Potential Natural Vegetation Group (PNVG):

R1RFWP  Red Fir / Western White Pine

General Information

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

Modelers
Lloyd Simpson  lsimpson@fs.fed.us

Reviewers
2 anonymous reviewers

Vegetation Type

Forested

Dominant Species*

ABMA
PIMO3
PICO
TSME

General Model Sources

☑  Literature
☐  Local Data
☐  Expert Estimate

Landfire Mapping Zones

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

Rapid Assessment Model Zones

Biophysical Site Description

In the southern Sierra Nevada where this type is most dominant, it is found between 7200 and 9800 feet. At higher elevations and in the southern Sierra Nevada, fuels are relatively more discontinuous than northern locations because the terrain is broken up by natural breaks such as rock outcrops, lava reefs, wet meadows, etc. Fuels may be more continuous at the northern end of the range, where this vegetation type is found at lower elevations.

Vegetation Description

Abies magnifica is dominant contributing ~75% of stand cover. Pinus monticola contributes 20% of the cover. P. contorta can contribute up to 20% cover. Tsuga mertensiana can be locally important on some northern exposures. Abies concolor is generally absent (<5% cover). Vegetation often contains a considerable abundance of shrubs.

Disturbance Description

Primarily Fire Regime Group III, but because of slow fuel accumulation rates, it is possible to have 35-150 year frequency surface fire in some classes (lower frequency for PNVG as a whole). The discontinuous nature of the fuels limit extent of fires, and while fires may burn less often, they may burn at high severities. Larger and more frequent moderate-intensity fires occur on average every 60-70 years. High intensity crown fires are rare, occurring every few hundred years; overall mean fire return interval is approximately 35-50 years (Pitcher 1987, Taylor 2000, Bekker and Taylor 2001, Skinner 2000).

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

8/11/2008
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Adjacency or Identification Concerns
Mixes at lower elevation with red fir-white pine (R1RFWF) where white fir begins to contribute significantly to overstory cover.

Scale Description

Issues/Problems
Still need to add to biophysical description: elevation range and fuel discontinuity for northern non-Sierran populations. Literature scanty relative to reference %s by state.

Model Evolution and Comments

Succession Classes
Succession classes are the equivalent of “Vegetation Fuel Classes” as defined in the Interagency FRCC Guidebook (www.frcc.gov).

<table>
<thead>
<tr>
<th>Class</th>
<th>%</th>
<th>Description</th>
<th>Indicator Species* and Canopy Position</th>
<th>Structure Data (for upper layer lifeform)</th>
<th>Structure Data (for upper layer lifeform)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>15%</td>
<td>Early1 PostRep</td>
<td>PIMO3, PICO, ABMA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regeneration of Pinus monticola and P. contorta from seed following a stand-replacing fire. Abies magnifica comes in over time. Shrub cover (e.g., Arctostaphylos spp., Ceanothus velutinus, Chrysolepis sempervirens) is an important component.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper Layer Lifeform</td>
<td>no data</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuel Model</td>
<td>no data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class B</td>
<td>1%</td>
<td>Mid1 Closed</td>
<td>ABMA, PIMO3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;40% cover of mid-mature Abies magnifica with various amounts of Pinus monticola. Usually minor amounts of shrubs and herbs, though Arctostaphylos spp. Or Chrysolepis sempervirens can contribute to a dense understory.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Class C** 20%

Mid1 Open

Description

<40% cover of mid-mature Abies magnifica with various amounts of Pinus monticola. Usually minor amounts of shrubs and herbs, though Arctostaphylos spp. Or Chrysolepis sempervirens can contribute to a dense understory.

**Indicator Species** and **Canopy Position**

| ABMA | PIMO3 |

**Upper Layer Lifeform**

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

**Fuel Model** no data

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

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>10%</td>
</tr>
<tr>
<td>Height</td>
<td>no data</td>
</tr>
<tr>
<td>Tree Size Class</td>
<td>no data</td>
</tr>
</tbody>
</table>

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

---

**Class D** 59%

Late1 Open

Description

<40% cover of mature Abies magnifica and Pinus monticola with a shrub cover of Arctostaphylos nevadensis and Chrysolepis sempervirens.

**Indicator Species** and **Canopy Position**

| ABMA | PIMO3 | PICO | TSME |

**Upper Layer Lifeform**

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

**Fuel Model** no data

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

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>10%</td>
</tr>
<tr>
<td>Height</td>
<td>no data</td>
</tr>
<tr>
<td>Tree Size Class</td>
<td>no data</td>
</tr>
</tbody>
</table>

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

---

**Class E** 5%

Late1 Closed

Description

>40% cover of mature Abies magnifica and Pinus monticola with some P. contorta occurring in the understory.

**Indicator Species** and **Canopy Position**

| ABMA | PIMO3 | PICO | TSME |

**Upper Layer Lifeform**

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

**Fuel Model** no data

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

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>40%</td>
</tr>
<tr>
<td>Height</td>
<td>no data</td>
</tr>
<tr>
<td>Tree Size Class</td>
<td>no data</td>
</tr>
</tbody>
</table>

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

---

**Disturbances**

- Insects/Disease
- Wind/Weather/Stress
- Native Grazing
- Competition
- Other:
- Other:

**Non-Fire Disturbances Modeled**

- 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

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**Historical Fire Size (acres)**

<table>
<thead>
<tr>
<th>Avg</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
</table>

**Sources of Fire Regime Data**

<table>
<thead>
<tr>
<th>Replacement</th>
<th>Avg FI</th>
<th>Min FI</th>
<th>Max FI</th>
<th>Probability</th>
<th>Percent of All Fires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>250</td>
<td>60</td>
<td>80</td>
<td>0.01667</td>
<td>65</td>
</tr>
<tr>
<td>Surface</td>
<td>200</td>
<td>0.005</td>
<td></td>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

**Percent of All Fires**

- All Fires: 0.02567

**References**


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