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)

R1MCONns Mixed Conifer - North Slopes

General Information

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

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Vegetation Type

Forested

Dominant Species*

ABCO
PIPO
PILA
PSME

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, 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 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).

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.

Dominant 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:

Class B 5 %

Mid1 Closed

Description

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

Dominant 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:

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

Class C 15 %

Mid1 Open

Description

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

Dominant 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.

Dominant 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:

Class E 25 %

Late1 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

Dominant 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	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:

Disturbances

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Disturbances Modeled

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

Historical Fire Size (acres)

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

Sources of Fire Regime Data

- [x] 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	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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