

10500

Rocky Mountain Lodgepole Pine Forest

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
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None	None		
None	None	None	None

Vegetation Type

Forest and Woodland

Map Zones

18

Geographic Range

South-central WY, south in the Front Ranges and interior ranges, west to the White River Plateau and northern Gunnison Basin. Also occurs in the Northern Rockies, north of the Red Desert, and UT High Plateau. The occurrence of lodgepole pine is minimal and probably only mappable in the extreme northeast portion of MZ18.

Biophysical Site Description

Subalpine cold climate, relatively moist but precipitation usually comes in the winter months as snow. Soils are usually excessively well-drained, residual or glacial till and alluvium on valley floors where there is cold air accumulation, warm and droughty shallow soils over fractured quartzite bedrock, coarse fraction 20-30% in soil, shallow soil (effectively 1-2 in) to broken rock or bedrock and shallow moisture-deficient soils with a significant component of volcanic ash. Soils are acidic, and rarely formed from calcareous parent materials. Precipitation 400-900 mm/yr.

Vegetation Description

These forests are dominated by *Pinus contorta* with shrub, grass or barren understories. Sometimes there are intermingled mixed conifer/*Populus tremuloides* stands with the latter occurring with inclusions of deeper, typically fine-textured soils. The shrub stratum may be conspicuous to absent; common species include *Arctostaphylos uva-ursi*, *Ceanothus velutinus*, *Mahonia repens*, *Purshia tridentata*, *Spiraea betulifolia*, *Spiraea douglasii*, *Shepherdia canadensis*, *Vaccinium caespitosum*, *Vaccinium* spp., *Symphoricarpos oreophilus*, *Ribes viscosissimum*, *Sambucus cerulea*, *Pachistima myrsinites*, *Salix scouleriana*, *Prunus virginianus*, and *Penstemon fruiticosa*. Grasses include *Elymus glaucus*, *Poa wheeleri*, *Carex geyeri*, and *Carex hoodii*. Dominant forbs are *Arnica cordifolia* and *Hieracium alboflorum*.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PICO	<i>Pinus contorta</i>	Lodgepole pine
VASC	<i>Vaccinium scoparium</i>	Grouse whortleberry
VAMYO	<i>Vaccinium myrtillus</i> var. <i>oreophilum</i>	Whortleberry
VASC	<i>Vaccinium scoparium</i>	Grouse whortleberry

ABLA	<i>Abies lasiocarpa</i>	Subalpine fir
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Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

These are subalpine forests where the dominance of *Pinus contorta* is related to fire history and topo-edaphic conditions. Following stand-replacing fires, *Pinus contorta* will rapidly colonize and develop into dense, even-aged stands. For the northeast corner of MZ18, the mean FRI is variable depending on elevation, precipitation, and temperature. Some *Pinus contorta* forests will persist on sites that are too extreme for other conifers to establish.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	149	81	90	300
Moderate (Mixed)				
Low (Surface)	636	19		
All Fires	121	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

Isodiametric stands are mostly small (100s of acres) in the southern portion of MZ18 but reach into the 1,000s of acres in the northeastern portion of the map zone. Patches of this BpS usually correspond to patches of habitat (well-drained to excessively well-drained soils) in the subalpine zone. Although fire size could be large in other parts of the western US, in eastern CA, NV, south-central ID and western UT, patches of this type were small enough to keep fire size within 100ac. Fires in the northeast corner of MZ18 are larger in size (100-1,000s of acres)

Adjacency or Identification Concerns

Lodgepole pine stands may be too small to be mappable in the southern portion of MZ18.

Persistent lodgepole pine stands in the montane and lower subalpine zones, that are on less well-drained soils, are usually seral to mixed conifer or subalpine BpS, including species such as Douglas-fir, white fir, Engelmann spruce, and subalpine fir.

Issues or Problems

Native Uncharacteristic Conditions

Comments

D Major made changes to vegetation class structural values in response to MTD v3.1 updates (K Pohl 7/18/05 request). These changes have not been reviewed and accepted by model developers as of 7/24/05.

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	B	B
Tree	5-10	C	C	C	C	C	C	C	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 19 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
VASC	Vaccinium scoparium	Grouse whortleberry	Lower
RIVI	Ribes viburnifolium	Island gooseberry	Lower
CAGE2	Carex geyeri	Geyer's sedge	Lower
PICO	Pinus contorta	Lodgepole pine	Upper

Description

Grasses, forbs, low shrubs and lodgepole seedlings-saplings. If aspen is present, it grows faster and dominates lodgepole during this stage only. Cover of trees (seedlings-saplings) varies widely.

Maximum Tree Size Class

Sapling >4.5ft; <5"DBH

Class B 50 Mid Development 1 - Closed

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PICO	Pinus contorta	Lodgepole pine	Upper
VASC	Vaccinium scoparium	Grouse whortleberry	Lower

Replacement Fire	Late1:CLS	Early1:ALL	0.01	100	Yes	0
Insects or Disease	Late1:CLS	Early1:ALL	0.013	77	Yes	0

References

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