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):

R1SAGEco **Coastal Sage Scrub**

General Information

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

Modelers

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Vegetation Type

Shrubland

Dominant Species*

ARCA11
SAME3
ERFA2
BAPI

General Model Sources

- [x] Literature
- [ ] Local Data
- [ ] 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

Coastal sage scrub is coastally distributed from Baja California, Mexico to just north of San Francisco, California. It has been divided into four floristic provinces which from north to south are: the Diablan, Ventura, and Diegan. The Riversidian is more inland and straddles the Venturan and Diegan associations.

Biophysical Site Description

Vegetation Description

Coast sage scrub is mainly composed of soft-leaved shrubs and subshrubs with flexible, woody stems. Leaves are often summer-deciduous and high in volatile oils. Sage scrub varies from relatively open to closed stands often with a well-developed herbaceous understory. Common species are: Eriogonum spp., Artemisia californica, Salvia leucophylla and other Salvia spp., Mimulus aurantiacus, Hazardia squarrosa, Baccharis pilularis, and Toxicodendron diversilobum. Woody shrubs such as Xylococcus bicolor, Malosma laurina and Rhus integrifolia may also be present. Availability of seed sources play a relatively large part in vegetation succession and disturbance responses. Type conversions to grasslands occur with repeated small-scale fires that may not be captured in larger data sets. Loss of this habitat is of major concern to ecologists and certain ornithologists.

Disturbance Description

Coastal sage scrub burns in stand-replacing fires that burn hundreds to sometimes thousands of acres in a single event. Sage scrub likely burns at the same frequency as neighboring chaparral, although it is capable of burning at an earlier age than chaparral. Native Americans converted coastal sage scrub to grasslands through repeated burning, but this burning likely was limited to villages on the immediate coast.

Adjacency or Identification Concerns

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

Scale Description

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

Wildfires typically burn 100's to 1000's of acres.

Issues/Problems

Compared to chaparral, the canopy of coastal sage scrub develops more slowly. After approximately 5 years, perennial grasses have high cover for several decades until the shrub cover becomes more continuous. Type conversions to grasslands occur with repeated small-scale fires that may not be captured in larger data sets.

Model Evolution and Comments

Like the chaparral, this model uses a 50-year fire return interval. This is the mid-point between 40 and 60 given by Byrne et al. 1997. This represents the frequency between large fires that showed up in the Santa Barbara Channel sediment cores. The interval may have been somewhat shorter when smaller fires (I.e., those that did not show up in the cores) are included.

Succession Classes

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

Class A 10 %

Early1 Open

Description

Shrub seedlings, fire annuals, perennial geophytes, short-lived perennials, resprouting shrubs

Indicator Species* and Canopy Position

LOSC2
PHACE
CRYPT
EMMEN

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	70 %
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 90 %

Mid1 Closed

Description

Resprouting shrubs, shrubs growing from seedlings. Herbs only in openings.

Indicator Species* and Canopy Position

ARCA11
SAME3
ERFA2
SAAP

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	71 %	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 0 %

Late1 Open

Description

Indicator Species* and Canopy Position

Structure Data (for upper layer lifeform)

	Min	Max
Cover	%	%
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 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

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: **2**

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.

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Sources of Fire Regime Data

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

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	50	20	150	0.02	100
Mixed					
Surface					
All Fires	50			0.02002	

References

Byrne, R.I., J. Michaelsen and A. Soutar. 1977. Fossil charcoal as a measure of wildfire frequency in southern California: a preliminary analysis, pp. 361-361. In H.A. Mooney and C.E. Conrad (eds.). Proceedings of the symposium on environmental consequences of fire and fuel management in Mediterranean ecosystems. USDA Forest Service, General Technical Report WO-3.

Keeley JE. 2002. Native American impacts on fire regimes of the California coastal ranges. Journal of Biogeography 29, 303-320.

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Wells PV. 1962. Vegetation in relation to geological substratum and fire in the San Luis Obispo quadrangle, California. Ecological Monographs 32, 79 103.