

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)

R#SPFI Spruce - Fir

General Information

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

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Vegetation Type

Forested

General Model Sources

- Literature
 Local Data
 Expert Estimate

Rapid Assessment Model Zones

- California Pacific Northwest
 Great Basin South Central
 Great Lakes Southeast
 Northeast S. Appalachians
 Northern Plains Southwest
 N-Cent. Rockies

Dominant Species*

PICO
ABLA
PIEN
ABGR

LANDFIRE Mapping Zones

1	8
2	9
7	

Geographic Range

Eastside Oregon and Washington Cascades, Blue Mountains of Washington, Blue and Ochoco Mountains in Oregon.

Biophysical Site Description

This forest type occurs at upper elevations, on cold sites with deep snow and frosty growing seasons.

Vegetation Description

Lodgepole pine often serves as a nurse crop for spruce and fir in early succession. Some sites take a very long time to regenerate following reburn fires. Dense stands of lodgepole can develop and survive for 100+ years. Old stands of Engelmann spruce and subalpine fir can develop, but are prone to insect and fire replacement.

Disturbance Description

Wildfires are less frequent than at lower elevations. Most fires are mixed severity or stand replacement severity. Insects play significant roles at both endemic and epidemic/outbreak levels.

Adjacency or Identification Concerns

Sub-alpine woodland occurs above this type.

This PNVG may be similar to the PNVG R0SPFI from the Northern Central Rockies model zone.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

Stands often occur as large patches on upper slopes and break into stringers or islands as elevation nears tree line.

Issues/Problems

Using Class B as the standard post-replacement structure leaves class A to be the non-standard, very slow

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

to re-establish class.

Limitation to 5 boxes caused us some problems with this model. We wanted to show an early seral open condition that is persistent and fills in very slowly with conifers following a reburn of young stands. This is our box A (early1 open). Consequently, we did not include a late open condition because this seems to be relatively less common except as you begin to leave closed forests near the transition to alpine woodland. Given our cover breaks for closed versus open, we figured most late structure would also have over 40% canopy cover. We used many of the probabilities and disturbances from the original FRCC SPFI1 model, after checking them for validity for our region. We did think that insect and disease events are more common in our area than in the original FRCC SPFI1 model.

Model Evolution and Comments

Succession Classes**															
<i>Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).</i>															
<p>Class A 3 %</p> <p>Early1 Open</p> <p>Description</p> <p>Openings and meadows following stand replacement fire. Very poorly stocked with mostly lodgepole pine. Slow to fill in with lodgepole pine, frosty, lots of shrubs. Trees 0-5" DBH. Dominant understory species include grouse whortleberry, big huckleberry, bromes, and sedges.</p>	<p>Dominant Species* and Canopy Position</p> <p>PICO VASC VAME BROM</p> <p>Upper Layer Lifeform</p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p>Fuel Model no data</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">5 %</td> <td style="text-align: center;">10 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table> <p><input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:</p>		Min	Max	Cover	5 %	10 %	Height	no data	no data	Tree Size Class	no data		
	Min	Max													
Cover	5 %	10 %													
Height	no data	no data													
Tree Size Class	no data														
<p>Class B 22 %</p> <p>Early1 Closed</p> <p>Description</p> <p>Young lodgepole pine stand that regenerated from stored seed following stand replacement fire or insects. Trees 0-5" DBH.</p>	<p>Dominant Species* and Canopy Position</p> <p>PICO</p> <p>Upper Layer Lifeform</p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p>Fuel Model no data</p>	<p>Structure Data (for upper layer lifeform)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Min</th> <th style="text-align: center;">Max</th> </tr> </thead> <tbody> <tr> <td>Cover</td> <td style="text-align: center;">10 %</td> <td style="text-align: center;">80 %</td> </tr> <tr> <td>Height</td> <td style="text-align: center;">no data</td> <td style="text-align: center;">no data</td> </tr> <tr> <td>Tree Size Class</td> <td colspan="2" style="text-align: center;">no data</td> </tr> </tbody> </table> <p><input type="checkbox"/> Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:</p>		Min	Max	Cover	10 %	80 %	Height	no data	no data	Tree Size Class	no data		
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Class C 25%

Mid1 Closed

Description

Mid-sized lodgepole stand, closed canopy. Eventually, a few subalpine fir and Engelmann spruce begin to show. Trees 6-15" DBH.

Dominant Species* and Canopy Position

PICO
ABLA
PIEN
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 D 20%

Mid1 Open

Description

Mid-sized lodgepole pine, open canopy with some spruce and fir filling in. Trees 6-15" DBH. Dominant understory species include grouse whortleberry, big huckleberry, bromes, and sedges. Fools huckleberry occurs to the north.

Dominant Species* and Canopy Position

PICO
ABLA
PIEN
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 E 30%

Late1 Closed

Description

Large, old, dense, Engelmann spruce and subalpine fir. Trees 15+" DBH.

Dominant Species* and Canopy Position

ABLA
PIEN
ABGR
NVEG

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

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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: 4

- 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>	135	80	270	0.00741	84
<i>Mixed</i>	700	285	1E+04	0.00143	16
<i>Surface</i>					
<i>All Fires</i>	113			0.00885	

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