

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)

R2MSHBwt Mountain Shrubland with Trees

General Information

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

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Vegetation Type

Shrubland

General Model Sources

- Literature
- Local Data
- Expert Estimate

Rapid Assessment Model Zones

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

Dominant Species*

SYMP
AMEL
PRUN
HOLO

LANDFIRE Mapping Zones

12	17
13	18
16	

Geographic Range

Occurs from southwest Canada to the southern Sierra Nevada, western side of the traverse ranges of southern California, throughout the Great Basin, and in the Rocky Mountains from Montana to Colorado.

Biophysical Site Description

Occurs on mesic sites on gentle to steep slopes. This type may be found on all aspects between elevations of 7,500 to 10,000 ft., although it may occur at lower elevations in the northern parts of its range.

Vegetation Description

Mountain shrub communities vary greatly between the eastern and western Great Basin. Dominant shrubs include Symphoricarpos, Amelanchier, and Prunus on mesic sites, with more Artemisia tridentata var. vaseyana, and Holodiscus on dry sites. In Utah, true mountain mahogany (Cercocarpus montanus) is a resprouting shrub that sometimes dominates this PNVG. Ribes, Acer, mountain ash (Sorbus scopulina), and Chrysothamnus are less common. Grasses and forbs may be abundant and patchy. Trees include pinyon pine, juniper, and limber pine. Douglas fir, white fir, and lodgepole pine may be found on more mesic sites.

Disturbance Description

Fire: This is a fire-dependent system, and is strongly influenced by the fire regime of the surrounding shrublands. Dominant species are resprouters (Anderson 2001, Esser 1995, Howard 1997, Uchytill 1990, Zlatnik 1999). Average FRIs vary between 100-200 yrs with longer intervals for older stands. The average mixed severity FRI varies between 25 yrs for younger stands to 100 yrs for older stands with greater tree encroachment..

Avalanche/rockslide: Sites on steep slopes experience rockslides and avalanches that favor resprouting shrubs.

Weather/stress: Severe weather event, such as frost, can cause replacement type mortality every 200 yrs on

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

average.

Adjacency or Identification Concerns

This type occurs in association or complex with mountain big sagebrush, although mountain shrublands are differentiated here by greater diversity.

This PNVG may be similar to the PNVG R3MSHB for the Southwest model zone, but the proportions of mixed versus replacement fire are opposite in the two regions, probably due to differences in weather and lightning patterns. This PNVG may also be similar to the PNVG R0MTSB for the Northern and Central Rockies model zone, but the Great Basin model has much more frequent fire and more mixed severity fire. There is discrepancy among experts about the amount of mixed severity fire in this system.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Usually, this community occurs on a small scale, on mesic sites near or within the mountain big sagebrush zone. However, it may occur on mesic sites outside this zone.

Issues/Problems

Dwarf aspen, willows, and alder may be present on moist sites. If those species are dominant, an aspen or riparian model would be more appropriate. Fire regime group is II and III, however FRG III is more likely.

Model Evolution and Comments

Succession Classes**

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

Class A 5%

Early1 PostRep

Description

Grasses and forbs are abundant, as are resprouting shrubs. Shrub seedlings are also present.

Replacement fire every 100 yrs and severe weather related mortality will reset the ecological clock to zero. Succession from classes A to B after 5 yrs.

Dominant Species* and Canopy Position

SYMPH
AMEL
PRUNU
HOLO

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	40 %
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 20%

Mid1 Closed

Description

Shrubs are dominant, and grasses and forbs may be present, especially in gaps between shrubs. Many shrubs are small and immature. Both replacement fire every 100 yrs and severe weather related mortality every 200 yrs will cause a transition to class A. Mixed severity fire every 25 yrs will cause a transition from class B to itself, but this transition has no effect on

Dominant Species* and Canopy Position

SYMPH
AMEL
HOLO
PRUNU

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	50 %
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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successional dynamics. Succession to C after 15 yrs.

Class C 65%

Late1 Closed

Description

Shrubs are dominant, with little decadence. Grasses and forbs may be present. Small tree seedlings may be present. Shrubs are larger and many are reproducing. Fire and severe weather events return interval are as in class B. Class C is the succession endpoint. However, vegetation will transition to class D in the absence of fire for 60 yrs (three FRIs).

Dominant Species* and Canopy Position

SYMPH
AMEL
PRUNU
HOLO

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	25 %	60 %
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 D 10%

Late2 Open

Description

Shrubs are dominant, with more decadence. Trees are over-topping the shrub canopy. Vegetation is considered open because trees do not form a close canopy. FRIs are longer in this class. Replacement fire every 200 yrs and severe weather every 200 yrs will cause transitions to A. Mixed severity fire every 100 yrs simply maintains vegetation in class D, which is the endpoint for succession without stand replacement fire.

Dominant Species* and Canopy Position

JUNIP
PIFL2
ARTR2
HOLO

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	5 %	15 %
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 E 0%

Late1 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

Fuel Model no data

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

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Disturbances

Disturbances Modeled

- Fire
 Insects/Disease
 Wind/Weather/Stress
 Native Grazing
 Competition
 Other:
 Other

Historical Fire Size (acres)

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

Fire Regime Group: 1

- 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.

Sources of Fire Regime Data

- Literature
 Local Data
 Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
<i>Replacement</i>	105	100	200	0.00952	22
<i>Mixed</i>	29	25	100	0.03448	78
<i>Surface</i>					
<i>All Fires</i>	23			0.04402	

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