

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. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R#MCONdy

Mixed Conifer - Eastside Dry

General Information

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

Modelers

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Vegetation Type

Forested

Dominant Species*

PIPO

ABGR

PSME

ABCO

General Model Sources

Literature

Local Data

Expert Estimate

LANDFIRE Mapping Zones

1 8

2 9

7

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

Eastside Cascades Oregon and Washington, Blue Mountains Oregon and Washington, Ochoco Mountains Oregon, Wallowa-Snake province in Oregon/Washington

Biophysical Site Description

Elevation range in eastside Oregon about 2400 feet to about 6500 feet, but most stands occur between 3500 and 5000 feet. Elevation range in Washington Cascades somewhat lower, typically ranging 1000 to 4000 feet.

This forest type occurs just above ponderosa types on a moisture gradient.

Vegetation Description

Ponderosa pine overstory is typical in fire-maintained stands. Older stands tend to be of large, widely spaced ponderosa pine. Some areas have more Douglas fir on these dry sites, especially to the north, where grand fir drops out and PIPO becomes less dominant. Early seral forests are often open stands of mostly ponderosa pine. Lack of wildfire causes fill in of understory conifers, mainly ponderosa pine, Douglas-fir, and grand fir. Western larch is locally important.

Disturbance Description

Typical disturbance regimes under natural conditions include frequent, low-intensity under- burns that maintain open stands of fire resistant trees. Much more infrequent mixed-severity and stand replacement wildfire occurred and tended to generate mosaics of older, larger trees and younger regeneration. Endemic bark beetles produced patch mortality. Rarer epidemic bark beetle outbreaks caused larger-scale overstory mortality and released understory trees. Defoliator outbreaks also caused fir mortality in some areas. Root diseases may play a significant role in later seral forests in this environment.

*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

This PNVG occurs below the mesic MCON (fir dominated) forest types, and often occurs above mesic ponderosa forests.

This PNVG includes the following plant association groups: PIPO/elk sedge, PIPO/pinegrass, PIPO/snowberry, PIPO/ninebark and similar types, PSME with the same associated species list, grand fir with similar associated species, white fir with similar associated species. It does not include more mesic PSME (e.g. PSME/oceanspray, PSME/ACGL, PSME/CLUN, PSME/huckleberry, and similar moist types). White fir occurs in this type south of about Bend in Oregon.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Dry mixed conifer forests that often occur in large areas (hundreds to thousands of acres) that, due to fire and insect disturbances, often contained mosaics of older, larger trees and smaller trees.

Issues/Problems

Landfire should map a more PSME dominated dry forest to the north, esp. north of Wenatchee.

There are differing opinions on this type. Dave Swanson proposed an extended shrub dominated stage. Jim Merzenich observed that the current model does not explain why the mid-open condition has one-fourth the probability of replacement fires than the late stages. This model is recommended for further refinement. One anonymous reviewer commented that the model shows a northern bias, and has overlooked how the type changes species to the south end of its range (Abco replacing Abgr, etc.)

Model Evolution and Comments

Beth Willhite (bwillhite@fs.fed.us) also helped build the model. This type is similar to PPDF1 in the RA book. Our size breaks are based on dominant and co-dominant trees.

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

Open stand of ponderosa pine seedlings mixed with grasses and shrubs. Early seral dominant species include , ceanothus, scouler willow, bull thistle, Bromus, some sedges and grasses.

Indicator Species* and Canopy Position

PIPO

PSME

LAOC

CAGE2

Upper Layer Lifeform

- Herbaceous
 Shrub
 Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	5 %	20 %
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 B 1%

Mid1 Closed

Description

Closed stands of 5" to 20" DBH early seral tree species. Forests in this PNVG rarely if ever exceed 80% canopy closure even in closed, dense conditions.

Indicator Species* and Canopy Position

PIPO
PSME
LAOC
ABGR

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 30%

Mid1 Open

Description

Open stands of 5" to 20" DBH early seral tree species. Dominant understory plants include elk sedge, pinegrass, common snowberry, rose, mountain mahogany (wetter), heartleaf arnica, lupines.

Indicator Species* and Canopy Position

PIPO
PSME
LAOC
ABGR

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 D 40%

Late1 Open

Description

Open stands of 20+" DBH early seral tree species. Dominant understory plants include elk sedge, pinegrass, common snowberry, rose, mountain mahogany (wetter), heartleaf arnica, lupines.

Indicator Species* and Canopy Position

PIPO
PSME
LAOC
ABGR

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:

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

Class E 14 %

Late I Closed

Description

Closed stands of 20+'' DBH early seral tree species. Forests in this PNVG rarely if ever exceed 80% canopy closure even in closed, dense conditions.

Indicator Species* and Canopy Position

PIPO
PSME
ABGR
LAOC

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:

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

Historical Fire Size (acres)

Avg:
Min:
Max:

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.

Sources of Fire Regime Data

- Literature
- Local Data
- Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	115	70	200	0.0087	14
Mixed	75	70	175	0.01333	21
Surface	25	20	35	0.04	64
All Fires	16			0.06203	

References

Crowe, E.; Clausnitzer, R. 1997. Mid-montane wetland plant associations of the Malheur, Umatilla and Wallowa-Whitman National Forests. R6-NR-ECOL-TP-22-97. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region. 299 p.

Heyerdahl, Emily K. and James K. Agee. 1996. Historical fire regimes of four sites in the Blue Mountains, Oregon and Washington. Final Report, University of Washington, Seattle. 173 p

Johnson, C.G. and Clausnitzer, R.R. 1992. Plant associations of the Blue and Ochoco Mountains. P6-ERW-TP-036-92. Portland, OR: USDA Forest Service, Pacific Northwest Region. 164 pp + appendices.

Johnson, C.G. and Simon, S.A. 1986. Plant associations of the Wallowa-Snake province. R6-ECOL-TP-255b-86. Portland, OR: USDA Forest Service, Pacific Northwest Region. 272 pp + appendices.

Hopkins, W.E. 1979a. Plant associations of the Fremont National Forest. USDA Forest Service R6 Ecol 79-

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

004. Pacific Northwest Region, Portland Oregon. 106 p., illus.

Hopkins, W.E. 1979b. Plant associations of the south Chiloquin and Klamath Ranger Districts, Winema National Forest. USDA Forest Service R6 Ecol 79-005. Pacific Northwest Region, Portland, Oregon. 96 p., illus.

Mauroka, K.R. 1994. Fire history of *Pseudotsuga menziesii* and *Abies grandis* stands in the Blue Mountains of Oregon and Washington. M.S. Thesis, University of Washington, Seattle, WA. 73 p.

Volland, L.A. 1988. Plant communities of the central Oregon pumice zone. R-6 Area Guide 4-2. Portland, OR: USDA Forest Service, Pacific Northwest Region. 113 pp + appendices.