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)

R1MTME **Wet Mountain Meadow/Lodgepole Pine-Subalpine**

General Information

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

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Vegetation Type

Grassland

Dominant Species*

CARE
DECA
MUFI2
PICO

General Model Sources

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

LANDFIRE Mapping Zones

3 6
4
5

Rapid AssessmentModel Zones

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

Geographic Range

California Sierra Nevada, Southern Cascades

Biophysical Site Description

Wet meadows typically occur at upper elevations scattered throughout the geographic range, generally above 3900 ft (1200 m) in the north and 5900 ft (1800 m) in the south. The soils are less acidic and nutrient-rich compared to bogs and fens, and are likely to remain wet late into the summer and in some places permanently. Meadows can occur near seeps streams and lakes, on steep slopes or in larger gaps within forested areas. Climate, interacting with fire, has played a role in maintaining meadows.

Vegetation Description

Occurs in openings interspersed among the various timber types. Generally there is less than 20 percent shrub canopy, and trees may occur widely scattered, especially around the perimeters. Two meadow types-wet and dry-are recognized in this classification, although commonly both types may occur in the same opening. Willows (Salix spp.) and alders (Alnus spp.) may form rather dense thickets about these wetter sites. Perennial grasses and forbs dominate dry meadows, and most will have some sedges. Dominant species include: primarily monocotyledonous species including hydrophytic sedges, which may include: abrupt-beaked sedge (C. abrupta), golden-fruited sedge (Carex aurea), and Nebraska sedge (C. nebraskensis), Agrostis thuberiana, Deschampsia caespitosa, and Muhlenbergia filiformis. Or if on steep slopes or in larger gaps: satin lupine (Lupinus obtusilobus), mule ears (Wyethia mollis), Artemisia douglasiana, and Alnus tenuifolia.

Disturbance Description

Tree invasion of meadows began during the late 1800s and peaked during the early 1900s following a decline in fire frequency. Establishment occurred during cool and/or normal to wet springs, but was delayed along stock trails where grazing effects were most severe (Norman and Taylor 2003). Tree invasion or mortality is often primarily a result of interannual climatic patterns in addition to fire. The disturbance

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

regime is very spatially complex in this vegetation type.

Adjacency or Identification Concerns

Scale Description

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

Issues/Problems

Model Evolution and Comments

Original model description did not match model attributes or outputs. Reeberg suggested editing model to reflect description better. Shlisky did this, but could not replicate reference state percentages with the original fire return interval means. With the original 250/120/2 replacement/mixed/surface intervals it was impossible to get 80% in an early seral state (A), as originally estimated in the DB by Reeburg. Shlisky assumed most of the surface fires implied by Reeberg were in open lodgepole stands, and may have been frequent, but would not result in a 2 year FRI for surface fires over the entire PNVG (i.e., open lodgepole stands make up a small portion of the PNVG, and the majority of the PNVG is estimated to be in state A, where it is assumed most fires would be stand replacement, not surface fires.

*Succession Classes***

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

Class A 50 %

Early1 PostRep

Description

Grasses and forbs; shrubs emerging (snow bush, bush chinquapin); tree cover <10%

Dominant Species* and Canopy Position

HW

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	100 %
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 B 30 %

Mid1 Closed

Description

Sapling and pole sized lodgepole pines at >40% canopy cover; occurring lower in elevation range.

Dominant Species* and Canopy Position

PICO
HW

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	100 %
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

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Class C 10 %

Mid1 Open

Description

Sapling-pole sized lodgepole pines at <40% cover with little understory; occurring on rockier, higher elevation sites.

Dominant Species* and Canopy Position

PICO
HW

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	39 %
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 5 %

Late1 Open

Description

Uneven aged stands of mature to very large lodgepole pines at <40% cover; gap patches and little understory. White fir emerging at lower elevations; limber pine emerging at higher elevations.

Dominant Species* and Canopy Position

PICO
HW

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	39 %
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 5 %

Late1 Closed

Description

Mature and large lodgepole pines with lower strata of fir; occurring lower in elevation range.

Dominant Species* and Canopy Position

PICO
HW

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	100 %
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

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Disturbances Modeled

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

Historical Fire Size (acres)

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

Sources of Fire Regime Data

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

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.

	Avg FI	*Min FI*	*Max FI*	*Probability*	*Percent of All Fires*
Replacement	100			0.01	21
Mixed	200			0.005	10
Surface	30			0.03333	69
All Fires	21			0.04833	

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