

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

### Potential Natural Vegetation Group (PNVG)

R#PIPOxe Ponderosa Pine - Xeric

#### General Information

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

##### Modelers

Mike Simpson mlsimpson@fs.fed.us  
Dave Swanson dswanson@fs.fed.us

##### Reviewers

Miles Hemstrom mhemstrom@fs.fed.us  
Rex Crawford rex.crawford@wadnr.gov

#### 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\*

PIPO  
ARTR  
CELE  
JUOC

#### LANDFIRE Mapping Zones

1 8  
2 9  
7

#### Geographic Range

This PNVG occurs in the forest shrub steppe interface along the east side of the Fremont and Deschutes National Forests and along the southern fringe of the Blue Mountains to the Idaho border.

#### Biophysical Site Description

This PNVG occurs in precipitation zones between 15-17". This precipitation band reaches from the east side of the Fremont NF north along the east side of the Deschutes NF to the south edge of the Blues, and east along the Ochocos and Malheur NF. This type may occur in Idaho opposite the snake river.

#### Vegetation Description

Tree species common in this type are PIPO and JUOC. Minor amounts of PSME may occur. Understory vegetation is dominated by ARTR, ARAR, CELE, PUTR. Important herbaceous species include FEID, AGSP, SIHY, POSA and various Stipa species.

#### Disturbance Description

Mixed and Stand Replacement Fires dominate this PNVG. Large wind driven events originating in the shrub steppe or Juniper Woodland vegetation zones heavily influence this PNVG. Fire return intervals in this type are more like adjacent shrub steppe or Juniper Woodland communities than typical low intensity frequent fire PIPO communities.

#### Adjacency or Identification Concerns

Typically this vegetation type occurs between JUOC/ARTR, JUOC/ARAR, JUOC/ PUTR, ARTR, PUTR and PIPO or Dry Mixed Conifer sites with frequent fire return intervals.

This PNVG is distinct from Ponderosa Pine mesic (R#PIPOm) in that it typically occurs in regions with <45cm/year precipitation.

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

## Scale Description

Sources of Scale Data  Literature  Local Data  Expert Estimate

Stand replacement events can be tens of thousands of acres in size.

## Issues/Problems

This model attempts to capture the Forest - Shrub Steppe interface areas where lack of fuels continuity increases the fire return intervals and significant dry shrub communities increase the occurrence of stand replacement and mixed fires.

## Model Evolution and Comments

Reviewers requested greater clarification between this model and R#PIPOm. Furthermore, it was suggested that the replacement fire may occur too frequently resulting in too much mid-seral (classes B and C). A run with reduced replacement fire (0.003 for open classes C and D; 0.01 for classes A, B and E) moved 15% of the landscape from Class A and C into Class D, and nearly doubled the MFRI of replacement fires.

## 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 25 %

Early1 PostRep

#### Description

Class A is a Grass/ Forb/Shrub and Seedling Sapling Stage. Initial establishment of grass and herbaceous species (and CHVI if present in the pre-disturbance community) gives way to shrubs at 15-30 years. JUOC and PIPO are often established after the shrub community is in place. Re-establishment of the trees may be delayed by the large disturbance size and removal of nearby seed sources.

#### Dominant Species\* and Canopy Position

ARTR  
CHVI  
AGSP  
SIHY

#### 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 5 %

Mid1 Closed

#### Description

Class B represents Pole to Small tree (5-20" dbh) dominated sites with significant competition between trees even though canopy cover does not exceed 70%. Shrub and herbaceous species are often depauperate or declining in this stage due to the competition from the Overstory Trees. This stage is susceptible to mountain pine beetle attack which cycles this stage to Class C.

#### Dominant Species\* and Canopy Position

PIPO  
JUOC  
FEID  
ARTR

#### Upper Layer Lifeform

- Herbaceous  
 Shrub  
 Tree

**Fuel Model** no data

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

	Min	Max
Cover	25 %	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 25%**

Mid1 Open

**Description**

Class C represents Pole to Small tree (5-20" dbh) dominated sites with open canopies. Understories are more vigorous than class B and have similar species composition to class A.

**Dominant Species\* and Canopy Position**

PIPO  
ARTR  
PUTR  
AGSP

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

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

	Min	Max
Cover	0 %	25 %
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**

Class D represents the Large tree (20"+) open canopy conditions. Often this gives a Savanna-like appearance. Shrub and herbaceous communities are similar to Class A.

**Dominant Species\* and Canopy Position**

PIPO  
ARTR  
CELE  
FEID

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

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

	Min	Max
Cover	0 %	25 %
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%**

Late1 Closed

**Description**

Class E occurs when class D misses 2-3 fire intervals. This stage is susceptible to western pine beetle events which cycle this stage to Class C.

**Dominant Species\* and Canopy Position**

PIPO  
CELE  
JUOC  
FEID

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

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

	Min	Max
Cover	25 %	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**

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

**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

**Sources of Fire Regime Data**

- Literature
- Local Data
- Expert Estimate

**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.

	<i>Avg FI</i>	<i>Min FI</i>	<i>Max FI</i>	<i>Probability</i>	<i>Percent of All Fires</i>
<i>Replacement</i>	130			0.00769	37
<i>Mixed</i>	100			0.01	48
<i>Surface</i>	300			0.00333	16
<i>All Fires</i>	48			0.02103	

**References**

Baker, William L., and Douglas J. Shinneman, 2003. Fire and restoration of pinon-juniper woodland in the western United States: a review. *Forest Ecology and Management* 189 (1-21)

Hall, F.C. 1973. Plant communities of the Blue Mountains in eastern Oregon and southeastern Washington. USDA Forest Service R6 Area Guide 3-1. Pacific Northwest Region, Portland, Oregon. 71 p.

Hopkins, W.E. 1979a. Plant associations of the Fremont National Forest. USDA Forest Service R6 Ecol 79-004. 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.

Johnson, C.G., Jr., and R.R. Clausnitzer. 1992. Plant associations of the Blue and Ochoco Mountains. USDA Forest Service R6 ERW-TP-036-92. Pacific Northwest Region, Portland, Oregon. 207 p.

Johnson, C.G., Jr., and S.A. Simon. 1987. Plant associations of the Wallowa-Snake Province. USDA Forest Service R6 Ecol TP 255a-86. Pacific Northwest Region, Portland, Oregon. 472 p.

Johnson, Charles Grier Jr., and David K. Swanson, (review draft Sept 2004) Bunchgrass Plant Communities of the Blue and Ochoco Mountains. A Guide for Managers.

Miller, Richard and Jeffrey Rose, 1999. Fire History and western juniper encroachment in sagebrush steppe. *J. Range Manage.* 52:550-559.

Volland, L.A. 1985. Plant associations of the central Oregon Pumice zone. USDA Forest Service R6 Ecol 104-1985. Pacific Northwest Region, Portland, Oregon. 138 p.

Volland, Lenny, Ecology Plot Data Unpublished Data Collected Mid 1960's to Mid 1970's.

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