

10580

Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Forest and Woodland

Map Zone

7

Geographic Range

Dry subalpine lodgepole pine is distributed in the upper montane of the Southern Oregon Cascades. Stands are typically located at elevations ranging from 4,000-5,000ft (1,300-2,000m).

Biophysical Site Description

Lodgepole dominates on upper montane dry sites, often located on benches and slopes <15%. Stands are typically in flat terrain with pumice soils. Stands persist on nutrient-poor pumice soils (Sheppard and Lassoie 1988; Agee 1993; Keifer 1991). Climate is Mediterranean with wet winters (Nov-Apr) and dry summers, although summer thunderstorms occur sporadically. Forest understory is typically sparse, with few shrubs and low-to-moderate herbaceous cover. Fuel is considered sparse (Parker 1986; van Wagtendonk 1991).

Vegetation Description

Stands can exist in a range of densities, but primarily are moderately closed canopies (about 50%). In warmer areas, associated species include Douglas-fir and white fir; in cooler areas, western white pine and Shasta red fir. Understory shrubs are dominated by low-growing pinemat manzanita, grouse huckleberry, and squaw carpet. Long stolon sedge is common.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PICO	<i>Pinus contorta</i>	Lodgepole pine

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

Disturbance Description

Stand-replacing fires every 80-100yrs, with few low- or mixed-severity fires. These fires often follow or coincide with widespread mortality from mountain pine beetle.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	91	88	15	200
Moderate (Mixed)				
Low (Surface)	647	12		
All Fires	80	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

Disturbance scale in persistent stands is small: tens to hundreds of acres. Fire and insects may have the greatest influence on forest dynamics in this system. Severity is generally high and occurs in later seral stages when fuel accumulation and continuity align with favorable wind conditions that allow fire spread.

Adjacency or Identification Concerns

Issues or Problems

Limited information about disturbance is available. Available information from limited geographic sites.

Native Uncharacteristic Conditions

Comments

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	A	A	A	A	A	A	A	A	A	A
Tree	5-10	B	B	B	B	B	B	B	B	B	B
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	15	Early Development 1 - All Structures
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PICO	Pinus contorta	Lodgepole pine	Upper

Description

Pine regeneration cover up to 60% following stand-replacing fire (severe understory fire or canopy fire) plus resprouting or colonizing grasses and forbs. Mineral soil cover is low to moderate in this system due to low soil moisture and poor soil development. Surface fires and some mixed-severity fires have a minimal effect on stand composition and structure.

Maximum Tree Size Class

Seedling <4.5ft

Class B	47	Mid Development 1 - Open
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PICO	Pinus contorta	Lodgepole pine	Upper

Description

Mid-maturity lodgepole pine where stand-replacing events include high-severity fire.

Maximum Tree Size Class

Pole 5-9" DBH

Class C	38	Late Development 1 - Open
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PICO	Pinus contorta	Lodgepole pine	Upper

Description

Moderately dense with low fuel continuity and accumulation. Areas may have been thinned by other processes such as insects. Wildfire may occur coincident with mountain pine beetle. Stands are of even age. Continuous fuels make stands relatively more susceptible to replacement fire.

Maximum Tree Size Class

Medium 9-21" DBH

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	14
Mid1:OPN	15	Late1:OPN	69
Late1:OPN	70	Late1:OPN	150

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
Surface Fire	Early1:ALL	Early1:ALL	0.01	100	No	0
Replacement Fire	Mid1:OPN	Early1:ALL	0.01	100	Yes	0
Replacement Fire	Late1:OPN	Early1:ALL	0.0167	60	Yes	0

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