES204.152)

Descriptors:

Lifeform : Broad-Leaved Deciduous Shrub

Bioclimate : Boreal

Major Physiognomy : Shrubland (Shrub)

Life Zones : Montane

Life Zones : Montane

3610: Western North American Boreal Mesic Scrub Birch-Willow Shrubland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Mesic Scrub Birch-Willow Shrubland

Codes: ESLF: 5281 EVT_fuel: 2610

ESP: 1610 NatureServe Id: CES105.113

BioGeographical Division : Montane Boreal

NVC MacroGroup: M055 North American Boreal Shrubland & Grassland

NVC Group: G356 Western Boreal Scrub Birch Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.3 Boreal Grassland & Shrubland

NVCS Division: 2.B.3.Na North American Boreal Grassland & Shrubland

Summary: This ecological system occurs throughout the boreal and boreal transition regions of Alaska on mesic sites on mid- to upper slopes, above treeline and on flats and sideslopes. *Betula nana* usually dominates the shrub layer, but *Vaccinium uliginosum, Ledum palustre ssp. decumbens, Salix pulchra, Salix barclayi*, or other *Salix* spp. may also be common. *Salix* spp. may occasionally be dominant. Dwarf-shrubs such as *Empetrum nigrum* and *Vaccinium vitis-idaea* may be common under the low-shrub layer. Herbaceous species are sparse, but feathermosses (*Hylocomium splendens* and *Pleurozium schreberi*) and lichens may be common. Sites with organic soils are not included in this type.

Range: This system occurs in the boreal and, less commonly, boreal transition regions of Alaska at low elevation through subalpine.

States: AK, BC?

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C

Similar:

Descriptors:

Lifeform :	Dwarf-Shrub
Lifeform :	Broad-Leaved Deciduous Shrub
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Bioclimate :	Boreal
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland
Life Zones : Montane

3611: Western North American Sub-boreal Mesic Bluejoint Meadow

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Mesic Scrub Birch-Willow Shrubland

Codes: ESLF: 7177 EVT_fuel: 2611

ESP: 1611 NatureServe Id: CES105.114

BioGeographical Division : Montane Boreal

NVC MacroGroup: M055 North American Boreal Shrubland & Grassland

NVC Group: G358 Western Boreal Mesic Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.3 Boreal Grassland & Shrubland

NVCS Division: 2.B.3.Na North American Boreal Grassland & Shrubland

Summary: This system occurs throughout the boreal and boreal transition regions of Alaska. Soils are typically fine-textured mineral and may be poorly drained (on flats) to well-drained (on sideslopes). In the boreal transition region, mesic *Calamagrostis canadensis* meadows often occur near treeline interspersed with subalpine tall shrub. Its elevational limit is just above the limit of tall shrubs (within 100 m). This system appears to be less common north of the Alaska Range. Mesic meadows also occur as seral stages in drained lakebeds, or after disturbance such as fire or logging. The vegetation is usually dense, with canopy height of 0.8 to 1.4 m, occasionally reaching 2 m. Species composition ranges from nearly pure stands of *Calamagrostis canadensis* to mixtures of *Calamagrostis canadensis* with forbs, such as *Chamerion angustifolium*. Forb- or fern -dominated patches also occur. Common forbs and ferns include *Heracleum maximum, Veratrum viride, Angelica lucida, Athyrium filix-femina, Dryopteris expansa*, and *Equisetum arvense*. Short-term mesic meadow seral stages, such as post-fire *Chamerion angustifolium*, are considered seral stages of the forested system they replaced and not included in this description.

Range: This systems occurs in the upland, lowland, and subalpine zones of the boreal transition and, less commonly, boreal regions of Alaska.

States: AK

Map Zones: 68:?, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C, 76:?

Similar: Alaska Sub-boreal and Maritime Alpine Mesic Herbaceous Meadow (CES204.145), Alaskan Pacific Maritime Mesic Herbaceous Meadow (CES204.163)

Descriptors:

Bioclimate : Boreal

Landforms : Slope
Landforms : Flat
Major Physiognomy : Herbaceous
Life Zones : Montane

3612: Western North American Boreal Dry Grassland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Dry Grassland

Codes: ESLF: 7176 EVT_fuel: 2612

ESP: 1612 NatureServe Id: CES105.115

BioGeographical Division : Montane Boreal

NVC MacroGroup: M055 North American Boreal Shrubland & Grassland

NVC Group: G359 Western Boreal Dry Shrubland & Grassland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.3 Boreal Grassland & Shrubland

NVCS Division: 2.B.3.Na North American Boreal Grassland & Shrubland

Summary: This system occurs across the boreal and boreal transition regions of Alaska on dry sideslopes or well-drained lowland sites. Soils are well-drained to excessively drained and permafrost is absent. These sites are typically dominated by grasses, though forbs may codominate on some sites. Shrub cover is less than 25%. Common species include *Festuca altaica, Festuca rubra, Calamagrostis purpurascens, Leymus innovatus (= Elymus innovatus), Artemisia frigida*, and *Achillea* spp.

Range: This system occurs in upland through alpine in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar: Boreal Dry-Mesic Meadow (CES103.864), Western North American Boreal Dry Aspen-Steppe Bluff (CES105.109)

Descriptors:

Lifeform	Graminoid
Soil Moisture (NRCS)	Aridic
Bioclimate	Boreal
Topography	Toeslope/Bottom/Valley
Topography	High-Low Slope
Major Physiognomy	Herbaceous

3631: Western North American Boreal Alpine Dwarf-Shrub Summit

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Alpine Dwarf-Shrub Summit

Codes: ESLF: 5111 EVT_fuel: 2631

ESP: 1631 NatureServe Id: CES105.129

BioGeographical Division : Montane Boreal

NVC MacroGroup: M404 Western Boreal Alpine Vegetation

NVC Group: G613 Western Boreal Alpine Dwarf-Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This system occurs on windswept summits and ridges on alpine sites in the boreal and boreal transition regions of Alaska. Soils are thin, stony, and well-drained to excessively well-drained. Canopy cover is sparse, generally less than 25%, due to extreme exposure. Common species include *Dryas* spp., *Vaccinium uliginosum, Empetrum nigrum, Vaccinium vitis-idaea, Diapensia lapponica, Loiseleuria procumbens*, and dwarf *Salix* spp. Exposed rock and lichens are abundant.

Range: This system occurs on alpine sites in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:?, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C

Similar: Alaskan Pacific Maritime Alpine Sparse Shrub and Fell-Field (CES204.318)

Descriptors:

Lifeform :	Dwarf-Shrub
Wind Intensity/Spatial Character :	Landscape/High Intensity
Bioclimate :	Boreal
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Alpine

3633: Western North American Boreal Alpine Mesic Herbaceous Meadow

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Alpine Mesic Herbaceous Meadow

Codes: ESLF: 7175 EVT_fuel: 2633

ESP: 1633 NatureServe Id: CES105.131

BioGeographical Division : Montane Boreal

NVC MacroGroup: M404 Western Boreal Alpine Vegetation

NVC Group: G747 Western Boreal Alpine Grassland & Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This ecological system occurs throughout boreal Alaska on gentle slopes in subalpine and alpine environments. *Carex bigelowii* is the dominant species. Other common species may include *Luzula confusa* and lichens. Dwarf-shrubs such as *Arctostaphylos alpina, Empetrum nigrum, Salix pulchra*, and *Betula nana* are usually present, but contribute less than 25% to the canopy cover. This system may form a mosaic with dwarf- and low-shrub systems.

Range: This system occurs throughout boreal Alaska in subalpine and alpine sites.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar:

Descriptors:

Bioclimate	Boreal
Topography	Toeslope/Bottom/Valley
Topography	High-Low Slope
Major Physiognomy	Herbaceous
Life Zones	Alpine

3634: Western North American Boreal Alpine Dryas Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Alpine Dryas Dwarf-Shrubland

Codes: ESLF: 5110 EVT_fuel: 2634

ESP: 1634 NatureServe Id: CES105.132

BioGeographical Division : Montane Boreal

NVC MacroGroup: M404 Western Boreal Alpine Vegetation

NVC Group: G613 Western Boreal Alpine Dwarf-Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This alpine and subalpine system occurs commonly on mountain sideslopes, low summits and ridges, and in alpine valleys, throughout the boreal region and northern Alaska; it is uncommon throughout the boreal transition. Sites are well-drained and mesic to somewhat dry. *Dryas integrifolia* and/or *Dryas octopetala* dominate the shrub layer with at least 20% cover. Lichen cover is less than 25% and may include species of the genera *Cladina, Cetraria*, and *Stereocaulon*. Other dwarf-shrubs that may be common include *Cassiope tetragona, Salix arctica, Salix reticulata, Vaccinium uliginosum, Empetrum nigrum, Ledum palustre ssp. decumbens, Diapensia lapponica*, and *Oxytropis nigrescens*. Common herbaceous species include *Carex microchaeta, Senecio lugens, Minuartia arctica, Anemone parviflora, Podistera macounii (= Ligusticum mutellinoides ssp. alpinum), Castilleja elegans, Poa arctica, Trisetum spicatum, Silene acaulis, Saxifraga* spp., *Campanula lasiocarpa,* and *Polygonum bistorta*. Common mosses include *Hylocomium splendens, Polytrichum* spp., and *Racomitrium* spp. Lichen cover is less than 25% and may include species of the genera *Cladina, Cetraria*, and *Stereocaulon*.

Range: This systems occurs on subalpine to alpine sites of the boreal and boreal transition (less frequently) regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Bioclimate : Boreal

Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Alpine

3635: Western North American Boreal Alpine Ericaceous Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Alpine Ericaceous Dwarf-Shrubland

Codes: ESLF: 5113 EVT_fuel: 2635

ESP: 1635 NatureServe Id: CES105.133

BioGeographical Division : Montane Boreal

NVC MacroGroup: M404 Western Boreal Alpine Vegetation

NVC Group: G613 Western Boreal Alpine Dwarf-Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This is a common alpine system throughout the boreal and boreal transition regions and in northern Alaska. Common slope positions include alpine valleys, sideslopes, and low summits and ridges. Ericaceous dwarf-shrubs typically dominate, but a wide range of species and plant communities are encompassed in this system. Total lichen cover is less than 25% and may include species of *Cetraria, Cladina*, and *Cladonia*. Common dwarf-shrub dominants include *Cassiope tetragona* (more common north of the Alaska Range), *Empetrum nigrum, Vaccinium uliginosum, Harrimanella stelleriana* (more common south of the Alaska Range), and *Arctostaphylos* spp. Other shrubs that may be common include *Betula nana, Diapensia lapponica, Dryas octopetala, Ledum palustre ssp. decumbens, Vaccinium vitis-idaea, Salix reticulata, Salix phlebophylla*, and *Salix rotundifolia*. Common herbaceous species include *Hierochloe alpina (= Anthoxanthum monticola ssp. alpinum), Arnica lessingii, Carex bigelowii*, and *Carex microchaeta*. Mosses such as *Aulacomnium palustre, Hylocomium splendens, Pleurozium schreberi*, and *Polytrichum* may be common. Sites are typically mesic. *Cassiope* and *Harrimanella* tundra sites occur on terrain that is well-protected by snow in the winter, and often remains snow-covered until the middle of the growing season.

Range: This system is found on subalpine to alpine sites in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar:

Descriptors:

Lifeform :	Dwarf-Shrub
Bioclimate :	Boreal
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Alpine

3636: Western North American Boreal Alpine Dwarf-Shrub-Lichen Shrubland

Match Confidence: Direct Match

Suggested Match: Western North American Boreal Alpine Dwarf-Shrub-Lichen Shrubland

Codes: ESLF: 5112 EVT_fuel: 2636

ESP: 1636 NatureServe Id: CES105.134

BioGeographical Division : Montane Boreal

NVC MacroGroup: M404 Western Boreal Alpine Vegetation

NVC Group: G613 Western Boreal Alpine Dwarf-Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This ecological system is common on summits and ridges throughout boreal, northern, and western Alaska. The shrub component is often mixed, with ericaceous shrubs, *Dryas*, and willows contributing to the layer. Lichen cover is at least 25%. Sites are generally exposed to the wind and do not accumulate much winter snow. Common shrub species include *Vaccinium uliginosum, Vaccinium vitis-idaea, Empetrum nigrum, Arctostaphylos rubra, Arctostaphylos alpina, Dryas integrifolia, Salix arctica, Salix rotundifolia*, and *Salix reticulata*. Fruticose lichens often codominate with the shrubs. Common lichens include *Cladina rangiferina, Cladina stellaris, Flavocetraria cucullata (= Cetraria cucullata), Stereocaulon* spp., *Alectoria nigricans*, and *Thamnolia vermicularis*. Herbaceous species include *Hierochloe alpina (= Anthoxanthum monticola ssp. alpinum), Polygonum bistorta, Anemone* spp., *Festuca* spp., and *Luzula* spp. Mosses may be present but do not contribute much cover.

Range: This system occurs on subalpine to alpine sites in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Bioclimate : Boreal

Topography : High Ridge/Upper Slope

Major Physiognomy : Moss/Lichen (Non-Vascular)
Major Physiognomy : Shrubland (Shrub)
Life Zones : Alpine

3638: Alaska Arctic Mesic Alder Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Mesic Alder Shrubland

Codes: ESLF: 5328 EVT_fuel: 2638

ESP: 1638 NatureServe Id: CES104.168

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G368 North American Arctic Tundra & Subarctic Alpine Tall Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: The alder system is widespread but uncommon on mountain slopes, hillslopes and small steep streams throughout arctic Alaska. Patch size is typically small. Soils are mesic but sometimes wet if found adjacent to a small stream. Total shrub cover is >25% and dominated by alders. *Alnus viridis ssp. crispa* is the dominant shrub species but may codominate with *Salix glauca* and *Salix pulchra*. Additional species include *Vaccinium uliginosum, Vaccinium vitis-idaea, Betula nana, Ledum palustre ssp. decumbens, Empetrum nigrum, Equisetum* spp., *Spiraea stevenii (= Spiraea beauverdiana), Dryas* spp., and *Cassiope tetragona*. Mosses include *Hylocomium splendens* and *Dicranum* spp. Low-shrub tundra and dwarf-shrubs are common in the gaps between alder patches.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Shrub
Bioclimate :	Polar
Topography :	High-Low Slope
Landforms :	Mountainside
Major Physiognomy :	Shrubland (Shrub)

3639: Alaska Arctic Mesic-Wet Willow Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Mesic-Wet Willow Shrubland

Codes: ESLF: 5276 EVT_fuel: 2639

ESP: 1639 NatureServe Id: CES104.169

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G369 North American Arctic Tundra & Subarctic Alpine Low Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: **Summary:** The low-tall willow system is widespread and common on mesic to wet mountain slopes, hillslopes, flats, and adjacent to streams throughout arctic Alaska. Patch size is small to large and often linear along small streams. Soils are mesic to wet, including wet sites with subsurface waterflow, water tracks, adjacent to narrow constrained streams, and on snow accumulation areas with late snowmelt. Total low- and tall-shrub (>0.2 m tall) cover is >25% and dominated by willows. This system does not include floodplain or tussock-dominated (>35% tussocks) sites. *Salix alaxensis, Salix pulchra*, and *Salix glauca* are the dominant species. Other shrubs may codominate, such as *Salix niphoclada, Salix chamissonis, Salix bebbiana, Salix planifolia, Salix richardsonii, Alnus viridis ssp. crispa, Betula nana, Vaccinium uliginosum*, and *Ledum palustre ssp. decumbens*. Dwarf-shrubs such as *Empetrum nigrum* and *Vaccinium vitis-idaea* may be common under the low-shrub layer. Herbaceous species are sparse but sedges are sometimes common. Feathermosses (*Hylocomium splendens* and *Pleurozium schreberi*) and lichens may be common.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Soil Moisture Regime : Saturated

Bioclimate : Polar

Major Physiognomy : Shrubland (Shrub)

3640: Aleutian Mesic-Wet Willow Shrubland

Match Confidence: Direct Match

Suggested Match: Aleutian Mesic-Wet Willow Shrubland

Codes: ESLF: 5278 EVT_fuel: 2640

ESP: 1640 NatureServe Id: CES105.148

BioGeographical Division : Montane Boreal

NVC MacroGroup: M055 North American Boreal Shrubland & Grassland

NVC Group: G357 Western Boreal Mesic Alder - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.3 Boreal Grassland & Shrubland

NVCS Division: 2.B.3.Na North American Boreal Grassland & Shrubland

Summary: This willow shrubland system is relatively uncommon yet widespread on the eastern Alaska Peninsula and Kodiak Island at low to mid elevations (range of 3-657 m in Katmai National Park and Preserve) and diminishes moving west. It typically occurs as small patches in broad valleys, on mountain sideslopes with slopes ranging from 0 to 30 degrees. It is also frequently found on wet sites in lowlands, along streams, terraces, lakeshores and the edge of small streams, as well as adjacent to peatlands and wet meadows. Some sites are not wet and support predominantly tall willows, but this is probably<10% of sites. The soil substrates range from mineral to peat. Total tall- and low-shrub cover (> 20 cm height) is >25%, and *Salix* spp. contribute greater than 25% of the total shrub cover. The dominant willow species is *Salix barclayi*, although *Salix alaxensis, Salix commutata, Salix glauca*, and *Salix pulchra* are also important. *Alnus viridis ssp. sinuata* may codominate. Understory shrub species include *Betula nana, Empetrum nigrum, Vaccinium vitis-idaea*, and *Vaccinium uliginosum*. Understory herbaceous species include *Achillea millefolium var. borealis, Angelica lucida, Calamagrostis canadensis, Chamerion angustifolium ssp. angustifolium, Equisetum arvense, Geranium erianthum, Heracleum maximum, Rubus arcticus*, and *Sanguisorba canadensis*. Wetter sites support *Carex lenticularis var. lipocarpa, Carex aquatilis var. aquatilis, Carex utriculata*, and *Equisetum pratense*.

Range: This willow shrubland system is relatively uncommon yet widespread on the eastern Alaska Peninsula and Kodiak Island at low to mid elevations and diminishes moving west.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Bioclimate :	Boreal
Landforms :	Valley
Landforms :	Stream terrace (undifferentiated)
Landforms :	Slope
Landforms :	Lake terrace
Major Physiognomy :	Shrubland (Shrub)

3641: DRAFT North Pacific Maritime Mesic Subalpine Parkland DRAFT

Match Confidence: Solid Match

Suggested Match: North Pacific Maritime Mesic Subalpine Parkland

Codes: ESLF: 4225 EVT_fuel: 2038

ESP: 1038 NatureServe Id: CES204.837

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G245 North Pacific Mountain Hemlock - Silver Fir Forest & Tree Island

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs throughout the mountains of the Pacific Northwest, from the southern Cascades of Oregon to the mountains of southeastern Alaska bordering British Columbia. It occurs at the transition zone of forest to alpine, forming a subalpine forest-meadow ecotone. Mountain hemlock forests, as they approach treeline, become open patches of mature-height trees surrounded by mesic and wet meadows rich in dwarf-shrubs and forbs. Clumps of trees to small patches of forest interspersed with low shrublands and meadows characterize this system. Krummholz often occurs near the upper elevational limit of this system where it grades into alpine vegetation. Associations include woodlands, forested, and subalpine meadow types. It occurs on the west side of the Cascade Mountains and is a transitional open forest into the true alpine on the interior side of the Coastal Mountains of British Columbia where deep, late-lying snowpack is the primary environmental factor. Major tree species are *Tsuga mertensiana, Abies amabilis, Chamaecyparis nootkatensis*, and *Abies lasiocarpa*. This system includes British Columbia Hypermaritime and Maritime Parkland (*Tsuga mertensiana*). Dominant dwarf-shrubs include *Phyllodoce empetriformis, Cassiope mertensiana*, and *Vaccinium deliciosum*. Dominant herbaceous species include *Lupinus arcticus ssp. subalpinus, Valeriana sitchensis, Carex spectabilis*, and *Polygonum bistortoides*. There is very little disturbance, either windthrow or fire. The major process controlling vegetation is the very deep long-lasting snowpacks (deepest in the North Pacific region) limiting tree regeneration. Trees get established only in favorable microsites (mostly adjacent to existing trees) or during drought years with low snowpack. It is distinguished from more interior dry parkland primarily by the presence of *Tsuga mertensiana* or *Abies amabilis* and absence or paucity of *Pinus albicaulis* and *Larix lyallii*.

Range: This system occurs throughout the mountains of the Pacific Northwest, from the central Oregon

Cascades (Diamond Peak, 30 miles north of Crater Lake National Park), north to the Coast Ranges of British Columbia, where it can occur on the east side, facing the interior of British Columbia, as well as north to the mountains along the border of Alaska.

States: AK, BC, OR, WA

Map Zones: 1:C, 7:P, 78:C

Similar:

Descriptors:

Microclimate :	Late-lying snowpack
Floristics/Dominants :	Tsuga mertensiana
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3642: Aleutian Kenai Birch-Cottonwood-Poplar Forest

Match Confidence: Direct Match

Suggested Match: Aleutian Kenai Birch-Cottonwood-Poplar Forest

Codes: ESLF: 4161 EVT_fuel: 2642

ESP: 1642 NatureServe Id: CES105.146

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G579 Western Boreal Mesic White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: These hardwood-dominated forests are common on the eastern Alaska Peninsula and on Kodiak Island. This system occurs at low elevations and also at the upper elevational limit of broad-leaved trees. At low elevations it is found predominantly on well-drained, gentle lower hillslopes, large moraines, and old riparian terraces, although floodplain stands of cottonwood are not included in this system. Patch size is typically small to large. Total hardwood tree species cover is >25% and dominated by *Betula papyrifera var. kenaica, Betula papyrifera, Populus balsamifera ssp. trichocarpa*, or *Populus balsamifera*. Tree height ranges from 6 to 21 m. Understory shrubs include *Alnus viridis ssp. sinuata, Salix barclayi, Rubus spectabilis*, and *Sambucus racemosa*. Herbaceous species may also dominate the understory, such as *Athyrium filix-femina, Calamagrostis canadensis, Calamagrostis lapponica, Chamerion angustifolium ssp. angustifolium, Equisetum* spp., *Gymnocarpium dryopteris*, and *Heracleum maximum*.

Range: This hardwood-dominated system is common on the eastern Alaska Peninsula and on Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Landforms : Terrace

Landforms : Slope

Landforms : Moraine

Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Lowland

3643: Alaskan Pacific Maritime Alpine Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Aleutian Kenai Birch-Cottonwood-Poplar Forest

Codes: ESLF: 5468 EVT_fuel: 2643

ESP: 1643 NatureServe Id: CES204.310

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G317 North Pacific Alpine-Subalpine Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This system occurs primarily on alpine and subalpine sites of southeastern, maritime Alaska, but it can also be found at lower elevations (e.g., Kenai Fjords and Prince William Sound). It occurs on sideslopes, shoulder slopes, and low summits, and the terrain varies from gently sloping to steep. The vegetation can be a mosaic of herbaceous meadow and alpine heath (dwarf-shrublands) or herbaceous meadow with a heath understory; however, in some areas dwarf-shrub cover is continuous. Dominant dwarf-shrub species include *Empetrum nigrum, Phyllodoce aleutica, Phyllodoce glanduliflora, Cassiope mertensiana, Cassiope tetragona, Harrimanella stelleriana*, and *Luetkea pectinata*. Other common species may include *Vaccinium uliginosum, Vaccinium vitis-idaea*, and *Loiseleuria procumbens*. Ericaceous species typically dominate this type, but sites dominated by *Salix arctica* and *Salix reticulata* are included in this system. Scattered tall shrubs and dwarf trees may be present. Common herbaceous species include *Carex macrochaeta, Lupinus nootkatensis, Valeriana sitchensis, Geranium erianthum, Aconitum delphiniifolium, Castilleja unalaschcensis, Sanguisorba canadensis, Anemone narcissiflora, Artemisia arctica*, and *Viola* spp. On slopes on the outer coast and also in Kenai Fjords and Prince William Sound *Nephrophyllidium crista-galli* is common in this system.

Range: This system occurs from the Alaska Range south and east through southeastern Alaska.

States: AK

Map Zones: 77:C, 78:C

Similar:

Descriptors:

Juxtaposition : Alpine mosaic

Lifeform	: Graminoid
Lifeform	: Forb
Lifeform	: Dwarf-Shrub
Bioclimate	: Temperate
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Alpine

3644: Alaskan Pacific Maritime Sitka Spruce Forest

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Sitka Spruce Forest

Codes: ESLF: 4286 EVT_fuel: 2644

ESP: 1644 NatureServe Id: CES204.151

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G750 North Pacific Maritime Western Hemlock - Sitka Spruce Rainforest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This productive ecological system occurs on well-drained sideslopes and footslopes along the Gulf Coast of Alaska and the North Pacific, in the perhumid and subpolar rainforest zones. Sites dominated by *Picea sitchensis* are usually tied to disturbance such as slope instability, water movement (either downhill through the soil or in open streams), exposure to salt spray, or windthrow. *Picea sitchensis* is the dominant tree species, although *Tsuga mertensiana* or *Tsuga heterophylla* may be minor canopy associates. In southeastern Alaska, *Alnus rubra* may be an associated understory tree species, especially in upland alluvial fans. Common species in the shrub layer include *Alnus viridis ssp. sinuata, Oplopanax horridus, Rubus spectabilis*, and *Vaccinium ovalifolium*. Common herbaceous species include *Maianthemum dilatatum, Tiarella trifoliata, Dryopteris expansa*, and *Gymnocarpium dryopteris*. *Calamagrostis nutkaensis* may be common on exposed sites near the coast. In the northern portion of the temperate rainforest (Kodiak Island, Kenai Fjords, and Prince William Sound), *Picea sitchensis* is frequently the dominant canopy tree from sea level to treeline on productive sites, and it is the only conifer that occurs on Afognak and Kodiak islands, where its range is actively expanding. In the southern portion of the Alaskan rainforest, *Picea sitchensis* is linked more closely with disturbance (e.g., very steep sites, recently deglaciated landscapes, outer coast headlands, upland alluvial fans, ancient landslides) and karst substrates. It also occurs commonly at upper elevations just below the mountain hemlock zone.

Range: This system occurs as a narrow band along the Gulf of Alaska coast and extends from the northern portion of Kodiak Island through southeast Alaska and into coastal British Columbia. The range coincides roughly with the subpolar and perhumid rainforest zones defined by Alaback (1991, 1995). The southern boundary is just north of Vancouver Island, British Columbia.

States: AK, BC

Map Zones: 76:C, 77:C, 78:C

Similar: North Pacific Mountain Hemlock Forest (CES204.838)

Descriptors:

Floristics/Dominants :	Picea sitchensis
Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Temperate
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3645: Alaskan Pacific Maritime Sitka Spruce Forest

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Sitka Spruce Forest

Codes: ESLF: 7169 EVT_fuel: 2645

ESP: 1645 NatureServe Id: CES204.145

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G320 North Pacific Alpine-Subalpine Turf & Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: These are mesic subalpine and alpine herbaceous meadows that occur on mountain sideslopes in the boreal transition and maritime regions of Alaska. The slope position is often above the tall-shrub zone and below alpine dwarf-shrub tundra, and the slope shape is usually straight to concave. The substrate is colluvium, residuum, or glacial till. This system often occurs as a continuous band above or mixed with subalpine and alpine shrublands on moderate to steep slopes underlain by colluvium, talus, or bedrock. Species composition is diverse and species richness is often very high, typically no single species is dominant. Vegetation is dominated by herbaceous species, including *Carex macrochaeta, Geranium erianthum, Sanguisorba canadensis, Valeriana sitchensis, Lupinus nootkatensis, Veratrum viride, Aconitum delphiniifolium, Anemone narcissiflora, Polemonium acutiflorum, Chamerion angustifolium (= Epilobium angustifolium), Chamerion latifolium, Senecio triangularis, Nephrophyllidium crista-galli, Calamagrostis canadensis* (often present but not dominant), *Castilleja unalaschcensis, Artemisia arctica, Fritillaria camschatcensis*, and *Athyrium filix-femina*. The dominant disturbances are snow avalanche, soil creep and freeze-thaw action.

Range: This system occurs in the subalpine to alpine zones of the boreal transition region and from Kodiak Island through southeastern Alaska.

States: AK

Map Zones: 73:C, 74:?, 75:C, 76:C, 77:C, 78:C

Similar: Western North American Sub-boreal Mesic Bluejoint Meadow (CES105.114)

Descriptors:

Mass Movement Type : Avalanche

Bioclimate :	Boreal
Landforms :	Soil creep slope
Landforms :	Slope
Major Physiognomy :	Herbaceous
Life Zones :	Alpine

3646: Alaskan Pacific Maritime Western Hemlock Forest

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Western Hemlock Forest

Codes: ESLF: 4276 EVT_fuel: 2646

ESP: 1646 NatureServe Id: CES204.840

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G750 North Pacific Maritime Western Hemlock - Sitka Spruce Rainforest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This forested ecological system is the dominant *Tsuga heterophylla* forest system along the northern portions of the Pacific Northwest Coast. It occurs from coastal British Columbia (north of the northern limit of *Pseudotsuga menziesii*) through southeast Alaska to Prince William Sound (the northwest limit of *Tsuga heterophylla*). This system ranges from sea level to about 610 m (0-2000 feet) elevation. The climate is wet with heavy snow and rainfall, but sites occupied are typically well-drained. The dominant upper canopy species is *Tsuga heterophylla* or a mix of *Picea sitchensis* and *Tsuga heterophylla*. In the northern portion of the region (Yakutat through Prince William Sound), *Tsuga mertensiana* may also be present in the canopy. *Chamaecyparis nootkatensis* may be present in the canopy in southeastern Alaska (Glacier Bay to British Columbia?) but is rare in this system in Prince William Sound (the northwestern limit of *Chamaecyparis nootkatensis*). The shrub layer is often dominated by *Vaccinium ovalifolium*, with *Menziesia ferruginea* usually present; *Rubus spectabilis* and *Oplopanax horridus* are also common. *Lysichiton americanus* occurs in poorly drained depressions. Other common forbs include *Rubus pedatus, Streptopus amplexifolius, Cornus canadensis*, and *Tiarella trifoliata*. *Dryopteris expansa* is common in well-drained, relatively nutrient-rich sites. Other common ferns include *Gymnocarpium dryopteris, Blechnum spicant*, and *Dryopteris expansa*. Disturbed sites, such as V-notches, can have abundant *Rubus spectabilis* or *Oplopanax horridus* dominating the undergrowth. Sites may receive very infrequent catastrophic disturbance leading to large older trees and multiple canopy layers where western hemlock regeneration is favored. Diseases including dwarf mistletoe and heart rot fungi perpetuate the hemlock-dominated old-growth condition. On other sites, wind disturbance yields forests approaching an even-aged condition dominated by *Tsuga heterophylla* but with a component of *Picea sitchensis*.

Range: Coast and Cascade mountains of British Columbia and southeastern Alaska (south of Prince William Sound, the northwestern limit of *Tsuga heterophylla*), from sea level to about 610 m (0-2000 feet) elevation.

States: AK, BC

Map Zones: 75:C, 77:C, 78:C

Similar: North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest (CES204.098), North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097), North Pacific Mesic Western Hemlock-Yellow-cedar Forest (CES204.843)

Descriptors:

Lifeform :	Needle-Leaved Tree
Disturbance Return Interval :	Very Long
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane
Life Zones :	Montane

3648: Alaskan Pacific Maritime Mountain Hemlock Forest

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Western Hemlock Forest

Codes: ESLF: 4277 EVT_fuel: 2648

ESP: 1648 NatureServe Id: CES204.142

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G750 North Pacific Maritime Western Hemlock - Sitka Spruce Rainforest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs along the Gulf of Alaska Coast and Pacific Coast from Kenai Fjords through southeastern Alaska. It occurs primarily in the maritime region, but also occurs in the sub-boreal transition on the inland side of the Kenai and Chugach mountains. This system occurs on relatively stable sideslopes and benches, and soils are generally well-drained. The lower and upper elevational limits of this system decrease from south to north and from east to west. The climate is generally characterized by short, cool summers, rainy autumns and long, cool, wet winters with heavy snow cover for 5-9 months. Fire is very rare in the sub-boreal portion of the distribution and absent from the rest of the range. *Tsuga mertensiana* is the dominant conifer with at least 15% cover, but associated canopy trees vary by region. In the northern portion of its range (from Kenai Fjords to Yakutat), the system occurs from sea level to upper forest elevations.. *Picea sitchensis* or *Tsuga heterophylla* may be codominant. In the sub-boreal region, *Picea X lutzii* may be present in the canopy, but cover is less than 15%. In southeast Alaska, this system is the predominant forest of upper elevations. It occurs above the western hemlock, western hemlock - red-cedar, and western hemlock - yellow-cedar systems and below the subalpine mountain memlock dwarf-tree system. Elevations generally range from 300 to 1000 m. *Tsuga mertensiana* is the dominant tree species. *Picea sitchensis, Chamaecyparis nootkatensis* (northern limit is Prince William Sound), or *Tsuga heterophylla* may be present but are less abundant than *Tsuga mertensiana*. Throughout the entire range of the system, the dominant understory shrub is typically *Vaccinium ovalifolium*; other common shrubs include *Menziesia ferruginea, Elliottia pyroliflorus, Vaccinium vitis-idaea*, and *Empetrum nigrum*. Common herbaceous species include *Rubus pedatus, Cornus canadensis, Gymnocarpium dryopteris, Blechnum spicant*, and *Listera cordata*. Major disturbance processes include avalanche, fungal pathogens, and blowdown. Parklands (open woodlands or sparse trees with dwarf-shrub or herbaceous vegetation) are not part of this system but of ~North Pacific

Maritime Mesic Subalpine Parkland (CES204.837)$$ or ~Alaskan Pacific Maritime Subalpine Mountain Hemlock Woodland (CES204.143)$$.

Range: This system occurs from Kenai Fjords through southeastern Alaska.

States: AK

Map Zones: 73:C, 75:C, 77:C, 78:?

Similar: Alaska Sub-boreal Mountain Hemlock-White Spruce Forest (CES105.103), Alaskan Pacific Maritime Subalpine Mountain Hemlock Woodland (CES204.143), North Pacific Mountain Hemlock Forest (CES204.838)

Descriptors:

Floristics/Dominants	Picea sitchensis
Floristics/Dominants	Tsuga mertensiana
Bioclimate	Boreal
Bioclimate	Temperate
Topography	High-Low Slope
Major Physiognomy	Forest and Woodland (Tree)
Life Zones	Montane

3649: Alaskan Pacific Maritime Subalpine Mountain Hemlock Woodland

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Western Hemlock Forest

Codes: ESLF: 4283 EVT_fuel: 2649

ESP: 1649 NatureServe Id: CES204.143

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M025 Vancouverian Subalpine Forest

NVC Group: G245 North Pacific Mountain Hemlock - Silver Fir Forest & Tree Island

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This subalpine ecological system occurs in the upper slopes of mountain ranges along the Gulf Coast of Alaska, including the Kenai, Chugach, St. Elias, Fairweather, and Coast mountains. It is dominated by mountain hemlock forests and parkland growing near elevational treeline. *Tsuga mertensiana* is the dominant tree and often grows with a stunted growth form (krummholz). Patches of forest interspersed with alpine heath or tall shrub characterize this system. Treeline forests often grow as small patches at the lower elevation of alpine tundra and forb meadow systems. Common understory species include *Phyllodoce aleutica* (or *Phyllodoce glanduliflora*), *Harrimanella stelleriana, Luetkea pectinata, Empetrum nigrum, Nephrophyllidium crista-galli*, and *Geum calthifolium*. The major disturbance processes include avalanche, fungal pathogens, and blowdown.

Range: This system occurs primarily at the elevational limit of tree growth in the mountain ranges along the Gulf Coast of Alaska, including the Kenai, Chugach, St. Elias, Fairweather, and Coast mountains. It occurs from the Kenai Fjords to southeastern Alaska and British Columbia.

States: AK, BC

Map Zones: 74:?, 75:C, 77:C, 78:C

Similar: Alaska Sub-boreal Mountain Hemlock-White Spruce Forest (CES105.103), Alaskan Pacific Maritime Mountain Hemlock Forest (CES204.142), North Pacific Mountain Hemlock Forest (CES204.838)

Descriptors:

Floristics/Dominants : Tsuga mertensiana

Bioclimate : Temperate

Topography	: High Ridge/Upper Slope
Major Physiognomy	: Forest and Woodland (Tree)
Life Zones	: Montane

3650: Alaskan Pacific Maritime Periglacial Woodland

Match Confidence: Good Match

Suggested Match: Alaskan Pacific Maritime Periglacial Woodland and Shrubland

Codes: ESLF: 4284 EVT_fuel: 2650

ESP: 1650 NatureServe Id: CES204.311

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G750 North Pacific Maritime Western Hemlock - Sitka Spruce Rainforest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs as an early-successional sere on landscapes recently exposed through deglaciation since the end of the Little Ice Age (especially common in Glacier Bay and Kenai Fjords). This is not a riverine system, and glacial outwash systems are also not included. Soils are derived from glacial till, residuum and colluvium and are shallow, stony, and well-drained to excessively well-drained. Soil profile development is lacking or minimal. Early-seral stages of forested systems with low cover of *Picea sitchensis* and *Populus balsamifera ssp. trichocarpa* occur on older landscapes at low elevations near the maximum glacial extent. Depending on time since ice has receded, some sites may have woodlands of either *Populus balsamifera* or a mix of *Populus balsamifera* and *Picea sitchensis*. On other sites *Alnus viridis ssp. sinuata* often dominates the species composition, although *Salix sitchensis, Salix alaxensis*, or *Salix barclayi* may also be abundant. *Salix* spp. and *Alnus viridis ssp. sinuata* are commonly mixed with the trees on wooded sites as well. *Rubus spectabilis* is uncommon in this system. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Chamerion latifolium, Heracleum maximum, Lupinus nootkatensis, Equisetum arvense, Athyrium filix-femina, Dryopteris expansa, Phegopteris connectilis, Streptopus amplexifolius, Pyrola* spp., *Carex mertensii*, and *Epilobium* spp. Mosses and lichens may be abundant on some sites; common early-seral nonvascular species include *Racomitrium canescens, Pohlia nutans, Drepanocladus aduncus, Stereocaulon tomentosum, Cladonia crispata*, and *Cladina portentosa*.

Range: This system occurs from Kodiak Island to southeastern Alaska.

States: AK

Map Zones: 76:C, 77:C, 78:C

Similar:

Descriptors:

Floristics/Dominants :	Picea sitchensis
Substrate Consolidation :	Unconsolidated
Soil Depth :	Very Shallow
Bioclimate :	Temperate
Landforms :	Glaciated plains

3651: Aleutian Mesic Herbaceous Meadow

Match Confidence: Direct Match

Suggested Match: Aleutian Mesic Herbaceous Meadow

Codes: ESLF: 7174 EVT_fuel: 2651

ESP: 1651 NatureServe Id: CES105.232

BioGeographical Division : Montane Boreal

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G355 Northern Vancouverian Grassland & Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This system grows on all slopes and aspects with a mesic moisture regime, including windswept coastal headlands, coastal bluffs, old beach ridges, hillside slopes, stabilized talus, alluvial fans, and ravine sideslopes, and commonly forms a mosaic with alder patches. Patch size is small to matrix-forming. Herbaceous cover is >25%, *Leymus mollis* cover is<25%. This system includes four predominant vegetation types: (1) The > *Athyrium filix-femina* meadow type is dominated by *Athyrium filix-femina* with *Veratrum viride, Heracleum maximum, Streptopus amplexifolius, Angelica lucida*, and *Calamagrostis canadensis*; (2) The *Chamerion angustifolium ssp. angustifolium* meadow type is dominated by *Chamerion angustifolium ssp. angustifolium*, usually with ferns, *Calamagrostis canadensis*, and often *Heracleum maximum*; (3) The *Calamagrostis canadensis* meadow type is dominated by *Calamagrostis canadensis*, usually with ferns and scattered forbs. It is common on disturbed sites (human or natural) that are in early stages of recovery; and (4) The mixed herbaceous meadow type includes mesic herbaceous meadows not dominated by *Athyrium filix-femina, Chamerion angustifolium ssp. angustifolium*, or *Calamagrostis canadensis*; these species, however, often codominate. Common forbs include *Lupinus nootkatensis, Solidago canadensis var. lepida, Polemonium acutiflorum, Castilleja unalaschcensis, Sanguisorba canadensis, Veratrum viride, Valeriana capitata, Antennaria dioica, Cardamine oligosperma var. kamtschatica, Achillea millefolium var. borealis, Arnica unalaschcensis, Dendranthema arcticum ssp. arcticum, Claytonia sibirica, Geum calthifolium, Ranunculus occidentalis, Dryopteris expansa*, and *Angelica lucida*. Graminoids include *Carex macrochaeta, Festuca rubra, Agrostis exarata, Agrostis scabra*, and *Deschampsia beringensis*. *Empetrum nigrum* may also be common.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar: Alaskan Pacific Maritime Mesic Herbaceous Meadow (CES204.163)

Descriptors:

Bioclimate	Temperate
Topography	Toeslope/Bottom/Valley
Topography	High-Low Slope
Landforms	Talus
Landforms	Slope
Landforms	Bluff
Landforms	Alluvial fan
Landforms	Ravine
Major Physiognomy	Herbaceous
Life Zones	Lowland

3652: Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland

Codes: ESLF: 5332 EVT_fuel: 2652

ESP: 1652 NatureServe Id: CES204.152

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G354 Vancouverian Alder - Salmonberry - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system typically occurs just above treeline and below the alpine throughout the maritime region of Alaska. Soils are typically mesic, well-drained, shallow, and stony, and underlain by colluvium, glacial till or residuum. *Alnus viridis ssp. sinuata* is often the dominant species, but *Rubus spectabilis* may be codominant. Other common species include *Sambucus racemosa, Oplopanax horridus*, and *Elliottia pyroliflorus*. The tall shrub system is often mosaiced with the mesic herbaceous meadow system. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Veratrum viride, Heracleum maximum, Athyrium filix-femina, Dryopteris expansa, Phegopteris connectilis, Equisetum arvense, Streptopus amplexifolius, Lupinus nootkatensis, Valeriana sitchensis, Geranium erianthum, Aconitum delphiniifolium, Castilleja unalaschcensis, Sanguisorba canadensis*, and *Carex macrochaeta*.

This system also includes partially vegetated bedrock ridges and cliffs in the alpine and subalpine, where it is found primarily on or near ridgetops and is exposed to extremely harsh growing conditions. More exposed sites subject the vegetation to a very short growing season, freeze-thaw pattern, and desiccating winds. Exposed bedrock or talus is usually a major component of the sites. In the more extreme locations, the vegetation cover is often fragmented or sparse and includes a complex of sparse tall or low shrubs, dwarf-shrubs, and herbaceous species.

This system appears to be relatively stable, although there may be an upward trend in the elevation of this system. Treeline conifers appear to be invading from below in some areas, and the elevational limit of low and tall shrub establishment appears to be rising.

Range: This system occurs from Prince William Sound through southeastern Alaska.

States: AK

Map Zones: 77:C, 78:C

Similar: Alaska Sub-boreal Mesic Subalpine Alder Shrubland (CES105.112), Alaskan Pacific Maritime Avalanche Slope Shrubland (CES204.162), Aleutian Mesic Alder-Salmonberry Shrubland (CES105.147)

Descriptors:

Lifeform :	Broad-Leaved Deciduous Shrub
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane
Life Zones :	Montane

3653: Alaskan Pacific Maritime Mesic Herbaceous Meadow

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Mesic Herbaceous Meadow

Codes: ESLF: 7171 EVT_fuel: 2653

ESP: 1653 NatureServe Id: CES204.163

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G355 Northern Vancouverian Grassland & Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This ecological system includes a wide variety of herbaceous vegetation types and occurs below subalpine shrublands on sideslopes, rolling hills, and alluvial deposits. Soils are typically mesic, well-drained, and underlain by colluvium, alluvium, glacial till or residuum. Vegetation may be dominated by forbs, graminoids, or ferns. The most common dominant species are *Calamagrostis canadensis* and *Chamerion angustifolium*. One or more of the following species can also be dominant: *Veratrum viride, Athyrium filix-femina*, or *Heracleum maximum*. Other common species may include *Lupinus nootkatensis, Aconitum delphiniifolium, Sanguisorba canadensis, Senecio triangularis*, and *Nephrophyllidium crista-galli*.

Range: This system occurs from Prince William Sound through southeastern Alaska. Its southern boundary has yet to be determined.

States: AK

Map Zones: 77:C, 78:C

Similar: Aleutian Mesic Herbaceous Meadow (CES105.232), Western North American Sub-boreal Mesic Bluejoint Meadow (CES105.114)

Descriptors:

Bioclimate	Temperate
Topography	Toeslope/Bottom/Valley
Topography	High-Low Slope
Major Physiognomy	Herbaceous
Life Zones	Lowland

3654: Alaskan Pacific Maritime Sitka Spruce Beach Ridge

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Sitka Spruce Beach Ridge

Codes: ESLF: 4285 EVT_fuel: 2654

ESP: 1654 NatureServe Id: CES204.153

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G750 North Pacific Maritime Western Hemlock - Sitka Spruce Rainforest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system includes productive forests on beach ridges and occurs along the Alaska Gulf Coast in the following areas: Copper River Delta, Cape Yakataga, Yakutat Forelands, and outer coast of Glacier Bay National Park. *Picea sitchensis* is usually dominant in the canopy, but *Tsuga heterophylla* can be codominant especially on older sites. *Oplopanax horridus* is usually the most abundant understory shrub; other common shrubs include *Vaccinium ovalifolium* and *Rubus spectabilis*. Understory species include *Circaea alpina, Rubus pedatus, Streptopus amplexifolius, Tiarella trifoliata, Athyrium filix-femina, Dryopteris expansa*, and *Gymnocarpium dryopteris*. Mature forests usually have very little downed wood or snags. Beach ridges form and become removed from direct contact with saltwater through long shore sediment transport coupled with isostatic rebound (Shephard 1993). Coastal beach communities are often dominated by *Leymus mollis* and brackish meadows. *Picea sitchensis* seedlings establish in the brackish meadows, but often do not survive, probably due to excessive salt spray. Further inland, *Picea sitchensis* seedlings establish and survive in these meadows, and the meadow transitions to forest. *Picea sitchensis* establishes about 130 years after beach ridge formation and may succeed to *Tsuga heterophylla* forest.

Range: This system occurs from the Copper River Delta to Glacier Bay in Alaska. It also occurs on Kodiak Island.

States: AK

Map Zones: 76:C, 77:C, 78:P

Similar:

Descriptors:

Floristics/Dominants :	Picea sitchensis
Bioclimate :	Temperate
Landforms :	Beach ridge
Landforms :	Beach
Landforms :	Raised beach
Major Physiognomy :	Forest and Woodland (Tree)

3671: Aleutian American Dunegrass Grassland

Match Confidence: Direct Match

Suggested Match: Aleutian American Dunegrass Grassland

Codes: ESLF: 7172 EVT_fuel: 2671

ESP: 1671 NatureServe Id: CES105.233

BioGeographical Division : Montane Boreal

NVC MacroGroup: M059 Pacific Coastal Beach & Dune Vegetation

NVC Group: G498 North Pacific Maritime Coastal Scrub & Herb Beach & Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Nb Pacific North American Coast Scrub & Herb Vegetation

Summary: Sites are level to steep. The substrates are commonly dunes or shallow to deep eolian sand deposits over bedrock, sometimes 2 km inland. This system is not subjected to typical coastal processes such as overwash. The sites may be unstable, including eroding coastal bluffs and isolated blowouts. Other sites have loamy soils on colluvium that are nutrient-enriched by seabirds. Sites may or may not receive salt spray. Patch size is small to large. *Leymus mollis* cover is >25%, and the sites are not part of ~Aleutian Marine Beach and Beach Meadow (CES105.239)$$. Other dominant or codominant species include *Festuca rubra, Heracleum maximum, Ligusticum scoticum, Angelica lucida*, and *Claytonia sibirica*. Some sites have 1- to 2-foot tall tussocks. Recent research has shown that the abundance of graminoids in the Aleutian Islands has been significantly reduced due to a reduction in nutrient inputs from seabird colonies; where seabirds have been impacted by introduced predators, the cover of graminoid species is lower.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and possibly Kodiak Island.

States: AK

Map Zones: 76:C

Similar: Aleutian Marine Beach and Beach Meadow (CES105.239)

Descriptors:

Bioclimate : Boreal

Landforms : Colluvial slope

Landforms : Dune field

Landforms : Dune (undifferentiated)

Landforms : Dune

Major Physiognomy : Herbaceous

3672: Alaskan Pacific Maritime Subalpine Copperbush Shrubland

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Subalpine Copperbush Shrubland

Codes: ESLF: 5280 EVT_fuel: 2672

ESP: 1672 NatureServe Id: CES204.316

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M073 Vancouverian Lowland Wet Shrubland, Wet Meadow & Marsh

NVC Group: G322 Vancouverian Wet Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

Summary: This ecological system occurs in the lower alpine and subalpine. *Elliottia pyroliflorus* dominates the overstory (10 to 80% cover) and ranges in height from 0.6-1.5 m (2-5 feet). Other species include *Phyllodoce aleutica, Nephrophyllidium crista-galli, Cornus suecica, Luetkea pectinata, Athyrium filix-femina, Cassiope mertensiana, Dryopteris expansa, Gymnocarpium dryopteris, Viola glabella*, and *Rubus spectabilis*. Krummholz *Tsuga mertensiana* occur in some sites. Adjacent to this system at higher elevations are alpine herbaceous meadows or dwarf-shrublands; at lower elevations *Tsuga mertensiana* forests or woodlands are common.

Range: This system occurs in the Alaska Range south and east throughout southeastern Alaska.

States: AK

Map Zones: 75:?, 77:C, 78:C

Similar:

Descriptors:

Lifeform :	Broad-Leaved Deciduous Shrub
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane
Life Zones :	Montane
Life Zones :	Alpine

3674: Alaskan Pacific Maritime Alpine Sparse Shrub and Fell-field

Match Confidence: Solid Match

Suggested Match: Alaskan Pacific Maritime Alpine Sparse Shrub and Fell-Field

Codes: ESLF: 5109 EVT_fuel: 2674

ESP: 1674 NatureServe Id: CES204.318

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G317 North Pacific Alpine-Subalpine Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This sparsely vegetated ecological system occurs on exposed summits, windswept ridges, and fell-fields. These sites are characterized by harsh environmental conditions. Slopes vary from moderately sloped to flat. Dominant species include *Empetrum nigrum, Vaccinium uliginosum, Loiseleuria procumbens, Phyllodoce aleutica, Harrimanella stelleriana*, and *Luetkea pectinata*. Lichens may be common. Total vegetation cover ranges from 10 to 25%.

Range: This system occurs in the Alaska Range south and east throughout southeastern Alaska.

States: AK

Map Zones: 75:C, 77:C, 78:C

Similar: Western North American Boreal Alpine Dwarf-Shrub Summit (CES105.129)

Descriptors:

Juxtaposition :	Alpine mosaic
Lifeform :	Dwarf-Shrub
Wind Intensity/Spatial Character :	Landscape/High Intensity
Bioclimate :	Temperate
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Alpine

3675: North Pacific Mesic Western Hemlock-Yellow-cedar Forest

Match Confidence: Direct Match

Suggested Match:

Codes: ESLF: 4227 EVT_fuel: 2040

ESP: 1040 NatureServe Id: CES204.843

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G751 North Pacific Western Hemlock - Sitka Spruce - Western Red-cedar S

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This system occurs throughout southeastern Alaska but appears to be more common in central southeastern Alaska. It is more common on the islands than on the mainland and is less common on northern Chichagof Island than on southern Chichagof and Baranof islands. It occurs at all elevations below the Mountain Hemlock Zone and is most abundant on somewhat poorly to moderately drained slopes. In the southern part of southeastern Alaska, this system generally occupies the upper edge of the Western Hemlock Zone, from 305-610 m (1000-2000 feet) elevation. On non-alluvial low-elevation sites, *Chamaecyparis nootkatensis* abundance increases as soil drainage becomes poorer. Poor drainage results in fewer trees and, therefore, more understory light, allowing yellow-cedar to survive and reproduce despite competition from western hemlock. *Chamaecyparis nootkatensis* is more tolerant of poor soil drainage than *Tsuga heterophylla*. *Chamaecyparis nootkatensis* is a codominant with *Tsuga heterophylla* in stands with moderately open (50-70%) canopies. Yellow-cedar cover typically ranges from 5-50% and rarely dominates the overstory. *Picea sitchensis* may be an overstory component. The canopy is typically multilayered, with *Tsuga heterophylla* dominating the lower layers. This system intergrades with *Tsuga mertensiana* forests, and *Tsuga mertensiana* may occur in transitional stands. The shrub layer is relatively well-developed (>50%) in late-seral stands and includes *Vaccinium ovalifolium* and *Menziesia ferruginea*, with *Lysichiton americanus* and *Coptis* spp. as consistently present herbaceous species. *Blechnum spicant* is the most common fern, while *Dryopteris expansa* is nearly absent from this type. This system is distinguished by the codominance of *Chamaecyparis nootkatensis* and *Tsuga heterophylla* and the absence or rarity of *Thuja plicata, Picea sitchensis*, and *Abies amabilis*.

Range: This system occurs throughout southeastern Alaska.

States: AK

Map Zones: 78:C

Similar: Alaskan Pacific Maritime Western Hemlock Forest (CES204.840), North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest (CES204.842)

Descriptors:

Floristics/Dominants :	Chameacyparis nootkatensis
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3677: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland

Codes: ESLF: 4273 EVT_fuel: 2677

ESP: 1677 NatureServe Id: CES105.102

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This system occurs in the boreal transition of Alaska on well-drained upland terrain. *Picea glauca* or *Picea X lutzii* are the dominant conifers, although *Betula papyrifera, Populus balsamifera*, and *Populus tremuloides* are often present. Common shrubs include *Menziesia ferruginea, Alnus viridis ssp. sinuata, Vaccinium ovalifolium, Oplopanax horridus, Vaccinium vitis-idaea*, and *Linnaea borealis*. Common herbaceous species include *Calamagrostis canadensis, Equisetum arvense, Dryopteris expansa*, and *Gymnocarpium dryopteris*. The major disturbance processes include fire, human disturbance, blowdown and insect infestations.

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 73:C, 74:C, 75:C, 77:?

Similar: Alaska Sub-boreal Mountain Hemlock-White Spruce Forest (CES105.103), Alaska Sub-boreal White Spruce-Hardwood Forest (CES105.136), Western North American Boreal Mesic Birch-Aspen Forest (CES105.108), Western North American Boreal White Spruce Forest (CES105.104), Western North American Boreal White Spruce-Hardwood Forest (CES105.106)

Descriptors:

Floristics/Dominants :	Picea lutzii
Floristics/Dominants :	Picea glauca
Disturbance Return Interval :	Very Long
Bioclimate :	Boreal
Topography :	Toeslope/Bottom/Valley

Topography	: High-Low Slope
Major Physiognomy	: Forest and Woodland (Tree)
Life Zones	: Lowland
Life Zones	: Montane

3678: Alaska Sub-boreal Mountain Hemlock-White Spruce Forest

Match Confidence: Direct Match

Suggested Match: Alaska Sub-boreal Mountain Hemlock-White Spruce Forest

Codes: ESLF: 4282 EVT_fuel: 2678

ESP: 1678 NatureServe Id: CES105.103

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This ecological system occurs on sideslopes and rolling terrain on the inland side of the Kenai and Chugach mountains and represents a transition from maritime forests to south-central boreal forests. Soils are mesic and derived from colluvium, glacial deposits, or residual bedrock. Permafrost is rare. *Picea X lutzii* is the dominant spruce and *Tsuga mertensiana* is codominant in the canopy and has at least 15% cover. The major disturbance processes include fungal pathogens, human disturbance, fire, blowdown, and insect infestations.

Range: This system occurs primarily in the Kenai and Chugach mountains of Alaska.

States: AK

Map Zones: 73:C, 74:C, 75:C, 77:?

Similar: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Alaskan Pacific Maritime Mountain Hemlock Forest (CES204.142), Alaskan Pacific Maritime Subalpine Mountain Hemlock Woodland (CES204.143), Western North American Boreal Mesic Birch-Aspen Forest (CES105.108)

Descriptors:

Floristics/Dominants	Tsuga mertensiana
Floristics/Dominants	Picea lutzii
Fire Intensity/Spatial Character	Landscape/High Intensity
Disturbance Return Interval	Very Long
Bioclimate	Boreal
Topography	High-Low Slope

Major Physiognomy : Forest and Woodland (Tree)
Life Zones : Montane

3679: Alaska Sub-boreal White Spruce Forest

Match Confidence: Good Match

Suggested Match: Alaska Sub-boreal White Spruce-Hardwood Forest

Codes: ESLF: 4334 EVT_fuel: 2679

ESP: 1679 NatureServe Id: CES105.136

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This is the spruce dominated expression of this ecological system. This ecological system is widespread in south-central Alaska on well-drained upland terrain. *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. Environment: This system typically occurs on well-drained upland terrain. Soils generally develop on surficial deposits including glacial till, colluvium, and loess. Permafrost is rare. Vegetation: *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. *Populus tremuloides* and *Populus balsamifera* are common canopy trees and *Picea mariana* may also be present. Common understory shrubs include *Alnus viridis ssp. sinuata, Viburnum edule, Rosa acicularis, Ribes triste, Vaccinium vitis-idaea*, and *Linnaea borealis*. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Gymnocarpium dryopteris*, and *Cornus canadensis*.

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 73:C, 74:C, 75:C, 76:C, 77:?

Similar: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Western North American Boreal Mesic Birch-Aspen Forest (CES105.108), Western North American Boreal White Spruce Forest (CES105.104)

Descriptors:

Floristics/Dominants : Picea glauca

Fire Intensity/Spatial Character : Landscape/High Intensity

Disturbance Return Interval : Very Long

Bioclimate	: Boreal
Topography	: High-Low Slope
Major Physiognomy	: Forest and Woodland (Tree)
Life Zones	: Montane

3680: Alaskan Pacific Maritime Avalanche Slope Shrubland

Match Confidence: Direct Match

Suggested Match: Alaskan Pacific Maritime Avalanche Slope Shrubland

Codes: ESLF: 5331 EVT_fuel: 2680

ESP: 1680 NatureServe Id: CES204.162

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G354 Vancouverian Alder - Salmonberry - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This system occurs on mountain sideslopes from sea level to treeline where slopes are steep enough to produce frequent snowslides preventing forest development. Mass wasting, including rockfall and soil creep, also contributes to the disturbance cycle. This system is similar in species composition to ~Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland (CES204.152)$$, but it occurs below the subalpine zone, and tree growth is limited by disturbance frequency, not elevation and temperature as in the subalpine system. Sites are usually dominated by *Alnus viridis ssp. sinuata* and *Rubus spectabilis*. Other shrubs may include *Sambucus racemosa, Salix alaxensis, Salix barclayi*, and *Oplopanax horridus*. Herbaceous patches are common and are dominated by *Calamagrostis canadensis* and *Chamerion angustifolium*. Other common herbs include *Athyrium filix-femina, Veratrum viride, Heracleum maximum, Streptopus amplexifolius*, and *Aruncus dioicus*. Near treeline, forb-sedge meadows replace *Calamagrostis* meadows. Tree seedlings and saplings may be abundant on some slopes but do not emerge as an overstory due to frequent disturbance.

Range: This system occurs from Kodiak Island through southeastern Alaska into British Columbia, but the southern boundary needs to be determined.

States: AK, BC

Map Zones: 77:C, 78:C

Similar: Alaska Sub-boreal Avalanche Slope Shrubland (CES105.111), Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland (CES204.152), North Pacific Avalanche Chute Shrubland (CES204.854)

Descriptors:

Lifeform : Broad-Leaved Deciduous Shrub

Mass Movement Type :	Avalanche
Bioclimate :	Temperate
Landforms :	Soil creep slope
Landforms :	Rockfall avalanche
Landforms :	Avalanche chute
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane

3682: Alaska Arctic Scrub Birch-Ericaceous Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Scrub Birch-Ericaceous Shrubland

Codes: ESLF: 5277 EVT_fuel: 2682

ESP: 1682 NatureServe Id: CES104.170

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G369 North American Arctic Tundra & Subarctic Alpine Low Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This system is common throughout arctic Alaska on mesic mountain slopes, hillslopes and flats. Patch size is small to matrix-forming. Soils are mesic. The total low- and tall-shrub cover is >25%, and *Betula nana, Vaccinium uliginosum*, or *Ledum palustre ssp. decumbens* typically dominate or codominate. *Salix* spp. (such as *Salix pulchra*) do not dominate but may codominate. This system does not include tussock-dominated (>35% tussocks) sites. Dwarf-shrubs such as *Empetrum nigrum* and *Vaccinium vitis-idaea* may be common under the low-shrub layer. Herbaceous species are sparse, and feathermosses (*Hylocomium splendens* and *Pleurozium schreberi*) and lichens may be common.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub
Bioclimate : Polar
Major Physiognomy : Shrubland (Shrub)

3683: Alaska Arctic Mesic Sedge-Willow Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Mesic Sedge-Willow Tundra

Codes: ESLF: 5467 EVT_fuel: 2683

ESP: 1683 NatureServe Id: CES102.187

BioGeographical Division : Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G369 North American Arctic Tundra & Subarctic Alpine Low Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This ecological system is common on mountain slopes, hillslopes, drained lake basins, stabilized dunes, and snowbeds throughout arctic Alaska. Permafrost is present. Patch size is small to large. The mesic sedge-willow tundra system is codominated by sedges and dwarf- and low shrubs, although low-shrub cover is<25%; > *Salix* cover is >20%. The dominant shrubs are *Betula nana, Salix pulchra, Salix richardsonii (= Salix lanata ssp. richardsonii)*, and *Vaccinium uliginosum*. Other willows that may occur include *Salix bebbiana, Salix glauca*, and *Salix planifolia*. The dominant sedges are *Carex aquatilis, Eriophorum angustifolium*, and *Carex microchaeta*. Other species include *Petasites frigidus, Polemonium acutiflorum*, and *Sphagnum* spp.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Bioclimate :	Polar
Topography :	High-Low Slope
Major Physiognomy :	Woody-Herbaceous

3684: Alaska Arctic Mesic Sedge-Dryas Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Mesic Sedge-Dryas Tundra

Codes: ESLF: 5466 EVT_fuel: 2684

ESP: 1684 NatureServe Id: CES102.199

BioGeographical Division : Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G366 North American Arctic Tundra & Subarctic Alpine Dryas Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This mesic sedge-*Dryas* tundra system is common on mountain slopes, hillslopes, drained lake basins, stabilized dunes, and snowbeds throughout arctic Alaska. Patch size is small to matrix-forming. pH ranges from circumneutral to non-acidic. Permafrost is present, and the soil surface is mesic but may be saturated below 15 cm. This system is codominated by sedges and dwarf- or low shrubs. *Dryas* spp. cover is >10%, and total low-shrub cover is<25%. > *Dryas integrifolia* typically dominates or codominates with *Salix richardsonii (= Salix lanata ssp. richardsonii), Salix pulchra, Salix reticulata*, and *Rhododendron lapponicum*. The dominant sedges are *Carex bigelowii, Carex aquatilis*, and *Eriophorum angustifolium*. Other common species are *Eriophorum vaginatum* and *Equisetum arvense*. Nonvascular species include *Oncophorus wahlenbergii, Hylocomium splendens, Tomentypnum nitens*, and *Thamnolia vermicularis*.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub
Bioclimate : Polar
Major Physiognomy : Woody-Herbaceous

3685: Alaska Arctic Acidic Sparse Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Acidic Sparse Tundra

Codes: ESLF: 5103 EVT_fuel: 2685

ESP: 1685 NatureServe Id: CES104.171

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G365 North American Arctic Tundra & Subarctic Alpine Lichen - Sparse Dw

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on acidic substrates (pH typically<6) in the hills and mountains of arctic Alaska. This system does not occur in the arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. The canopy is sparse due to extreme exposure, exposed bedrock or unstable substrates. Sites are typically dry to mesic and occur on acidic substrates. Soils are typically thin, stony, and well-drained. Patch size is small to matrix-forming. Total vascular plant cover is 10-25%, and lichen cover is ><25%. Common dwarf-shrub species include > *Dryas octopetala, Empetrum nigrum, Vaccinium uliginosum, Dryas integrifolia, Loiseleuria procumbens*, and *Salix phlebophylla*. Herbaceous species may include *Antennaria alpina, Hierochloe alpina (= Anthoxanthum monticola), Minuartia obtusiloba, Carex scirpoidea, Carex podocarpa, Carex microchaeta*, and *Festuca altaica*. Lichens include *Cladina* spp., *Sphaerophorus globosus, Nephroma arcticum, Flavocetraria* spp., and *Alectoria ochroleuca*.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Lichen

Lifeform : Dwarf-Shrub

Soil Depth : Very Shallow

Soil pH	:	Acidic
Bioclimate	:	Polar
Topography	:	High-Low Slope
Topography	:	High Ridge/Upper Slope

3686: Alaska Arctic Non-Acidic Sparse Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Non-Acidic Sparse Tundra

Codes: ESLF: 5107 EVT_fuel: 2686

ESP: 1686 NatureServe Id: CES104.172

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G365 North American Arctic Tundra & Subarctic Alpine Lichen - Sparse Dw

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on non-acidic substrates (pH typically >6) in the hills and mountains of arctic Alaska. This system does not occur in arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. The canopy is sparse due to extreme exposure, exposed bedrock or unstable substrates. Sites are typically dry to mesic and occur on non-acidic substrates. Soils are typically thin, stony, and well-drained. Non-acidic sites are more common near floodplains, on carbonate substrates, and loess deposition areas. Patch size is small to large. Total vascular plant cover is 10-25%, and lichen cover is<25%. Common dwarf-shrubs include > *Dryas octopetala, Dryas integrifolia, Saxifraga oppositifolia, Rhododendron lapponicum, Salix arctica, Salix reticulata, Cassiope tetragona*, and *Arctostaphylos rubra*. Herbaceous species may include *Lupinus arcticus, Hedysarum boreale ssp. mackenziei (= Hedysarum mackenziei), Carex scirpoidea, Carex rupestris, Oxytropis nigrescens, Potentilla uniflora, Artemisia senjavinensis, Artemisia globularia, Artemisia furcata, Saxifraga oppositifolia*, and *Equisetum* spp. Lichens such as *Thamnolia* spp. and *Cetraria islandica* also occur.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Soil Depth : Very Shallow

Specialized Substrate Chemistry	:	Calcareous
Soil pH	:	Circumneutral
Bioclimate	:	Polar
Topography	:	High Ridge/Upper Slope

3687: Alaska Arctic Lichen Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Lichen Tundra

Codes: ESLF: 7166 EVT_fuel: 2687

ESP: 1687 NatureServe Id: CES104.178

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G365 North American Arctic Tundra & Subarctic Alpine Lichen - Sparse Dw

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Nonvascular

FGDC Subclass : Lichen

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system in the hills and mountains of arctic Alaska. Common slope positions include sideslopes, summits and ridges. Sites are typically acidic and dry to mesic. It is especially common on recent volcanic deposits with little soil development. Patch size is small to large. Lichen cover is >25%, and vascular plant species cover is<25%. Foliose and fruticose lichens dominate and include > *Umbilicaria* spp., *Rhizocarpon geographicum, Cladina stellaris (= Cladonia stellaris), Racomitrium lanuginosum, Flavocetraria* spp., and *Alectoria ochroleuca*. Common dwarf-shrubs include *Loiseleuria procumbens, Betula nana, Ledum palustre ssp. decumbens, Empetrum nigrum*, and *Vaccinium uliginosum*.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Lichen

Soil pH : Acidic

Bioclimate : Polar

Landforms : Summit

Landforms : Slope

Landforms : Ridge

Major Physiognomy : Moss/Lichen (Non-Vascular)
Life Zones : Montane

3688: Alaska Arctic Acidic Dryas Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Acidic Dryas Dwarf-Shrubland

Codes: ESLF: 5101 EVT_fuel: 2688

ESP: 1688 NatureServe Id: CES104.173

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G366 North American Arctic Tundra & Subarctic Alpine Dryas Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on acidic substrates (pH typically<6) in the hills and mountains of arctic Alaska. This system does not occur in the arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. Sites are typically dry to mesic and are uncommon on late-lying snowbeds. Patch size is small to large. Dwarf-shrub cover is > 25% and dominated by *Dryas* spp. (primarily *Dryas octopetala*). Other common shrubs include *Empetrum nigrum, Vaccinium uliginosum, Dryas integrifolia, Loiseleuria procumbens*, and *Salix phlebophylla*. Common herbaceous species include *Antennaria alpina, Hierochloe alpina, Minuartia obtusiloba, Carex scirpoidea, Carex podocarpa, Carex microchaeta*, and *Festuca altaica*. Mosses such as *Tortula ruralis* and *Polytrichum* spp. may be common. Lichens include *Cladina* spp., *Sphaerophorus globosus, Nephroma arcticum, Flavocetraria* spp., and *Alectoria ochroleuca*. In the Bering Land Bridge National Preserve and Cape Krusenstern National Monument (Jorgenson et al. 2004), this system differs from non-acidic *Dryas* by lacking the calciphilic species *Saxifraga oppositifolia, Potentilla uniflora, Hedysarum boreale ssp. mackenziei (= Hedysarum mackenziei)*, and *Oxytropis nigrescens*.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Soil pH : Acidic

Bioclimate	: Polar
Topography	: High-Low Slope
Topography	: High Ridge/Upper Slope
Major Physiognomy	: Shrubland (Shrub)

3689: Alaska Arctic Non-Acidic Dryas Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Non-Acidic Dryas Dwarf-Shrubland

Codes: ESLF: 5105 EVT_fuel: 2689

ESP: 1689 NatureServe Id: CES104.174

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G366 North American Arctic Tundra & Subarctic Alpine Dryas Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on non-acidic substrates (pH typically >6) in the hills and mountains of arctic Alaska. This system also occurs as small patches on river bluffs on the Beaufort Coastal Plain, but otherwise does not occur in the arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. Sites are typically dry to mesic and are rare on late-lying snowbeds. Non-acidic sites are more common near floodplains, on carbonate substrates, and loess deposition areas. Patch size is small to large. Dwarf-shrub cover is >25% and dominated by *Dryas* spp. *Dryas octopetala* and/or *Dryas integrifolia* codominate with *Saxifraga oppositifolia* and *Rhododendron lapponicum*. Other common dwarf-shrubs include *Salix arctica, Salix reticulata, Cassiope tetragona*, and *Arctostaphylos rubra*. Herbaceous species include *Lupinus arcticus, Carex scirpoidea, Carex rupestris, Oxytropis nigrescens, Potentilla uniflora, Artemisia senjavinensis, Artemisia globularia, Artemisia furcata, Hedysarum boreale ssp. mackenziei (= Hedysarum mackenziei), Saxifraga oppositifolia*, and *Equisetum* spp. Lichens such as *Thamnolia* spp. and *Cetraria islandica* also occur.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Soil pH : Circumneutral

Bioclimate : Polar
Major Physiognomy : Shrubland (Shrub)
Life Zones : Montane

3690: Alaska Arctic Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Dwarf-Shrubland

Codes: ESLF: 5104 EVT_fuel: 2690

ESP: 1690 NatureServe Id: CES104.175

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G367 North American Arctic Tundra & Subarctic Alpine Ericaceous Dwarf-

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on acidic and non-acidic substrates in the hills and mountains of arctic Alaska. This system does not occur in arctic lowlands. Common slope positions include valleys, sideslopes (especially north-facing), late-lying snowbeds, and summits and ridges. Sites are typically dry to mesic. Patch size is small to large. Dwarf-shrub cover is >25%, dominated by dwarf-shrubs other than *Dryas* spp., and lichen cover is<25%. Dwarf-shrubs that dominate or codominate the system are > *Cassiope tetragona, Empetrum nigrum, Vaccinium uliginosum, Salix reticulata, Salix arctica, Salix rotundifolia*, and *Arctostaphylos alpina*. *Cassiope tetragona* is more common on non-acidic sites. Other shrubs include *Betula nana, Dryas octopetala, Dryas integrifolia, Ledum palustre ssp. decumbens, Loiseleuria procumbens, Vaccinium vitis-idaea*, and *Salix phlebophylla*. Common herbaceous species include *Hierochloe alpina, Boykinia richardsonii, Carex microchaeta, Carex scirpoidea, Geum glaciale, Pedicularis lanata, Eriophorum angustifolium ssp. triste*, and *Equisetum* spp. Mosses such as *Rhytidium rugosum, Aulacomnium turgidum, Distichium capillaceum, Racomitrium lanuginosum, Dicranum elongatum*, and *Polytrichum* sp. may be common.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Bioclimate : Polar
Major Physiognomy : Shrubland (Shrub)
Life Zones : Montane

3691: Alaska Arctic Acidic Dwarf-Shrub Lichen Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Acidic Dwarf-Shrub Lichen Tundra

Codes: ESLF: 5102 EVT_fuel: 2691

ESP: 1691 NatureServe Id: CES104.177

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G367 North American Arctic Tundra & Subarctic Alpine Ericaceous Dwarf-

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on acidic substrates in the hills and mountains of arctic Alaska. This system does not occur in arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. Sites are typically dry to mesic, exposed to the wind, and accumulate little winter snow. Patch size is small to large. Dwarf-shrub cover is >25%, and lichen cover is >25%. The dominant lichens are *Cladina rangiferina* and/or *Cladina stellaris*. Common dwarf-shrubs include *Dryas octopetala, Empetrum nigrum, Vaccinium uliginosum, Dryas integrifolia, Salix phlebophylla, Antennaria alpina, Hierochloe alpina, Festuca altaica*, and *Carex microchaeta*. Mosses may be present but contribute little cover.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Lichen

Lifeform : Dwarf-Shrub

Disturbance Return Interval : Very Long

Soil pH : Acidic

Bioclimate : Polar

Topography : High-Low Slope

Topography : High Ridge/Upper Slope

Major Physiognomy : Shrubland (Shrub)

3692: Alaska Arctic Non-Acidic Dwarf-Shrub Lichen Tundra

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Acidic Dwarf-Shrub Lichen Tundra

Codes: ESLF: 5106 EVT_fuel: 2692

ESP: 1692 NatureServe Id: CES104.176

BioGeographical Division : Montane Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G367 North American Arctic Tundra & Subarctic Alpine Ericaceous Dwarf-

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on non-acidic substrates (pH typically >6) in the hills and mountains of arctic Alaska. This system does not occur in arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. Sites are typically dry to mesic, exposed to the wind, and do not accumulate much winter snow. Non-acidic sites are more common near floodplains, on carbonate substrates, and loess deposition areas. Patch size is small to large. Dwarf-shrub cover is >25%, and lichen cover is >25%. Common lichens include *Flavocetraria cucullata (= Cetraria cucullata), Flavocetraria* spp., *Stereocaulon* spp., *Alectoria nigricans*, and *Thamnolia vermicularis*. *Cladonia* and *Cladina* species are uncommon. Dwarf-shrubs include *Dryas octopetala, Dryas integrifolia, Saxifraga oppositifolia, Rhododendron lapponicum, Salix arctica, Salix reticulata, Cassiope tetragona*, and *Arctostaphylos rubra*. Mosses contribute little cover.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Soil pH : Circumneutral

Major Physiognomy : Moss/Lichen (Non-Vascular)

Major Physiognomy : Shrubland (Shrub)

3699: Alaska Arctic Mesic Herbaceous Meadow

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Mesic Herbaceous Meadow

Codes: ESLF: 7168 EVT_fuel: 2699

ESP: 1699 NatureServe Id: CES102.186

BioGeographical Division : Arctic

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G615 North American Arctic Tundra & Subarctic Alpine Mesic Herbaceous

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This mesic herbaceous system occurs throughout arctic Alaska on hill and mountain slopes, upper drainages, and lowlands including drained lake basins. It typically occurs as small patches and is more common in the western arctic. This system occurs on mesic sites with >25% cover of herbaceous species. Species include *Carex microchaeta ssp. nesophila* (dominant sedge in higher elevations), *Alopecurus alpinus, Artemisia arctica, Polygonum bistorta, Valeriana capitata, Pedicularis* spp., *Polemonium acutiflorum, Salix rotundifolia*, and *Salix reticulata*. Collapsed acidic lowland snowbeds that support *Phippsia algida* and *Alopecurus alpinus* and drained lake basins dominated by *Calamagrostis canadensis* (western Alaska) are also included in this system.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Bioclimate :	Polar
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous

3709: Alaska Arctic Marine Beach and Beach Meadow

Match Confidence: Direct Match

Suggested Match: Alaska Arctic Marine Beach and Beach Meadow

Codes: ESLF: 7167 EVT_fuel: 2709

ESP: 1709 NatureServe Id: CES102.207

BioGeographical Division : Arctic

NVC MacroGroup: M402 North American Arctic & Boreal Coast Vegetation

NVC Group: G612 Arctic & Boreal Coastal Herb & Dwarf-Shrub Beach & Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Nd Arctic & Boreal Coast Scrub & Herb Vegetation

Summary: This system consists of coastal beaches, beach dunes, and vegetation that has stabilized sand or cobble deposits. Soils are dry to mesic and typically sandy. Patch size is small to moderate and often linear. Two different physiognomic structures are found in the system: *Leymus mollis* grasslands and dwarf-shrublands; bare sand or cobble are also common. Salt-tolerant forb communities occur just above mean high tide and are dominated or codominated by *Cochlearia groenlandica, Achillea millefolium var. borealis, Honckenya peploides*, and/or *Mertensia maritima*. As dune height and distance from the ocean increase, sites are dominated by *Leymus mollis* communities that may include near-monocultures of *Leymus mollis* to more species-rich associations including *Leymus mollis, Lathyrus japonicus var. maritimus (= Lathyrus maritimus)*, and *Poa eminens*. Older dunes support dwarf-shrubs (primarily *Empetrum nigrum*) mixed with herbaceous species which often grow in narrow stringers on the older beach ridges behind the *Leymus mollis* zone. *Lathyrus japonicus var. maritimus, Conioselinum chinense*, and *Cnidium cnidiifolium* are uncommon east of Cape Lisburne. The *Leymus mollis* and *Empetrum nigrum* zones are above the high tide line but still experience storm surges, high winds and salt spray.

Range: This system occurs along Alaska's arctic coastline, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 72:C, 76:C

Similar: Alaskan Pacific Maritime Coastal Dune, Beach and Beach Meadow (CES204.166), Aleutian Marine Beach and Beach Meadow (CES105.239)

Descriptors:

Soil Texture :	Sand
Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Polar
Specialized Substrates :	Beach
Specialized Substrates :	Dune
Landforms :	Beach
Landforms :	Dune
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3718: Aleutian Mesic Alder-Salmonberry Shrubland

Match Confidence: Direct Match

Suggested Match: Aleutian Mesic Alder-Salmonberry Shrubland

Codes: ESLF: 5333 EVT_fuel: 2718

ESP: 1718 NatureServe Id: CES105.147

BioGeographical Division : Montane Boreal

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G354 Vancouverian Alder - Salmonberry - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: The alder-salmonberry system is matrix-forming on the Alaska Peninsula and Kodiak Island, diminishes moving west, and is absent by Dutch Harbor. It occurs on flat to steep slopes (0-50 degrees) at low to mid elevations (1-1000 m) in valleys, hills and mountains. The slopes are typically ash-covered, colluvium, or glacial drift. Total low- and tall-shrub cover is >25%, and *Alnus viridis* or *Rubus spectabilis* contribute greater than 50% of the total shrub cover. *Rubus spectabilis* is dominant primarily on the oldest stabilized talus slopes and stable colluvial slopes (older substrates), while *Alnus viridis* may be the dominant shrub on recently disturbed sites, wind-sheltered sites or recent ash deposits. Common codominants include *Sambucus racemosa, Oplopanax horridus, Spiraea stevenii*, and tall willows such as *Salix barclayi* or *Salix glauca*. *Alnus viridis ssp. sinuata* is the most common alder species, however, *Alnus viridis ssp. fruticosa* dominates some sites. Alder height ranges from 0.5 m at higher elevations to 8 m downslope. In closed-canopy sites, *Sambucus racemosa* and *Rubus spectabilis* shrubs are usually woven in among and around the edges of the alder thickets, and the understory is sparse, often with *Athyrium filix-femina*, graminoids and sparse *Rubus spectabilis*. Litter cover is high. Sites codominated by tall willows typically occur along streams and at the upper limits of alder growth. Some *Rubus spectabilis* sites are mixed with herbaceous species of equal height, including *Athyrium filix-femina, Aconitum maximum, Calamagrostis canadensis, Chamerion angustifolium ssp. angustifolium, Deschampsia caespitosa, Dryopteris expansa, Heracleum maximum*, and *Veratrum viride*. In sites where patches of alder are mosaiced with mesic herbaceous meadows, common species include *Athyrium filix-femina, Aconitum maximum, Calamagrostis canadensis, Chamerion angustifolium ssp. angustifolium, Deschampsia caespitosa, Dryopteris expansa, Heracleum maximum, Lupinus nootkatensis, Solidago* spp., and *Veratrum viride*.

Range: absent by Dutch Harbor.

States: AK

Map Zones: 76:C

Similar: Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland (CES204.152)

Descriptors:

Bioclimate :	Boreal
Landforms :	Slope
Landforms :	Colluvial slope
Landforms :	Flat
Major Physiognomy :	Shrubland (Shrub)

3719: Aleutian Crowberry-Herbaceous Heath

Match Confidence: Direct Match

Suggested Match: Aleutian Crowberry-Herbaceous Heath

Codes: ESLF: 5469 EVT_fuel: 2719

ESP: 1719 NatureServe Id: CES105.230

BioGeographical Division : Montane Boreal

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G362 Aleutian Ericaceous Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This system is common in valley bottoms, sideslopes, stabilized dunes, terraces, moraines and fans. Patch size is small to matrix forming. It typically occupies lower elevation sites than ~Aleutian Mixed Dwarf-Shrub-Herbaceous Shrubland (CES105.231)$$. Dwarf-shrub cover is >25% and dominated by *Empetrum nigrum*; herbaceous cover is variable, ranging from none to well over 50%. Other dwarf-shrub species include dwarf willows, *Harrimanella stelleriana, Phyllodoce aleutica, Vaccinium vitis-idaea*, and *Arctostaphylos alpina*. Herbaceous species include *Lupinus nootkatensis, Polemonium acutiflorum, Chamerion angustifolium, Solidago* spp., and grasses. A more abundant herbaceous component, particularly graminoids, may be due to nutrient inputs from seabird colonies; where seabirds have been impacted by introduced predators, the cover of herbaceous species appears to be lower (Croll et al. 2005). Fruticose lichens and *Racomitrium lanuginosum* may also be common. Heath hummocks may occur.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Bioclimate : Boreal

Landforms : Valley bottom

Landforms : Terrace

Landforms : Slope

Landforms : Moraine
Landforms : Dune

3720: Aleutian Mixed Dwarf-Shrub-Herbaceous Shrubland

Match Confidence: Direct Match

Suggested Match: Aleutian Mixed Dwarf-Shrub-Herbaceous Shrubland

Codes: ESLF: 5470 EVT_fuel: 2720

ESP: 1720 NatureServe Id: CES105.231

BioGeographical Division : Montane Boreal

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G362 Aleutian Ericaceous Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Herbaceous - shrub-steppe

FGDC Subclass : Perennial graminoid steppe

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This is a common system throughout the Alaska Peninsula and Aleutian Islands from low to high elevations. It occurs in valleys, terraces, sideslopes, and ridges. In the mountains, this system often grades upslope into the Aleutian sparse heath and fell-field system. The continuous dwarf-shrub heaths often fragment into strips that alternate with almost bare ground, possibly due to wind erosion and frost action. In this system, dwarf-shrub cover is >25%, not dominated by *Empetrum nigrum*, and herbaceous cover varies from none to 75%. Various dwarf-shrub species dominate or codominate, including *Harrimanella stelleriana, Phyllodoce aleutica, Salix arctica, Salix rotundifolia, Cassiope lycopodioides, Loiseleuria procumbens, Vaccinium vitis-idaea, Vaccinium uliginosum*, and *Arctostaphylos alpina*. While *Empetrum nigrum* may codominate, it is mixed with other dwarf-shrubs. Common herbaceous species include *Carex macrochaeta, Chamerion angustifolium, Deschampsia caespitosa, Lupinus nootkatensis, Leymus mollis, Geum calthifolium, Carex circinata, Polygonum viviparum*, and *Festuca rubra*. Bryophyte cover is often high.

Range: This system occurs throughout the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Wind Intensity/Spatial Character : Patch/High Intensity

Landforms : Valley

Landforms : Terrace

Landforms : Slope

Landforms : Ridge

Major Physiognomy : Shrubland (Shrub)

3725: Aleutian Marine Beach and Beach Meadow

Match Confidence: Direct Match

Suggested Match: Aleutian Marine Beach and Beach Meadow

Codes: ESLF: 7173 EVT_fuel: 2725

ESP: 1725 NatureServe Id: CES105.239

BioGeographical Division : Montane Boreal

NVC MacroGroup: M059 Pacific Coastal Beach & Dune Vegetation

NVC Group: G498 North Pacific Maritime Coastal Scrub & Herb Beach & Dune

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.4 Temperate to Polar Scrub & Herb Coastal Vegetation

NVCS Division: 2.B.4.Nb Pacific North American Coast Scrub & Herb Vegetation

Summary: This ecological system consists of coastal beaches, beach dunes, and vegetation that has stabilized sand deposits. Cobble beaches are also included. Soils are dry to mesic (occasionally tidally inundated) and typically sandy. Patch size is small to moderate and often linear. This system sometimes grades into sandy loess deposits on rolling hills dominated ~Aleutian American Dunegrass Grassland (CES105.233)$$. Three different vegetation types occur in this system: salt-tolerant forb communities, *Leymus mollis* grasslands, and *Empetrum nigrum* shrublands. Bare sand or cobble are also common. Salt-tolerant forb communities occur just above mean high tide and are dominated or codominated by *Cochlearia groenlandica, Achillea millefolium var. borealis, Honckenya peploides*, and/or *Mertensia maritima*. As dune height and distance from the ocean increase, sites are dominated by *Leymus mollis* communities that may include near-monocultures of *Leymus mollis* to more species-rich associations, including *Leymus mollis, Lathyrus japonicus var. maritimus, Achillea millefolium var. borealis, Festuca rubra, Fragaria chiloensis, Senecio pseudoarnica, Deschampsia beringensis, Heracleum maximum*, and *Poa eminens*. *Empetrum nigrum*-dominated communities often grow in narrow stringers on the older beach ridges behind the *Leymus mollis* zone. Herbaceous species are common, including *Cornus suecica*. The *Leymus mollis* and *Empetrum nigrum* existing vegetation types are above the high tide line but still experience storm surges, high winds and salt spray.

Range: This system occurs on the Alaska Peninsula and Aleutian Islands.

States: AK

Map Zones: 76:C

Similar: Alaska Arctic Marine Beach and Beach Meadow (CES102.207), Alaskan Pacific Maritime

Coastal Dune, Beach and Beach Meadow (CES204.166), Aleutian American Dunegrass Grassland (CES105.233)

Descriptors:

Soil Texture :	Sand
Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Boreal
Specialized Substrates :	Beach
Specialized Substrates :	Dune
Landforms :	Beach
Landforms :	Dune
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3730: Aleutian Sparse Heath and Fell-Field

Match Confidence: Direct Match

Suggested Match: Aleutian Sparse Heath and Fell-Field

Codes: ESLF: 5108 EVT_fuel: 2730

ESP: 1730 NatureServe Id: CES105.307

BioGeographical Division : Montane Boreal

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G362 Aleutian Ericaceous Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This system typically occurs at mid to high elevations on cliffs, rocky outcrops, exposed summits, windswept ridges, and fell-fields characterized by harsh environmental conditions. Slopes vary from flat to steep. Total vascular plant cover is 10-25%. Sites typically support vegetation similar to the adjacent ecological systems. The higher elevation windswept ridges, fell-fields and discontinuous heaths include *Harrimanella stelleriana, Phyllodoce aleutica, Salix arctica, Salix rotundifolia, Empetrum nigrum, Cassiope lycopodioides*, and *Arctostaphylos alpina*. Herbaceous species include *Carex macrochaeta, Carex aquatilis var. dives, Carex circinata, Lupinus nootkatensis, Geum calthifolium, Polygonum viviparum, Agrostis mertensii, Heuchera glabra, Potentilla villosa, Saxifraga bronchialis, Saxifraga oppositifolia, Veronica wormskjoldii var. stelleri*, and *Tofieldia coccinea*.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Bioclimate : Boreal

Topography : High Ridge/Upper Slope

Landforms : Cliff

Landforms : Ridge

Major Physiognomy : Shrubland (Shrub)

3731: Aleutian Oval-leaf Blueberry Shrubland

Match Confidence: Direct Match

Suggested Match: Aleutian Oval-leaf Blueberry Shrubland

Codes: ESLF: 5279 EVT_fuel: 2731

ESP: 1731 NatureServe Id: CES105.229

BioGeographical Division : Montane Boreal

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G354 Vancouverian Alder - Salmonberry - Willow Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This system grows primarily on low- to mid-elevation mountain slopes of the Aleutian Islands. Total low-shrub cover is >25%, and *Vaccinium ovalifolium* typically contributes >50% of the total shrub cover. Herbaceous species and dwarf-shrubs are common, including *Athyrium filix-femina, Chamerion angustifolium ssp. angustifolium, Calamagrostis canadensis, Cornus suecica, Sanguisorba canadensis, Achillea millefolium var. borealis*, and *Geum calthifolium*. *Empetrum nigrum* may also be common.

Range: This system grows primarily on low- to mid-elevation mountain slopes of the Aleutian Islands.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Bioclimate : Boreal

Topography : High-Low Slope

Major Physiognomy : Shrubland (Shrub)

Life Zones : Montane

3736: Barren (Alaska)

Match Confidence: Unmatched

Suggested Match: Undifferentiated Barren Land

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3737: Snow-Ice (Alaska)

Match Confidence: Unmatched

Suggested Match: North American Glacier and Ice Field

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This widespread ecological system is composed of unvegetated landscapes of annual/perennial ice and snow at the highest elevations, where snowfall accumulation exceeds melting. The primary ecological processes include snow/ice retention, wind desiccation, and permafrost. The snowpack/ice field never melts or, if so, then for only a few weeks. The alpine substrate/ice field ecological system is part of the alpine mosaic consisting of alpine bedrock and scree, tundra dry meadow, wet meadow, fell-fields, and dwarf-shrubland.

Range:

States:

Map Zones:

Similar:

Descriptors:

3738: Open Water (Alaska)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, inland waters of streams, rivers, ponds and lakes and areas of open water, generally less than 25% cover of vegetation or soil. Specifically, coastal and near-shore estuarine and/or marine waters.

Range:

States:

Map Zones:

Similar:

Descriptors:

3739: DRAFT North Pacific Hypermaritime Western Red-cedar-Western Hemlock Fore

Match Confidence: Solid Match

Suggested Match: North Pacific Hypermaritime Western Red-cedar-Western Hemlock Forest

Codes: ESLF: 4271 EVT_fuel: 2178

ESP: 1178 NatureServe Id: CES204.842

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G751 North Pacific Western Hemlock - Sitka Spruce - Western Red-cedar S

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: These forests occupy the outer coastal portions of British Columbia, southeastern Alaska, and northwestern Washington. Their center of distribution is the northern coast of British Columbia, as *Thuja plicata* approaches its northernmost limit in the southern half of southeastern Alaska. These forests occur mainly on islands but also fringe the mainland. They are never more than 25 km from saltwater; elevation ranges from 0 to 600 m, and below 245 m in Alaska (above 200 m, *Chamaecyparis nootkatensis* replaces *Thuja plicata*). The climate is hypermaritime, with cool summers, very wet winters, abundant fog, and without a major snowpack . Fire is absent from this system in Alaska and rare throughout the rest of the range. These forests are more influenced by gap disturbance processes and intense windstorms than by fire. The terrain is mostly gentle to rolling, of low topographic relief, and often rocky. Soils typically have a distinct humus layer overlying mineral horizons or bedrock; where the system is best developed in central British Columbia, the humus layers are very thick (mean 17-35 cm). Soils are often imperfectly drained, but this is not a wetland system. *Thuja plicata* and *Tsuga heterophylla* are the dominant tree species throughout, and *Chamaecyparis nootkatensis* joins them from northern Vancouver Island north. Canopy cover of trees is typically over 60%. *Pinus contorta* and *Tsuga mertensiana* can be present in some locations in the central and northern portion of the range. *Abies amabilis* occurs in British Columbia and northern Washington stands but is not typically found in southeastern Alaska. In Washington, nearly pure stands of *Tsuga heterophylla* are common and seem to be associated with microsites most exposed to intense windstorms. A shrub layer of *Gaultheria shallon, Vaccinium ovalifolium*, and *Menziesia ferruginea* is usually well-developed. The fern *Blechnum spicant* in great abundance is typical of hypermaritime conditions. *Oxalis oregana* (absent in Alaska) is important in the understory of moist sites in Washington. *Polystichum munitum* occurs at the northern end of its range in southeastern Alaska on well-drained sites. The abundance of

Thuja plicata in relation to other conifers is one of the diagnostic characters of these forests; the other is the low abundance of *Pseudotsuga menziesii* (absent in Alaska) and *Picea sitchensis*. Where these forests are best developed, they occur in a mosaic with forested wetlands, bogs, and Sitka spruce forests (the latter in riparian areas and on steep, more productive soils).

Range: This system is found in the outer coastal portions of British Columbia and southern southeast Alaska, as well as northwestern Washington.

States: AK, BC, WA

Map Zones: 1:C, 2:C, 78:C

Similar: North Pacific Hypermaritime Seasonal Sitka Spruce Forest (CES204.841), North Pacific Mesic Western Hemlock-Silver Fir Forest (CES204.097), North Pacific Mesic Western Hemlock-Yellow-cedar Forest (CES204.843)

Descriptors:

Floristics/Dominants :	Tsuga heterophylla, Thjua plicata
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3740: Boreal Aquatic Beds

Match Confidence: Poor Match

Suggested Match: Western North American Boreal Freshwater Aquatic Bed

Codes: ESLF: 9433 EVT_fuel: 2627

ESP: 1627 NatureServe Id: CES105.125

BioGeographical Division :

NVC MacroGroup: M871 Arctic & Northern Boreal Freshwater Aquatic Vegetation

NVC Group: G769 North American Arctic & Boreal Freshwater Aquatic Bed

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Hydromorphic-rooted grassland

2015 Standard

NVCS Class: 5 Aquatic Vegetation

NVCS Subclass: 5.B Freshwater Aquatic Vegetation

NVCS Formation: 5.B.2 Temperate & Boreal Freshwater Aquatic Vegetation

NVCS Division: 5.B.2.Na North American Freshwater Aquatic Vegetation

Summary: Freshwater aquatic beds are found at all elevations below timberline throughout boreal Alaska. It is small patch in size and confined to lakes, ponds, and slow-moving portions of rivers and streams. In large bodies of water, it is usually restricted to the littoral region where penetration of light is the limiting factor for growth. A variety of rooted or floating aquatic herbaceous species may dominate, including *Nuphar polysepala (= Nuphar lutea ssp. polysepala), Potamogeton* spp., *Lemna minor, Sparganium* spp., *Ranunculus* spp., *Myriophyllum* spp., *Hippuris vulgaris*, and *Callitriche* spp.

Range: This system is found in lowlands of the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:?, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C

Similar: Alaska Arctic Freshwater Aquatic Bed (CES102.182), Aleutian Freshwater Aquatic Bed (CES105.234), Western North American Boreal Freshwater Emergent Marsh (CES105.123)

Descriptors:

Lifeform : Aquatic Herb
Bioclimate : Boreal
Landforms : Pond
Landforms : Lake
Major Physiognomy : Herbaceous

3741: Polar Tidal Marshes and Aquatic Beds

Match Confidence: Unmatched

Suggested Match: Alaska Arctic Tidal Marsh

Codes: ESLF: EVT_fuel: 2741

ESP: NatureServe Id: CES102.209

BioGeographical Division :

NVC MacroGroup: M403 North American Arctic Tidal Salt Marsh

NVC Group: G535 North American Low Arctic Coastal Salt Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.5 Salt Marsh

NVCS Division: 2.C.5.Nk Arctic Coastal Salt Marsh

Summary: This system consists of herbaceous marshes with >10% vascular species cover that are subject to regular tidal inundation. The marshes are salt or brackish. Some are primarily freshwater that are infrequently flooded during storm surges or extreme high tides. Tidal marshes are primarily associated with estuaries or coastal lagoons or other locations protected from wave action. Two different types of tidal marshes are included in this system: tidal sedge marshes and tidal herbaceous (non-sedge) marshes. Carex ramenskii or Carex subspathacea dominate the tidal sedge marshes. Carex subspathacea is more common along the Beaufort Sea. Carex lyngbyei may dominate on portions of the Yukon-Kuskokwim Delta and is often found more inland or adjacent to tidal creeks. Dupontia fisheri and Puccinellia spp. dominate the tidal herbaceous marshes. Argentina egedii (= Potentilla egedii) may dominate on Alaska's west coast but not on the Beaufort Coastal Plain.

Tidal marshes often form an ecotone with freshwater non-tidal wetlands, especially on the Yukon-Kuskokwim Delta. On this delta, the first system moving inland is tidal marsh (Puccinellia spp. then Carex ramenskii or Carex subspathacea), then Alaska Arctic Coastal Brackish Meadow (CES102.210) (Carex rariflora, Calamagrostis deschampsioides, and Dendranthema arcticum (= Chrysanthemum arcticum)), then Alaska Arctic Coastal Sedge-Dwarf-Shrubland (CES102.211) (Empetrum nigrum, Salix fuscescens, Salix ovalifolia, Carex rariflora, Calamagrostis deschampsioides, Deschampsia caespitosa), and then raised bogs or permafrost plateaus supporting Alaska Arctic Dwarf-Shrub-Sphagnum Peatland (CES102.201) or Alaska Arctic Permafrost Plateau Dwarf-Shrub Lichen Tundra (CES102.202).

Range: This system occurs along Alaska's arctic coastline, from the Bristol Bay lowlands in southwestern

Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 72:C, 76:C

Similar: Aleutian Tidal Marsh (CES105.279)

Descriptors:

3742: Temperate Pacific Tidal Marshes, Aquatic Beds, and Intertidal Flats

Match Confidence: Good Match

Suggested Match: Temperate Pacific Tidal Salt and Brackish Marsh

Codes: ESLF: 9281 EVT_fuel: 2668

ESP: 1668 NatureServe Id: CES200.091

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M081 North American Pacific Coastal Salt Marsh

NVC Group: G499 Temperate Pacific Tidal Salt & Brackish Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.5 Salt Marsh

NVCS Division: 2.C.5.Nc Temperate & Boreal Pacific Coastal Salt Marsh

Summary: Intertidal salt and brackish marshes are found throughout the Pacific Coast, from Kodiak Island and south-central Alaska to the central California coast. They are primarily associated with estuaries or coastal lagoons. Salt marshes are limited to bays and behind sand spits or other locations protected from wave action. Typically these areas form with a mixture of inputs from freshwater sources into coastal saltwater, so they commonly co-occur with brackish marshes. This is a small-patch system, confined to specific environments defined by ranges of salinity, tidal inundation regime, and soil texture. Patches usually occur as zonal mosaics of multiple communities. They vary in location and abundance with daily and seasonal dynamics of freshwater input from inland balanced against evaporation and tidal flooding of saltwater. Summer-dry periods result in decreased freshwater inputs from inland. Hypersaline environments within salt marshes occur in "salt pans" where tidal water collects and evaporates. Characteristic plant species include *Distichlis spicata, Monanthochloe littoralis, Limonium californicum, Jaumea carnosa, Salicornia* spp., *Suaeda* spp., *Batis maritima*, and *Triglochin* spp. Low marshes are located in areas that flood every day and are dominated by a variety of low-growing forbs and low to medium-height graminoids, especially *Salicornia virginica, Distichlis spicata, Schoenoplectus maritimus (= Scirpus maritimus), Schoenoplectus americanus (= Scirpus americanus), Carex lyngbyei*, and *Triglochin maritima*. In Alaska, tidal marshes are often dominated by near-monotypic stands of *Carex lyngbyei*, while the frequently inundated lower salt marshes are often dominated by *Eleocharis palustris* or *Puccinellia* spp. Other common species in Alaska include *Hippuris tetraphylla, Plantago maritima, Cochlearia groenlandica (= Cochlearia officinalis), Spergularia canadensis, Honckenya peploides*, or *Glaux maritima*. In the Cook Inlet and Alaska Peninsula, *Carex ramenskii* may be an associated species. High marshes are located in areas that flood infrequently and are dominated by medium-tall graminoids and low forbs, especially *Deschampsia caespitosa, Argentina egedii, Juncus balticus*,

and *Symphyotrichum subspicatum (= Aster subspicatus)*, and in Alaska *Poa eminens, Argentina egedii, Festuca rubra*, and *Deschampsia caespitosa*. Transition zone (slightly brackish) marshes are often dominated by *Typha* spp. or *Schoenoplectus acutus*. *Atriplex prostrata (= Atriplex triangularis), Juncus mexicanus, Phragmites* spp., *Cordylanthus* spp., and *Lilaeopsis masonii* are important species in California. The invasive weed *Lepidium latifolium* is a problem in many of these marshes. Rare plant species include *Cordylanthus maritimus ssp. maritimus*.

Range: This system is found throughout the Pacific Coast, from Kodiak Island and south-central Alaska to the California coast.

States: AK, BC, CA, MXBC, OR, WA

Map Zones: 1:C, 2:C, 3:C, 4:C, 75:C, 76:C, 77:C, 78:C

Similar:

Descriptors:

Hydroperiod :	30-180 days
Specialized Water Chemistry :	Saline
Hydrogeomorphic Units :	Tidal / Estuarine
Hydrogeomorphic Units :	Tidal / Estuarine
Bioclimate :	Temperate
Bioclimate :	Temperate

3743: Aleutian Herbaceous Wetlands

Match Confidence: Good Match

Suggested Match: Aleutian Mesic Herbaceous Meadow

Codes: ESLF: 7174 EVT_fuel: 2651

ESP: 1651 NatureServe Id: CES105.232

BioGeographical Division : Montane Boreal

NVC MacroGroup: M172 Northern Vancouverian Lowland-Montane Grassland & Shrubland

NVC Group: G355 Northern Vancouverian Grassland & Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Formation: 2.B.2 Temperate Grassland & Shrubland

NVCS Division: 2.B.2.Na Western North American Grassland & Shrubland

Summary: This system grows on all slopes and aspects with a mesic moisture regime, including windswept coastal headlands, coastal bluffs, old beach ridges, hillside slopes, stabilized talus, alluvial fans, and ravine sideslopes, and commonly forms a mosaic with alder patches. Patch size is small to matrix-forming. Herbaceous cover is >25%, *Leymus mollis* cover is<25%. This system includes four predominant vegetation types: (1) The > *Athyrium filix-femina* meadow type is dominated by *Athyrium filix-femina* with *Veratrum viride, Heracleum maximum, Streptopus amplexifolius, Angelica lucida*, and *Calamagrostis canadensis*; (2) The *Chamerion angustifolium ssp. angustifolium* meadow type is dominated by *Chamerion angustifolium ssp. angustifolium*, usually with ferns, *Calamagrostis canadensis*, and often *Heracleum maximum*; (3) The *Calamagrostis canadensis* meadow type is dominated by *Calamagrostis canadensis*, usually with ferns and scattered forbs. It is common on disturbed sites (human or natural) that are in early stages of recovery; and (4) The mixed herbaceous meadow type includes mesic herbaceous meadows not dominated by *Athyrium filix-femina, Chamerion angustifolium ssp. angustifolium*, or *Calamagrostis canadensis*; these species, however, often codominate. Common forbs include *Lupinus nootkatensis, Solidago canadensis var. lepida, Polemonium acutiflorum, Castilleja unalaschcensis, Sanguisorba canadensis, Veratrum viride, Valeriana capitata, Antennaria dioica, Cardamine oligosperma var. kamtschatica, Achillea millefolium var. borealis, Arnica unalaschcensis, Dendranthema arcticum ssp. arcticum, Claytonia sibirica, Geum calthifolium, Ranunculus occidentalis, Dryopteris expansa*, and *Angelica lucida*. Graminoids include *Carex macrochaeta, Festuca rubra, Agrostis exarata, Agrostis scabra*, and *Deschampsia beringensis*. *Empetrum nigrum* may also be common.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar: Alaskan Pacific Maritime Mesic Herbaceous Meadow (CES204.163)

Descriptors:

Bioclimate	Temperate
Topography	Toeslope/Bottom/Valley
Topography	High-Low Slope
Landforms	Talus
Landforms	Slope
Landforms	Bluff
Landforms	Alluvial fan
Landforms	Ravine
Major Physiognomy	Herbaceous
Life Zones	Lowland

3744: Arctic Herbaceous Wetlands

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Mesic Herbaceous Meadow

Codes: ESLF: 7168 EVT_fuel: 2699

ESP: 1699 NatureServe Id: CES102.186

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G615 North American Arctic Tundra & Subarctic Alpine Mesic Herbaceous

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This mesic herbaceous system occurs throughout arctic Alaska on hill and mountain slopes, upper drainages, and lowlands including drained lake basins. It typically occurs as small patches and is more common in the western arctic. This system occurs on mesic sites with >25% cover of herbaceous species. Species include *Carex microchaeta ssp. nesophila* (dominant sedge in higher elevations), *Alopecurus alpinus, Artemisia arctica, Polygonum bistorta, Valeriana capitata, Pedicularis* spp., *Polemonium acutiflorum, Salix rotundifolia*, and *Salix reticulata*. Collapsed acidic lowland snowbeds that support *Phippsia algida* and *Alopecurus alpinus* and drained lake basins dominated by *Calamagrostis canadensis* (western Alaska) are also included in this system.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Bioclimate :	Polar
Topography :	Toeslope/Bottom/Valley
Topography :	High-Low Slope
Major Physiognomy :	Herbaceous

3745: Boreal Herbaceous Wetlands

Match Confidence: Poor Match

Suggested Match: Western North American Boreal Shrub and Herbaceous Floodplain Wetland

Codes: ESLF: 9386 EVT_fuel: 2617

ESP: 1617 NatureServe Id: CES105.118

BioGeographical Division :

NVC MacroGroup: -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This system occurs within the active and inactive portions of floodplains. Wetlands develop on poorly drained deposits, oxbows, and abandoned channels and are often mosaiced with well-drained floodplain vegetation. Frequent river channel migration and associated flooding and fluvial processes constitute the major disturbances. Wetland succession and species composition are variable due to diverse environmental conditions such as water depth, substrate, and nutrient input. Floodplain wetland vegetation includes the following classes: aquatic bed, freshwater marsh, fen, and wet low shrub. These have been described as unique systems in this classification, but because floodplain wetland dynamics differ from wetland dynamics outside the floodplain, we will consider floodplain wetlands a distinct system and model succession accordingly. Wetland succession beginning in open water can proceed through the following wetland classes: aquatic bed, marsh, wet meadow or fen. Over time, fens can succeed to shrub bogs or wet low shrub. At any stage in succession, flooding can set back the vegetation to open water. Less dramatic changes in hydrology (such as an increase in water table from beaver activity) can reverse the direction of succession. Wetlands can also develop through paludification on poorly drained, fine-textured deposits.

Range: This system is found in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar:

Descriptors:

Juxtaposition : Bog and Fen mosaic

Bioclimate : Boreal
Landforms : Floodplain
Life Zones : Lowland

3746: Pacific Maritime Herbaceous Wetlands

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Shrub and Herbaceous Floodplain Wetland

Codes: ESLF: 7169 EVT_fuel: 2645

ESP: 1645 NatureServe Id: CES204.145

BioGeographical Division :

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G320 North Pacific Alpine-Subalpine Turf & Herbaceous Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - forbland

FGDC Subclass : Perennial forb grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: These are mesic subalpine and alpine herbaceous meadows that occur on mountain sideslopes in the boreal transition and maritime regions of Alaska. The slope position is often above the tall-shrub zone and below alpine dwarf-shrub tundra, and the slope shape is usually straight to concave. The substrate is colluvium, residuum, or glacial till. This system often occurs as a continuous band above or mixed with subalpine and alpine shrublands on moderate to steep slopes underlain by colluvium, talus, or bedrock. Species composition is diverse and species richness is often very high, typically no single species is dominant. Vegetation is dominated by herbaceous species, including *Carex macrochaeta, Geranium erianthum, Sanguisorba canadensis, Valeriana sitchensis, Lupinus nootkatensis, Veratrum viride, Aconitum delphiniifolium, Anemone narcissiflora, Polemonium acutiflorum, Chamerion angustifolium (= Epilobium angustifolium), Chamerion latifolium, Senecio triangularis, Nephrophyllidium crista-galli, Calamagrostis canadensis* (often present but not dominant), *Castilleja unalaschcensis, Artemisia arctica, Fritillaria camschatcensis*, and *Athyrium filix-femina*. The dominant disturbances are snow avalanche, soil creep and freeze-thaw action.

Range: This system occurs in the subalpine to alpine zones of the boreal transition region and from Kodiak Island through southeastern Alaska.

States: AK

Map Zones: 73:C, 74:?, 75:C, 76:C, 77:C, 78:C

Similar: Western North American Sub-boreal Mesic Bluejoint Meadow (CES105.114)

Descriptors:

Mass Movement Type : Avalanche

Bioclimate :	Boreal
Landforms :	Soil creep slope
Landforms :	Slope
Major Physiognomy :	Herbaceous
Life Zones :	Alpine

3747: Arctic Sedge Meadows

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Wet Sedge Meadow

Codes: ESLF: 9423 EVT_fuel: 2698

ESP: 1698 NatureServe Id: CES102.185

BioGeographical Division :

NVC MacroGroup: M870 North American Arctic & Northern Boreal Freshwater Shrubland, W

NVC Group: G617 North American Arctic & Subarctic Wet Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2.B Temperate & Boreal Grassland & Shrubland

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Np Circumpolar Arctic & Northern Boreal Freshwater Shrubland, Wet Meadow & Mars

Summary: This ecological system occurs on wet sites (typically with 0-10% visible surface water) with >25% cover of sedge species. Sites are flat to sloping in valley bottoms, basins, low-center polygons, water tracks and adjacent to streams. It also includes patterned wetlands such as ribbed fens. These wet sedge meadows are also found on large to small floodplains, which support the various wetlands that form in oxbows, wet depressions, low-lying areas, and abandoned channels, including wet sedge meadows. Soils range from acidic to non-acidic, are saturated during the summer, and have an organic horizon over silt with permafrost, although on floodplains, permafrost is absent. Patch size is small to moderate and may be linear. Species diversity is much higher than in the freshwater marsh systems. Sites are typically dominated by *Carex aquatilis* and *Eriophorum angustifolium* but may also be dominated or codominated by *Carex glareosa, Carex rotundata, Carex rariflora, Carex chordorrhiza, Carex rostrata, Carex saxatilis, Carex utriculata, Eriophorum russeolum*, and *Eriophorum scheuchzeri*. *Dupontia fisheri* may also occur. Dwarf-shrubs such as *Salix fuscescens, Salix pulchra, Andromeda polifolia, Betula nana, Empetrum nigrum, Ledum palustre ssp. decumbens*, and *Vaccinium uliginosum* may be common but make up<25% cover. Moss species include > *Drepanocladus* spp. and *Sphagnum* spp.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Soil Moisture Regime : Saturated
Bioclimate : Polar
Major Physiognomy : Herbaceous

3748: Aleutian Shrub-Herbaceous Wetlands

Match Confidence: Good Match

Suggested Match: Aleutian Shrub and Herbaceous Meadow Floodplain

Codes: ESLF: 9374 EVT_fuel: 2727

ESP: 1727 NatureServe Id: CES105.283

BioGeographical Division : Montane Boreal

NVC MacroGroup: M870 North American Arctic & Northern Boreal Freshwater Shrubland, W

NVC Group: G528 Western North American Boreal Freshwater Shrubland, Wet Meado

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Np Circumpolar Arctic & Northern Boreal Freshwater Shrubland, Wet Meadow & Mars

Summary: This ecological system includes active and inactive unforested floodplains and outwash plains, and is mosaiced with ~Aleutian Floodplain Wetland (CES105.296)$$. Small unforested floodplains and outwash plains are widespread in the Aleutian Islands and Alaska Peninsula. The substrate is typically well-drained sand or cobble alluvium, although finer silts and clays are found on higher terraces, on distal floodplains, and in lower energy systems (capped by an organic mat). Permafrost is absent. Patch size is small to large and often linear. These floodplains have several different kinds of plant communities, including shrublands dominated by tall or low willow, or alder (*Alnus viridis ssp. sinuata*), and mesic herbaceous meadows, or *Leymus mollis* grasslands. The tall willow, alder and mesic herbaceous types tend to dominate low-elevation floodplains on Kodiak Island and the Alaska Peninsula. The mesic herbaceous and *Leymus mollis* existing vegetation types dominate the Aleutian Island floodplains. *Calamagrostis* spp. is the dominant mesic herbaceous species, and others include *Athyrium filix-femina, Leymus mollis, Gymnocarpium dryopteris, Geranium richardsonii, Fritillaria camschatcensis, Heracleum maximum*, and *Chamerion angustifolium ssp. angustifolium*. Floodplains dominated by volcanic ash deposits are included.

Range: This system occurs on the Alaska Peninsula and Aleutian Islands and possibly Kodiak Island.

States: AK

Map Zones: 76:C

Similar: Aleutian Floodplain Forest and Shrubland (CES105.295)

Descriptors:

Juxtaposition : Riparian mosaic

Bioclimate : Boreal

Landforms : Outwash plain
Landforms : Floodplain

3749: Pacific Maritime Coastal Meadows and Slough-Levee

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Coastal Meadow and Slough-Levee

Codes: ESLF: 9426 EVT_fuel: 2665

ESP: 1665 NatureServe Id: CES204.159

BioGeographical Division :

NVC MacroGroup: M073 Vancouverian Lowland Wet Shrubland, Wet Meadow & Marsh

NVC Group: G517 Vancouverian Freshwater Wet Meadow & Marsh

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

Summary: This ecological system includes moist and wet meadows associated with delta deposits, uplifted marshes, or beach deposits. These meadows occur inland of tidal marshes and are also common along sloughs and levees. Meadows are dominated by a wide variety of graminoids and forbs, including *Deschampsia beringensis, Festuca rubra, Argentina egedii (= Potentilla egedii), Lathyrus japonicus var. maritimus, Castilleja* spp., *Heracleum maximum, Parnassia palustris, Lupinus nootkatensis, Achillea millefolium var. borealis (= Achillea borealis), Angelica lucida*, and *Carex mackenziei*. *Leymus mollis* and *Lupinus nootkatensis* are common on levees, and *Carex lyngbyei* often dominates in sloughs and wet depressions.

Range: This system occurs from the Cook Inlet Basin, on Kodiak Island, and through southeastern Alaska.

States: AK

Map Zones: 75:C, 76:C, 77:C, 78:C

Similar:

Descriptors:

Lifeform : Graminoid
Lifeform : Forb
Hydrogeomorphic Units : Tidal / Estuarine
Bioclimate : Temperate
Landforms : Slough
Landforms : Delta
Landforms : Raised estuary

Landforms : Raised beach
Landforms : Levee
Major Physiognomy : Herbaceous
Life Zones : Lowland

3750: Alaska Sub-boreal Hardwood Forest

Match Confidence: Good Match

Suggested Match: Alaska Sub-boreal White Spruce-Hardwood Forest

Codes: ESLF: 4334 EVT_fuel: 2679

ESP: 1679 NatureServe Id: CES105.136

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This represents the hardwood dominated expression of this ecological system. This ecological system is widespread in south-central Alaska on well-drained upland terrain. *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. Environment: This system typically occurs on well-drained upland terrain. Soils generally develop on surficial deposits including glacial till, colluvium, and loess. Permafrost is rare.
Vegetation: *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. *Populus tremuloides* and *Populus balsamifera* are common canopy trees and *Picea mariana* may also be present. Common understory shrubs include *Alnus viridis ssp. sinuata, Viburnum edule, Rosa acicularis, Ribes triste, Vaccinium vitis-idaea*, and *Linnaea borealis*. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Gymnocarpium dryopteris*, and *Cornus canadensis*.

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 73:C, 74:C, 75:C, 76:C, 77:?

Similar: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Western North American Boreal Mesic Birch-Aspen Forest (CES105.108), Western North American Boreal White Spruce Forest (CES105.104)

Descriptors:

Floristics/Dominants : Picea glauca

Fire Intensity/Spatial Character : Landscape/High Intensity

Disturbance Return Interval : Very Long

Bioclimate	: Boreal
Topography	: High-Low Slope
Major Physiognomy	: Forest and Woodland (Tree)
Life Zones	: Montane

3751: Boreal Coniferous Woody Wetland

Match Confidence: Unmatched

Suggested Match: Western North American Boreal Shrub and Herbaceous Floodplain Wetland

Codes: ESLF: 9386 EVT_fuel: 2617

ESP: 1617 NatureServe Id: CES105.118

BioGeographical Division :

NVC MacroGroup: M870 North American Arctic & Northern Boreal Freshwater Shrubland, W

NVC Group: G528 Western North American Boreal Freshwater Shrubland, Wet Meado

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Np Circumpolar Arctic & Northern Boreal Freshwater Shrubland, Wet Meadow & Mars

Summary: This system occurs within the active and inactive portions of floodplains. Wetlands develop on poorly drained deposits, oxbows, and abandoned channels and are often mosaiced with well-drained floodplain vegetation. Frequent river channel migration and associated flooding and fluvial processes constitute the major disturbances. Wetland succession and species composition are variable due to diverse environmental conditions such as water depth, substrate, and nutrient input. Floodplain wetland vegetation includes the following classes: aquatic bed, freshwater marsh, fen, and wet low shrub. These have been described as unique systems in this classification, but because floodplain wetland dynamics differ from wetland dynamics outside the floodplain, we will consider floodplain wetlands a distinct system and model succession accordingly. Wetland succession beginning in open water can proceed through the following wetland classes: aquatic bed, marsh, wet meadow or fen. Over time, fens can succeed to shrub bogs or wet low shrub. At any stage in succession, flooding can set back the vegetation to open water. Less dramatic changes in hydrology (such as an increase in water table from beaver activity) can reverse the direction of succession. Wetlands can also develop through paludification on poorly drained, fine-textured deposits.

Range: This system is found in the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar:

Descriptors:

Juxtaposition : Bog and Fen mosaic

Bioclimate : Boreal
Landforms : Floodplain
Life Zones : Lowland

3752: Pacific Maritime Coniferous Woody Wetland

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Poorly Drained Conifer Woodland

Codes: ESLF: 9368 EVT_fuel: 2681

ESP: 1681 NatureServe Id: CES204.315

BioGeographical Division :

NVC MacroGroup: M035 Vancouverian Flooded & Swamp Forest

NVC Group: G256 North Pacific Maritime Hardwood - Conifer Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Ng Vancouverian Flooded & Swamp Forest

Summary: This ecological system occurs on low to mid elevations on rolling terrain, benches, and gentle slopes with restricted drainage from Kenai Fjords through southeast Alaska. Soils may be shallow to deep, are poorly drained, and usually have a thick organic layer or some peat development. In some places, stands are often a fine mosaic of peatlands and better-drained inclusions. These are low-productivity sites that are intermediate between shore pine or mountain hemlock peatland sites and productive forest systems. The forest canopy is open (less than 45% cover), and trees often show signs of stress such as spike-top (especially cedar) or chlorotic foliage (especially spruce). Standing dead trees are common. In the north, paludification on these sites may lead to conversion from mountain hemlock to mountain hemlock peatland over long time scales. Overstory trees may include several of the following species: *Tsuga heterophylla, Tsuga mertensiana* (often alone or with *Picea sitchensis* in the subpolar rainforest zone), *Thuja plicata* (southern portion of the Alaska distribution only), and *Chamaecyparis nootkatensis (= Cupressus nootkatensis)*. *Picea sitchensis* and *Pinus contorta* may also be present but are not dominant. Common shrubs include *Vaccinium ovalifolium, Gaultheria shallon* (southern portion of the Alaska distribution only), and *Elliottia pyroliflorus*. Common understory species include *Nephrophyllidium crista-galli, Thelypteris quelpaertensis, Phegopteris connectilis, Trichophorum caespitosum, Carex anthoxanthea, Carex pluriflora, Carex stylosa, Eriophorum* spp., *Lysichiton americanus*, and *Sphagnum* spp.

Range: This system occurs from Kenai Fjords through southeastern Alaska.

States: AK

Map Zones: 77:P, 78:C

Similar: North Pacific Hardwood-Conifer Swamp (CES204.090)

Descriptors:

Soil Moisture Regime :	Saturated
Floristics/Dominants :	Tsuga mertensiana
Lifeform :	Needle-Leaved Tree
Soil Organic Matter :	Organic Peat
Bioclimate :	Temperate
Major Physiognomy :	Forest and Woodland (Tree)

3753: Boreal Coniferous-Deciduous Woody Wetland

Match Confidence: Unmatched

Suggested Match: Western North American Boreal Black Spruce-Tamarack Fen

Codes: ESLF: 9378 EVT_fuel: 2623

ESP: 1623 NatureServe Id: CES105.121

BioGeographical Division :

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G546 Western Boreal Bog & Acidic Swamp Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This ecological system occurs in lowlands across boreal Alaska and includes treed fens and other organic-rich lowland black spruce-tamarack forests. Soils are poorly drained and often have a well-developed peat layer. Sites are less acidic than ~Western North American Boreal Black Spruce Dwarf-Tree Peatland (CES105.139)$$. Sites with at least 40 cm of peat are classified as fens. The forest canopy is typically open to woodland and trees may be stunted. Common species include *Picea mariana, Larix laricina, Betula nana, Ledum groenlandicum, Ledum palustre ssp. decumbens, Empetrum nigrum, Vaccinium vitis-idaea, Vaccinium uliginosum, Chamaedaphne calyculata, Carex* spp., *Eriophorum angustifolium*, and *Sphagnum* spp.

Range: This system is found in the lowlands of the boreal region of Alaska. The range of *Larix laricina* in Alaska is disjunct from the Canadian population.

States: AK

Map Zones: 70:C, 71:C, 72:C, 73:C, 74:C, 76:?

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Water Nutrient Status :	Eutrophic
Floristics/Dominants :	Picea mariana - Larix laricina
Soil Organic Matter :	Organic Peat
Soil pH :	Acidic
Hydrogeomorphic Units :	Depressional

Hydrogeomorphic Units :	Seepage-Fed Sloping
Bioclimate :	Boreal
Topography :	Toeslope/Bottom/Valley
Landforms :	Alluvial flat
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland
Life Zones :	Montane

3754: Agriculture-Pasture and Hay

Match Confidence: Unmatched
Suggested Match: Pasture/Hay

Codes: ESLF: EVT_fuel: 80
ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :
FGDC Order :
FGDC Class :
FGDC Subclass :

2015 Standard

NVCS Class: -
NVCS Subclass: -
NVCS Formation: -
NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3755: Agriculture-Cultivated Crops and Irrigated Agriculture

Match Confidence: Unmatched

Suggested Match: Cultivated Cropland

Codes: ESLF: EVT_fuel: 80

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3756: Arctic Dwarf Shrub Wetland

Match Confidence: Unmatched

Suggested Match: Alaska Arctic Dwarf-Shrub-Sphagnum Peatland

Codes: ESLF: 9358 EVT_fuel: 2703

ESP: 1703 NatureServe Id: CES102.201

BioGeographical Division :

NVC MacroGroup: M876 North American Boreal & Sub-Boreal Acidic Bog & Fen

NVC Group: G360 Western North American Boreal Acidic Bog & Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This system occurs primarily on the Yukon-Kuskokwim Delta and the Kotzebue Sound lowlands ecoregions on flat permafrost plateaus and raised bogs. Soils are poorly drained and acidic, typically with a well-developed peat layer. Permafrost is present. Patch size is small to large. Dwarf- and low shrub cover is >25%, *Sphagnum* spp. cover is >25%, and lichen cover is<25%. The dominant dwarf-shrubs are > *Betula nana* and *Ledum palustre ssp. decumbens*. Other species include *Empetrum nigrum, Chamaedaphne calyculata, Vaccinium uliginosum, Salix pulchra, Spiraea stevenii(= Spiraea beauverdiana), Vaccinium vitis-idaea, Arctostaphylos* spp., *Eriophorum* spp., *Carex aquatilis*, and *Carex microchaeta*.

Range: This system occurs on the Yukon-Kuskokwim Delta and the Kotzebue Sound lowlands ecoregions of Alaska.

States: AK

Map Zones: 68:C, 72:C, 76:C

Similar:

Descriptors:

Floristics/Dominants : Sphagnum spp.

Lifeform : Dwarf-Shrub

Soil Organic Matter : Organic Peat

Soil pH : Acidic

Bioclimate : Polar

Landforms : Bog

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3757: Boreal Dwarf Shrub Wetland

Match Confidence: Poor Match

Suggested Match: Western North American Boreal Sedge-Dwarf-Shrub Bog

Codes: ESLF: 9385 EVT_fuel: 2619

ESP: 1619 NatureServe Id: CES105.138

BioGeographical Division :

NVC MacroGroup: M876 North American Boreal & Sub-Boreal Acidic Bog & Fen

NVC Group: G360 Western North American Boreal Acidic Bog & Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This ecological system occurs in the boreal and boreal transition regions of Alaska and is not associated with permafrost processes. It includes bogs and poor fens (systems with little or no groundwater inputs) with thick (>40 cm) peat deposits. Organic soils are acidic and nutrient-poor. Common species include *Vaccinium oxycoccos (= Oxycoccus microcarpos), Andromeda polifolia, Vaccinium uliginosum, Ledum palustre ssp. decumbens, Ledum groenlandicum, Betula nana, Empetrum nigrum, Carex microglochin, Carex rotundata, Carex rariflora, Carex lasiocarpa, Carex limosa, Carex chordorrhiza, Carex livida, Carex pluriflora, Carex pauciflora, Carex stylosa, Carex membranacea, Eriophorum brachyantherum, Eriophorum angustifolium, Rubus chamaemorus*, and *Drosera* spp. *Sphagnum* spp. are usually abundant in the ground layer.

Range: This system occurs in lowlands of the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C, 76:?

Similar:

Descriptors:

Lifeform :	Graminoid
Lifeform :	Dwarf-Shrub
Soil Organic Matter :	Organic Peat
Soil pH :	Acidic
Soil Fertility :	Eutrophic
Hydrogeomorphic Units :	Depressional

Bioclimate : Boreal
Major Physiognomy : Shrubland (Shrub)

3758: Pacific Maritime Dwarf Shrub Wetland

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Dwarf-Shrub-Sphagnum Peatland

Codes: ESLF: 9365 EVT_fuel: 2658

ESP: 1658 NatureServe Id: CES204.165

BioGeographical Division :

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G284 North Pacific Bog & Acidic Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This ecological system is a mosaic of dwarf-shrub- and herbaceous-dominated peatlands. It includes well-developed peatlands (bogs and poor fens) in basins or on flat to gently sloping terrain. Soils are acidic and are usually saturated throughout the growing season. *Sphagnum* spp. (especially *Sphagnum fuscum*) dominate the ground layer. Shrub cover is typically low and may include *Ledum* spp., *Andromeda polifolia, Kalmia polifolia, Vaccinium oxycoccos (= Oxycoccus microcarpos), Empetrum nigrum*, and *Vaccinium uliginosum*. Other common species include *Drosera* spp., *Carex livida, Carex pluriflora, Carex pauciflora, Carex aquatilis var. dives (= Carex sitchensis), Trichophorum caespitosum*, and *Eriophorum angustifolium*. This system includes raised bogs.

Range: This system occurs from Kodiak Island through southeastern Alaska.

States: AK

Map Zones: 77:C, 78:C

Similar: North Pacific Bog and Fen (CES204.063)

Descriptors:

Floristics/Dominants : Sphagnum spp.

Lifeform : Dwarf-Shrub

Soil Organic Matter : Organic Peat

Soil pH : Acidic

Bioclimate : Temperate

Landforms : Bog

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3759: Recently Burned - Herb Cover

Match Confidence: Unmatched
Suggested Match:

Codes: ESLF: EVT_fuel: 2195
ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :
FGDC Order :
FGDC Class :
FGDC Subclass :

2015 Standard

NVCS Class: -
NVCS Subclass: -
NVCS Formation: -
NVCS Division: -

Summary: Areas previously dominated by grass or forbs, that have burned in the recent past, and where evidence of fire is visible on the imagery (images acquired between 1999-2001). These areas are currently regenerating with grass and herbaceous species, although species composition may be altered compared to pre-fire conditions.

Range:

States:

Map Zones:

Similar:

Descriptors:

3760: Recently Burned - Shrub Cover

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2190

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas previously dominated by shrubs, that have burned in the recent past, and where evidence of fire is visible on the imagery (images acquired between 1999-2001). These areas are currently regenerating with grass, herbaceous, and shrub species, although species composition and cover may be altered compared to pre-fire conditions.

Range:

States:

Map Zones:

Similar:

Descriptors:

3761: Aleutian Shrub Floodplains

Match Confidence: Good Match

Suggested Match: Aleutian Floodplain Forest and Shrubland

Codes: ESLF: 9372 EVT_fuel: 2728

ESP: 1728 NatureServe Id: CES105.295

BioGeographical Division : Montane Boreal

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G548 Western Boreal Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This floodplain system includes active and inactive forested floodplains and outwash plains, and is mosaiced with ~Aleutian Floodplain Wetland (CES105.296)$$. Forested floodplains and outwash plains are widespread on Kodiak Island and the eastern Alaska Peninsula, but absent from the Aleutian Islands. The substrate is typically well-drained sand or cobble alluvium, although finer silts and clays are found on higher terraces, on distal floodplains, and in lower energy systems. Permafrost is absent. Patch size is small to large and often linear. These are rivers that always have a tree-dominated component. The primary existing vegetation types are: tall willow, alder (*Alnus viridis ssp. sinuata*), mesic herbaceous meadows on the younger deposits, and cottonwood-poplar (*Populus balsamifera* or *Populus balsamifera ssp. trichocarpa*) on the older sites. The cottonwood-poplar stands often have an understory of tall willow, *Calamagrostis canadensis*, ferns and scattered forbs. Floodplains dominated by volcanic ash deposits, the largest being the Katmai River floodplain, are included.

Range: This system occurs on the Alaska Peninsula and Kodiak Island.

States: AK

Map Zones: 76:C

Similar: Aleutian Shrub and Herbaceous Meadow Floodplain (CES105.283)

Descriptors:

Juxtaposition : Riparian mosaic

Flooding Return Interval : Very Short

Substrate Consolidation : Unconsolidated

Bioclimate : Boreal
Landforms : Outwash plain
Landforms : Floodplain

3762: Arctic Floodplains

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Floodplain

Codes: ESLF: 9359 EVT_fuel: 2715

ESP: 1715 NatureServe Id: CES102.227

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G368 North American Arctic Tundra & Subarctic Alpine Tall Shrubland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This ecological system includes active and inactive glacially- and non-glacially-fed floodplains. It is mosaiced with various floodplain wetland systems and is widespread and common. The rivers are typically braided, and floodplain terraces may be short-lived (<100 years) or last for more than a 1000 years. Soils develop on alluvium and are typically shallow and well-drained; barren alluvium is common. Permafrost is usually absent. The low- and tall-willow-dominated communities may be absent at higher elevations. Common existing vegetation types include mesic herbaceous meadow, low-tall willow shrublands, >*Dryas* dwarf-shrubland, ericaceous dwarf-shrublands, and patches of *Populus balsamifera* or *Betula papyrifera*. Herbaceous species include *Chamerion latifolium* and *Lupinus* spp. Common willows include *Salix alaxensis, Salix arbusculoides, Salix richardsonii (= Salix lanata), Salix glauca*, and *Salix pulchra*. *Dryas integrifolia* dominates the *Dryas* communities, but other species may also be common, such as *Lupinus* spp., *Cassiope tetragona, Vaccinium uliginosum, Salix* spp., and *Arctostaphylos rubra*.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Juxtaposition : Riparian mosaic

Hydrogeomorphic Units : Riverine / Alluvial

Bioclimate :	Polar
Landforms :	Braided channel or stream
Landforms :	Alluvial terrace
Major Physiognomy :	Shrubland (Shrub)
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3763: Boreal Forested Floodplains

Match Confidence: Poor Match

Suggested Match: Eastern Boreal Floodplain

Codes: ESLF: 9113 EVT_fuel: 2444

ESP: 1444 NatureServe Id: CES103.588

BioGeographical Division :

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G052 Eastern Boreal Hardwood Floodplain & Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: These southern boreal floodplains are found in the extreme northern portions of the eastern U.S., and believed to be more widespread in Canada. They consist of floodplains along medium-sized northern rivers, in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. (*Acer saccharinum* is uncommon or absent.) Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. The distribution in Division 201 appears to be primarily Canadian, with incursions into northern Maine and northern Minnesota.

Range: This system is found primarily in Canada, with distribution extending into far-northern New England and the northern Great Lakes region.

States: ME, MI, MN, NB, NH, NY, ON, QC, VT

Map Zones: 40:?, 41:P, 50:P, 51:P, 63:P, 64:P, 66:C

Similar:

Descriptors:

Soil Depth :	Deep
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Topography :	Toeslope/Bottom/Valley
Hydrogeomorphic Units :	Riverine / Alluvial

Glacial History	Glaciated
Soil Fertility	Mesotrophic Soil
Soil Fertility	Oligotrophic
Life Zones	Lowland
Soil pH	Acidic
Flooding Return Interval	Short (<5 yrs)
Soil Organic Matter	Mineral: W/A Horizon >10 cm
Soil Texture	Silt
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Floristics/Dominants	Picea (glauca, mariana, rubens) - Abies
Water Nutrient Status	Mesotrophic Water
Water pH	Circumneutral
Water pH	Acidic
Soil pH	Circumneutral

3764: Pacific Maritime Forested Floodplains

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Floodplain Forest and Shrubland

Codes: ESLF: 9366 EVT_fuel: 2655

ESP: 1655 NatureServe Id: CES204.154

BioGeographical Division :

NVC MacroGroup: M035 Vancouverian Flooded & Swamp Forest

NVC Group: G254 North Pacific Lowland Riparian Forest & Woodland

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.3 Temperate Flooded & Swamp Forest

NVCS Division: 1.B.3.Ng Vancouverian Flooded & Swamp Forest

Summary: This system includes glacially- and non-glacially-fed rivers and streams along the Gulf Coast of Alaska. It includes the active and inactive portions of the floodplain but not abandoned floodplains. Frequent flooding, shifting channels, and sediment deposition characterize the system. This system includes large and small channels as well as proximal outwash. Glacially-fed rivers occur primarily on the mainland, while non-glacially-fed rivers occur on both the mainland and large islands in the Gulf of Alaska. Since glacial and non-glacial floodplain types can not be mapped confidently as separate systems, they are considered one ecological system. However, vegetation composition and disturbance cycle vary depending on type of input (glacial vs. non-glacial) and proximity to the glacier, so descriptions that follow retain these distinctions. Two floodplain types are described below: glacial floodplains and non-glacial floodplains. (It may be possible to apply different successional models by region or proximity to glacier terminus.)

Range: This system occurs from along the Gulf Coast of Alaska, but not on Kodiak Island, south through southeastern Alaska.

States: AK

Map Zones: 77:C, 78:C

Similar: North Pacific Lowland Riparian Forest and Shrubland (CES204.869), North Pacific Montane Riparian Woodland and Shrubland (CES204.866)

Descriptors:

Juxtaposition : Riparian mosaic

Lifeform : Broad-Leaved Deciduous Shrub

Lifeform :	Broad-Leaved Deciduous Tree
Bioclimate :	Temperate
Landforms :	Braided channel or stream
Landforms :	Bank
Landforms :	Alluvial terrace
Landforms :	Alluvial plain
Landforms :	Floodplain
Life Zones :	Lowland
Life Zones :	Montane

3765: Boreal Forest-Tussock Tundra

Match Confidence: Unmatched

Suggested Match: Western North American Boreal Tussock Tundra

Codes: ESLF: 9436 EVT_fuel: 2629

ESP: 1629 NatureServe Id: CES105.127

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This ecological system is dominated by sedges in a tussock growth form. *Eriophorum vaginatum* is the primary tussock-former in most stands and *Carex bigelowii* is also common. On wetter sites, *Vaccinium* spp. (= *Oxycoccus* spp.) and *Chamaedaphne calyculata* may be present. Total shrub cover is less than 25%, although shrubs such as *Betula nana, Ledum palustre ssp. decumbens, Ledum groenlandicum, Vaccinium vitis-idaea, Vaccinium uliginosum* may be present. Mosses (*Sphagnum* spp., *Pleurozium schreberi, Hylocomium splendens*) may form a nearly continuous mat between tussocks.

Range: This system is found in lowland through subalpine zones of boreal and boreal transition (northern portion and higher elevation) regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C, 76:?

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Floristics/Dominants :	Tussock forming grasses
Soil Moisture (NRCS) :	Aquic
Bioclimate :	Boreal
Major Physiognomy :	Herbaceous
Life Zones :	Montane

3766: Alaskan Pacific Maritime Periglacial Shrubland

Match Confidence: Good Match

Suggested Match: Alaskan Pacific Maritime Periglacial Woodland and Shrubland

Codes: ESLF: 4284 EVT_fuel: 2650

ESP: 1650 NatureServe Id: CES204.311

BioGeographical Division : North American Pacific Maritime

NVC MacroGroup: M024 Vancouverian Lowland & Montane Forest

NVC Group: G750 North Pacific Maritime Western Hemlock - Sitka Spruce Rainforest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.2 Cool Temperate Forest & Woodland

NVCS Division: 1.B.2.Nd Vancouverian Cool Temperate Forest

Summary: This ecological system occurs as an early-successional sere on landscapes recently exposed through deglaciation since the end of the Little Ice Age (especially common in Glacier Bay and Kenai Fjords). This is not a riverine system, and glacial outwash systems are also not included. Soils are derived from glacial till, residuum and colluvium and are shallow, stony, and well-drained to excessively well-drained. Soil profile development is lacking or minimal. Early-seral stages of forested systems with low cover of *Picea sitchensis* and *Populus balsamifera ssp. trichocarpa* occur on older landscapes at low elevations near the maximum glacial extent. Depending on time since ice has receded, some sites may have woodlands of either *Populus balsamifera* or a mix of *Populus balsamifera* and *Picea sitchensis*. On other sites *Alnus viridis ssp. sinuata* often dominates the species composition, although *Salix sitchensis, Salix alaxensis*, or *Salix barclayi* may also be abundant. *Salix* spp. and *Alnus viridis ssp. sinuata* are commonly mixed with the trees on wooded sites as well. *Rubus spectabilis* is uncommon in this system. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Chamerion latifolium, Heracleum maximum, Lupinus nootkatensis, Equisetum arvense, Athyrium filix-femina, Dryopteris expansa, Phegopteris connectilis, Streptopus amplexifolius, Pyrola* spp., *Carex mertensii*, and *Epilobium* spp. Mosses and lichens may be abundant on some sites; common early-seral nonvascular species include *Racomitrium canescens, Pohlia nutans, Drepanocladus aduncus, Stereocaulon tomentosum, Cladonia crispata*, and *Cladina portentosa*.

Range: This system occurs from Kodiak Island to southeastern Alaska.

States: AK

Map Zones: 76:C, 77:C, 78:C

Similar:

Descriptors:

Floristics/Dominants :	Picea sitchensis
Substrate Consolidation :	Unconsolidated
Soil Depth :	Very Shallow
Bioclimate :	Temperate
Landforms :	Glaciated plains

3767: Developed-Open Space (Alaska)

Match Confidence: Unmatched

Suggested Match: Developed, Open Space

Codes: ESLF: EVT_fuel: 21

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3768: Developed-Low Intensity (Alaska)

Match Confidence: Unmatched

Suggested Match: Developed, Low Intensity

Codes: ESLF: EVT_fuel: 22

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3769: Developed-Medium Intensity (Alaska)

Match Confidence: Unmatched

Suggested Match: Developed, Medium Intensity

Codes: ESLF: EVT_fuel: 23

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3770: Developed-High Intensity (Alaska)

Match Confidence: Unmatched

Suggested Match: Developed, High Intensity

Codes: ESLF: EVT_fuel: 24

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3771: Aleutian Shrub Peatlands

Match Confidence: Good Match

Suggested Match: Aleutian Shrub-Sedge Peatland

Codes: ESLF: 9375 EVT_fuel: 2647

ESP: 1647 NatureServe Id: CES105.238

BioGeographical Division : Montane Boreal

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G284 North Pacific Bog & Acidic Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This system occurs in shallow depressions, seepage channels on gentle slopes, and pond margins. It is often mosaiced with the wet meadow and other wetland ecological systems. It occurs on peat, floating organic mats or mineral soil. The sites are wet, and patch size is small. This system has >25% shrub cover. Common shrubs include *Andromeda polifolia, Betula nana, Empetrum nigrum, Ledum palustre ssp. decumbens, Salix pulchra, Vaccinium oxycoccos*, and *Vaccinium uliginosum*. Common herbaceous species include *Carex pluriflora, Cornus suecica, Comarum palustre, Rubus chamaemorus, Carex* spp., and *Eriophorum* spp. Fruticose lichens may occur on the hummocks.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Soil Organic Matter :	Mineral: W/A Horizon >10 cm
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Riverine / Alluvial
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Seepage-Fed Sloping

Hydrogeomorphic Units : Seepage-Fed Sloping
Major Physiognomy : Shrubland (Shrub)

3772: Arctic Shrub Peatlands

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Dwarf-Shrub-Sphagnum Peatland

Codes: ESLF: 9358 EVT_fuel: 2703

ESP: 1703 NatureServe Id: CES102.201

BioGeographical Division :

NVC MacroGroup: M876 North American Boreal & Sub-Boreal Acidic Bog & Fen

NVC Group: G360 Western North American Boreal Acidic Bog & Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This system occurs primarily on the Yukon-Kuskokwim Delta and the Kotzebue Sound lowlands ecoregions on flat permafrost plateaus and raised bogs. Soils are poorly drained and acidic, typically with a well-developed peat layer. Permafrost is present. Patch size is small to large. Dwarf- and low shrub cover is >25%, *Sphagnum* spp. cover is >25%, and lichen cover is<25%. The dominant dwarf-shrubs are > *Betula nana* and *Ledum palustre ssp. decumbens*. Other species include *Empetrum nigrum, Chamaedaphne calyculata, Vaccinium uliginosum, Salix pulchra, Spiraea stevenii(= Spiraea beauverdiana), Vaccinium vitis-idaea, Arctostaphylos* spp., *Eriophorum* spp., *Carex aquatilis*, and *Carex microchaeta*.

Range: This system occurs on the Yukon-Kuskokwim Delta and the Kotzebue Sound lowlands ecoregions of Alaska.

States: AK

Map Zones: 68:C, 72:C, 76:C

Similar:

Descriptors:

Floristics/Dominants : Sphagnum spp.

Lifeform : Dwarf-Shrub

Soil Organic Matter : Organic Peat

Soil pH : Acidic

Bioclimate : Polar

Landforms : Bog

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3773: Boreal Peatlands

Match Confidence: Unmatched

Suggested Match: Boreal Acidic Peatland Systems

Codes: ESLF: 9146 EVT_fuel: 2477

ESP: 1477 NatureServe Id: CES103.633

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This systems group includes peatlands that are found at the near-boreal latitudes of the northeastern and north-central United States and adjacent Canada, where climate allows the rate of peat accumulation to exceed its decomposition, resulting in acidic peatlands. They vary from ombrotrophic to weakly minerotrophic, often within the same peatland, with various arrangements of raised bog (ombrotrophic) and poor fen (minerotrophic) portions; most are at least partly ombrotrophic. The surface morphology of the bog may be more-or-less level, domed, or eccentric, but typically is over the water table. A maritime version along the north Atlantic Coast south to easternmost Maine develops distinctive raised plateaus when occurring in basins, or occurs as a "blanket bog" over a sloping rocky substrate in extreme maritime settings. The vegetation physiognomy varies from forest to low-shrub dominance, often with patches of graminoids and bryophyte lawns. The maritime bogs are almost always non-forested and often feature lawns of *Trichophorum caespitosum*. In settings where trees form a partial to moderate cover, stunted (or less frequently well-developed) *Picea mariana* and *Larix laricina* are the dominant trees, and dwarf-shrubs (*Chamaedaphne calyculata, Ledum groenlandicum*) and sedges are common in the understory. Dwarf-shrub-dominated areas are dominated by low ericaceous shrubs (including *Kalmia angustifolia, Kalmia polifolia, Ledum groenlandicum, Chamaedaphne calyculata*, and, near the coast, *Empetrum nigrum* and *Gaylussacia dumosa*), with patches of stunted conifers. In the raised portions, secondary bog pools may be present. These peatlands are sometimes referred to as a "muskeg," a flat boggy peatland with scattered trees and a fairly dense shrub layer on mounded or hummocky peat.

Range: This systems group is primarily Canadian in distribution, ranging from the Maritimes west to Manitoba, and extending south into the northernmost United States from Maine to Minnesota.

Very few examples occur south of the Laurentian-Acadian Division.

States: MB, ME, MI, MN, NB, NH, NS, NY, ON, PE?, QC, VT, WI

Map Zones: 41:C, 50:C, 51:C, 63:C, 64:C, 65:P, 66:C

Similar:

Descriptors:

Juxtaposition :	Bog and Fen mosaic
Water Nutrient Status :	Oligotrophic
Floristics/Dominants :	Picea mariana - Larix laricina
Soil Organic Matter :	Organic Peat
Hydrogeomorphic Units :	Extensive Wet Flat
Bioclimate :	Boreal
Major Physiognomy :	Woody-Herbaceous

3774: Pacific Maritime Forested Peatlands

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Shore Pine Peatland

Codes: ESLF: 9369 EVT_fuel: 2657

ESP: 1657 NatureServe Id: CES204.164

BioGeographical Division :

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G284 North Pacific Bog & Acidic Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This ecological system is a mosaic of shore pine-, dwarf-shrub- and herbaceous-dominated peatland communities. It includes well-developed peatlands on flat, rolling, or sloping terrain. Soils are poorly drained with deep organic layers. Trees are usually stunted and the tree canopy typically has less than<30% cover. Common species include > *Pinus contorta, Chamaecyparis nootkatensis (= Cupressus nootkatensis), Empetrum nigrum, Kalmia, Ledum* spp., *Vaccinium uliginosum, Carex aquatilis var. dives (= Carex sitchensis), Carex pluriflora, Carex pauciflora, Carex livida, Trichophorum caespitosum, Eriophorum angustifolium, Sanguisorba menziesii*, and *Cornus canadensis*. *Sphagnum* spp. dominate the moss layer. This system includes a range of canopy structures and compositions from mixed conifer peatlands on sideslopes and benches with *Chamaecyparis nootkatensis, Tsuga mertensiana, Tsuga heterophylla*, and *Pinus contorta*, to peatlands on level ground with scrub *Pinus contorta*.

Range: This system occurs from Yakutat south through southeastern Alaska. *Pinus contorta* does not occur north or west of Yakutat.

States: AK

Map Zones: 77:P, 78:C

Similar: North Pacific Bog and Fen (CES204.063)

Descriptors:

Juxtaposition : Bog and Fen mosaic

Floristics/Dominants : Pinus contorta

Soil Organic Matter : Organic Peat

Soil Depth : Deep
Bioclimate : Temperate

3775: Aleutian Forested Floodplains

Match Confidence: Good Match

Suggested Match: Aleutian Floodplain Forest and Shrubland

Codes: ESLF: 9372 EVT_fuel: 2728

ESP: 1728 NatureServe Id: CES105.295

BioGeographical Division : Montane Boreal

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G548 Western Boreal Floodplain Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This floodplain system includes active and inactive forested floodplains and outwash plains, and is mosaiced with ~Aleutian Floodplain Wetland (CES105.296)$$. Forested floodplains and outwash plains are widespread on Kodiak Island and the eastern Alaska Peninsula, but absent from the Aleutian Islands. The substrate is typically well-drained sand or cobble alluvium, although finer silts and clays are found on higher terraces, on distal floodplains, and in lower energy systems. Permafrost is absent. Patch size is small to large and often linear. These are rivers that always have a tree-dominated component. The primary existing vegetation types are: tall willow, alder (*Alnus viridis ssp. sinuata*), mesic herbaceous meadows on the younger deposits, and cottonwood-poplar (*Populus balsamifera* or *Populus balsamifera ssp. trichocarpa*) on the older sites. The cottonwood-poplar stands often have an understory of tall willow, *Calamagrostis canadensis*, ferns and scattered forbs. Floodplains dominated by volcanic ash deposits, the largest being the Katmai River floodplain, are included.

Range: This system occurs on the Alaska Peninsula and Kodiak Island.

States: AK

Map Zones: 76:C

Similar: Aleutian Shrub and Herbaceous Meadow Floodplain (CES105.283)

Descriptors:

Juxtaposition : Riparian mosaic

Flooding Return Interval : Very Short

Substrate Consolidation : Unconsolidated

Bioclimate : Boreal
Landforms : Outwash plain
Landforms : Floodplain

3776: Boreal Riparian Stringer Forest and Shrubland

Match Confidence: Poor Match
Suggested Match: Western North American Boreal Riparian Stringer Forest and Shrubland

Codes: ESLF: 9384 EVT_fuel: 2616
ESP: 1616 NatureServe Id: CES105.144

BioGeographical Division :

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G548 Western Boreal Floodplain Forest

1997 Standard

FGDC Division : Vegetated
FGDC Order : Tree-dominated
FGDC Class : Open tree canopy
FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland
NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland
NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest
NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: This system occurs throughout the boreal and boreal transition regions of Alaska and is characterized by low-energy riparian communities. These riparian zones are typically narrow bands of forest or shrubs along streams in low-gradient and low-volume drainages. Seasonal overbank flooding may occur, but generally it does not result in shifting channels or gravel bar formation. Common species include *Picea glauca, Betula papyrifera, Populus balsamifera, Alnus* spp., *Salix* spp., *Carex* spp., and *Calamagrostis canadensis*.

Range: This system occurs throughout the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C, 76:C

Similar: North Pacific Shrub Swamp (CES204.865)

Descriptors:

Juxtaposition : Riparian mosaic
Bioclimate : Boreal
Landforms : Alluvial terrace
Landforms : Floodplain

3777: Boreal Shrub Swamp

Match Confidence: Poor Match

Suggested Match: Western North American Boreal Deciduous Shrub Swamp

Codes: ESLF: 9379 EVT_fuel: 2624

ESP: 1624 NatureServe Id: CES105.122

BioGeographical Division :

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G547 Western Boreal Alkaline Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: Shrub swamps occur throughout the boreal and boreal transition regions of Alaska on poorly drained, fine-textured soil. Depressions with standing water are common throughout the growing season. Soils range from muck to mineral and are relatively nutrient-rich. Some sites have a thin peat layer. The shrub layer is typically dominated by *Alnus incana ssp. tenuifolia*, but *Alnus viridis ssp. sinuata, Salix pulchra*, or *Salix richardsonii (= Salix lanata ssp. richardsonii)* may be dominant or codominant. Common understory species include *Calamagrostis canadensis, Equisetum* spp., *Comarum palustre (= Potentilla palustris)*, and hydrophytic mosses.

Range: This system occurs in lowlands of the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 68:?, 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Lifeform :	Broad-Leaved Deciduous Shrub
Soil Texture :	Silt
Soil Organic Matter :	Muck
Major Physiognomy :	Shrubland (Shrub)

3778: Pacific Maritime Shrub Swamp

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Wet Low Shrubland

Codes: ESLF: 9371 EVT_fuel: 2660

ESP: 1660 NatureServe Id: CES204.157

BioGeographical Division :

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G285 North Pacific Neutral-Alkaline Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This wetland system typically occurs as a ring on the outer edge of peatlands or on uplifted tidal marshes that are relatively wet but no longer tidally influenced. It is a minor yet widespread system wherever mature peatlands and uplifted tidal marshes occur, such as the Copper River Delta and Yakutat Forelands. It also occurs on old lakebeds, drained beaver ponds, wet depressions, and the edge of tidal marshes. Soils are saturated for at least a portion of the growing season, and generally have a wet organic layer of variable depth (8 cm to 1 m deep) over silt, sand or gravel. The shrub layer is dominated by *Myrica gale* and/or *Vaccinium uliginosum*. In Katmai National Park and Preserve, *Myrica gale* is the dominant shrub, but *Betula nana* or *Salix barclayi* may also codominate. Species richness is often high and composition is variable. Common associated species may include *Alnus viridis ssp. sinuata, Kalmia microphylla, Carex pauciflora, Carex livida, Carex aquatilis var. dives (= Carex sitchensis), Carex pluriflora, Carex viridula ssp. viridula, Trichophorum caespitosum, Eriophorum angustifolium, Equisetum variegatum, Drosera rotundifolia, Sanguisorba canadensis, Sanguisorba officinalis, Calamagrostis canadensis*, and *Rubus arcticus*. *Sphagnum* spp. may be abundant in the ground layer.

Range: This system occurs from the region of the eastern Alaska Peninsula, Katmai National Park and Preserve, east and south throughout southeastern Alaska. However it does not occur on Kodiak Island.

States: AK

Map Zones: 76:C, 77:C, 78:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Soil Organic Matter :	Muck
Soil Organic Matter :	Organic Peat
Bioclimate :	Temperate
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3779: Alaska Boreal Hardwood Forest

Match Confidence: Good Match

Suggested Match: Western North American Boreal Mesic Birch-Aspen Forest

Codes: ESLF: EVT_fuel: 2605

ESP: 1605 NatureServe Id: CES105.108

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G579 Western Boreal Mesic White Spruce - Hardwood

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This hardwood system is common on well-drained upland terrain on south, west, and east aspects in the boreal region, and is widespread in the boreal transition region in south-central Alaska on well-drained upland terrain. *Betula papyrifera* is typically dominant in the canopy, but other dominants or subdominants include *Populus balsamifera* and *Populus tremuloides*. This type represents a persistent, often self-replacing, hardwood system and may represent a long-term seral stage of Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Alaska Sub-boreal Mountain Hemlock-White Spruce Forest (CES204.103), or Alaska Sub-boreal White Spruce-Hardwood Forest (CES105.106). Spruce may be present in the canopy and, in the absence of fire, could potentially occupy the site.

This system combines those known as Boreal Transition Hardwood and Boreal Hardwood by the Alaska Natural Heritage Program. Because this system persists on the landscape for at least 50 to 100 years, it is described as a unique system, although it also occurs as a seral stage of several ecological systems in south-central Alaska, including Western North American Boreal Treeline White Spruce Woodland (CES105.137) and Western North American Boreal White Spruce Forest (CES105.104).

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 68:C, 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C

Similar:

Descriptors:

Floristics/Dominants :	Picea glauca
Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Very Long
Bioclimate :	Boreal
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3780: Alaska Boreal White Spruce-Hardwood Forest

Match Confidence: Good Match

Suggested Match: Alaska Sub-boreal White Spruce-Hardwood Forest

Codes: ESLF: EVT_fuel: 2603

ESP: 1603 NatureServe Id: CES105.106

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G579 Western Boreal Mesic White Spruce - Hardwood

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This system is common on well-drained upland terrain on south, west, and east aspects. *Picea glauca* codominates with *Betula papyrifera* and/or *Populus tremuloides*, and the mixed stands are persistent for over 75 years. This system is known as Boreal White Spruce-Hardwood by the Alaska Natural Heritage Program. This system is similar to a mid-seral stage of Western North American Boreal White Spruce Forest (CES105.104).

Environment: This system occurs on rolling hills, inactive terraces, and mountain sideslopes up to 750 m elevation. Soils are typically well-drained and derived from glacial or other depositional processes and include moraines, drumlins, eskers, kettle-kame, colluvium, alluvial fan, floodplains, and loess deposits. This system is common on all aspects except north. Permafrost is rare on most sites; inclusions of wet mixed forest on loamy soils underlain by permafrost also occur (Jorgenson et al. 1999).

Vegetation: Canopy cover is dominated by *Picea glauca* and *Betula papyrifera* and typically ranges from 25% to 80%. *Populus tremuloides* or *Populus balsamifera* may be codominant in the hardwood component. The understory is open shrub or herbaceous. Common understory species include *Alnus* spp., *Ledum* spp., *Vaccinium vitis-idaea, Betula nana, Rosa acicularis, Shepherdia canadensis*, and *Viburnum edule*. Feathermosses such as *Hylocomium splendens* and *Pleurozium schreberi* are common in the ground layer (Boggs and Sturdy 2005). Common understory species on wet sites include *Calamagrostis canadensis* and *Equisetum* spp. (Jorgenson et al. 1999).

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 72:C, 73:C, 74:C, 75:C, 76:C.

Similar:

Descriptors:

Floristics/Dominants :	Picea glauca
Fire Intensity/Spatial Character :	Landscape/High Intensity
Disturbance Return Interval :	Very Long
Bioclimate :	Boreal
Topography :	High-Low Slope
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3781: Arctic Shrub Sedge-Tussock-Lichen Tundra

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Tussock-Lichen Tundra

Codes: ESLF: 9422 EVT_fuel: 2695

ESP: 1695 NatureServe Id: CES102.181

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: The tussock lichen tundra system is common in valleys and slopes throughout arctic Alaska. These sites are cold, poorly drained, and underlain by mesic, silty mineral soils with a shallow surface organic layer surrounding the tussocks. Permafrost is present. Lichens are more common on the drier tussock tundra sites in western Alaska. Patch size is small to large. Tussock lichen tundra has >35% cover of sedges in a tussock growth form, shrub cover is<25%, and lichen cover is > 25%. Dwarf-shrubs may be common. *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may dominate some sites. Lichens may include *Flavocetraria cucullata (= Cetraria cucullata), Cetraria islandica, Cladonia* spp., *Cladina rangiferina*, and *Thamnolia subuliformis*. There are also distinctions between acidic and non-acidic tussock tundra. Acidic sites have more ericaceous shrubs and *Sphagnum* and less *Eriophorum* spp., *Betula nana*, and *Carex bigelowii*. Acidic sites also have more organic matter buildup and the tussocks tend to be larger.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Lichen

Lifeform : Graminoid

Soil Texture : Silt
Soil Depth : Shallow Soil
Bioclimate : Polar

3782: Boreal Tussock Tundra

Match Confidence: Poor Match

Suggested Match: Western North American Boreal Tussock Tundra

Codes: ESLF: 9436 EVT_fuel: 2629

ESP: 1629 NatureServe Id: CES105.127

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This ecological system is dominated by sedges in a tussock growth form. *Eriophorum vaginatum* is the primary tussock-former in most stands and *Carex bigelowii* is also common. On wetter sites, *Vaccinium* spp. (= *Oxycoccus* spp.) and *Chamaedaphne calyculata* may be present. Total shrub cover is less than 25%, although shrubs such as *Betula nana, Ledum palustre ssp. decumbens, Ledum groenlandicum, Vaccinium vitis-idaea, Vaccinium uliginosum* may be present. Mosses (*Sphagnum* spp., *Pleurozium schreberi, Hylocomium splendens*) may form a nearly continuous mat between tussocks.

Range: This system is found in lowland through subalpine zones of boreal and boreal transition (northern portion and higher elevation) regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 72:?, 73:C, 74:C, 75:C, 76:?

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Floristics/Dominants :	Tussock forming grasses
Soil Moisture (NRCS) :	Aquic
Bioclimate :	Boreal
Major Physiognomy :	Herbaceous
Life Zones :	Montane

3783: Arctic Shrub Tussock Tundra

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Shrub-Tussock Tundra

Codes: ESLF: 9364 EVT_fuel: 2693

ESP: 1693 NatureServe Id: CES102.180

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: Tussock shrub tundra is common in valleys and slopes throughout arctic Alaska. These sites are cold, poorly drained, and underlain by mesic, silty mineral soils with a shallow surface organic layer surrounding the tussocks. Permafrost is present. Patch size is small to matrix-forming. Tussock shrub tundra has >35% cover of sedges in a tussock growth form, and the combined cover of dwarf- and low shrubs is >25%. *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may dominate some sites. *Betula nana* and *Salix pulchra* dominate the low-shrub layer. Other species include *Ledum palustre ssp. decumbens, Vaccinium vitis-idaea, Vaccinium uliginosum, Empetrum nigrum*, and *Carex* spp. There are also distinctions between acidic and non-acidic tussock tundra. Acidic sites have more ericaceous shrubs and *Sphagnum* and less *Eriophorum* spp., *Betula nana*, and *Carex bigelowii*. Acidic sites also have more organic matter buildup and the tussocks tend to be larger.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar: Western North American Boreal Low Shrub-Tussock Tundra (CES105.126)

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Graminoid

Lifeform : Dwarf-Shrub

Soil Texture :	Silt
Soil Depth :	Shallow Soil
Bioclimate :	Polar
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)

3784: Arctic Shrub-Tussock Tundra

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Shrub-Tussock Tundra

Codes: ESLF: 9364 EVT_fuel: 2693

ESP: 1693 NatureServe Id: CES102.180

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: Tussock shrub tundra is common in valleys and slopes throughout arctic Alaska. These sites are cold, poorly drained, and underlain by mesic, silty mineral soils with a shallow surface organic layer surrounding the tussocks. Permafrost is present. Patch size is small to matrix-forming. Tussock shrub tundra has >35% cover of sedges in a tussock growth form, and the combined cover of dwarf- and low shrubs is >25%. *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may dominate some sites. *Betula nana* and *Salix pulchra* dominate the low-shrub layer. Other species include *Ledum palustre ssp. decumbens, Vaccinium vitis-idaea, Vaccinium uliginosum, Empetrum nigrum*, and *Carex* spp. There are also distinctions between acidic and non-acidic tussock tundra. Acidic sites have more ericaceous shrubs and *Sphagnum* and less *Eriophorum* spp., *Betula nana*, and *Carex bigelowii*. Acidic sites also have more organic matter buildup and the tussocks tend to be larger.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar: Western North American Boreal Low Shrub-Tussock Tundra (CES105.126)

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Graminoid

Lifeform : Dwarf-Shrub

Soil Texture :	Silt
Soil Depth :	Shallow Soil
Bioclimate :	Polar
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)

3785: Arctic Shrub Tundra

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Shrub-Tussock Tundra

Codes: ESLF: 9364 EVT_fuel: 2693

ESP: 1693 NatureServe Id: CES102.180

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: Tussock shrub tundra is common in valleys and slopes throughout arctic Alaska. These sites are cold, poorly drained, and underlain by mesic, silty mineral soils with a shallow surface organic layer surrounding the tussocks. Permafrost is present. Patch size is small to matrix-forming. Tussock shrub tundra has >35% cover of sedges in a tussock growth form, and the combined cover of dwarf- and low shrubs is >25%. *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may dominate some sites. *Betula nana* and *Salix pulchra* dominate the low-shrub layer. Other species include *Ledum palustre ssp. decumbens, Vaccinium vitis-idaea, Vaccinium uliginosum, Empetrum nigrum*, and *Carex* spp. There are also distinctions between acidic and non-acidic tussock tundra. Acidic sites have more ericaceous shrubs and *Sphagnum* and less *Eriophorum* spp., *Betula nana*, and *Carex bigelowii*. Acidic sites also have more organic matter buildup and the tussocks tend to be larger.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar: Western North American Boreal Low Shrub-Tussock Tundra (CES105.126)

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Graminoid

Lifeform : Dwarf-Shrub

Soil Texture :	Silt
Soil Depth :	Shallow Soil
Bioclimate :	Polar
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)

3786: Boreal Shrub-Tussock Tundra

Match Confidence: Poor Match

Suggested Match: Western North American Boreal Low Shrub-Tussock Tundra

Codes: ESLF: 9381 EVT_fuel: 2628

ESP: 1628 NatureServe Id: CES105.126

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common lowland system dominated by tussock sedges and low shrubs. *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may be the dominant tussock sedge on some sites. Other indicator species include *Betula nana, Salix pulchra, Ledum palustre ssp. decumbens, Ledum groenlandicum, Vaccinium vitis-idaea, Vaccinium uliginosum, Empetrum nigrum*, and *Carex* spp. Grasses, including *Calamagrostis canadensis* and *Arctagrostis* spp., may also be present. Lichens are scarce (with the possible exception of *Peltigera canina*). Sites are often underlain by permafrost. This ecological system is similar to ~Alaska Arctic Shrub-Tussock Tundra (CES102.180)$$ (and the Tussock Tundra 2 PNV) that occurs in Alaska's arctic and has a longer mean fire-return interval. Geographic location is the best determinant between these two systems.

Range: This system occurs in lowland through subalpine zones of the boreal and boreal transition (northern portion and higher elevation) regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar: Alaska Arctic Shrub-Tussock Tundra (CES102.180)

Descriptors:

Floristics/Dominants : Tussock forming grasses
Bioclimate : Boreal
Major Physiognomy : Herbaceous
Life Zones : Lowland

3787: Boreal Herbaceous Floodplains

Match Confidence: Poor Match

Suggested Match: Eastern Boreal Floodplain

Codes: ESLF: 9113 EVT_fuel: 2444

ESP: 1444 NatureServe Id: CES103.588

BioGeographical Division :

NVC MacroGroup: - North American Boreal Flooded, Swamp & Bog Forest

NVC Group: - Eastern Boreal Hardwood Floodplain & Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: These southern boreal floodplains are found in the extreme northern portions of the eastern U.S., and believed to be more widespread in Canada. They consist of floodplains along medium-sized northern rivers, in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. (*Acer saccharinum* is uncommon or absent.) Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. The distribution in Division 201 appears to be primarily Canadian, with incursions into northern Maine and northern Minnesota.

Range: This system is found primarily in Canada, with distribution extending into far-northern New England and the northern Great Lakes region.

States: ME, MI, MN, NB, NH, NY, ON, QC, VT

Map Zones: 40:?, 41:P, 50:P, 51:P, 63:P, 64:P, 66:C

Similar:

Descriptors:

Soil Depth :	Deep
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Topography :	Toeslope/Bottom/Valley
Hydrogeomorphic Units :	Riverine / Alluvial

Glacial History	Glaciated
Soil Fertility	Mesotrophic Soil
Soil Fertility	Oligotrophic
Life Zones	Lowland
Soil pH	Acidic
Flooding Return Interval	Short (<5 yrs)
Soil Organic Matter	Mineral: W/A Horizon >10 cm
Soil Texture	Silt
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Floristics/Dominants	Picea (glauca, mariana, rubens) - Abies
Water Nutrient Status	Mesotrophic Water
Water pH	Circumneutral
Water pH	Acidic
Soil pH	Circumneutral

3788: Boreal Shrub Floodplains

Match Confidence: Poor Match

Suggested Match: Eastern Boreal Floodplain

Codes: ESLF: 9113 EVT_fuel: 2444

ESP: 1444 NatureServe Id: CES103.588

BioGeographical Division :

NVC MacroGroup: M299 North American Boreal Flooded, Swamp & Bog Forest

NVC Group: G052 Eastern Boreal Hardwood Floodplain & Swamp

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Mixed evergreen-deciduous open tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.5 Boreal Flooded & Swamp Forest

NVCS Division: 1.B.5.Na North American Boreal Flooded & Swamp Forest

Summary: These southern boreal floodplains are found in the extreme northern portions of the eastern U.S., and believed to be more widespread in Canada. They consist of floodplains along medium-sized northern rivers, in areas not strongly influenced by ice-scour (i.e., depositional), where topography and process have resulted in a complex of upland and wetland alluvial vegetation. This complex includes floodplain forests dominated by northern trees such as *Populus balsamifera* and *Fraxinus nigra*, as well as herbaceous sloughs and shrub wetlands. (*Acer saccharinum* is uncommon or absent.) Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. The distribution in Division 201 appears to be primarily Canadian, with incursions into northern Maine and northern Minnesota.

Range: This system is found primarily in Canada, with distribution extending into far-northern New England and the northern Great Lakes region.

States: ME, MI, MN, NB, NH, NY, ON, QC, VT

Map Zones: 40:?, 41:P, 50:P, 51:P, 63:P, 64:P, 66:C

Similar:

Descriptors:

Soil Depth :	Deep
Major Physiognomy :	Forest and Woodland (Tree)
Major Physiognomy :	Shrubland (Shrub)
Topography :	Toeslope/Bottom/Valley
Hydrogeomorphic Units :	Riverine / Alluvial

Glacial History	Glaciated
Soil Fertility	Mesotrophic Soil
Soil Fertility	Oligotrophic
Life Zones	Lowland
Soil pH	Acidic
Flooding Return Interval	Short (<5 yrs)
Soil Organic Matter	Mineral: W/A Horizon >10 cm
Soil Texture	Silt
Disturbance Return Interval	Very Short
Mass Movement Type	Flood Scouring
Floristics/Dominants	Picea (glauca, mariana, rubens) - Abies
Water Nutrient Status	Mesotrophic Water
Water pH	Circumneutral
Water pH	Acidic
Soil pH	Circumneutral

3789: Alaska Sub-boreal White Spruce-Hardwood Forest

Match Confidence: Direct Match

Suggested Match: Alaska Sub-boreal White Spruce-Hardwood Forest

Codes: ESLF: 4334 EVT_fuel: 2679

ESP: 1679 NatureServe Id: CES105.136

BioGeographical Division : Montane Boreal

NVC MacroGroup: M156 Alaskan-Yukon North American Boreal Forest

NVC Group: G627 Western Boreal Moist White Spruce - Hardwood Forest

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Mixed evergreen-deciduous closed tree canopy

2015 Standard

NVCS Class: 1 Forest & Woodland

NVCS Subclass: 1.B Temperate & Boreal Forest & Woodland

NVCS Formation: 1.B.4 Boreal Forest & Woodland

NVCS Division: 1.B.4.Na North American Boreal Forest

Summary: This represents the mixed and evergreen dominated expression of this ecological system. This ecological system is widespread in south-central Alaska on well-drained upland terrain. *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. Environment: This system typically occurs on well-drained upland terrain. Soils generally develop on surficial deposits including glacial till, colluvium, and loess. Permafrost is rare.
Vegetation: *Picea glauca* and *Betula papyrifera* are typically codominant in an open canopy. *Populus tremuloides* and *Populus balsamifera* are common canopy trees and *Picea mariana* may also be present. Common understory shrubs include *Alnus viridis ssp. sinuata, Viburnum edule, Rosa acicularis, Ribes triste, Vaccinium vitis-idaea*, and *Linnaea borealis*. Common herbaceous species include *Calamagrostis canadensis, Chamerion angustifolium, Gymnocarpium dryopteris*, and *Cornus canadensis*

Range: This system occurs in the boreal transition region of Alaska.

States: AK

Map Zones: 73:C, 74:C, 75:C, 76:C, 77:?

Similar: Alaska Sub-boreal White-Lutz Spruce Forest and Woodland (CES105.102), Western North American Boreal Mesic Birch-Aspen Forest (CES105.108), Western North American Boreal White Spruce Forest (CES105.104)

Descriptors:

Floristics/Dominants : Picea glauca

Fire Intensity/Spatial Character : Landscape/High Intensity

Disturbance Return Interval : Very Long

Bioclimate	: Boreal
Topography	: High-Low Slope
Major Physiognomy	: Forest and Woodland (Tree)
Life Zones	: Montane

3790: Pacific Maritime Shrub Floodplains

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Shrub and Herbaceous Floodplain Wetland

Codes: ESLF: 9370 EVT_fuel: 2656

ESP: 1656 NatureServe Id: CES204.155

BioGeographical Division :

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G285 North Pacific Neutral-Alkaline Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Deciduous shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: Floodplain wetlands occur within the active and inactive portions of floodplain systems. Wetlands develop on poorly drained deposits, oxbows, and abandoned channels and are often mosaiced with well-drained floodplain vegetation. Frequent river channel migration and associated flooding and fluvial processes constitute the major disturbances. Wetland succession and species composition are variable due to diverse environmental conditions such as water depth, substrate, and nutrient input. Floodplain wetland vegetation includes the following classes: aquatic bed, freshwater marsh, fen, wet low shrub, and tall-shrub swamp. These have been described as unique systems in this classification, but because floodplain wetland dynamics are different from wetland dynamics outside the floodplain, we will consider floodplain wetlands a distinct system, and model succession accordingly.

Range: This system includes glacially- and non-glacially-fed rivers and streams along the Gulf Coast of Alaska, from Kodiak Island through southeastern Alaska.

States: AK

Map Zones: 77:C, 78:C

Similar:

Descriptors:

Juxtaposition : Bog and Fen mosaic

Soil Moisture Regime : Saturated

Lifeform : Broad-Leaved Deciduous Shrub

Bioclimate : Temperate

Landforms :	Braided channel or stream
Landforms :	Bank
Landforms :	Alluvial terrace
Landforms :	Alluvial plain
Landforms :	Floodplain
Life Zones :	Lowland
Life Zones :	Montane

3791: Aleutian Sparsely Vegetated

Match Confidence: Good Match

Suggested Match: Aleutian Sparse Heath and Fell-Field

Codes: ESLF: 5108 EVT_fuel: 2730

ESP: 1730 NatureServe Id: CES105.307

BioGeographical Division : Montane Boreal

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G362 Aleutian Ericaceous Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This system typically occurs at mid to high elevations on cliffs, rocky outcrops, exposed summits, windswept ridges, and fell-fields characterized by harsh environmental conditions. Slopes vary from flat to steep. Total vascular plant cover is 10-25%. Sites typically support vegetation similar to the adjacent ecological systems. The higher elevation windswept ridges, fell-fields and discontinuous heaths include *Harrimanella stelleriana, Phyllodoce aleutica, Salix arctica, Salix rotundifolia, Empetrum nigrum, Cassiope lycopodioides*, and *Arctostaphylos alpina*. Herbaceous species include *Carex macrochaeta, Carex aquatilis var. dives, Carex circinata, Lupinus nootkatensis, Geum calthifolium, Polygonum viviparum, Agrostis mertensii, Heuchera glabra, Potentilla villosa, Saxifraga bronchialis, Saxifraga oppositifolia, Veronica wormskjoldii var. stelleri*, and *Tofieldia coccinea*.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Lifeform : Dwarf-Shrub

Bioclimate : Boreal

Topography : High Ridge/Upper Slope

Landforms : Cliff

Landforms : Ridge

Major Physiognomy : Shrubland (Shrub)

3792: Arctic Sparsely Vegetated

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Acidic Sparse Tundra

Codes: ESLF: 5103 EVT_fuel: 2685

ESP: 1685 NatureServe Id: CES104.171

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G365 North American Arctic Tundra & Subarctic Alpine Lichen - Sparse Dw

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: This is a common system on acidic substrates (pH typically<6) in the hills and mountains of arctic Alaska. This system does not occur in the arctic lowlands. Common slope positions include valleys, sideslopes, and summits and ridges. The canopy is sparse due to extreme exposure, exposed bedrock or unstable substrates. Sites are typically dry to mesic and occur on acidic substrates. Soils are typically thin, stony, and well-drained. Patch size is small to matrix-forming. Total vascular plant cover is 10-25%, and lichen cover is ><25%. Common dwarf-shrub species include > *Dryas octopetala, Empetrum nigrum, Vaccinium uliginosum, Dryas integrifolia, Loiseleuria procumbens*, and *Salix phlebophylla*. Herbaceous species may include *Antennaria alpina, Hierochloe alpina (= Anthoxanthum monticola), Minuartia obtusiloba, Carex scirpoidea, Carex podocarpa, Carex microchaeta*, and *Festuca altaica*. Lichens include *Cladina* spp., *Sphaerophorus globosus, Nephroma arcticum, Flavocetraria* spp., and *Alectoria ochroleuca*.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Lifeform : Lichen

Lifeform : Dwarf-Shrub

Soil Depth : Very Shallow

Soil pH	:	Acidic
Bioclimate	:	Polar
Topography	:	High-Low Slope
Topography	:	High Ridge/Upper Slope

3793: Boreal Sparsely Vegetated

Match Confidence: Unmatched

Suggested Match: Western North American Boreal Alpine Talus and Bedrock

Codes: ESLF: 3204 EVT_fuel: 2632

ESP: 1632 NatureServe Id: CES105.130

BioGeographical Division :

NVC MacroGroup: M879 North American Boreal Cliff, Scree & Rock Vegetation

NVC Group: G787 North American Boreal Floodplain & Shore Rock Vegetation

1997 Standard

FGDC Division : Vegetated

FGDC Order : No dominant lifeform

FGDC Class : Sparsely vegetated

FGDC Subclass : Unconsolidated material

2015 Standard

NVCS Class: 6 Open Rock Vegetation

NVCS Subclass: 6.B Temperate & Boreal Open Rock Vegetation

NVCS Formation: 6.B.1 Temperate & Boreal Cliff, Scree & Other Rock Vegetation

NVCS Division: 6.B.1.Ng Circumboreal Cliff, Scree & Rock Vegetation

Summary: This ecological system occurs on talus- and bedrock-dominated sites above the dwarf-shrub zone, and also on early-seral alpine sites near glaciers. Sites are well-drained to excessively drained, and there is little soil development. They are often rocky and sparsely vegetated with forbs and graminoids such as *Draba* spp., *Saxifraga* spp., *Oxyria digyna, Festuca brachyphylla, Carex pyrenaica ssp. micropoda (= Carex micropoda)*, and *Luzula* spp. Dwarf-shrubs are uncommon.

Range: This system occurs in the high alpine (>1000 m elevation) of the boreal and boreal transition regions of Alaska.

States: AK

Map Zones: 69:C, 70:C, 71:C, 73:C, 74:C, 75:C

Similar:

Descriptors:

Bioclimate :	Boreal
Landforms :	Talus
Landforms :	Ridgetop bedrock outcrop
Landforms :	Hillslope bedrock outcrop
Major Physiognomy :	Herbaceous
Life Zones :	Alpine

3794: Pacific Maritime Sparsely Vegetated

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Alpine Sparse Shrub and Fell-Field

Codes: ESLF: 5109 EVT_fuel: 2674

ESP: 1674 NatureServe Id: CES204.318

BioGeographical Division :

NVC MacroGroup: M101 Vancouverian Alpine Scrub, Forb Meadow & Grassland

NVC Group: G317 North Pacific Alpine-Subalpine Dwarf-Shrubland & Heath

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.1 Temperate & Boreal Alpine Dwarf-Shrub & Grassland

NVCS Division: 4.B.1.Nb Western North American Alpine Dwarf-Shrub & Grassland

Summary: This sparsely vegetated ecological system occurs on exposed summits, windswept ridges, and fell-fields. These sites are characterized by harsh environmental conditions. Slopes vary from moderately sloped to flat. Dominant species include *Empetrum nigrum, Vaccinium uliginosum, Loiseleuria procumbens, Phyllodoce aleutica, Harrimanella stelleriana*, and *Luetkea pectinata*. Lichens may be common. Total vegetation cover ranges from 10 to 25%.

Range: This system occurs in the Alaska Range south and east throughout southeastern Alaska.

States: AK

Map Zones: 75:C, 77:C, 78:C

Similar: Western North American Boreal Alpine Dwarf-Shrub Summit (CES105.129)

Descriptors:

Juxtaposition :	Alpine mosaic
Lifeform :	Dwarf-Shrub
Wind Intensity/Spatial Character :	Landscape/High Intensity
Bioclimate :	Temperate
Topography :	High-Low Slope
Topography :	High Ridge/Upper Slope
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Alpine

3795: Aleutian Herbaceous Peatlands

Match Confidence: Good Match

Suggested Match: Aleutian Wet Meadow and Herbaceous Peatland

Codes: ESLF: 9432 EVT_fuel: 2723

ESP: 1723 NatureServe Id: CES105.236

BioGeographical Division : Montane Boreal

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G285 North Pacific Neutral-Alkaline Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This system includes a variety of herbaceous wetlands. Wet meadows occur in shallow depressions, seepage channels on gentle slopes, old beaver ponds, pond margins, along streams, lake borders, wet slopes, valley toeslopes, terraces, late-melting snowbeds, in wet depressions of *Empetrum* heath, bedrock or colluvium. The organic layer ranges from thick (sometimes >40 cm) to relatively thin. It may be composed of sphagnum, sedge, or other organic material and can occur over mineral soil or may be floating. Vegetation has >25% herbaceous species cover and<25% shrub cover. Common genera and species include > *Eriophorum russeolum, Eriophorum angustifolium ssp. scabriusculum, Eriophorum scheuchzeri, Anthelia* (liverwort), *Saxifraga hirculus, Geum pentapetalum, Calamagrostis canadensis, Calamagrostis stricta ssp. inexpansa, Carex saxatilis, Carex nigricans, Carex pluriflora, Carex lyngbyei, Carex anthoxanthea, Leptarrhena pyrolifolia, Ranunculus eschscholtzii, Ranunculus flammula, Saxifraga rivularis, Caltha palustris, Claytonia sibirica, Deschampsia beringensis, Comarum palustre, Rubus chamaemorus, Juncus alpinoarticulatus ssp. nodulosus, Juncus triglumis*, and *Drosera* spp. Shrubs include *Salix planifolia, Ledum palustre ssp. decumbens*, and *Empetrum nigrum*. *Sphagnum* may be common.

Range: This system occurs on the Alaska Peninsula, Aleutian Islands and Kodiak Island.

States: AK

Map Zones: 76:C

Similar:

Descriptors:

Soil Moisture Regime : Saturated

Floristics/Dominants : Sphagnum spp.

Soil Organic Matter : Organic Peat
Bioclimate : Boreal
Major Physiognomy : Herbaceous

3796: Arctic Herbaceous Peatlands

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Wet Sedge-Sphagnum Peatland

Codes: ESLF: 9424 EVT_fuel: 2702

ESP: 1702 NatureServe Id: CES102.200

BioGeographical Division :

NVC MacroGroup: M870 North American Arctic & Northern Boreal Freshwater Shrubland, W

NVC Group: G617 North American Arctic & Subarctic Wet Meadow

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.4 Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland

NVCS Division: 2.C.4.Np Circumpolar Arctic & Northern Boreal Freshwater Shrubland, Wet Meadow & Mars

Summary: This system occurs on the Yukon-Kuskokwim Delta and the Kotzebue Sound lowlands ecoregions. It is common in wet depressions and old lake basins. Soils are poorly drained and acidic, typically with a well-developed peat layer. Permafrost may be present. Patch size is small to large. *Sphagnum* cover is >25% (usually continuous), and herbaceous species (primarily sedges) cover is >25%. The dominant sedges are *Eriophorum* spp. and *Carex utriculata*. Other common species include *Betula nana, Comarum palustre (= Potentilla palustris)*, and *Equisetum fluviatile*.

Range: This system occurs on the Yukon-Kuskokwim Delta and the Kotzebue Sound lowlands ecoregions of Alaska.

States: AK

Map Zones: 67:C, 68:C, 72:C, 76:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Floristics/Dominants :	Sphagnum spp.
Soil Organic Matter :	Organic Peat
Soil pH :	Acidic
Bioclimate :	Polar
Major Physiognomy :	Herbaceous

3797: Pacific Maritime Shrub Peatlands

Match Confidence: Poor Match

Suggested Match: Alaskan Pacific Maritime Dwarf-Shrub-Sphagnum Peatland

Codes: ESLF: 9365 EVT_fuel: 2658

ESP: 1658 NatureServe Id: CES204.165

BioGeographical Division :

NVC MacroGroup: M063 North Pacific Bog & Fen

NVC Group: G284 North Pacific Bog & Acidic Fen

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Deciduous dwarf-shrubland

2015 Standard

NVCS Class: 2 Shrub & Herb Vegetation

NVCS Subclass: 2.C Shrub & Herb Wetland

NVCS Formation: 2.C.2 Temperate to Polar Bog & Fen

NVCS Division: 2.C.2.Na North American Bog & Fen

Summary: This ecological system is a mosaic of dwarf-shrub- and herbaceous-dominated peatlands. It includes well-developed peatlands (bogs and poor fens) in basins or on flat to gently sloping terrain. Soils are acidic and are usually saturated throughout the growing season. *Sphagnum* spp. (especially *Sphagnum fuscum*) dominate the ground layer. Shrub cover is typically low and may include *Ledum* spp., *Andromeda polifolia, Kalmia polifolia, Vaccinium oxycoccos (= Oxycoccus microcarpos), Empetrum nigrum*, and *Vaccinium uliginosum*. Other common species include *Drosera* spp., *Carex livida, Carex pluriflora, Carex pauciflora, Carex aquatilis var. dives (= Carex sitchensis), Trichophorum caespitosum*, and *Eriophorum angustifolium*. This system includes raised bogs.

Range: This system occurs from Kodiak Island through southeastern Alaska.

States: AK

Map Zones: 77:C, 78:C

Similar: North Pacific Bog and Fen (CES204.063)

Descriptors:

Floristics/Dominants : Sphagnum spp.

Lifeform : Dwarf-Shrub

Soil Organic Matter : Organic Peat

Soil pH : Acidic

Bioclimate : Temperate

Landforms : Bog

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3798: Arctic Herbaceous Sedge-Tussock-Lichen Tundra

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Tussock-Lichen Tundra

Codes: ESLF: 9422 EVT_fuel: 2695

ESP: 1695 NatureServe Id: CES102.181

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: The tussock lichen tundra system is common in valleys and slopes throughout arctic Alaska. These sites are cold, poorly drained, and underlain by mesic, silty mineral soils with a shallow surface organic layer surrounding the tussocks. Permafrost is present. Lichens are more common on the drier tussock tundra sites in western Alaska. Patch size is small to large. Tussock lichen tundra has >35% cover of sedges in a tussock growth form, shrub cover is<25%, and lichen cover is > 25%. Dwarf-shrubs may be common. *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may dominate some sites. Lichens may include *Flavocetraria cucullata (= Cetraria cucullata), Cetraria islandica, Cladonia* spp., *Cladina rangiferina*, and *Thamnolia subuliformis*. There are also distinctions between acidic and non-acidic tussock tundra. Acidic sites have more ericaceous shrubs and *Sphagnum* and less *Eriophorum* spp., *Betula nana*, and *Carex bigelowii*. Acidic sites also have more organic matter buildup and the tussocks tend to be larger.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Lichen

Lifeform : Graminoid

Soil Texture : Silt
Soil Depth : Shallow Soil
Bioclimate : Polar

3799: Arctic Herbaceous Tussock Tundra

Match Confidence: Poor Match

Suggested Match: Alaska Arctic Tussock Tundra

Codes: ESLF: 9421 EVT_fuel: 2694

ESP: 1694 NatureServe Id: CES102.179

BioGeographical Division :

NVC MacroGroup: M173 North American Arctic Tundra & Subarctic Alpine

NVC Group: G371 North American Arctic Tussock Tundra

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: 4 Polar & High Montane Scrub, Grassland & Barrens

NVCS Subclass: 4.B Temperate to Polar Alpine & Tundra Vegetation

NVCS Formation: 4.B.2 Polar Tundra & Barrens

NVCS Division: 4.B.2.Xa Arctic Tundra & Barrens

Summary: Tussock tundra is common in valleys and slopes throughout arctic Alaska. These sites are cold, poorly drained, and underlain by mesic, silty mineral soils with a shallow surface organic layer surrounding the tussocks. Permafrost is present. Patch size is small to large. Tussock tundra has >35% cover of sedges in a tussock growth form; the combined cover of dwarf- and low shrubs is<25%, and lichen cover is ><25%. > *Eriophorum vaginatum* is the primary tussock-former in most stands, but *Carex bigelowii* may dominate some sites. *Calamagrostis canadensis, Arctagrostis latifolia*, and *Chamerion latifolium (= Epilobium latifolium)* may be common. Shrubs include *Betula nana, Ledum palustre ssp. decumbens*, and *Vaccinium* spp. Mosses (*Sphagnum* spp., *Polytrichum strictum*, and *Hylocomium splendens*) may form a nearly continuous mat between tussocks. There are also distinctions between acidic and non-acidic tussock tundra. Acidic sites have more ericaceous shrubs and *Sphagnum* and less *Eriophorum* spp., *Betula nana*, and *Carex bigelowii*. Acidic sites also have more organic matter buildup and the tussocks tend to be larger.This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

Range: This system occurs throughout arctic Alaska, from the Bristol Bay lowlands in southwestern Alaska to the North Slope on the Arctic Ocean.

States: AK

Map Zones: 67:C, 68:C, 69:C, 72:C, 76:C

Similar:

Descriptors:

Floristics/Dominants : Tussock forming grasses

Lifeform : Graminoid

Bioclimate : Polar

3800: Developed-Open Space (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 21

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3801: Developed-Low Intensity (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 22

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3802: Developed-Medium Intensity (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 23

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3803: Developed-High Intensity (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 24

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3804: Agriculture (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 80

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Planted lands of variable physiognomy, with annual to multi-year stability. May include ordered rows of tree plantings (often dense) in agricultural-zoned lands, typically in lowland mesic and wet settings. May include a wide variety of dominants, including macadamia, coconut, banana, guava, papaya, sugarcane, pineapple, coffee, vegetable crops, and fallow fields.

Range:

States:

Map Zones:

Similar:

Descriptors:

3805: Water (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 11

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, inland waters of streams, rivers, ponds and lakesa and areas of open water, generally less than 25% cover of vegetation or soil. Specifically, coastal and near-shore estuarine and/or marine waters.

Range:

States:

Map Zones:

Similar:

Descriptors:

3806: Hawai'i Bog

Match Confidence: Direct Match

Suggested Match: Hawai'i Bog

Codes: ESLF: 9286 EVT_fuel: 2806

ESP: 1806 NatureServe Id: CES412.216

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Hawai'i Bog occurs primarily between 1067 and 1670 m (3500-5500 feet) elevation as isolated small patches on flat or gently sloping topography in high rainfall areas in cloud forests and other wet forests on all of the high islands. This bog system also occurs in the subalpine zone at 2270 m (7446 feet) elevation on Maui, and as a low-elevation bog at 646 m (2120 feet) on Kaua'i. Soils remain saturated on a shallow to deep layer of peat (0.01-5 m), underlain by an impervious basal clay layer that impedes drainage. A few sloping bogs occur on steeper terrain were precipitation is extremely high, such as in North Bog in the Wai'ale'ale summit region of Kaua'i, where soils remain saturated despite adequate drainage. Two bogs are believed to have formed in former small lakes, one along the Wailuku River, Hawai'i (Treeless bog), the other the subalpine bog on East Maui (Flat Top bog). The low-elevation bog on Kaua'i occurs on shallow, poorly drained acidic peat. Bogs are characterized by an uneven hummocky matrix of sedges and grasses (*Oreobolus furcatus, Carex* spp., *Rhynchospora* spp., *Dichanthelium* spp.) and stunted woody plants including *Metrosideros* spp. (ohi'a), *Coprosma ochracea* (pilo), and (*Dubautia* spp. (na'ena'e). Dwarfed or stunted woody plants can occur as scattered individuals, in clumps, or as a continuous layer. Associated ferns and herbs include *Dicranopteris linearis, Sadleria* spp., *Polypodium* spp., *Hymenophyllum* spp., *Elaphoglossum* spp., *Athyrium* spp., *Schizaea robusta, Selaginella deflexa, Plantago* spp., *Astelia* spp., *Viola* spp., *Machaerina* spp., *Lysimachia* spp., and on Kaua'i, the boreal catchfly *Drosera anglica*.

Range: This system is found near mountain summits on Kaua'i, O'ahu, Moloka'i, and West Maui (Selling 1948, Carlquist 1980), on high-rainfall windward slopes of East Maui, and on windward slopes of the Kohala Mountains, Mauna Kea, and Mauna Loa on Hawai'i Island.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Soil Moisture Regime :	Saturated
Subsoil Structure :	Impermeable Layer
Soil Organic Matter :	Muck
Soil Organic Matter :	Organic Peat
Wetland Isolation :	Isolated
Hydrogeomorphic Units :	Depressional
Hydrogeomorphic Units :	Extensive Wet Flat
Hydrogeomorphic Units :	Seepage-Fed Sloping
Bioclimate :	Tropical/Subtropical
Specialized Substrates :	Peat and mud
Landforms :	Bog
Major Physiognomy :	Herbaceous
Life Zones :	Lowland
Life Zones :	Montane

3807: Hawai'i Islands Introduced Wetland Vegetation-Tree

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2552

ESP: 1552 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Introduced mangrove species (Bruguiera and Rhizophora) have invaded some coastal areas and are invading some of remaining tidal salt marsh areas. Many of these original sites were largely converted to fish ponds by pre-contact Hawaiians so it is hard to know what they were other than perhaps coastal strand or tidal salt marsh.

Range:

States:

Map Zones:

Similar:

Descriptors:

3808: Hawai'i Lowland Rainforest

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Rainforest

Codes: ESLF: 4293 EVT_fuel: 2808

ESP: 1808 NatureServe Id: CES412.226

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Hawai'i Lowland Rainforest occurs on all the main islands except Ni'ihau and Kaho'olawe. Lowland wet forests are thought to have been the predominant original vegetation of the windward lowlands on the larger main islands. The system typically occurs on windward slopes high enough to intercept orographic rainfall resulting from rising moist tradewind air, but also occurs in a relatively narrow high precipitation band on the leeward side of the Big Island resulting from Kona storms. Soils vary throughout the island chain, from gray acidic clays on older islands to thin organic mucks over lava flows and ash beds on Hawai'i. The canopy is dominated by *Metrosideros polymorpha* or, in some forests, by *Acacia koa* where it attains heights up to 40 m. On some islands, this system forms a distinct belt above *Acacia*-dominated mesic forest. Diversity in the lowland rainforest is high, and *Metrosideros* and *Acacia* at times form an emergent layer over a diverse layer of native trees and an understory of native ferns, herbs, shrubs and vines. Important taxa in this rainforest system include *Alyxia oliviformis, Antidesma platyphyllum, Broussaisia arguta, Cheirodendron* spp., *Cibotium* spp., *Coprosma* spp., *Cyrtandra* spp., *Dicranopteris linearis, Diospyros sandwicensis, Freycinetia arborea, Hedyotis* spp., *Ilex anomala, Korthalsella* spp., *Machaerina* spp., *Melicope* spp., *Myrsine* spp., *Peperomia* spp., *Pittosporum* spp., *Psychotria* spp., *Sadleria* spp., *Smilax melastomifolia*, and in some areas *Pritchardia* spp. Native trees that occur in the understory include *Psychotria hawaiiensis* (kopiko) and *Antidesma platyphyllum* (hame). The endemic liana (*Freycinetia arborea*) is often abundant in these forests. Species that act as epiphytes include *Astelia menziesiana, Peperomia* spp., *Adenophorus, Huperzia*, and *Elaphoglossum* spp.

In the upper reaches of the lowland ohi'a forest on the island of Hawai'i, the understory is dominated by tree ferns or*Cibotium* spp. (hapu'u) which form a distinct closed layer beneath the

trees. A more open *Metrosideros* forest with other scattered native trees and a dense ground cover of the indigenous mat-forming *Dicranopteris linearis* (uluhe) and other related ferns (*Diplopterygium pinnatum, Sticherus owhyensis*) is seen on steep ridges and valley walls of Kaua'i, O'ahu, Moloka'i, Maui, and the Kohola Mountains of Hawai'i Island. *Freycinetia, Antidesma platyphyllum, Perrottetia*, and *Bobea* are constituents restricted largely to the lowland zone.

Range: This system occurs at 100 to 1200 m (328-3940 feet) elevation on Kaua'i, O'ahu, Moloka'i, LÃ¢na'i, Maui, and Hawai'i.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Lifeform	Tree Fern
Lifeform	Broad-Leaved Evergreen Tree
Bioclimate	Tropical/Subtropical
Topography	Toeslope/Bottom/Valley
Topography	High-Low Slope
Major Physiognomy	Forest and Woodland (Tree)
Life Zones	Lowland

3809: Hawai'i Montane Cloud Forest

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane Cloud Forest

Codes: ESLF: 4295 EVT_fuel: 2809

ESP: 1809 NatureServe Id: CES412.217

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Hawai'i Montane Cloud Forest occurs between 1065 and 1830 m (3500-6000 feet) elevation as a large-patch mosaic on windward aspects of all the high islands that receive evenly distributed orographically derived rainfall exceeding 2500 mm (99 inches) annually. Montane cloud forests are defined by the regular presence of clouds, low stature of the tree canopy, the abundance of epiphytes, and the significant proportion by which those passing clouds contribute fog water (fog drip) to total annual precipitation (up to 1073 mm [42 inches]). Regular fog drip sustains relatively constant streamflow and shallow groundwater hydrology in montane forests, particularly during dry seasons. Hawai'i cloud forests occur on older volcanic substrates that are nutrient-poor and lateritic due to leaching. They generally have a gley layer 10 to 70 cm (4-28 inches) thick with an organic overlay that varies from 10 to 30 cm (4-12 inches) deep. This ecological system is rich in species, with multiple species represented in each of several genera of shrubs and ferns. Vegetation is dominated by low-statured *Metrosideros polymorpha* and *Cheirodendron* spp. (specifically *Cheirodendron platyphyllum* on O'ahu and *Cheirodendron dominii* on Kaua'i), which form a low to medium-height canopy from 3 to 40 m tall. Subdominant tree species include *Ilex anomala, Alyxia oliviformis*, and shrubs *Clermontia* spp., *Cyanea* spp., *Dubautia platyphylla, Korthalsella* spp., *Myrsine* spp., *Trematolobelia* spp., *Smilax melastomifolia, Stenogyne* spp., *Phyllostegia* spp., and *Vaccinium* sp. This system supports an abundance of epiphytic shrubs, ferns, mosses and bryophytes. Species that act as epiphytes include *Astelia menziesiana, Peperomia* spp., and thick mats of bryophytes. Ferns include *Dicranopteris linearis, Cibotium* spp., *Astelia, Adenophorus* and *Elaphoglossum* spp. Cloud forests are distinguished from montane rainforests by the presence of a low-statured tree canopy and the ground-level clouds for a portion of nearly every day. Cloud forests generally support more epiphytes than montane rainforests.

Range: Maui, and Hawai'i.

States: HI

Map Zones: 79:C

Similar: Hawai'i Montane Rainforest (CES412.215)

Descriptors:

Lifeform :	Epiphyte
Lifeform :	Tree Fern
Lifeform :	Broad-Leaved Evergreen Tree
Bioclimate :	Tropical/Subtropical
Topography :	High Ridge/Upper Slope
Landforms :	Ridge
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3810: Hawai'i Montane Rainforest

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane Rainforest

Codes: ESLF: 4296 EVT_fuel: 2810

ESP: 1810 NatureServe Id: CES412.215

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Hawai'i Montane Rainforest encompasses a mosaic of rainforest and shrublands between 1100 and 2200 m (3600-7000 feet) elevation on all of the high islands. Montane rainforest occurs as a large-patch mosaic on windward areas that receive evenly distributed orographically derived rainfall exceeding 2500 mm (99 inches) annually. Stands also occur in a relatively narrow high precipitation band on the leeward side of the Big Island resulting from Kona storms. The climate is warm, with frequent afternoon fog often generating fog drip. Soils generally have a gley horizon 10 to 70 cm (4-28 inches) deep, underlain by lateritic weathered basalt and overlain with organic hummus ranging from 10 to 30 cm (4-12 inches) deep.

Across the range of the ecological system, vegetation varies in height, structural complexity and species richness. Forests can be dominated by*Metrosideros polymorpha, Cibotium* spp. (tree fern) in some areas, or by a tall, well-stratified canopy of *Acacia koa* (koa) in other areas. At higher elevations on Maui and Hawai'i, *Metrosideros* forms a 5- to 8-m canopy that is relatively simple floristically. Canopy height becomes as low as 2 m in poorly drained areas and along bog margins. At the lower elevational limit, montane rainforests merge with ~Hawai'i Lowland Rainforest (CES412.226)$$. At the upper elevational limit on Hawai'i and Maui, they quickly grade into *Acacia / Sophora* forest and other mesic communities. Montane rainforests frequently support a large mass of epiphytic mosses, ferns, and other plants. Common codominant and associated species include *Cheirodendron* spp., *Astelia menziesiana, Carex alligata, Clermontia* spp., *Cyrtandra* spp., *Dicranopteris* spp., *Psychotria* spp., *Pteridium aquilinum, Rubus* spp., *Urera glabra*, and *Vaccinium calycinum*. Plants that act as epiphytes include *Astelia menziesiana, Carex alligata, Elaphoglossum* spp., *Metrosideros polymorpha, Peperomia* spp., *Vaccinium calycinum*, and others. Montane rainforests differ from cloud forests by the lack of ground-level clouds nearly every day. Cloud

forests support more epiphytes than montane rainforests.

Range: This system is found from 1200 to 2200 m (4000-7000 feet) elevation on Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i.

States: HI

Map Zones: 79:C

Similar: Hawai'i Montane Cloud Forest (CES412.217)

Descriptors:

Lifeform :	Epiphyte
Lifeform :	Tree Fern
Lifeform :	Broad-Leaved Evergreen Tree
Bioclimate :	Tropical/Subtropical
Topography :	High-Low Slope
Landforms :	Mountainside
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane

3811: Hawai'i Wet Cliff and Ridge Crest Shrubland

Match Confidence: Direct Match

Suggested Match: Hawai'i Wet Cliff and Ridge Crest Shrubland

Codes: ESLF: 5274 EVT_fuel: 2811

ESP: 1811 NatureServe Id: CES412.218

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occupies crests of steep ridges and cliff faces throughout the main Hawai'ian Islands. These environments are characterized by regularly windy and usually foggy and wet conditions. Soils are generally thin over soft, highly weathered rock and thin mucky clays. Vegetation is windswept and variable, ranging from dense dwarf-shrublands to dominant sedges with few scattered shrubs to sparse rock with very little plant life. Wind-stunted trees and shrubs are 1-3 m in height, are clothed with masses of epiphytic cryptogams, and have a diverse array of native shrubs, vines, herbs and ferns. Woody plants become so stunted in some sites that sedges and ferns form a continuous canopy with them. Dominant species vary according to island and abiotic factors but generally include wind-stunted species of *Metrosideros, Cibotium, Melicope, Myrsine*, and *Vaccinium*. Other species include *Asplenium* spp., *Astelia menziesiana, Bidens* spp., *Broussaisia arguta, Cyrtandra* spp., *Diplopterygium pinnatum, Dicranopteris linearis, Dubautia* spp., *Eurya sandwicensis, Freycinetia arborea, Hedyotis terminalis, Lycopodiella cernua, Lobelia* spp., *Machaerina angustifolia, Peperomia* spp., *Phyllostegia* spp., *Scaevola* spp., *Sadleria pallida, Tetraplasandra* spp., *Trematolobelia* spp., and several rare endemic species including the orchid *Anoectochilus sandvicensis*.

Range: This system occurs between 200 and 900 m (650-2950 feet) elevation on Kaua'i, O'ahu, Moloka'i, LÃ¢na'i, Maui, and Hawai'i.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Mass Movement Type :	Landslide
Bioclimate :	Tropical/Subtropical
Bioclimate :	Tropical/Subtropical
Topography :	High Ridge/Upper Slope
Landforms :	Cliff
Landforms :	Ridge
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane

3812: Hawai'i Introduced Wetland Vegetation-Shrub

Match Confidence: Unmatched
Suggested Match:

Codes: ESLF: EVT_fuel: 2553
ESP: 1553 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :
FGDC Order :
FGDC Class :
FGDC Subclass :

2015 Standard

NVCS Class: -
NVCS Subclass: -
NVCS Formation: -
NVCS Division: -

Summary: Vegetation dominated by introduced species. coastal Pluchea, Atriplex semibaccata

Range:

States:

Map Zones:

Similar:

Descriptors:

3813: Hawai'i Lowland Dry Forest

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Dry Forest

Codes: ESLF: 4291 EVT_fuel: 2813

ESP: 1813 NatureServe Id: CES412.408

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on dry slopes of the main islands generally from 15-1000 m (50-3280 feet) elevation, but it may extend to 1500 m (4920 feet). Stands typically occur on the leeward sides of islands where there is a strong rainshadow effect from high mountains that reduce precipitation from moisture-laden trade winds. Annual rainfall is generally 500-2000 mm. Substrates include well-drained, sandy loam soils derived from volcanic ash or cinder and weathered 'a'Ã¢ or pÃ¢hoehoe basaltic lava. Vegetation is characterized by an open to dense tree layer typically dominated or codominated by a variety of mostly evergreen trees and diverse shrubs, ferns and lianas depending on location and age of stands. Lowland dry and mesic forests are exceptionally rich in tree species. Widespread species *Metrosideros polymorpha* is a constituent or may codominate in relatively young stands. Late-seral stands are dominated by *Diospyros sandwicensis* and, less commonly, *Colubrina oppositifolia*. In driest settings supporting trees, summer deciduous *Erythrina sandwicensis* may dominate. Presence of diagnostic tree species such as *Acacia koaia, Erythrina sandwicensis, Gardenia brighamii, Hibiscadelphus* spp., *Kokia* spp., *Nesoluma polynesicum, Reynoldsia sandwicensis*, or the shrubs *Achyranthes* spp., *Nototrichium* spp., or *Tephrosia* spp. indicate this dry lowland system. Other characteristics trees include *Canthium odoratum, Alphitonia ponderosa, Nestegis sandwicensis, Pleomele* spp., *Rauvolfia sandwicensis, Santalum* spp., *Sophora chrysophylla, Pouteria sandwicensis*, and *Sapindus oahuensis*. Native shrubs include *Dodonaea, Styphelia, Osteomeles, Sida, Waltheria, Nothocestrum* spp., *Myrsine lanaiensis, Wikstroemia* spp., *Plumbago zeylanica, Senna gaudichaudii, Plectranthus parviflorus (= Plectranthus australis), Lipochaeta* spp., *Tetramolopium* spp., and *Chamaesyce* spp. Native vines include *Ipomoea* spp., *Bonamia menziesii*, and *Canavalia* spp. Native ferns include *Doryopteris* and *Pellaea ternifolia*. Almost all native lowland dry forests have been degraded and include some invasive exotic woody species such as *Lantana camara, Leucaena leucocephala,*

Schinus terebinthifolius, and widespread exotic grasses such as *Andropogon virginicus, Pennisetum setaceum*, and *Schizachyrium condensatum*. Where substrate is rocky, lichens are often common.

Range: This lowland forest ecological system occurs on dry slopes of the main Hawai'ian Islands, except for Kaho'olawe.

States: HI

Map Zones: 79:C

Similar: Hawai'i Montane-Subalpine Dry Forest and Woodland (CES412.402)

Descriptors:

Lifeform :	Broad-Leaved Evergreen Shrub
Lifeform :	Broad-Leaved Evergreen Tree
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3814: Hawai'i Lowland Mesic Forest

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Mesic Forest

Codes: ESLF: 4292 EVT_fuel: 2814

ESP: 1814 NatureServe Id: CES412.411

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on mesic slopes of Hawai'i, Moloka'i, Maui, Kaua'i and O'ahu, from 30 to 1500 m (100-4920 feet) elevation, typically from 250 to1000 m (820-3280 feet). Stands are found in the mesic seasonal zone between the dry leeward and wet windward climates. Sites are considered mesic; too dry to support rainforests, but typically do not experience extended periods of drought like the dry forests. These mesic sites have relatively even precipitation throughout the year or have a distinct, seasonally dry period. Annual rainfall is 1200-2500 mm (47-98 inches) and falls largely from October to March. Substrates are highly variable but are generally well-drained and include steep, rocky talus, shallow to deep soils over weathered rock and gravelly alluvium, rocky shallow organic muck. Vegetation is variable, ranging from an open to dense, mostly evergreen tree layer 2-20 m tall. There is often diverse canopy, subcanopy and tall-shrub layers with lianas. As with lowland dry forest, tree diversity is very high. *Metrosideros polymorpha, Acacia koa, Diospyros sandwicensis, Nestegis sandwicensis, Pleomele* spp., and *Pritchardia kaalae* dominate or codominate. Diagnostic species of this system include the trees *Antidesma pulvinatum, Cryptocarya mannii, Alectryon macrococcus, Charpentiera* spp., *Flueggea neowawraea, Rhus sandwicensis, Pisonia* spp., and shrub and vine species *Ctenitis squamigera, Doodia* spp., and *Strongylodon ruber*. Other characteristic species in these diverse mesic forests may include *Antidesma platyphyllum, Bobea* spp., *Coprosma* spp., *Gardenia* spp., *Hibiscus* spp., *Melicope* spp., *Myrsine* spp., *Nothocestrum* spp., *Psychotria* spp., *Ochrosia* spp., *Pandanus tectorius, Pipturus albidus, Pittosporum* spp., *Rauvolfia* spp., *Santalum* spp., *Syzygium sandwicense, Xylosma hawaiiensis, Tetraplasandra* spp., *Zanthoxylum hawaiiense*, and drier forest species such as *Chamaesyce celastroides, Sophora chrysophylla*, and *Myoporum sandwicense*. The understory is variable and may be dominated by sedges and ferns or shrubs. The tree fern *Cibotium* spp. is typically absent. Common shrubs and vines include *Alyxia oliviformis, Cyanea* spp., *Delissea* spp.,

Dodonaea viscosa, Eugenia spp., *Freycinetia arborea, Hedyotis* spp., *Lobelia* spp., *Styphelia tameiameiae*, and *Vaccinium dentatum*. Common ferns and fern allies present are *Asplenium nidus, Dicranopteris linearis, Pteris* spp., and graminoids *Carex* spp. Exotic trees *Morella faya, Psidium* spp., and *Schinus terebinthifolius* are often present in disturbed stands. Fire-adapted exotic grasses such as *Oplismenus hirtellus* and *Pennisetum setaceum* are invasive and threaten these forests by increasing fire intensity, frequency and size.

Range: This forest ecological system occurs on mesic slopes of Hawai'i, Moloka'i, Maui, Kaua'i and O'ahu.

States: HI

Map Zones: 79:C

Similar: Hawai'i Mesic Coastal Forest (CES412.417)

Descriptors:

Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Lowland

3815: Hawai'i Montane-Subalpine Dry Forest and Woodland

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane-Subalpine Dry Forest and Woodland

Codes: ESLF: 4297 EVT_fuel: 2815

ESP: 1815 NatureServe Id: CES412.402

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Open tree canopy

FGDC Subclass : Evergreen open tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on dry slopes of higher mountains of Maui and Hawai'i, from 1000-2900 m (3280-9510 feet) elevation. An inversion layer of warmer air forms 50-70% of the time between 1600 and 3000 m that dramatically reduces precipitation at higher elevations. This is because the wet trade winds generally do not rise above 1900 m (6230 feet) and are deflected around the mountains, leaving upper slopes too dry to support rain forests. Stands also occur at lower elevations on the leeward sides of islands where there is a strong rainshadow effect. Annual rainfall is generally 300-1200 mm. Many sites are wind-exposed. Substrates include cinder, well-drained, sandy loam soils derived from volcanic ash, and weathered 'a'Ã¢ or pÃ¢hoehoe basaltic lava with little soil development. Vegetation is characterized by an open to dense tree layer dominated or codominated by *Metrosideros polymorpha, Sophora chrysophylla, Myoporum sandwicense, Acacia koa, Chamaesyce celastroides*, or *Chamaesyce olowaluana*. *Acacia koa* forests are tallest (up to 18 m), and *Sophora - Myoporum* and *Chamaesyce* forests range from 3-5 m tall, and up to 10 m in some places. Diagnostic taxa for this system are *Chamaesyce olowaluana, Sophora chrysophylla* and species of *Exocarpos* shrubs. Other trees include *Myrsine lanaiensis, Santalum* spp., and *Zanthoxylum hawaiiense*. *Dodonaea viscosa, Styphelia tameiameiae, Chenopodium oahuense*, and *Vaccinium* spp. frequently form a sparse to moderately dense shrub layer up to 3 m tall. Other shrubs may include *Bidens menziesii, Coprosma ernodeoides, Dubautia ciliolata, Dubautia linearis, Geranium cuneatum, Geranium multiflorum, Osteomeles anthyllidifolia, Silene* spp., and *Tetramolopium* spp. Native graminoids (e.g., *Gahnia* spp.) usually have less than 10% cover and ferns (e.g., *Pteridium aquilinum*) are present, but contribute low cover especially at higher elevations. Native grasses include *Eragrostis atropioides*. Fire-adapted exotic grasses such as *Pennisetum setaceum* are invasive and threaten these dry shrublands by increasing fire intensity, frequency and size. The exotic rosette forb *Verbascum thapsus* is a common in many

stands.

Range: This forest ecological system is restricted to drier upper slopes of the higher mountains of Maui (Haleakala) and Hawai'i (Mauna Kea, Mauna Loa, and Hualalai).

States: HI

Map Zones: 79:C

Similar: Hawai'i Lowland Dry Forest (CES412.408), Hawai'i Montane-Subalpine Dry Shrubland (CES412.403), Hawai'i Montane-Subalpine Mesic Forest (CES412.406)

Descriptors:

Lifeform :	Broad-Leaved Evergreen Shrub
Lifeform :	Broad-Leaved Evergreen Tree
Soil Depth :	Very Shallow
Bioclimate :	Tropical/Subtropical
Landforms :	Saddle
Landforms :	Mountainside
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3816: Hawai'i Montane-Subalpine Mesic Forest

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane-Subalpine Mesic Forest

Codes: ESLF: 4298 EVT_fuel: 2816

ESP: 1816 NatureServe Id: CES412.406

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Tree-dominated

FGDC Class : Closed tree canopy

FGDC Subclass : Evergreen closed tree canopy

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on mesic montane and subalpine slopes of Kaua'i, Maui and Hawai'i, from 900-2000 m (2950-6560 feet) elevation. Stands are found in the zone of mesic, seasonal precipitation between the dry leeward and wet windward climates. Sites are too dry to support rainforests, but do not experience extended periods of drought like the dry forests. Annual rainfall is generally 1000-2500 mm, with some areas experiencing a distinct dry period. Substrates include deep volcanic ash soils and trachyte, rocky mucks, and silty loams derived from weathered 'a'Ã¢ lava. Vegetation is characterized by an open to dense, mostly evergreen tree layer 10-35 m tall. There are often diverse subcanopy and tall-shrub layers with lianas. *Metrosideros polymorpha, Acacia koa*, or *Nestegis sandwicensis* dominate or codominate with other trees (e.g., *Santalum* spp., *Sapindus* spp.). *Sapindus saponaria* is a diagnostic species of this mesic system. Other trees may be present such as *Coprosma* spp., *Ilex anomala, Melicope* spp., *Myoporum sandwicense, Myrsine* spp., *Nothocestrum breviflorum, Pipturus albidus, Pisonia brunoniana, Pittosporum* spp., *Psychotria hawaiiensis, Zanthoxylum hawaiiense*, and drier forest species such as *Chamaesyce celastroides* and *Sophora chrysophylla*. The understory is variable and may be dominated by sedges and ferns or shrubs. Tree ferns (*Cibotium* spp.) are typically much less prominent than in wet forest. Common shrubs include *Clermontia* spp., *Cyanea* spp., *Dodonaea viscosa, Hedyotis* spp., *Rubus hawaiensis, Stenogyne* spp., and *Styphelia tameiameiae*. Common ferns and fern allies present include *Dryopteris wallichiana, Microlepia strigosa, Nephrolepis cordifolia, Melicope* spp. (= *Pelaea* spp.), *Sadleria* spp., and graminoids *Carex* spp. and *Uncinia uncinata*. Exotic trees *Morella faya, Psidium* spp., and *Schinus terebinthifolius* are often present in disturbed stands. Fire-adapted exotic grasses such as *Holcus lanatus, Pennisetum clandestinum*, and *Pennisetum setaceum* are invasive and threaten these forests by increasing fire intensity, frequency and size.

Range: Hawai'i.

States: HI

Map Zones: 79:C

Similar: Hawai'i Montane-Subalpine Dry Forest and Woodland (CES412.402), Hawai'i Montane-Subalpine Dry Shrubland (CES412.403), Hawai'i Subalpine Mesic Shrubland (CES412.404)

Descriptors:

Bioclimate :	Tropical/Subtropical
Landforms :	Mountainside
Major Physiognomy :	Forest and Woodland (Tree)
Life Zones :	Montane
Life Zones :	Montane

3817: Hawai'i Lowland Dry Shrubland

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Dry Shrubland

Codes: ESLF: 5283 EVT_fuel: 2817

ESP: 1817 NatureServe Id: CES412.409

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Dry lowland shrublands occur mostly on the leeward side of all the main islands except Ni'ihau and Kaho'olawe, and are found between 10 and 1000 m in elevation. These shrublands are generally less than 2 m in height. These shrublands occur on open gentle slopes to steep ridges of dissected slopes. Rainfall is 500-1500 mm, mostly restricted to the winter months, with summers hot and dry. Soils vary from silty loams to relatively unweathered pÃ¢hoehoe lava. Vegetation consists of a low shrubland dominated by *Dodonaea viscosa, Bidens* spp., *Sesbania tomentosa*, or *Wikstroemia* spp. Indicators species of this system include *Abutilon* spp., *Achyranthes* spp., *Capparis sandwichiana, Gossypium* spp., *Hibiscus brackenridgei, Plectranthus parviflorus (= Plectranthus australis), Portulaca* spp., and *Waltheria* spp. Stands often have other native shrubs such as *Argemone glauca, Canthium odoratum, Canavalia* spp., *Chamaesyce* spp., *Cassytha filiformis, Ipomoea* spp., *Lipochaeta* spp., *Nototrichium* spp., *Osteomeles anthyllidifolia, Peperomia tetraphylla, Peperomia leptostachya, Santalum ellipticum, Senna gaudichaudii, Sicyos* spp., *Myoporum sandwicense, Sida fallax*, and *Styphelia tameiameiae*; fern species of *Doryopteris* and *Pellaea*; and grass species of *Panicum* and also alien grasses such as *Pennisetum setaceum*. The density and height of shrubs may be reduced by recent fire or increased with increased moisture, for example when near riparian areas. Lowland dry shrublands are relatively intolerant to grazing pressure and fire and are replaced by alien-dominated communities when subject to these disturbances.

Range: This dry lowland forest ecological system occurs on the leeward side of all islands except Ni'ihau and Kaho'olawe.

States: HI

Map Zones: 79:C

Similar: Hawai'i Dry Coastal Strand (CES412.418), Hawai'i Lowland Dry Grassland (CES412.410)

Descriptors:

Bioclimate : Tropical/Subtropical
Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3818: Hawai'i Lowland Mesic Shrubland

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Mesic Shrubland

Codes: ESLF: 5334 EVT_fuel: 2818

ESP: 1818 NatureServe Id: CES412.412

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Communities in this ecological system occur between 30 and 850 m (262-2800 feet) elevation on all of the main islands except Kaho'olawe; they are well-developed on leeward Moloka'i and leeward western Maui. The climate is seasonal, with hot dry summers and primarily winter rainfall (up to 2000 mm annually). These shrublands develop where forests cannot be supported, such as ridgetops subject to seasonal drought. Soils are often thin and easily dried out. Vegetation has an open to closed canopy, up to 3 m (10 feet) in height, with varying herbaceous undergrowth. Common species include shrubby *Metrosideros polymorpha, Chamaesyce* spp., *Cladonia* (lichen), *Cocculus* spp., *Dicranopteris* spp., *Dodonaea viscosa, Korthalsella* spp., *Lobelia yuccoides, Osteomeles anthyllidifolia, Pittosporum* spp., *Sadleria* spp., *Scaevola gaudichaudiana, Scaevola gaudichaudii, Odontosoria (= Sphenomeris), Styphelia tameiameiae, Vaccinium* spp., and *Wikstroemia* spp. Grass cover is relatively sparse, usually less than 10% in historic times. Common graminoids are *Carex* spp., *Dianella* spp., *Eragrostis variabilis, Gahnia* spp., and *Luzula* spp.

Range: This system occurs on all of the main islands except Kaho'olawe.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Soil Depth : Very Shallow

Bioclimate : Tropical/Subtropical

Topography : High Ridge/Upper Slope

Major Physiognomy : Shrubland (Shrub)
Life Zones : Lowland

3819: Hawai'i Lowland Dry Grassland

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Dry Grassland

Codes: ESLF: 7179 EVT_fuel: 2819

ESP: 1819 NatureServe Id: CES412.410

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This lowland grassland ecological system mostly occurs on dry leeward sides of the larger islands of Hawai'i and Maui and on relatively dry smaller islands of LÃ¢na'i and Kaho'olawe. This ecological system also includes coastal dry grasslands that occur beyond the immediate coastal effects of the sea with wind, salt spray and salinity. Elevations range from 30-1000 m (100-3280 feet). Annual precipitation is generally between 100 and 1750 mm. Substrates are variable. Dominant native species are *Heteropogon contortus* (pili) which was fairly widespread. These stands were maintained and expanded by ancient Hawai'ians by regular burning. Other species include low scattered shrubs such as *Dodonaea viscosa, Sida fallax*, and *Waltheria indica*. Woody plants invade in the absence of regular fire. Other native dry lowland grasslands are composed of *Eragrostis variabilis, Fimbristylis* spp., *Lepturus repens*, or *Sporobolus virginicus* which were more common near coasts. Many dry grasslands have been replaced by exotic grass species or converted to exotic shrublands.

Range: This lowland dry grassland ecological system occurs on leeward sides of the larger islands of Hawai'i and Maui and relatively dry smaller islands of LÃ¢na'i and Kaho'olawe.

States: HI

Map Zones: 79:C

Similar: Hawai'i Dry Coastal Strand (CES412.418), Hawai'i Lowland Dry Shrubland (CES412.409), Hawai'i Montane-Subalpine Dry Shrubland (CES412.403)

Descriptors:

Lifeform : Graminoid

Disturbance Return Interval : Short

Bioclimate : Tropical/Subtropical
Major Physiognomy : Herbaceous
Life Zones : Lowland

3820: Hawai'i Lowland Mesic Grassland

Match Confidence: Direct Match

Suggested Match: Hawai'i Lowland Mesic Grassland

Codes: ESLF: 7180 EVT_fuel: 2820

ESP: 1820 NatureServe Id: CES412.413

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Lowland mesic grasslands can be found on most of the islands from 300 to 2000 m (1000-6500 feet) elevation. Annual rainfall is 750-1000 mm (30-40 inches) and falls mostly from November to March. Soils are generally shallow. On the younger islands, it can occur on young pÃ¢hoehoe that is beginning to form a thin mantel of soil. These communities are floristically poor, dominated by *Eragrostis variabilis*, on moderate to steep slopes of Kaua'i, O'ahu, Moloka'i and Maui. These grasslands form a near-continuous dense ground cover, about 1.2 m (1.5 feet) tall, that may extend downslope to coastal dry slopes. Associated species include *Metrosideros tremuloides, Bidens* spp., *Dodonaea viscosa*, and *Gouania hillebrandii*. Most examples of this system have been invaded by alien species. Lowland mesic grasslands grade into mesic shrublands and forests where *Metrosideros polymorpha* is frequently a dominant species.

Range: This ecological system occurs on Kaua'i, O'ahu, Moloka'i and Maui islands of Hawai'i.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Lifeform :	Graminoid
Soil Depth :	Shallow Soil
Bioclimate :	Tropical/Subtropical
Major Physiognomy :	Herbaceous
Life Zones :	Lowland

3821: Hawai'i Montane-Subalpine Dry Shrubland

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane-Subalpine Dry Shrubland

Codes: ESLF: 5284 EVT_fuel: 2821

ESP: 1821 NatureServe Id: CES412.403

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on dry slopes of higher mountains of Maui and Hawai'i, from near 900 to 3000 m (2950-9835 feet) elevation. An inversion layer of warmer air forms 50-70% of the time between 1600 and 3000 m that dramatically reduces precipitation at higher elevations. This is because the wet trade winds generally do not rise above 1900 m (6230 feet) and are deflected around the mountains, leaving upper slopes too dry to support rain forests. Stands also occur at lower elevations on leeward sides of islands where there is a strong rainshadow effect. Annual rainfall is generally 400-1500 mm. Many sites are wind-exposed. Substrates include cinder, well-drained, sandy loam soils derived from volcanic ash, and weathered 'a'Ã¢ or pÃ¢hoehoe basaltic lava with little soil development. Vegetation is often dominated by an open to dense shrub layer dominated by one or more of *Dodonaea viscosa, Styphelia tameiameiae, Chenopodium oahuense*, shrubby *Metrosideros*, and *Vaccinium* spp. *Dubautia linearis* is a diagnostic species. Other shrubs may include *Argyroxiphium* spp., *Bidens menziesii, Chamaesyce* spp., *Dubautia ciliolata, Dianella* spp., *Exocarpos* spp., *Geranium cuneatum, Lipochaeta* spp., *Osteomeles anthyllidifolia, Sida fallax, Silene* spp., and *Tetramolopium* spp. Scattered *Metrosideros polymorpha, Sophora chrysophylla*, or *Myoporum sandwicense* trees may be present in some stands. Shrubs extend up to 3 m on relatively mesic, protected sites. Native bunch grasses and forbs (especially rosettes) and ferns are present (e.g., *Sadleria cyatheoides, Pellaea ternifolia, Asplenium* spp.), but contribute low cover at higher elevation. Grasses can be more abundant at montane elevations but are generally sparse. Native graminoids include *Eragrostis atropioides, Deschampsia nubigena (= Deschampsia australis), Eragrostis deflexa, Gahnia* spp., and *Luzula* spp. Fire-adapted exotic grasses such as *Pennisetum setaceum* are invasive and threaten these dry shrublands by increasing fire intensity, frequency and size. The exotic rosette forb *Verbascum thapsus* is a common in many stands.

Range: Maui (Haleakala) and Hawai'i (Mauna Kea, Mauna Loa, and Hualalai).

States: HI

Map Zones: 79:C

Similar: Hawai'i Lowland Dry Grassland (CES412.410), Hawai'i Montane-Subalpine Dry Forest and Woodland (CES412.402), Hawai'i Montane-Subalpine Dry Grassland (CES412.405), Hawai'i Montane-Subalpine Mesic Forest (CES412.406)

Descriptors:

Lifeform :	Broad-Leaved Evergreen Shrub
Bioclimate :	Tropical/Subtropical
Landforms :	Mountainside
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Montane
Life Zones :	Montane

3822: Hawai'i Montane-Subalpine Dry Grassland

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane-Subalpine Dry Grassland

Codes: ESLF: 7181 EVT_fuel: 2822

ESP: 1822 NatureServe Id: CES412.405

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on dry montane to subalpine saddles and slopes of Mauna Kea, Mauna Loa, Hualalai, Hawai'i, from near 1615 to 2300 m (5295-7540 feet) elevation. An inversion layer of warmer air forms 50-70% of the time between 1600 and 3000 m that dramatically reduces precipitation at higher elevations. This is because the wet trade winds generally do not rise above 1900 m (6230 feet) and are deflected around the mountains, leaving upper slopes too dry to support rain forests. Stands also occur at lower elevations on leeward sides of islands where there is a strong rainshadow effect. Annual rainfall is generally 400-500 mm. Many sites are wind-exposed. Substrates include well-drained, sandy loam soils derived from volcanic ash or cinder and weathered basaltic lava with little soil development. Edaphic properties tend to suppress woody lifeforms. Vegetation is characterized by a moderate to dense bunchgrass layer (<1 m tall) dominated by >*Eragrostis atropioides* and sometimes codominated by *Panicum tenuifolium*. Other grass species include *Agrostis sandwicensis, Eragrostis deflexa*, and *Trisetum glomeratum*. Scattered shrubs may be present such as *Bidens menziesii, Chenopodium oahuense, Dodonaea viscosa, Dubautia linearis, Pseudognaphalium sandwicensium (= Gnaphalium sandwicensium), Osteomeles anthyllidifolia, Myoporum sandwicense*, and *Sophora chrysophylla*. Fire-adapted exotic grass *Pennisetum setaceum* has not significantly invaded and is only occasionally present. Weedy exotic forbs are common. *Heterotheca grandiflora, Senecio madagascariensis, Verbascum thapsus*, and *Verbesina encelioides* are common in disturbed stands (Shaw and Castillo 1997, J. Jacobi pers. comm.).

Range: This grassland ecological system is restricted to drier saddles and upper slopes of Mauna Kea, Hawai'i.

States: HI

Map Zones: 79:C

Similar: Hawai'i Montane-Subalpine Dry Shrubland (CES412.403)

Descriptors:

Bioclimate :	Tropical/Subtropical
Landforms :	Saddle
Landforms :	Mountainside
Major Physiognomy :	Herbaceous
Life Zones :	Montane
Life Zones :	Montane

3823: Hawai'i Montane-Subalpine Mesic Grassland

Match Confidence: Direct Match

Suggested Match: Hawai'i Montane-Subalpine Mesic Grassland

Codes: ESLF: 7182 EVT_fuel: 2823

ESP: 1823 NatureServe Id: CES412.407

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Herbaceous / Nonvascular-dominated

FGDC Class : Herbaceous - grassland

FGDC Subclass : Perennial graminoid grassland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on cool windward subalpine slopes of east Maui and Mauna Loa, Hawai'i. Elevation ranges from 2100 m on Maui and 1680-1980 m on Hawai'i. Sites are relatively mesic as annual rainfall is generally 1300-2500 mm. Soils are shallow over rock, retaining soil moisture, or much deeper ash deposits. Vegetation is characterized by a moderate to dense bunchgrass layer (<1 m tall) dominated by >*Deschampsia nubigena* with *Pteridium aquilinum var. decompositum* frequently codominate. Other herbaceous species include *Carex macloviana, Uncinia* cf. *uncinata, Luzula hawaiiensis, Plantago* spp., *Ranunculus hawaiensis*, and *Sanicula sandwicensis*. Scattered shrubs may be also present such as *Coprosma montana, Dubautia* spp., *Sophora chrysophylla*, and *Styphelia tameiameiae*. Several exotic species are common in disturbed stands.

Range: This grassland ecological system is restricted to montane and subalpine slopes of Haleakala on Maui and Mauna Loa on Hawai'i.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Lifeform : Graminoid

Bioclimate : Tropical/Subtropical

Landforms : Mountainside

Major Physiognomy : Herbaceous

Life Zones : Montane

Life Zones : Montane

3824: Hawai'i Alpine Dwarf-Shrubland

Match Confidence: Direct Match

Suggested Match: Hawai'i Alpine Dwarf-Shrubland

Codes: ESLF: 5211 EVT_fuel: 2824

ESP: 1824 NatureServe Id: CES412.401

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on dry alpine slopes of Maui and Hawai'i from near 3000 to 3400 m (9835-11,150 feet) elevation sometime extending down into the subalpine 2600 m (8525 feet) in arid zones. The wet trade winds frequently do not rise above 1900 m, being suppressed by the tropical inversion layer, leaving upper slopes too dry to support wet vegetation. Annual rainfall is generally 750-1250 mm and falls from October to March. Sites are wind-exposed. Frost is frequent, even during summer months. Substrates are well-drained and gravelly and derived from cinder and ash, but they can include glacial moraine. Vegetation is characterized by scattered dwarf-shrubs (10-20%) of *Argyroxiphium* spp., *Dubautia menziesii, Silene struthioloides*, and sometimes scattered *Coprosma ernodeoides, Geranium* spp., *Styphelia tameiameiae, Tetramolopium humile*, or *Vaccinium* spp. Also present may be scattered grasses (*Agrostis sandwicensis, Deschampsia nubigena, Trisetum glomeratum*), forbs (*Pseudognaphalium sandwicensium (= Gnaphalium sandwicensium)*), ferns (*Pellaea ternifolia, Asplenium adiantum-nigrum, Asplenium trichomanes*), lichens (*Lecanora melaena*), and mosses (*Grimmia haleakalae, Racomitrium* spp.).

Range: This ecological system is restricted to dry alpine and upper subalpine slopes of Haleakala, Maui and Mauna Kea and Mauna Loa, Hawai'i above 3000 m.

States: HI

Map Zones: 79:C

Similar: Hawai'i Alpine Bedrock and Scree (CES412.400)

Descriptors:

Temporal Persistence : Long (> 500 yrs)

Lifeform : Dwarf-Shrub

Bioclimate	: Tropical/Subtropical
Specialized Substrates	: Basalt
Specialized Substrates	: Cinder
Specialized Substrates	: Lava
Topography	: High Ridge/Upper Slope
Landforms	: Mountain(s)
Major Physiognomy	: Shrubland (Shrub)
Life Zones	: Alpine

3825: Hawai'i Dry Cliff

Match Confidence: Direct Match

Suggested Match: Hawai'i Dry Cliff

Codes: ESLF: 5282 EVT_fuel: 2825

ESP: 1825 NatureServe Id: CES412.414

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on dry cliffs away from the direct influence of the shoreline (surf, wind and salt spray) on the larger islands, extending up to montane and subalpine slopes on Maui and Hawai'i, from 15 to 3000 m (50-9835 feet) elevation. Stands occur on the leeward sides of islands in the rainshadows. Annual rainfall is generally low (500-1500 mm). Substrates include sandy loam soils derived from cinder, volcanic ash, and weathered basaltic lava with little soil development. Many sites are wind-exposed. Vegetation is variable but is generally sparse, composed of an open shrub or herbaceous layer, and restricted to ledges or less steep slopes. Common grass and fern species include *Deschampsia nubigena, Heteropogon contortus, Peperomia tetraphylla, Plectranthus parviflorus*, and *Trisetum glomeratum*, and shrubs such as *Artemisia mauiensis, Chamaesyce celastroides*, and *Psydrax odorata*. Stands are often weedy, being invaded by several introduced species such as *Melinis repens, Lantana camara, Leucaena leucocephala, Acacia farnesiana*, and *Prosopis pallida*.

Range: This ecological system occurs on the larger Hawai'ian islands on dry cliffs away from the direct influence of the shoreline.

States: HI

Map Zones: 79:C

Similar:

Descriptors:

Wind Intensity/Spatial Character : Landscape/Medium Intensity

Soil Depth : Very Shallow

Bioclimate :	Tropical/Subtropical
Landforms :	Cliff
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland
Life Zones :	Montane

3826: Hawai'i Dry Coastal Strand

Match Confidence: Direct Match

Suggested Match: Hawai'i Dry Coastal Strand

Codes: ESLF: 5212 EVT_fuel: 2826

ESP: 1826 NatureServe Id: CES412.418

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Dwarf-shrubland

FGDC Subclass : Evergreen dwarf-shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This coastal ecological system occurs on the drier leeward side of the larger Hawai'ian Islands and on all sides of the smaller, arid islands and atolls that are widespread in the northwestern Hawai'ian Islands. Annual precipitation is usually less than 1200 mm. Stands are restricted to the shoreline and the zone immediately back of it where sites are strongly influenced by surf, wind and salt spray. Substrates are variable, ranging from gentle to steep rocky, cobbly shores, derived from tuff or disintegrating lava or raised coral beds (limestone), and lava flows (basalt) to flat surf-pounded sandy beaches, some with adjacent dunes or low alkaline flats above the saturated zone and behind the high-tide mark. Vegetation varies largely with substrate but tends to be sparse and patchy. Stands include succulent herbs, low wind-sheared shrubs, grasslands, a mix of shrub and grass or taller shrublands. Native species that may be dominant locally include graminoids *Fimbristylis cymosa, Eragrostis variabilis*, or *Sporobolus virginicus*, or forbs *Boerhavia acutifolia, Boerhavia repens, Nama sandwicense*, and *Sesuvium portulacastrum*, or *Sida fallax* mats with *Jacquemontia ovalifolia ssp. sandwicensis* or *Scaevola sericea* shrubs. Other shrubs, such as *Chamaesyce celastroides, Chenopodium oahuense, Gossypium tomentosum, Heliotropium anomalum, Lipochaeta* spp., *Myoporum sandwicense, Scaevola coriacea, Tetramolopium rockii, Tribulus cistoides*, and *Vitex rotundifolia*, may also dominate stands.

Range: This ecological system occurs on sandy coastlines on Midway Atoll and all of the main Hawai'ian Islands.

States: HI

Map Zones: 79:C

Similar: Hawai'i Lowland Dry Grassland (CES412.410), Hawai'i Lowland Dry Shrubland (CES412.409),

Hawai'i Mesic Coastal Forest (CES412.417)

Descriptors:

Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Tropical/Subtropical
Specialized Substrates :	Basalt
Specialized Substrates :	Lava
Specialized Substrates :	Beach
Landforms :	Shoreline
Landforms :	Coast
Major Physiognomy :	Grassland, Savanna, Steppe
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3827: Hawai'i Wet-Mesic Coastal Strand

Match Confidence: Direct Match

Suggested Match: Hawai'i Wet-Mesic Coastal Strand

Codes: ESLF: 5286 EVT_fuel: 2827

ESP: 1827 NatureServe Id: CES412.419

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This mesic to wet coastline ecosystem is found on the windward sides of the larger Hawai'ian Islands except Kaho'olawe and Lanai. Stands are restricted to seasonally mesic to wet shoreline and the zone immediately back of it. Substrates are variable and include a mix of sand, cobble and/or bedrock. Elevation is generally below 30 m. Annual precipitation ranges from over 3500 mm down to 1200 mm on seasonally mesic sites. Vegetation is variable depending largely on substrate and may include shrublands, grasslands or may be sparse. Scattered trees may be present but generally do not form a canopy, except on disturbed sites invaded by introduced trees such as *Casuarina* spp. Species characteristic of the wet strand are *Cyclosorus interruptus, Deschampsia nubigena, Machaerina angustifolia, Pilea peploides, Scleria testacea, Selaginella arbuscula*, and *Wikstroemia oahuensis*. Characteristic species of mesic or seasonally moist strand are *Artemisia australis, Bacopa monnieri, Bidens hillebrandiana, Bidens molokaiensis, Chenopodium oahuense, Cyperus javanicus, Cyperus phleoides, Diospyros sandwicensis, Eragrostis variabilis, Ischaemum byrone, Lipochaeta succulenta, Lysimachia mauritiana, Osteomeles anthyllidifolia, Pandanus tectorius, Plectranthus parviflorus, Sadleria cyatheoides, Schiedea globosa*, and *Solanum americanum*.

Range: This ecological system occurs along the coastline and the zone immediately back of it on the windward sides of the larger Hawai'ian Islands except Kaho'olawe and Lanai.

States: HI

Map Zones: 79:C

Similar: Hawai'i Mesic Coastal Forest (CES412.417)

Descriptors:

Specialized Substrate Chemistry :	Salt Spray
Bioclimate :	Tropical/Subtropical
Bioclimate :	Tropical/Subtropical
Landforms :	Shoreline
Landforms :	Coast
Major Physiognomy :	Grassland, Savanna, Steppe
Major Physiognomy :	Herbaceous
Major Physiognomy :	Woody-Herbaceous
Major Physiognomy :	Shrubland (Shrub)
Life Zones :	Lowland

3828: Hawai'i Subalpine Mesic Shrubland

Match Confidence: Direct Match

Suggested Match: Hawai'i Subalpine Mesic Shrubland

Codes: ESLF: 5285 EVT_fuel: 2828

ESP: 1828 NatureServe Id: CES412.404

BioGeographical Division : Northern Polynesia

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division : Vegetated

FGDC Order : Shrub-dominated

FGDC Class : Shrubland

FGDC Subclass : Evergreen shrubland

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This ecological system occurs on mesic, windward slopes of eastern Maui and outer north slopes of Haleakala Crater, from 1950 to 2300 m elevation and the upper Kaupo Gap area east-southeast of Haleakala Crater. Sites include ridges and upper slopes that are dissected. Annual precipitation is 1300-1900 mm with rain distributed fairly evenly throughout the year. The thin cinder-derived soil has many rock outcrops. Vegetation is a closed shrubland dominated by *Sadleria cyatheoides* and *Vaccinium calycinum*. At higher elevations and on ridges, there is a single shrub layer 1-1.2 m tall; at lower elevation, stands often have two shrub layers: a tall *Vaccinium*-dominated shrub layer (2 m tall) emergent over a 1-m tall dense shrub layer dominated by other shrubs. Other characteristic shrubs include *Coprosma ernodeoides, Geranium multiflorum, Rubus hawaiensis, Rubus macraei*, and *Vaccinium reticulatum*. *Lycopodium venustulum* is important in the Kipahulu Valley stands. *Dodonaea viscosa* and *Styphelia tameiameiae* are important shrubs in the upper Kaupo Gap area east-southeast of Haleakala Crater. Herbaceous species are generally sparse, e.g., *Deschampsia nubigena* and *Fragaria chiloensis ssp. sandwicensis*. Ferns include *Dryopteris wallichiana* and *Pteridium aquilinum*.

Range: These mesic shrublands have a narrow range and are only found in a relative narrow subalpine band on the windward side of Haleakala on eastern Maui, Hawai'i.

States: HI

Map Zones: 79:C

Similar: Hawai'i Montane-Subalpine Mesic Forest (CES412.406)

Descriptors:

Bioclimate : Tropical/Subtropical

Landforms : Mountainside
Major Physiognomy : Shrubland (Shrub)
Life Zones : Montane

3830: Barren 1 (Hawai'i)

Match Confidence: Unmatched
Suggested Match:

Codes: ESLF: EVT_fuel: 31
ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :
FGDC Order :
FGDC Class :
FGDC Subclass :

2015 Standard

NVCS Class: -
NVCS Subclass: -
NVCS Formation: -
NVCS Division: -

Summary: Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3832: Barren 2 (Hawai'i)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 31

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3833: Pacific Islands Limestone Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2833

ESP: 1833 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Forest on elevated limestone plateaus and cliffs. “Basically moist, broadleaved evergreen forest, mostly dominated by dugdug or wild breadfruit (*Artocarpus*) and nunu or banyan (*Ficus*), in some large areas by screw pine (*Pandanus*), locally by other species. This forest varies to a dense scrub on edges and faces of cliffs and near the sea” (Mueller-Dombois and Fosberg, 1998. p.272). Samoa – Forest on elevated limestone plateaus and cliffs. Mariana Islands – Native Limestone Forest

Range: Guam, Mariana Islands, Samoa.

States:

Map Zones:

Similar:

Descriptors:

3834: Pacific Islands Littoral/Strand Vegetation

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id:

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: (Mueller-Dombois and Fosberg, 1998. P.362) "Littoral… revers to the seashore…. Excludes mangroves, vegeation on well drained substrates (beach, coral rubble, lava or soil). In the surf zone and exposed to salt spray and storm surge. Herbaceous strand - three vines (Ipomoea pes-caprae, Vigna marina, Canavalia rosea), three grasses (Lepturus repens, Thuarea invaluta, Stenotaphrum microanthrum), two sedges (Cyerus stononiferus, Fibristylis cymosa). Littoral scrub - sandy and rocky substrates, Scaevola taccada and Wollastonia biflora (spreading and matt forming). Littoral forest ofter monodominant - (e.g. Barringtonia asiatica, Calophyllum inophyllum, Pisonia grandis).

Range:

States:

Map Zones:

Similar:

Descriptors:

3835: Pacific Islands Lowland Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2835

ESP: 1835 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Samoa - Lowland (Tropical) Rainforest; Guam – Swamp Forest Complex, including Mangroves. Mueller-Dombois and Fosberg, 1998 (Page 364) On Samoa - 5 lowland rain forests recognized by Whistler (1980, 1992); Diospyrus , Dysoxylum, Pometia, Syzygium and Planchonella forests. Which species dominates appears to be related to soil (i.e. Young volcanic vs deeply weathered.

Range: Samoa; Guam

States:

Map Zones:

Similar:

Descriptors:

3836: Pacific Islands Mangrove Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mueller-Dombois and Fosberg, 1998 (Page 363) Mangrove scrub and forest - typically monodominant. Rhizophora mangle along forms a rim, Brugiera gymnorriza sometimes forms a taller monodominant band on the inlands sise of the Rhizophora community.

Range:

States:

Map Zones:

Similar:

Descriptors:

3837: Pacific Islands Palm Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2844

ESP: 1844 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Palma Brava Grove - Groves of forest in ravines and slopes of central Guam dominated by *Heterospathe elata* (Palma Brava). Also can be found in these stands are Pandus and Hibiscus. Palma Brava is listed by Space and Falanruw (1999) under the category of native and naturalized species exhibiting aggressive behavior, and was described as palms that “continue to spread in ravines and slopes of central Guam” (p.5). ; Samoa – Coconut Plantation. Marianas Islands – Agroforest – Coconut.

Range: Guam, Samoa, Marianas Islands

States:

Map Zones:

Similar:

Descriptors:

3838: Hawai'i Introduced Wetland Vegetation-Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2554

ESP: 1554 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Marshes and other wetlands dominated by alien obligatory wetland grasses or grass-like vegetation, shrubs, or trees, e.g., oriental mangrove (*Bruguiera gymnorrhiza)* and American mangrove (*Rhizophora mangle*). These areas have generally been heavily degraded by feral pigs and subsequently, original native vegetation has been almost completely replaced by alien plants. This class is primarily derived from the National Hydrography Dataset.

Range:

States:

Map Zones:

Similar:

Descriptors:

3839: Pacific Islands Ravine Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2839

ESP: 1839 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: "Basically moist, broad-leaved evergreen forest, dominated locally by pago (Hibiscus) or screw pine (*Pandanus*), rarely by dugdug (*Artocarpus*). This forest is usually very mixed, commonly containing betel palm (*Areca*) and with dugdug scarce or absent. It frequently varies to a dense scrub of limon de china (*Triphasia*) or to patches of 6 reed marsh and patches of hibiscus scrub. Coconuts are occasional to "locally common" (Mueller-Dombois and Fosberg, 1998. p.274). Dominant tree species in Ravine Forest listed by Fosberg include *Hibiscus tiliaceaus*, *Pandanus tectorius*, *Pandanus dubius*, *Ficus prolixa*, *Glochidion marriannensis*, and *Premna serratifolia*.

Range:

States:

Map Zones:

Similar:

Descriptors:

3840: Pacific Islands Savannah

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mueller-Dombois and Fosberg, 1998 (Page 274) Guam - Savanna complex - mosaice of grassland and herbaceous vegetation. Sword grass (Miscanthus) dominates in some areas, scattered Ironwood trees (Casurarina).

Range:

States:

Map Zones:

Similar:

Descriptors:

3841: Pacific Islands Scrub Forest/Shrub

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2841

ESP: 1841 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Named as Secondary Thickets and Partially Cultivated Scrub Forest by Fosberg. It is “extremely variable vegetation, resulting from long-continued human disturbance, usually on argillaceous limestone. It makes a fine mosaic of patches of forest, usually dominated by breadfruit (*Artocarpus*), coconut groves, bamboo clumps, patches of scrub or scrub forest, home sites, small cultivated fields and patches, pastures, and very large areas of Tanantangan (*Leucaena leucocephala*) thickets” (Mueller-Dombois and Fosberg, 1998. p.274). Samoa – Secondary thickets and partially cultivated scrub forest. Casuarina thicket, Leucaena leucocephala.

Range: Guam, Samoa, Marianas

States:

Map Zones:

Similar:

Descriptors:

3842: Pacific Islands Swamp/Marsh

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mueller-Dombois and Fosberg, 1998 (Page 274) Guam - Swamp forest - they include mangroves with the swamp, upstream of mangroves are mosaics of Barringtonia racemosa, Hibiscus, and Pandanus and Phragmites. Vegetation structure is generally low, but variable. 15 m tall where Barringtonia dominates. Phagmites karka is the dominant marsh species.

Range:

States:

Map Zones:

Similar:

Descriptors:

3843: Pacific Islands Upland Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2843

ESP: 1843 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Samoa – Dwarf Forest, Montane Rainforest, Rain Forest, Coastal Forest, Mixed Forest (Rosa & Swains). Marianas Islands – Mixed Introduced Forest, Agroforest.

Range: Samoa, Marianas Islands

States:

Map Zones:

Similar:

Descriptors:

3845: Hawai'i Introduced Dry Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2545

ESP: 1645 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This widespread introduced vegetation cover type is common on lower elevation (usually <1000 m) dry sites, such as the leeward sides of the larger islands. The tree canopy is typically dominated by the *Prosopis pallida* (kiawe) especially near the coast, but incudes other introduced dry tree species such as, Haematoxylum campechianum, *Prosopis juliflora, Schinus terebinthifolius,* and *Terminalia catappa*. Many other introduced woody species may also be abundant including *Acacia farnesiana* or *Leucaena leucocephala*. Introduced grasses such as *Pennisetum setaceum, Pennisetum ciliare, and Panicum maxima* (syn = *Urochloa maxima*), frequently dominate the understory. This type has largely replace much of the native Hawai'i dry coastal grasslands and shrublands and lowland dry forests.

Range:

States:

Map Zones:

Similar:

Descriptors:

3846: Hawai'i Introduced Wet-Mesic Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2546

ESP: 1546 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This widespread introduced vegetation cover type is common on lower elevation (usually < 1000 m), wet-mesic sites. The tree canopy is typically dominated by a variety of introduced wet or mesic trees such as *Bambusa* spp. (bamboo), *Casuarina* spp. (ironwood), *Psidium* spp. (guava), *Grevillea* spp. (silk oak), *Melaleuca leucadendra* (paper bark tree), *Melastoma candidum, Melochia umbellata, Miconia calvescens, Moluccan albizia, Morella faya,*

Range:

States:

Map Zones:

Similar:

Descriptors:

3847: Hawai'i Introduced Deciduous Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2547

ESP: 1547 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This widespread introduced shrubland cover type is dominated by introduced shrubs especially *Leucaena leucocephala and other deciduous shrubs such as Acacia confusa, Acacia mearnsii, Caesallpina decapetala, Lantana camara, Rubus argutus, Rubus discolor.*

Range:

States:

Map Zones:

Similar:

Descriptors:

3848: Hawai'i Introduced Perennial Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2548

ESP: 1548 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Introduced grasslands dominated tall, medium and/or short statured herbacous layer. Dominant species include tall grasses such as guineagrass (Urochloa maxima, syn = Panicum maxima), elephant grass (Pennisetum purpureum) or thatching grass (Hyparrhenia hirta); medium-tall grasses like fountaingrass (Pennisetum setaceum), California grass (Brachiaria mutica), switchgrass (Panicum virgatum), or beardgrass (Schizachyrium condensatum); or shorter grasses such as broomsedge (Andropogon virginicus), barbwire grass (Cymbopogon refractus), bermudagrass (Cynodon dactylon), molasses grass (Melinus minutiflora), natal redtop (Melinus repens), Hilograss (Paspalum conjugatum), buffelgrass (Pennisetum ciliare), or kikuyu grass (Pennisetum clandestinum).

Range:

States:

Map Zones:

Similar:

Descriptors:

3849: Hawai'i Introduced Evergreen Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2549

ESP: 1549 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: This widespread introduced evergreen shrubland cover type is dominated by introduced shrubs such as *Schinus terebinthefolius, Ulex europaeus,*

Range:

States:

Map Zones:

Similar:

Descriptors:

3850: Pacific Islands Introduced Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mueller-Dombois and Fosberg, 1998 (Page 274) Guam - Coconut plantations, dense undergrowth.

Range:

States:

Map Zones:

Similar:

Descriptors:

3852: Hawai'i Introduced Coastal Wetland Vegetation - Tree

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2552

ESP: 1552 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Introduced mangrove species (Bruguiera and Rhizophora) have invaded some coastal areas and are invading some of remaining tidal salt marsh areas. Many of these original sites were largely converted to fish ponds by pre-contact Hawaiians so it is hard to know what they were other than perhaps coastal strand or tidal salt marsh.

Range:

States:

Map Zones:

Similar:

Descriptors:

3853: Hawai'i Introduced Coastal Wetland Vegetation - Shrub

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2553

ESP: 1553 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated by introduced species. coastal Pluchea, Atriplex semibaccata

Range:

States:

Map Zones:

Similar:

Descriptors:

3854: Hawai'i Introduced Coastal Wetland Vegetation - Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2554

ESP: 1554 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Vegetation dominated by introduced species. Hedychium? (also freshwater marsh, aquatic beds?) Wetland Vegetation Marshes and other wetlands dominated by alien obligatory wetland grasses or grass-like vegetation, shrubs, or trees, e.g., oriental mangrove (*Bruguiera gymnorrhiza)* and American mangrove (*Rhizophora mangle*). These areas have generally been heavily degraded by feral pigs and subsequently, original native vegetation has been almost completely replaced by alien plants. This class is primarily derived from the National Hydrography Dataset

Range:

States:

Map Zones:

Similar:

Descriptors:

3855: Hawai'i Managed Tree Plantation

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2555

ESP: 1555 NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Stands of introduced trees planted for forest products (lumber, fuel,) such as *Araucaria columnaris, Araucaria heterophylla, Eucalyptus* spp*., Pinus elliotii, Pinus radiata, Sequoia sempervirens,* horticulture or agriculture (coffee, fruit, nut orchards) Mixed, typically dense canopies of alien tree species, often plantation forest plantings, with dominants including, but not limited to: *Eucalyptus*, *Casuarina*, *Paraserianthes*, *Araucaria*, *Fraxinus*, *Melaleuca*, *Psidium*, and *Grevillea* spp. At lowland and montane, wet-mesic to mesic settings, often at the lower elevation edge of forest reserves.

Range:

States:

Map Zones:

Similar:

Descriptors:

3856: Pacific Islands Plantation Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mueller-Dombois and Fosberg, 1998 (Page 274) Guam - Coconut plantations, dense undergrowth.

Range:

States:

Map Zones:

Similar:

Descriptors:

3857: Urban (Caribbean)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 24

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3858: Agriculture (Caribbean)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 80

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops and perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3859: Water 1 (Caribbean)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 11

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of open water, generally less than 25% cover of vegetation or soil. Specifically, coastal and near-shore estuarine and/or marine waters and areas of open water, generally less than 25% cover of vegetation or soil. Specifically, inland waters of streams, rivers, ponds and lakes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3860: Caribbean High-medium density urban

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 23

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3861: Caribbean Low-medium density urban

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 22

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

Range:

States:

Map Zones:

Similar:

Descriptors:

3862: Caribbean Herbaceous agriculture - cultivated lands

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 82

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops and perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3863: Caribbean Active sun coffee and mixed woody agriculture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 80

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3864: Caribbean Pasture, hay or inactive agriculture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 81

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3865: Caribbean Pasture, hay or other grassy areas

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 81

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3866: Caribbean Drought deciduous open woodland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lowland dry semi-deciduous forst or woodland/shrubland. Crosswalk: Areces-Mallea et al 1999. II.B.1.N.a. Lowland or submontane broad-leaved drought-deciduous woodland and *II.C.1.Na. Semi-deciduous woodland.*
Lowland semi-deciduous woodland; Lowland and Lowland/submontane drought-deciduous woodland
Descriptors: Dansereau 1966 Vegetation Zone: semi-decidiuous forest.
Little and Wadsworth Forest Regeion: Dry Limestone forest; Dry coastal forest, RCC 26-60%. This represents the open expression of this type.
Examples of member alliances
II.B.1.N.a. Bursera simaruba Woodland Alliance
CONCEPT: Common shrubs include *Pilosocereus royenii, Thouinia striata var. portoricensis, Plumeria alba, Croton lucidus, Pictetia aculeata, Comocladia dodonaea*.
II.C.1.N.a. Bucida buceras Woodland Alliance
Concept: Bucida buceras, with *Savia sessiliflora, Krugiodendron ferreum.*
NatureServe Identifier:

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3867: Caribbean Drought deciduous dense woodland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2867

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lowland dry semi-deciduous forst or woodland/shrubland
1997 NVCS Crosswalk: Areces-Mallea et al 1999. II.B.1.N.a. Lowland or submontane broad-leaved drought-deciduous woodland and *II.C.1.Na. Semi-deciduous woodland*.
Lowland semi-deciduous woodland; Lowland and Lowland/submontane drought-deciduous woodland
Descriptors: Dansereau 1966 Vegetation Zone: semi-decidiuous forest.
Little and Wadsworth Forest Regeion: Dry Limestone forest; Dry coastal forest; RCC >59%. 1997 NVCS Crosswalk: Areces-Mallea et al 1999. II.B.1.N.a. Lowland or submontane broad-leaved drought-deciduous woodland and *II.C.1.Na. Semi-deciduous woodland*.
Lowland semi-deciduous woodland; Lowland and Lowland/submontane drought-deciduous woodland
Descriptors: Dansereau 1966 Vegetation Zone: semi-decidiuous forest.
Little and Wadsworth Forest Regeion: Dry Limestone forest; Dry coastal forest; RCC >59%. This represents the closed expression of this type.
Examples of member alliances
II.B.1.N.a. Bursera simaruba Woodland Alliance
CONCEPT: Common shrubs include *Pilosocereus royenii, Thouinia striata var. portoricensis, Plumeria alba, Croton lucidus, Pictetia aculeata, Comocladia dodonaea*.
II.C.1.N.a. Bucida buceras Woodland Alliance
Concept: Bucida buceras, with *Savia sessiliflora, Krugiodendron ferreum.*

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3868: Caribbean Deciduous, evergreen coastal and mixed forest or shrubland with suc

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2868

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lowland dry mixed evergreen drough-deciduous shrubland with succulents

1997 NVCS Crosswalk: Areces-Mallea et al. 1999 Formation: *III.C.1.N.a* Mixed evergreen drought-deciduous shrubland with succulents.

Descriptors: Dansereau 1966 Vegetation Zone: semi-decidiuous forest.
Little and Wadsworth Forest Regeion: Dry Limestone forest
Vegetation in which evergreen and deciduous species each generally contribute 25-75% to the total canopy cover.

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3869: Caribbean Semi-deciduous and drought deciduous forest on alluvium and non-c

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id:

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lowland dry semi-deciduous forest or woodland/shrubland 1997 NVCS Crosswalk *I.B.1.N.a.* Lowland/submontane drought-deciduous forest; I.C.1.N.a. Lowland tropical or subtropical semi-deciduous forest.
Descriptors: Areces-Mallea et al 1999 Lowland/submontane drought-deciduous forest, Lowland semi-deciduous forest. Dansereau (1966) Semi-Deciduous forest. Little and Wadsworth (1964) Dry coastal forest,
Summary: No alliances described.

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3870: Caribbean Semi-deciduous and drought deciduous forest on karst (includes sem

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lowland dry semi-deciduous forest or woodland/shrubland
Areces-Mallea et al 1999. *I.B.1.N.a.* Lowland/submontane drought-deciduous forest**,** *I.C.1.N.a.* Lowland semi-deciduous forest
1997 NVCS Crosswalk: *I.B.1.N.a.* Lowland/submontane drought-deciduous forest; I.C.1.N.a. Lowland tropical or subtropical semi-deciduous forest.
Descriptors: Areces-Mallea et al 1999. Lowland/submontane drought-deciduous forest, Lowland semi-deciduous forest. Dansereau (1966) Semi-Deciduous forest. Little and Wadsworth (1964) Dry coastal forest, Dry limestone forest.
Summary: Example alliance
I.C.1.N.a. Coccoloba diversifolia Forest Alliance
CONCEPT: Forests dominated or codominated by *Coccoloba diversifolia*. In Puerto Rico these forests occur at low elevations in NW. and NC. Puerto Rico on limestone hills (which make the vegetation somewhat xerophytic). In Puerto Rico other typical canopy species include *Bucida buceras*, *Quararibea turbinata*, *Guapira fragrans*, *Zanthoxylum martinicense*, and *Ficus citrifolia*. Terrestrial and epiphytic ferns are frequent and include *Blechnum occidentale*, *Tectaria heracleifolia*, *Cyclopeltis semicordata*, and *Adiantum tenerum*.
DISTRIBUTION: Puerto Rico.
SYNONYMY: Gateado forest -- 60.1 (Dansereau 1966); Llume - Gumbo-limbo Savana -- 62.3 (Dansereau 1966); Llume - Gumbo-limbo Scrub -- 62.4 (Dansereau 1966).
REFERENCES: Dansereau (1966).

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3871: Caribbean Drought deciduous, semi-deciduous and seasonal evergreen forest o

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Dry and moist forest – Serpentine. Lowland dry and moist, mixed seasonal evergreen sclerophyllous forest with succulents.
Areces-Mallea et al 1999. I.A.5.N.a. Lowland/submontane tropical or subtropical broad-leaved evergreen sclerophyllous forests.
Descriptors: Dansereau 1966 Vegetation Zone: semi-decidiuous forest.
Little and Wadsworth Forest Regeion: Lower cordillera forest.
Summary: Examples of member alliances
***I.A.5.N.a. Calophyllum calaba ssp. pinetorum* Forest Alliance (Calophyllum calaba pinetorum forests)**
CONCEPT: Evergreen tropical forests dominated by *Calophyllum calaba ssp. pinetorum,* and other sclerophyllous and microphyllous elements in the canopy and shrub layers. This vegetation occurs in West Cuba, on lixiviated yellowish-red fersiallitic soils derived from limestone but with substantial contributions from serpentine rocks.
DISTRIBUTION: West Cuba: Pinar del Rio prov.
SYNONYMY: Calophyllo-Guettardion valenzuelanae (Capote *et al.* 1985).
***I.A.5.N.a. Quercus oleoides ssp. sagraeana* Forest Alliance (Cuban oak forests)**
CONCEPT: Oak forests of west Cuba on deep, brownish-yellow soils derived from the "San Cayetano" slatey sandstone, rarely on white-sand areas.
DISTRIBUTION: West Cuba, Pinar del Rio prov. SYNONYMY: Quercion sagraeanae (Borhidi *et al.* 1979).

Range: Puerto Rico, Cuba

States:

Map Zones:

Similar:

Descriptors:

3872: Caribbean Seasonal evergreen and semi-deciduous forest on karst

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 - Lowland moisNVCS Crosswalk: ***I.C.1.N.a***. Lowland semi-deciduous forest

Descriptors Dansereau 1966 Vegetation Zone: Seasonal evergreen forest, Hill scrub, (Lowland rain forest).

Little and Wadsworth Forest Regeion: Moist Lowland Forest, Moist coastal forest

Summary: Example alliances

***I.C.1.N.a. Coccoloba diversifolia* Forest Alliance**

CONCEPT: Forests dominated or codominated by *Coccoloba diversifolia*. In Puerto Rico these forests occur at low elevations in NW. and NC. Puerto Rico on limestone hills (which make the vegetation somewhat xerophytic). In Puerto Rico other typical canopy species include *Bucida buceras*, *Quararibea turbinata*, *Guapira fragrans*, *Zanthoxylum martinicense*, and *Ficus citrifolia*. Terrestrial and epiphytic ferns are frequent and include *Blechnum occidentale*, *Tectaria heracleifolia*, *Cyclopeltis semicordata*, and *Adiantum tenerum*.

DISTRIBUTION: Puerto Rico.

SYNONYMY: Gateado forest -- 60.1 (Dansereau 1966); Llume - Gumbo-limbo Savana -- 62.3 (Dansereau 1966); Llume - Gumbo-limbo Scrub -- 62.4 (Dansereau 1966).

REFERENCES: Dansereau (1966).

***Coccoloba diversifolia* - *Bursera simaruba* - *Bucida buceras* - *Zanthoxylum martinicense* Forest**

DESCRIPTION: This is a characteristic forest of the mogote sides and tops, in northcentral and northwestern Puerto Rico. Other characteristic species include *Gaussia attenuata*, *Rondeletia inermis*, *Guettarda scabra*, *Eugenia confusa*, *Eugenia spp.*, *Coccothrinax alta*, *Thrinax morrisii*, *Aiphanes acanthophylla*. t and wet, seasonal evergreen and semideciduous forest or forest/shrub.

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3873: Caribbean Seasonal evergreen and evergreen forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id:

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 Lowland moist and wet, seasonal evergreen and semideciduous forest or forest/ shrub 1997 NVCS Crosswalk: I.A.3.N.a. Lowland tropical or subtropical seasonal evergreen forest

Descriptors: Areces-Mallea et al. 1999 lowland semi-deciduous forest; Lowland seasonal evergreen forest; Evergreen shrubland Dansereau 1966 – Semi-deciduous forest, Hill Scrub. Little and Wadsworth (1964) Moist limestone forests.

Summary: Example Alliance

***I.A.3.N.a. Ceiba pentandra - Roystonea spp.* Forest Alliance (Ceiba pentandra - Roystonea spp. forests)**

CONCEPT: Lowland meso-macropyllous seasonal evergreen forests with *Ceiba pentandra* and *Roystonea* spp., extending to the lower zone of the middle ranges of the Antilles, conditioned by a seasonal tropical climate with 1,400-2,000 mm annual precipitation and 2-4 dry months. Two canopy layers are present, with emergent deciduous trees. In addition to *Ceiba pentandra* and *Roystonea* spp., other characteristic species may include *Mastichodendron foetidissimum, Guazuma ulmifolia, Zanthoxylum flavum, Z. martinicense, Cedrela odorata, Swietenia mahagoni, Bumelia salicifolia, Lonchocarpus* spp., and many others.

DISTRIBUTION: Greater and Lesser Antilles.

SYNONYMY: Guazumo-Cupanion (Borhidi *et al.* 1979);

Range: Greater and Lesser Antilles

States:

Map Zones:

Similar:

Descriptors:

3874: Caribbean Seasonal evergreen forest with coconut palm

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 Lowland moist coconut palm forest. 1997 NVCS Crosswalk: ***II.A.1.C.a.*** Orchards
Descriptors: Areces-Mallea et al. 1990. Lowland seasonal evergreen forest developed from *Cocos nucifera* woodland plantation. Dansereau 1966 – lowland rain forest. Little and Wadsworth (1964) Moist coastal forest.
Summary:
***II.A.1.C.a. Cocos nucifera* Woodland Alliance**
Coconut Forest Alliance; Coco Forest Alliance CONCEPT: Forests (generally with a rather open canopy) of the exotic *Cocos nucifera*, generally occurring in maritime situations, such as beach sands.
DISTRIBUTION: Puerto Rico, Bahamas.

Range: Puerto Rico, Bahamas

States:

Map Zones:

Similar:

Descriptors:

3875: Caribbean Evergreen and seasonal evergreen forest on karst

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lowland moist seasonal evergreen forest or forest/shrub. 1997 NVCS Crosswalk: Areces-Mallea et al 1999 *I.A.3.N.a.* Lowland seasonal evergreen forest
Descriptors: Dansereau 1966 Vegetation Zone: Lowland rain forest.
Little and Wadsworth Forest Regeion: Moist coastal forest (low elev), Lower cordillera forest, Lower Luquillo forests.

Summary: Examples of member alliances
***I.A.3.N.a. Ceiba pentandra - Roystonea spp.* Forest Alliance (Ceiba pentandra - Roystonea spp. forests)**
CONCEPT: Lowland meso-macropyllous seasonal evergreen forests with *Ceiba pentandra* and *Roystonea* spp., extending to the lower zone of the middle ranges of the Antilles, conditioned by a seasonal tropical climate with 1,400-2,000 mm annual precipitation and 2-4 dry months. Two canopy layers are present, with emergent deciduous trees. In addition to *Ceiba pentandra* and *Roystonea* spp., other characteristic species may include *Mastichodendron foetidissimum, Guazuma ulmifolia, Zanthoxylum flavum, Z. martinicense, Cedrela odorata, Swietenia mahagoni, Bumelia salicifolia, Lonchocarpus* spp., and many others.

Range: Greater and Lesser Antilles

States:

Map Zones:

Similar:

Descriptors:

3876: Caribbean Evergreen forest on serpentine

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al 2005. Submontane evergreen wet and rain forest. 1997 NVCS Crosswalk: I.A.5.N.a. Lowland/submontane tropical or subtropical broad-leaved evergreen sclerophyllous forests

Descriptors: Areces-Mallea et al. 1999 - Dansereau 1966 – Lower montane rain forest; Little and Wadsworth 1964 Lower Luquillo forest, Lower cordillera forest.

Summary: Example Alliance

***I.A.5.N.a. Calophyllum calaba ssp. pinetorum* Forest Alliance (Calophyllum calaba pinetorum forests)**

CONCEPT: Evergreen tropical forests dominated by *Calophyllum calaba ssp. pinetorum*, and other sclerophyllous and microphyllous elements in the canopy and shrub layers. This vegetation occurs in West Cuba, on lixiviated yellowish-red fersiallitic soils derived from limestone but with substantial contributions from serpentine rocks.

DISTRIBUTION: West Cuba: Pinar del Rio prov.

SYNONYMY: Calophyllo-Guettardion valenzuelanae (Capote *et al.* 1985).

Garcia (1991), Caminero-Rodriguez (1991), Cedeño-Maldonado and Breckon (1996), Cedeño-Maldonado (1997), and Ewel and Whitmore (1973) contain additional information on forests developed over serpentine substrates.

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3877: Caribbean Elfin, sierra palm, transitional and tall cloud forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005. Lower montane wet evergreen forest—palm and elfin cloud forest NVCS Crosswalk: Areces-Mallea et al 1999.
Montane rainforest (palm); *I.A.1.N.c. Montane tropical or subtropical rain forest*
Cloud forest (elfin); *I.A.1.N.d.* Cloud forest.
Evergreenshrubland (highest peaks) III.A.1.N.a. Tropical or subtropical broad-leaved evergreen shrubland (includes bamboos and tuft-trees).
Descriptors: Dansereau 1966 Vegetation Zone: Montane Forest, Montane Scrub.
Little and Wadsworth Forest Regeion: Upper cordillera forest, Upper Luquillo forests.

Summary: Examples of member alliances
***I.A.1.N.c. Alchornea latifolia - Solanum acropterum* Forest Alliance (Alchornea latifolia - Solanum acropterum montane rain forests)**
CONCEPT: Tropical montane rain forests of Jamaica on limestone-derived soils, over 900 m elevation, with *Alchornea latifolia, Solanum acropterum, Calyptronoma occidentalis, Piper discolor,* and other species.
DISTRIBUTION: Jamaica: the John Crow Mountains.
SYNONYMY: Upper montane rain forest (Richards 1952; Grubb *et al.* 1963; Grossman *et al.* 1993), in part; Upper montane wet limestone forest (Grubb & Tanner 1976); Upper montane rain forest over limestone (Muchoney *et al.* 1994).
***I.A.1.N.c. Cyathea arborea* Forest Alliance**
CONCEPT: Tree-fern forests of Puerto Rico, dominated by the tree ferns *Cyathea arborea* and other tree ferns, including *Cnemidaria horrida*.
DISTRIBUTION: Martinique, Puerto Rico.

COMMENTS: Should this be combined with the next alliance?
SYNONYMY: Fern Scrub -- 77.4 (Dansereau 1966).
REFERENCES: Dansereau (1966); Kimber (1988).

***I.A.1.N.d. Didymopanax tremulus - Podocarpus aristulatus* Forest Alliance (Didymopanax tremulus - Podocarpus aristulatus cloud forests)**

CONCEPT: Montane cloud forests co-dominated by *Didymopanax tremulus* and *Podocarpus aristulatus,* on the highlands of Hispaniola, between 1,600 and 2,200 m elevation.
DISTRIBUTION: Hispaniola (Dominican Republic): Cordillera Central, Sierra de Neiba, Sierra de Bahoruco.
SYNONYMY: Bosque nublado de la Zona Alta (Hager & Zanoni 1993), in part.

***III.A.1.N.a. Colubrina spp.* Shrubland Alliance**

CONCEPT: *Oplonia spinosa, Comocladia dodonaea, Reynosia uncinata, Bromelia pinguin*.
DISTRIBUTION: Puerto Rico.
SYNONYMY: Snake-bark Scrub -- 22.4 (Dansereau 1966).

***III.A.1.N.a. Croton lucidus* Shrubland Alliance**

DISTRIBUTION: Puerto Rico, Bahamas?
SYNONYMY: Firebrush Scrub -- 47.4 (Dansereau 1966).

***III.A.1.N.a. Dalbergia ecastaphyllum* Shrubland Alliance**

DISTRIBUTION: Puerto Rico.
SYNONYMY: Maray-maray Scrub -- 21.4 (Dansereau 1966)

Range: Jamaica, Puerto Rico, Bahamas?

States:

Map Zones:

Similar:

Descriptors:

3878: Caribbean Emergent wetlands including seasonnally flooded pasture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 - Emergent wetlands including seasonally flooded pastures.

Range:

States:

Map Zones:

Similar:

Descriptors:

3879: Caribbean Salt or mud flats

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005

Range:

States:

Map Zones:

Similar:

Descriptors:

3880: Caribbean Mangrove

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 Tidally and semi-permanently flooded evergreen scleophyllous forest (Mangrove). Relates to the 1997 NVCS Areces-Mallea et al. 1999 Tidally and semi-permanently flooded evergreen sclerophyllous forest Formation. , Dansereau 1966 Littoral vegetation zone (LIT), and Wadsworth 1964 Dry Coastal Forest (DCF) and Moist Coastal Forest (MCF)

Range: Puerto Rico

States:

Map Zones:

Similar:

Descriptors:

3881: Caribbean Seasonally flooded savannahs and woodlands

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 ? Name implies low density forest. No discussion of Savannahs and Woodlands in Helmer et al. 2005 or Gould et al (Puerto Rico Gap Analysis Report). Seasonnaly flooded herbaceous nonsaline wet grasslands.

Range:

States:

Map Zones:

Similar:

Descriptors:

3882: Caribbean Pterocarpus swamp

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Seasonally flooded evergreen forest (Pterocarpus officinalis). Relates to 1997 NVCS Areces-Mallea et al. 1999 Seasonally flooded rain forest (Pterocarpus officnalis) Vegetation formation, Danereau (1966) Littoral vegetation zone, and Wadsworth 1964 Moist Coastal Forest.

Range:

States:

Map Zones:

Similar:

Descriptors:

3883: Caribbean Tidally flooded evergreen dwarf-shrubland and forb vegetation

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Helmer et al. 2005 no description of the tidally flooded evergreen dwarf-shrubland and forb vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3884: Quarries (Caribbean)

Match Confidence: Unmatched
Suggested Match:

Codes: ESLF: EVT_fuel: 32
ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :
FGDC Order :
FGDC Class :
FGDC Subclass :

2015 Standard

NVCS Class: -
NVCS Subclass: -
NVCS Formation: -
NVCS Division: -

Summary: Areas of extractive mining activities with significant surface expression.

Range:

States:

Map Zones:

Similar:

Descriptors:

3885: Coastal sand and rock (Caribbean)

Match Confidence: Poor Match

Suggested Match:

Codes: ESLF: EVT_fuel: 32

ESP: NatureServe Id:

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Unconsolidated material such as silt, sand, or gravel that is subject to inundation and redistribution due to the action of water. Characterized by substrates lacking vegetation except for pioneering plants that become established during brief periods when growing conditions are favorable. Erosion and deposition by waves and currents produce a number of landforms representing this class.

Range:

States:

Map Zones:

Similar:

Descriptors:

3886: Bare soil (Caribbean)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 31

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Barren areas of soil, bedrock, scarps, talus, slides, or sand dunes. Generally, vegetation accounts for less than 15% of total cover.

Range:

States:

Map Zones:

Similar:

Descriptors:

3887: Water 2 (Caribbean)

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 11

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of open water, generally less than 25% cover of vegetation or soil. Specifically, coastal and near-shore estuarine and/or marine waters and areas of open water, generally less than 25% cover of vegetation or soil. Specifically, inland waters of streams, rivers, ponds and lakes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3900: Western Cool Temperate Urban Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2913

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest in low to moderately urbanized settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3901: Western Cool Temperate Urban Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2914

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest in low to moderately urbanized settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3902: Western Cool Temperate Urban Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2915

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest in low to moderately urbanized settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3903: Western Cool Temperate Urban Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2916

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3904: Western Cool Temperate Urban Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2917

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub dominated vegetation in urban landscape. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3905: Eastern Cool Temperate Urban Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2913

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest in low to moderately urbanized settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3906: Eastern Cool Temperate Urban Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2914

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest in low to moderately urbanized settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3907: Eastern Cool Temperate Urban Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2915

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest in low to moderately urbanized settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3908: Eastern Cool Temperate Urban Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2916

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3909: Eastern Cool Temperate Urban Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2917

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub dominated vegetation in urban landscape. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3910: Western Warm Temperate Urban Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2913

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest in low to moderately urbanized settings in the warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3911: Western Warm Temperate Urban Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2914

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest in low to moderately urbanized settings in the warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3912: Western Warm Temperate Urban Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2915

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest in low to moderately urbanized settings in the warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3913: Western Warm Temperate Urban Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2916

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbaceous vegetation in the urban settings of the warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3914: Western Warm Temperate Urban Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2917

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub vegetation in the urban settings of the warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3915: Eastern Warm Temperate Urban Urban Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2913

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest in low to moderately urbanized settings in the warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3916: Eastern Warm Temperate Urban Urban Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2914

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest in low to moderately urbanized settings in the warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3917: Eastern Warm Temperate Urban Urban Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2915

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest in low to moderately urbanized settings in the warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3918: Eastern Warm Temperate Urban Urban Herbaceous

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2916

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbaceous vegetation in the urban settings of the eastern warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3919: Eastern Warm Temperate Urban Urban Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2917

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub dominated vegetation in the urban settings of the eastern warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3920: Western Cool Temperate Developed Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2923

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3921: Western Cool Temperate Developed Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2924

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3922: Western Cool Temperate Developed Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2925

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3923: Western Cool Temperate Developed Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2926

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub vegetation in urban settings. Shrub vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3924: Western Cool Temperate Developed Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2927

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbaceous vegetation in urban settings. Herbaceous vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3925: Western Warm Temperate Developed Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2923

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3926: Western Warm Temperate Developed Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2924

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3927: Western Warm Temperate Developed Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2925

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3928: Western Warm Temperate Developed Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2926

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub dominated vegetation in the urban settings of the western warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3929: Western Warm Temperate Developed Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2927

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbaceous dominated vegetation in the urban settings of the Western warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3930: Eastern Cool Temperate Developed Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2923

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3931: Eastern Cool Temperate Developed Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2924

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3932: Eastern Cool Temperate Developed Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2925

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest vegetation in urban settings. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3933: Eastern Cool Temperate Developed Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2926

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub dominated vegetation in the urban settings of the Eastern cool temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3934: Eastern Cool Temperate Developed Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2927

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbeceous dominated vegetation in the urban settings of the Eastern cool temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3935: Eastern Warm Temperate Developed Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2923

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous forest vegetation in urban settings of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3936: Eastern Warm Temperate Developed Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2924

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen forest vegetation in urban settings of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3937: Eastern Warm Temperate Developed Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2925

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed forest vegetation in urban settings of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3938: Eastern Warm Temperate Developed Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2926

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Shrub dominated vegetation in the urban settings of the Eastern warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3939: Eastern Warm Temperate Developed Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2927

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Herbaceous dominated vegetation in the urban settings of the Eastern warm temperate region. Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

Range:

States:

Map Zones:

Similar:

Descriptors:

3940: Western Cool Temperate Undeveloped Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2933

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous ruderal forest vegetation found in open spaces of the western cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3941: Western Cool Temperate Undeveloped Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2934

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen ruderal forest vegetation found in open spaces of the western cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3942: Western Cool Temperate Undeveloped Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2935

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed ruderal forest vegetation found in open spaces of the western cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3943: Western Cool Temperate Undeveloped Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2936

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal shrubland vegetation found in open spaces of the western cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3944: Western Cool Temperate Undeveloped Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2937

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal succesional vegetation found in open spaces of the western cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3945: Western Warm Temperate Undeveloped Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2933

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous ruderal forest vegetation found in open spaces of the Western warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3946: Western Warm Temperate Undeveloped Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2934

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen ruderal forest vegetation found in open spaces of the Western warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3947: Western Warm Temperate Undeveloped Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2935

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed ruderal forest vegetation found in open spaces of the Western warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3948: Western Warm Temperate Undeveloped Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2936

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal shrub vegetation found in open spaces of the Western warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3949: Western Warm Temperate Undeveloped Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2937

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal herbaceous vegetation found in open spaces of the Western warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3950: Eastern Cool Temperate Undeveloped Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2933

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous ruderal forest vegetation found in open spaces of the Eastern cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3951: Eastern Cool Temperate Undeveloped Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2934

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen ruderal forest vegetation found in open spaces of the Eastern cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3952: Eastern Cool Temperate Undeveloped Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2935

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed ruderal forest vegetation found in open spaces of the Eastern cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3953: Eastern Cool Temperate Undeveloped Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2936

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal shrub vegetation found in open spaces of the Eastern cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3954: Eastern Cool Temperate Undeveloped Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2937

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal herbaceous vegetation found in open spaces of the Eastern cool temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3955: Eastern Warm Temperate Undeveloped Ruderal Deciduous Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2833

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Deciduous ruderal forest vegetation found in open spaces of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3956: Eastern Warm Temperate Undeveloped Ruderal Evergreen Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2934

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Evergreen ruderal forest vegetation found in open spaces of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3957: Eastern Warm Temperate Undeveloped Ruderal Mixed Forest

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2935

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Mixed ruderal forest vegetation found in open spaces of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3958: Eastern Warm Temperate Undeveloped Ruderal Shrubland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal shrub vegetation found in open spaces of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3959: Eastern Warm Temperate Undeveloped Ruderal Grassland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel:

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Ruderal herbaceous vegetation found in open spaces of the Eastern warm temperate region. Forest vegetation resulting from succession following significant anthropogenic disturbance of an area. It is generally characterized by unnatural combinations of species (primarily native species, though they often contain slight or substantial numbers and amounts of species alien to the region as well).

Range:

States:

Map Zones:

Similar:

Descriptors:

3960: Western Cool Temperate Orchard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2960

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3961: Western Cool Temperate Vineyard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2961

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3962: Western Cool Temperate Bush fruit and berries

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2962

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3963: Western Cool Temperate Row Crop - Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2963

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3964: Western Cool Temperate Row Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2964

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3965: Western Cool Temperate Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2965

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3966: Western Cool Temperate Fallow/Idle Cropland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2966

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Cropland that has been removed from active production.

Range:

States:

Map Zones:

Similar:

Descriptors:

3967: Western Cool Temperate Pasture and Hayland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2967

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3968: Western Cool Temperate Wheat

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2968

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of wheat. Crop vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3969: Western Cool Temperate Aquaculture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2969

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, impoundments created for rearing commericial fish and invertebrate species, i.e aquatic livestock.

Range:

States:

Map Zones:

Similar:

Descriptors:

3970: Eastern Cool Temperate Orchard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2960

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3971: Eastern Cool Temperate Vineyard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2961

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3972: Eastern Cool Temperate Bush fruit and berries

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2962

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3973: Eastern Cool Temperate Row Crop - Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2963

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3974: Eastern Cool Temperate Row Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2964

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3975: Eastern Cool Temperate Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2965

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3976: Eastern Cool Temperate Fallow/Idle Cropland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2966

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Cropland that has been removed from active production.

Range:

States:

Map Zones:

Similar:

Descriptors:

3977: Eastern Cool Temperate Pasture and Hayland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2967

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3978: Eastern Cool Temperate Wheat

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2968

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of wheat. Crop vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3979: Eastern Cool Temperate Aquaculture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2969

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, impoundments created for rearing commericial fish and invertebrate species, i.e aquatic livestock.

Range:

States:

Map Zones:

Similar:

Descriptors:

3980: Western Warm Temperate Orchard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2960

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3981: Western Warm Temperate Vineyard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2961

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3982: Western Warm Temperate Bush fruit and berries

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2963

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3983: Western Warm Temperate Row Crop - Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2964

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3984: Western Warm Temperate Row Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2964

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3985: Western Warm Temperate Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2965

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3986: Western Warm Temperate Fallow/Idle Cropland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2966

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Cropland that has been removed from active production.

Range:

States:

Map Zones:

Similar:

Descriptors:

3987: Western Warm Temperate Pasture and Hayland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2967

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3988: Western Warm Temperate Wheat

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2968

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of wheat. Crop vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3989: Western Warm Temperate Aquaculture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2969

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, impoundments created for rearing commericial fish and invertebrate species, i.e aquatic livestock.

Range:

States:

Map Zones:

Similar:

Descriptors:

3990: Eastern Warm Temperate Orchard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2960

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3991: Eastern Warm Temperate Vineyard

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2961

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3992: Eastern Warm Temperate Bush fruit and berries

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2962

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Range:

States:

Map Zones:

Similar:

Descriptors:

3993: Eastern Warm Temperate Row Crop - Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2963

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3994: Eastern Warm Temperate Row Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2964

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3995: Eastern Warm Temperate Close Grown Crop

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2965

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Close-grown crops - according to the USDA are "Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax." Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Range:

States:

Map Zones:

Similar:

Descriptors:

3996: Eastern Warm Temperate Fallow/Idle Cropland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2966

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Cropland that has been removed from active production.

Range:

States:

Map Zones:

Similar:

Descriptors:

3997: Eastern Warm Temperate Pasture and Hayland

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2967

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3998: Eastern Warm Temperate Wheat

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2968

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: Areas used for the production of wheat. Crop vegetation accounts for greater than 20 percent of total vegetation.

Range:

States:

Map Zones:

Similar:

Descriptors:

3999: Eastern Warm Temperate Aquaculture

Match Confidence: Unmatched

Suggested Match:

Codes: ESLF: EVT_fuel: 2969

ESP: NatureServe Id: -

BioGeographical Division :

NVC MacroGroup: - -

NVC Group: - -

1997 Standard

FGDC Division :

FGDC Order :

FGDC Class :

FGDC Subclass :

2015 Standard

NVCS Class: -

NVCS Subclass: -

NVCS Formation: -

NVCS Division: -

Summary: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, impoundments created for rearing commericial fish and invertebrate species, i.e aquatic livestock.

Range:

States:

Map Zones:

Similar:

Descriptors: