10570

Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland

BpS Model/Description Version: Aug. 2020

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

Forest and Woodland

Map Zones

18

Geographic Range

Dry wind-swept ridges and exposed upper elevations of NV, UT, southern ID and eastern CA.

Biophysical Site Description

Elevation ranges from 8,000-11,500ft, mid to upper slopes. The sites are typically in rain shadows, and are the dry, cold extent of tree cover. Stands occur on thin, stony soils on high windswept ridges and open slopes with minimal ground cover.

Vegetation Description

Pinus longaeva, Pinus flexilis and Pinus albicaulis can exist separately or as mixed stands. In NV, Picea Engelmannii and Pseudotsuga menziesii occur incidentally with Pinus longaeva. Sparse understories, of forbs, grass and short shrubs form an understory. Seed dispersal of limber and bristlecone pines highly dependent on seed-caching birds.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PILO | *Pinus longaeva* | Great basin bristlecone pine |
| PIFL2 | *Pinus flexilis* | Limber pine |
| PIAL | *Pinus albicaulis* | Whitebark pine |

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

Disturbance Description

This group contains some of the oldest trees in the area, with Pinus longaeva 1,000yrs old or more and Pinus flexilis ages of 500yrs+. Understories are often sparse, with little to carry fires across the surface. Fire occurrence is typically low frequency and surface fires (mean FRI of 200yrs). In the absence of wind, fires are likely limited in extent (2ac or less). Stand replacement fires (mean FRI of 500yrs) are usually wind-driven, especially in older stands (class C). Susceptible to bark beetles (esp. Pinus flexilis), but generally drought-tolerant.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 503 | 28 |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 198 | 72 |  |  |
| All Fires | 142 | 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

Stands vary from tens to a hundred acres in size. Stand replacement fires of 1/10th acres to 100ac have been reported.

Adjacency or Identification Concerns

A new uncharacteristic disturbance is the potential for the introduction of white pine blister rust in both of these species. Blister rust is not occurring yet in the Utah High Plateau and western Great Basin. Note: blister rust has been found in NV in PIAL. Surveys in 2004 in NV bristlecone found no blister rust in PILO. -J.H.R. & C.H.

Issues or Problems

Similar to BpS 1020 Inter-Mountain Subalpine Limber-Bristlecone Pine Woodland developed in MZ16.

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 | B | B | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | A | B | B | C | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | A | C | C | C | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | A | C | C | C | UN | UN | UN | UN | UN | UN |
| Tree | >50 | A | C | C | C | UN | UN | UN | UN | UN | UN |

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 18 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PILO | Pinus longaeva | Great basin bristlecone pine | All |
| PIFL2 | Pinus flexilis | Limber pine | All |

Description

Bare ground and talus with sparse ground cover of forbs, grasses and low shrubs. Occasional old survivors may be present.

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

Class B 21 Mid Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PILO | Pinus longaeva | Great basin bristlecone pine | Upper |
| PIFL2 | Pinus flexilis | Limber pine | Upper |

Description

Open woodland <40% crown closure of seedlings, saplings and survivors.

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

Class C 61 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PILO | Pinus longaeva | Great basin bristlecone pine | Upper |
| PIFL2 | Pinus flexilis | Limber pine | Upper |

Description

Open woodland <40% crown cover of mixed diameters, 40in DBH to seedling. Sparse ground cover of grasses and low shrubs. Very old trees can develop in this class.

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

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:OPN | 99 |
| Mid1:OPN | 100 | Late1:OPN | 249 |
| Late1:OPN | 250 | 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** |
| Replacement Fire | Early1:ALL | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Surface Fire | Early1:ALL | Early1:ALL | 0.005 | 200 | No | 0 |
| Wind or Weather or Stress | Early1:ALL | Early1:ALL | 0.01 | 100 | No | 0 |
| Replacement Fire | Mid1:OPN | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Surface Fire | Mid1:OPN | Mid1:OPN | 0.005 | 200 | No | 0 |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.002 | 500 | Yes | 0 |
| Surface Fire | Late1:OPN | Late1:OPN | 0.005 | 200 | No | 0 |

References

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