10330

Mediterranean California Subalpine Woodland

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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Vegetation Type

Forest and Woodland

Map Zones

3, 6, 7

Geographic Range

This woodland type occurs commonly from Sonora Pass to as far south as Kings-Kern Divide. South of this, foxtail pine becomes dominant.

Biophysical Site Description

This type occurs in the southern Sierra Nevada, from 2,800m (9,400ft) to as high as 3,500m (11,000ft). Communities are typically on ridge crests, shoulders, or upper slopes on relatively dry, stony soils, often on southern aspects. Precipitation from 750-1,200mm/yr, 80-95% falling as snow.

Vegetation Description

*Pinus albicaulis, Tsuga mertensiana, Abma* (both, mostly var. *magnifica*) may co-dominate. *P. monticola*, *P. contorta*, *P. balfouriana*, and *P. jeffreyi* may also occur. Other species include *Salix* spp. and *Vaccinium* spp. The stands are usually open, with canopy cover of <60%. Due to landscape position and thin soils, these types often occur as krummholz forms with wind-pruned, prostrate, and/or shrub-like appearance at the upper extreme.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PIAL | *Pinus albicaulis* | Whitebark pine |
| TSME | *Tsuga mertensiana* | Mountain hemlock |
| ABMA | *Abies magnifica* | California red fir |

Species names are from the NRCS PLANTS database. Check species codes at http://plants.usda.gov.

Disturbance Description

The fire regime in this group is highly variable and difficult to document. Lightning strikes are common on the ridges where these communities occur, but discontinuous fuels limit the spread of most fires and produce fires of highly variable severity.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 482 | 54 |  |  |
| Moderate (Mixed) | 575 | 46 |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 262 | 100 |  |  |

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

Fires in this type can occur in very small patches associated with lightning strikes. Ignitions of this type are probably quite common, but typically do not spread beyond tens of acres.

Adjacency or Identification Concerns

This type usually occurs above lodgepole, though sometimes red fir or hemlock may occur below. Above this type, it grades into the set of alpine communities.

Issues or Problems

Native Uncharacteristic Conditions

Comments

Map zones (MZs) 3, 6, and 7 were combined during 2015 BpS Review.

An MZ06 reviewer commented that this much fire almost suggests a watershed scale for fires. Models for MZs 7 and 3 were imported from 061033.

Succession Classes

**Mapping Rules**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Upper Layer Lifeform** | **Height (m)** | **Canopy Cover (%)** | | | | | | | | | |
| **0-10** | **11-20** | **21-30** | **31-40** | **41 - 50** | **51-60** | **61-70** | **71-80** | **81-90** | **91-100** |
| Herb | 0-0.5 | A | A | A | A | A | A | A | A | A | A |
| Herb | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Herb | >1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 0-0.5 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 1.0-3.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | >3.0 | A | A | A | A | A | A | A | A | A | A |
| Tree | 0-5 | C | C | C | C | C | B | B | B | B | B |
| Tree | 5-10 | C | C | C | C | C | C | C | C | C | C |
| Tree | 10-25 | C | C | C | C | C | C | C | C | C | C |
| Tree | 25-50 | C | C | C | C | C | C | C | C | C | C |
| Tree | >50 | C | C | C | C | C | C | C | C | C | C |

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

**Description**

Class A 40 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| VACCI | Vaccinium | Blueberry | Middle |
| PINUS | Pinus | Pine | Mid-Upper |

Description

Resprouting shrubs and herbs dominate. Tree seedlings and saplings (<25cm DBH, pines and firs) are often present at low cover. Lodgepole may occur sporadically. A portion of this class develops into krummholz vegetation.

*Maximum Tree Size Class*  
Sapling >4.5ft; <5" DBH

Class B 11 Late Development 2 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PIAL | Pinus albicaulis | Whitebark pine | Upper |

Description

This box represents the krummholz of highest elevations that make up about 10% of the biophysical setting. Whitebark pine is the common krummholz species here; lodgepole is a rare krummholz species. These trees may be up to 2m in height and up to 50cm at soil line. Fire here is undocumented, but may occur as an infrequent disturbance. Lightning strikes and lightning-ignited fires are the source. Wind and landslide disturbances are possible.

*Maximum Tree Size Class*  
Pole 5-9" DBH

Class C 49 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PINUS | Pinus | Pine | Upper |
| ABLA | Abies lasiocarpa | Subalpine fir | Mid-Upper |
| VACCI | Vaccinium | Blueberry | Lower |

Description

Pine, fir, and hemlock are present in the overstory, with DBH >25cm. Canopy closure does not exceed 30% on average, though patch size varies. Some patches of 100% closure may occur up to about 0.1ha in size.

Insects may occur, but this is undocumented. Mixed-severity fires are rare and make little impact on the overall structure of the stand.

*Maximum Tree Size Class*  
Large 21-33" DBH

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Late1:OPN | 199 |
| Late2:CLS | 100 | Late2:CLS | 999 |
| Late1:OPN | 200 | Late1:OPN | 999 |

Probabilistic Transitions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Disturbance Type** | **Disturbance occurs In** | **Moves vegetation to** | **Disturbance Probability** | **Return Interval (yrs)** | **Reset Age to New Class Start Age After Disturbance?** | **Years Since Last Disturbance** |
| Alternative Succession | Early1:ALL | Late2:CLS | 0.001 | 1000 | Yes | 0 |
| Replacement Fire | Early1:ALL | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Mixed Fire | Early1:ALL | Early1:ALL | 0.002 | 500 | No | 0 |
| Mixed Fire | Late1:OPN | Late1:OPN | 0.002 | 500 | No | 0 |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.0033 | 303 | Yes | 0 |
| Replacement Fire | Late2:CLS | Early1:ALL | 0.001 | 1000 | Yes | 0 |
| Wind or Weather or Stress | Late2:CLS | Early1:ALL | 0.003 | 333 | Yes | 0 |

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