Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R1MEVGn **California Mixed Evergreen**

General Information

Contributors *(additional contributors may be listed under "Model Evolution and Comments")*

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Vegetation Type

Forested

Dominant Species*

PSME
LIDE3
ARME
QUCH2

General Model Sources

- [x] Literature
- [ ] Local Data
- [x] Expert Estimate

LANDFIRE Mapping Zones

3 6
4
5

Rapid Assessment Model Zones

- [x] California
- [ ] Great Basin
- [ ] Great Lakes
- [ ] Northeast
- [ ] Northern Plains
- [ ] N-Cent.Rockies
- [ ] Pacific Northwest
- [ ] South Central
- [ ] Southeast
- [ ] S. Appalachians
- [ ] Southwest

Geographic Range

Northern California Coast Range, Klamath Mountains and Northern Sierra Nevada montane.

Biophysical Site Description

PNVG occurs on all aspects at elevations predominately below 3500 feet elevation. The distribution of the PNVG closely correlates with climate variables of relatively higher precipitation and warmer temperatures. On the eastern extremities of the range the PNVG is mostly confined to north aspects.

Vegetation Description

Species composition is primarily determined by the environmental gradients of temperature and moisture availability. Codominants include Douglas-fir (Pseudotsuga menziesii), Pacific madrone (Arbutus menziesii), tanoak (Lithocarpus densiflorus), canyon live oak (Quercus chrysolepis), and California bay (Umbellularia californica). California bay is restricted to the maritime-influenced portions of the range or along river canyons. Coastal live oak (Quercus agrifolia) is found in the southern part of the coast range associated with this PNVG. Black oak (Quercus kelloggii) is found on drier sites of inland portion of range. Sugar pine (Pinus lambertiana) is a common conifer associate and ponderosa pine is occasional in the northern range of this type. In NW California, Port-Orford-cedar is a common riparian conifer associate on ultramafic soils

Disturbance Description

Fire is the dominant disturbance event. The vast majority of fires occur in late summer or early fall and are associated with lightning storms. Human-caused fires are currently a relatively minor component, although Native American burns were frequent and extensive prior to 1850. These fires were frequent (2-4 years) and of low severity. Mosaic fires (mixed severity) are now most common, creating patches of varying age and species composition. Hardwoods typically provide the greatest cover after fire due to root-crown sprouting.

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Depending upon fire severity many hardwoods will also have epicormic sprouting well into the crown. Species composition, density and inter-specific competition within stands, contributes to multiple pathways following disturbance. In stands with high tanoak cover, tanoak may dominate the stand for many years before conifers can re-establish. Typically it may take 15 years or longer before Douglas-fir can establish and emerge through the hardwood canopy. Other disturbance events include wind storms and landslides. Sudden oak disease (SOD; Phytophora ramorum) is well established in the southern portions of the range of the type and is spreading northward. SOD is often lethal to tanoak, but may effect black oak and some shrub species. Low severity fires favor dominance of large old conifers. Moderate severity fires favor development of multi-aged stands of mixed species composition. High severity fires favor development of hardwood dominated stands. Frequent, low severity fires following a high severity fire will maintain a hardwood dominated stand.

Adjacency or Identification Concerns

Adjacent PNVGs include redwood, oak woodland-grassland, mixed hardwood, big-cone Douglas-fir, Douglas-fir - ponderosa pine, ultramafic mixed conifer and other mixed conifer PNVGs. This may be confused with the cedar-hemlock-Douglas-fir PNVG, but differs by not having western red cedar and western hemlock in the species mix.

This PNVG may be similar to the PNVG R#MEVG from the Pacific Northwest model zone. R#MEVG contains conifer-dominated classes and open structures not present in R1MEVGn.

Scale Description

Sources of Scale Data ☐ Literature ☑ Local Data ☐ Expert Estimate

Fires of mixed severity often are large in area due to the high number of ignition points associated with fire events. The 1977 and 1987 fires on Klamath NF covered approximately 50,000 acres and 75,000 acres respectively. During both of these events, hundreds of ignitions occurred within a 24 hour period.

Issues/Problems

The CA Mixed Evergreen could be split into two variants: (1) Northern California coast range and Klamath Mountains and Northern Sierra lower montane, and (2) Southern California coast range. Literature does not address well the pre-settlement distribution of seral stages in this type as related to fire and other disturbances.

Model Evolution and Comments

In-workshop comments suggested that surface fire in class B might be too high. Aboriginal burning might have been that high, but there isn't any fire history data to support the rate. Review comments also suggested lengthening surface and mixed intervals. Shlisky edited original version to reflect longer non-lethal intervals. State percentages did not change from original model.

Succession Classes

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 15 %

Early1 PostRep

Description

Age < 25 years and <10" DBH. Openings within forest with dense cover of hardwood sprouts (tanoak, madrone, and/or canyon live oak). Sprouting shrubs such as Oregon grape, salal, and rhododendron may be significant. Shrub growth from seed banks, e.g. deer brush (Ceanothus integerrimus), can also be high. The reference percent of this class could be closer to 25% (Skinner, 1995).

Indicator Species* and Canopy Position

LIDE3
ARME
QUCH2
PSME

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	0 %	100 %
Height	no data	no data
Tree Size Class	no data	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class B 50 %

Mid1 Closed

Description

Age = 25 to 150 years. DBH range = 10" to 30". Dense hardwood cover with emergent conifers.

Indicator Species* and Canopy Position

LIDE3
PSME
QUCH2
ARME

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	60 %	100 %
Height	no data	no data
Tree Size Class	no data	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class C 35 %

Late1 Closed

Description

Age greater than 150 years. Tree diameter (dbh) generally greater than 30" for larger species. Sugar pine also occurs.

Indicator Species* and Canopy Position

PSME
LIDE3
ARME
QUCH2

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	*Max*
Cover	60 %	100 %
Height	no data	no data
Tree Size Class	no data	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

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Class D **0%**

Late1 Open

Description

Indicator Species* and Canopy Position

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0%	%
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Fuel Model no data

Class E **0%**

Late1 Closed

Description

Indicator Species* and Canopy Position

QUCH2

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0%	%
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Fuel Model no data

Disturbances

Non-Fire Disturbances Modeled

☑ Insects/Disease
☐ Wind/Weather/Stress
☐ Native Grazing
☑ Competition
☐ Other:
☐ Other:

Fire Regime Group: **3**

I: 0-35 year frequency, low and mixed severity
II: 0-35 year frequency, replacement severity
III: 35-200 year frequency, low and mixed severity
IV: 35-200 year frequency, replacement severity
V: 200+ year frequency, replacement severity

Historical Fire Size (acres)

Avg:
Min:
Max:

Fire Intervals (FI):
Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

Sources of Fire Regime Data

☑ Literature
☐ Local Data
☑ Expert Estimate

	Avg FI	*Min FI*	*Max FI*	*Probability*	*Percent of All Fires*
Replacement	140	65	700	0.00714	10
Mixed	25	10	33	0.04	58
Surface	45			0.02222	32
All Fires	14			0.06937	

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