

## 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)

**R0WBLP** Whitebark Pine and Lodgepole Pine - Upper Subalpine Northern and Central Rockies

### General Information

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

**Modelers**

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**Reviewers**

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**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\***

PIAL  
ABLA  
PIEN  
LALY

**LANDFIRE Mapping Zones**

10	21
19	22
20	29

**Geographic Range**

Western Montana and northern Idaho.

**Biophysical Site Description**

Upper subalpine zone (6000-8500 feet) on moderately steep to steep terrain (e.g. 40-70% slope).

**Vegetation Description**

Historically, whitebark pine dominated on southerly aspects, while northerly aspects were dominated by alpine larch or subalpine fir and Engelmann spruce.

**Disturbance Description**

Fire Regime Groups III and IV, primarily long-interval (e.g. 100-200+ year) mixed severity and stand replacement fires. Mountain pine beetle was also an important disturbance process in lodgepole pine and whitebark pine.

**Adjacency or Identification Concerns**

This PNVG corresponds to cold, moist upper subalpine and timberline habitat types (Pfister et al. 1977). Lower subalpine forests border to lower elevations, including lodgepole pine, Douglas-fir, Engelmann spruce, and subalpine fir types.

**Scale Description**

Fires could range from 100's to 1000's of acres.

**Sources of Scale Data**  Literature  Local Data  Expert Estimate

**Issues/Problems**

Empirical data for the upper subalpine forest is generally sparse; quantifying fire regimes, succession, and other disturbances is difficult.

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

## Model Evolution and Comments

This PNVG was created by lumping two original Rapid Assessment models (USAL1/R0WBLPmt and USAL2/R0WBLPid), based on peer review comments (03/16/2005).

<b>Succession Classes**</b>														
<i>Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).</i>														
<p><b>Class A 20 %</b></p> <p>Early1 PostRep</p> <p><b>Description</b></p> <p>Early succession after moderately long to long interval replacement fires, and highly variable interval mixed severity fires. Post-fire tree reproduction dominated by whitebark pine.</p>	<p><b>Dominant Species* and Canopy Position</b></p> <p>PIAL PICO</p> <p><b>Upper Layer Lifeform</b></p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p><b>Fuel Model</b> no data</p>	<p><b>Structure Data (for upper layer lifeform)</b></p> <table border="1"> <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;">0 %</td> <td style="text-align: center;">100 %</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	0 %	100 %	Height	no data	no data	Tree Size Class	no data	
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<p><b>Class B 25 %</b></p> <p>Mid1 Closed</p> <p><b>Description</b></p> <p>Stands dominated by pole-sized (and smaller) shade intolerant and mixed conifers, often wind-stunted.</p>	<p><b>Dominant Species* and Canopy Position</b></p> <p>PIAL PICO ABLA PIEN</p> <p><b>Upper Layer Lifeform</b></p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p><b>Fuel Model</b> no data</p>	<p><b>Structure Data (for upper layer lifeform)</b></p> <table border="1"> <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;">40 %</td> <td style="text-align: center;">100 %</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	40 %	100 %	Height	no data	no data	Tree Size Class	no data	
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<p><b>Class C 25 %</b></p> <p>Mid1 Open</p> <p><b>Description</b></p> <p>Stands dominated by pole-sized (and smaller) shade intolerant conifers, often wind-stunted.</p>	<p><b>Dominant Species* and Canopy Position</b></p> <p>PIAL PICO ABLA PIEN</p> <p><b>Upper Layer Lifeform</b></p> <p><input type="checkbox"/> Herbaceous <input type="checkbox"/> Shrub <input type="checkbox"/> Tree</p> <p><b>Fuel Model</b> no data</p>	<p><b>Structure Data (for upper layer lifeform)</b></p> <table border="1"> <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;">0 %</td> <td style="text-align: center;">40 %</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	0 %	40 %	Height	no data	no data	Tree Size Class	no data	
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**Class D 15%**

Late I Open

**Description**

Pole to large diameter shade intolerant and mixed conifer species, often wind-stunted, in small to moderate size patches generally on southerly aspects.

**Dominant Species\* and Canopy Position**

PIAL  
PICO  
ABLA  
PIEN

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

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

	Min	Max
Cover	0 %	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 15%**

Late I Closed

**Description**

Pole- to larger diameter shade intolerant and mixed conifer species, often wind-stunted, in small to moderate size patches, especially on sheltered aspects.

**Dominant Species\* and Canopy Position**

PIAL  
PICO  
ABLA  
PIEN

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

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

	Min	Max
Cover	40 %	100 %
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**

**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

**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.

**Sources of Fire Regime Data**

- Literature
- Local Data
- Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement	360			0.00278	38
Mixed	225			0.00444	61
Surface					
All Fires	138			0.00723	

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