

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 and 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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Reviewers

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1 anonymous reviewer

Vegetation Type

Shrubland

General Model Sources

- Literature
 Local Data
 Expert Estimate

Rapid Assessment Model Zones

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

Dominant Species*

ARCA
SAME
ERFA2
BAPI

LANDFIRE Mapping Zones

3 6
4
5

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.

Agency or Identification Concerns

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

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

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

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**														
<i>Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).</i>														
<p>Class A 10 %</p> <p>Early1 Open</p> <p>Description</p> <p>Shrub seedlings, fire annuals, perennial geophytes, short-lived perennials, resprouting shrubs</p>	<p>Dominant Species* and Canopy Position</p> <p>LOSC2 PHACE CRYPT EMME</p> <p>Upper Layer Lifeform</p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p>Fuel Model no data</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">0 %</td> <td style="text-align: center;">70 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table> <p><input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:</p>		Min	Max	Cover	0 %	70 %	Height	no data	no data	Tree Size Class	no data	
	Min	Max												
Cover	0 %	70 %												
Height	no data	no data												
Tree Size Class	no data													
<p>Class B 90 %</p> <p>Mid1 Closed</p> <p>Description</p> <p>Resprouting shrubs, shrubs growing from seedlings. Herbs only in openings.</p>	<p>Dominant Species* and Canopy Position</p> <p>ARCA1 SAME3 ERFA2 SAAP</p> <p>Upper Layer Lifeform</p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p>Fuel Model no data</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">71 %</td> <td style="text-align: center;">100 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table> <p><input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:</p>		Min	Max	Cover	71 %	100 %	Height	no data	no data	Tree Size Class	no data	
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*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

Class D 0%

Late I Open
Description

Dominant 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%

Late I Closed
Description

Dominant 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

Disturbances Modeled

- Fire
- 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

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 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.

Historical Fire Size (acres)

Avg: no data
Min: no data
Max: no data

Sources of Fire Regime Data

- 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.

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