

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)

R1RFPW Red Fir / Western White Pine

General Information

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

Modelers

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Reviewers

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Vegetation Type

Forested

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*

ABMA
PIMO3
PICO
TSME

LANDFIRE Mapping Zones

3 6
4
5

Geographic Range

Occurs from the vicinity Crater Lake Oregon south through the Cascades and the Sierra Nevada into northern Kern County at Sunday Peak. An arm also extends south through the coast ranges to Snow Mountain in Lake County (Potter, et al. 1992).

Biophysical Site Description

In the southern Sierra Nevada where this type is most dominant, it is found between 7200 and 9800 feet. At higher elevations and in the southern Sierra Nevada, fuels are relatively more discontinuous than northern locations because the terrain is broken up by natural breaks such as rock outcrops, lava reefs, wet meadows, etc. Fuels may be more continuous at the northern end of the range, where this vegetation type is found at lower elevations.

Vegetation Description

Abies magnifica is dominant contributing ~75% of stand cover. *Pinus monticola* contributes 20% of the cover. *P. contorta* can contribute up to 20% cover. *Tsuga mertensiana* can be locally important on some northern exposures. *Abies concolor* is generally absent (<5% cover). Vegetation often contains a considerable abundance of shrubs.

Disturbance Description

Primarily Fire Regime Group III, but because of slow fuel accumulation rates, it is possible to have 35-150 year frequency surface fire in some classes (lower frequency for PNVG as a whole). The discontinuous nature of the fuels limit extent of fires, and while fires may burn less often, they may burn at high severities. Larger and more frequent moderate-intensity fires occur on average every 60-70 years. High intensity crown fires are rare, occurring every few hundred years; overall mean fire return interval is approximately 35-50 years (Pitcher 1987, Taylor 2000, Bekker and Taylor 2001, Skinner 2000).

Adjacency or Identification Concerns

Mixes at lower elevation with red fir-white pine (R1RFPW) where white fir begins to contribute

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

significantly to overstory cover.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Issues/Problems

Still need to add to biophysical description: elevation range and fuel discontinuity for northern non-Sierran populations. Literature scanty relative to reference %s by state.

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 15%

Early1 PostRep

Description

Regeneration of Pinus monticola and P. contorta from seed following a stand-replacing fire. Abies magnifica comes in over time. Shrub cover (e.g., Arctostaphylos spp., Ceanothus velutinus, Chrysolepis sempervirens) is an important component.

Dominant Species* and Canopy Position

PIMO3
PICO
ABMA

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	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:

Class B 1%

Mid1 Closed

Description

>40% cover of mid-mature Abies magnifica with various amounts of Pinus monticola. Usually minor amounts of shrubs and herbs, though Arctostaphylos spp. Or Chrysolepis sempervirens can contribute to a dense understory.

Dominant Species* and Canopy Position

ABMA
PIMO3

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	80 %
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 20%

Mid1 Open

Description

<40% cover of mid-mature Abies magnifica with various amounts of Pinus monticola. Usually minor amounts of shrubs and herbs, though Arctostaphylos spp. Or Chrysolepis sempervirens can contribute to a dense understory.

Dominant Species* and Canopy Position

ABMA
PIMO3

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:

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Class D 59%

Late I Open

Description

< 40% cover of mature Abies magnifica and Pinus monticola with a shrub cover of Arctostaphylos nevadensis and Chrysolepis sempervirens.

Dominant Species* and Canopy Position

ABMA
PIMO3
PICO
TSME

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 E 5%

Late I Closed

Description

>40% cover of mature Abies magnifica and Pinus monticola with some P. contorta occurring in the understory.

Dominant Species* and Canopy Position

ABMA
PIMO3
PICO
TSME

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	90 %
Height	no data	no data
Tree Size Class	no data	

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

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: 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

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	250			0.004	16
Mixed	60	25	80	0.01667	65
Surface	200			0.005	19
All Fires	39			0.02567	

References

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