Biophysical Site Description

Wet cold lodgepole pine occurs on upper montane sites usually on gently rolling lower slopes and drainage bottoms (Potter 1994, 1998). Stands are typically in broken terrain and thus few large contiguous areas of this type exist. Climate is Mediterranean with wet winters (Nov.-Apr.) and dry summers although summer thunderstorms occur sporadically. Sites are moist and more productive than dry cool subalpine lodgepole. Fuels are composed of a matrix of herbaceous vegetation and pine debris.

Vegetation Description

The understory is diverse with graminoids and forbs (cover >50%). Tree cover is generally moderate to dense. At lower elevations there is an increasing dominance of red fir and western white pine. Lodgepole can be seral to these species and at higher elevations mountain hemlock.

Disturbance Description

Disturbance patterns have been poorly studied in Sierran lodgepole pine. Sierra lodgepole has been described as not being a fire type (Barbour and Minnich 2000) or as having long intervals between fires (Parker 1986, Keeley 1980, Potter 1998). Somewhat similar wet lodgepole types in Klamath Mountains and Oregon had a FRI range of 70 - 100 years. Season of fire is generally late summer to early fall. Stand replacement fire occurs at long intervals resulting in low stand complexity. Mixed severity fire occurs when fuel conditions remain moist and result in mixed age stands. Very infrequently, surface fires can occur.

Adjacency or Identification Concerns

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

Fire size from small (few hectares) to 100s of hectares. Disturbance scale in areas with long to short FRI is variable. Most fires are small (<1 ha) but the less common large fires affect large areas (10s to 100s ha).

**Issues/Problems**

Limited information about disturbance is available. Available information from limited geographical range of sites. Divergent fire occurrence patterns ranging from moderate frequency to very long FRI in vegetation type. Differences may be related to ignition and fire spread probabilities or lack of data. Information applied to this type in most reviews was derived from studies in the Klamath mountains rather than the Sierra.

**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>Indicator Species* and Canopy Position</th>
<th>Structure Data (for upper layer lifeform)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class A</strong></td>
<td>5%</td>
<td>Lodgepole pine regeneration following stand replacing fire (severe understory fire or canopy fire). Moderate density to doghair thickets.</td>
<td></td>
</tr>
<tr>
<td><strong>Indicator Species</strong></td>
<td><strong>Structure Data</strong></td>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
</tr>
<tr>
<td>Herbaceous</td>
<td>Cover</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>shrub</td>
<td>Height</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td>tree</td>
<td>Tree Size Class</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td>Upper Layer Lifeform</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td></td>
<td>no data</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td><strong>Class B</strong></td>
<td>30%</td>
<td>Mid-maturity lodgepole pine undergoing intrinsic stand thinning. Considerable surface fuel from tree mortality from previous fire.</td>
<td></td>
</tr>
<tr>
<td><strong>Indicator Species</strong></td>
<td><strong>Structure Data</strong></td>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
</tr>
<tr>
<td>Herbaceous</td>
<td>Cover</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>shrub</td>
<td>Height</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td>tree</td>
<td>Tree Size Class</td>
<td>no data</td>
<td>no data</td>
</tr>
<tr>
<td>Upper Layer Lifeform</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>no data</td>
</tr>
</tbody>
</table>

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.*
Class C  5%
Mid1 Open
Description
Mid-maturity lodgepole pine where surface fire or other disturbance has opened the stand.

Indicator Species* and Canopy Position
PICO

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
- Herbaceous
- Shrub
- Tree

Fuel Model: no data

Class D  5%
Late1 Open
Description
Areas that have experienced one or more low severity understory fires that had reduced stand density or old stands that have not experienced fire but have been thinned by other processes (tree falls etc.). Stands are uneven aged.

Indicator Species* and Canopy Position
PICO

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
- Herbaceous
- Shrub
- Tree

Fuel Model: no data

Class E  55%
Late1 Closed
Description
Old stands where fire has had minimal influence.

Indicator Species* and Canopy Position
PICO

Structure Data (for upper layer lifeform)

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>50%</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
- Herbaceous
- Shrub
- Tree

Fuel Model: no data

Disturbances

Non-Fire Disturbances Modeled
- Insects/Disease
- Wind/Weather/Stress
- Native Grazing
- Competition
- Other:
- Other:

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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8/11/2008
**References**


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