

10330

Mediterranean California Subalpine Woodland

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
Nate Stephenson	nstephenson@usgs.gov	None	None
Tony Caprio	tony_caprio@nps.gov	None	None
Jan van Wagtendonk	jan_van_wagtendonk@usgs.gov	None	None

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*, *Abies* (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	<i>Pinus albicaulis</i>	Whitebark pine
TSME	<i>Tsuga mertensiana</i>	Mountain hemlock
ABMA	<i>Abies magnifica</i>	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		
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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
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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
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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
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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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