

## 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](http://www.landfire.gov). Please direct questions to [helpdesk@landfire.gov](mailto:helpdesk@landfire.gov).

### Potential Natural Vegetation Group (PNVG):

R1MCONns

Mixed Conifer - North Slopes

### General Information

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

#### Modelers

Joe Sherlock                      [jsherlock@fs.fed.us](mailto:jsherlock@fs.fed.us)

Neil Sugihara                      [nsugihara@fs.fed.us](mailto:nsugihara@fs.fed.us)

Ayn Shlisky                      [ashlisky@tnc.org](mailto:ashlisky@tnc.org)

#### Reviewers

2 anonymous  
reviewers

#### Vegetation Type

Forested

#### Dominant Species\*

ABCO

PIPO

PILA

PSME

#### General Model Sources

Literature

Local Data

Expert Estimate

#### LANDFIRE Mapping Zones

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#### Rapid Assessment Model Zones

California

Great Basin

Great Lakes

Northeast

Northern Plains

N-Cent.Rockies

Pacific Northwest

South Central

Southeast

S. Appalachians

Southwest

### Geographic Range

California, from the San Bernardino mountain range thru the western slope of the Sierra Nevada mountain range, to the Klamath-Siskiyou region. May include interior coast ranges. Type intergrades with mixed conifer in southern Oregon, and may be extremely similar to it.

### Biophysical Site Description

Favorable slopes, primarily north and east aspects throughout the geographic range. Generally above 5,000 feet elevation at the southern extent to above 1,000 feet in the north. Upper elevations defined by ecotone with red fir, lodgepole, and mixed evergreen.

### Vegetation Description

Mixed conifer forests are typically composed of 3 or more species, with ponderosa pine, sugar pine, and Douglas-fir, white fir, and incense cedar. California black oak, or other hardwood species, are also common components. Giant sequoia forests are included within this PNVG. Douglas-fir drops out south of Yosemite National Park. Incense cedar may compose a larger proportion of PNVG in the south.

### Disturbance Description

Surface fire occurs at an average generally between 10-15 years (Taylor and Skinner 2003, Taylor and Skinner 1998). Kilgore and Taylor (1979) reported a FRI of 19-39 years (N/NE aspects), which may favor mixed and replacement fires of longer return intervals. Insect/pathogen and drought-related mortality that does not cause a change in state occurs every 7-10 years in closed states; that which causes a transition from a late-seral closed to open state occurs about every 100 years. Snow breakage occurs in the mid-seral closed state (class B) about every 5 years. While model is aspatial, most medium and high severity fire may actually occur on mid and upper slope positions (Taylor and Skinner 1998, Taylor 2002, Beaty and Taylor 2001).

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

## Adjacency or Identification Concerns

Extends between the low elevation hardwood forests to the red fir forests of the upper elevations.

This PNVG may be similar to the PNVG R#MCONsw from the Pacific Northwest model zone with some differences in species composition.

## Scale Description

Sources of Scale Data  Literature  Local Data  Expert Estimate

Small to medium patch size mosaic, driven by variations of surface fire intensity and insect/pathogen-related mortality. Also includes coarser texture, at the 100's to 1,000's of acres scale, that are less frequent.

## Issues/Problems

It is unknown if there is a need for a northern (latitude) versus a southern MCON PNVG. This version is intended to respond to literature inferences that "north" slopes, perhaps especially in the northern Sierra Nevada through the Klamath region, have a longer fire regime and larger patch size than estimated by work in the southern and central Sierra Nevada. Likewise, the Klamath region literature also indicates that the topographic complexity also contributes to disparity between the two types. Even though a FRI difference may exist between N and S aspects, Skinner and Taylor 1998 found that the numbers were not statistically significant in their study. Difference in severity between aspects may be more important.

## Model Evolution and Comments

Shlisky adjusted ratio of replacement to mixed fire from 0.8 to 1.25 from previous version based on reviewer feedback. Shlisky also added insect/pathogen and snow breakage (wind/weather/stress) probabilities included in description but not in previous model version. Very little data on reference % of PNVG by state. Current pathways show late-seral open succeeding to late-seral closed - need to consider if late-seral open can succeed to itself; then succeeding to late-seral closed in the absence of fire.

## Succession Classes

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

### Class A 5%

Early1 PostRep

#### Description

Early succession, after localized mortality, or mixed severity fire, comprised of grass, shrubs, and tree seedlings to saplings. PSME may drop out south of Yosemite National Park.

#### Indicator Species\* and Canopy Position

ABCO

PIPO

PILA

PSME

#### Upper Layer Lifeform

Herbaceous

Shrub

Tree

Fuel Model no data

#### Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	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:

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

**Class B** 5%

Mid1 Closed

**Description**

Pole to medium sized conifers with canopy cover greater than 40%.

**Indicator Species\* and Canopy Position**

ABCO  
PIPO  
PSME  
PILA

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	40 %	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 C** 15%

Mid1 Open

**Description**

Pole to medium sized conifers with canopy cover less than 40%.

**Indicator Species\* and Canopy Position**

ABCO  
PIPO  
PILA  
PS

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	0 %	39 %
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** 50%

Late1 Open

**Description**

Overstory of large and very large trees with canopy cover less than 40%. Occurring in small to moderately-sized patches on southerly aspects and ridgetops.

**Indicator Species\* and Canopy Position**

ABCO  
PIPO  
PILA  
PSME

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	0 %	39 %
Height	no data	no data
Tree Size Class	no data	

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

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

**Class E 25 %**

Late I Closed

**Description**

Overstory of large and very large trees with canopy cover greater than 40%. Occurring in small to moderately-sized patches on north aspects and lower slope positions. Understory characterized by medium and smaller-sized shade-tolerant conifers

**Indicator Species\* and Canopy Position**

ABCO  
PIPO  
PILA  
PSME

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	40 %	70 %
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:** 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 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.

**Historical Fire Size (acres)**

Avg:  
Min:  
Max:

**Sources of Fire Regime Data**

- Literature
- Local Data
- Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	250			0.004	5
Mixed	200			0.005	7
Surface	15	10	40	0.06667	88
All Fires	13			0.07567	

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

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