10460

Northern Rocky Mountain Subalpine Woodland and Parkland

BpS Model/Description Version: Aug. 2020

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

Forest and Woodland

Map Zones

18

Geographic Range

This system of the northern Rockies is typically a high-elevation mosaic of stunted tree clumps and herb or dwarf shrub-dominated openings, occurring above closed forest ecosystems and below alpine communities.

In MZ18 this BpS may occur in the subalpine zone of the Jarbidge Mountain and Albion Mountain ranges. This system may also occur in the Lemhi and Lost River ranges of the NE portion and Pioneer Mountains on the north-central boundary of this map zone.

Biophysical Site Description

This BpS type occurs at the transition zone of forest to alpine, forming a subalpine forest-meadow ecotone. It occurs on ridge crest and upper slope positions including mountain slopes, glacial trough walls and moraines, talus slopes, land and rock slides, and cirque headwalls and basins. These sites have little snow accumulation due to high wind speeds and sublimation. In this harsh windswept environment trees are stunted and flagged from wind damage. The BpS typically occurs on convex micro-topographical features.

Vegetation Description

Vegetation is characterized by clumps of trees and krummholz interspersed with low shrublands and meadows. The stands or patches often originate when *Picea engelmannii* or *Pinus albicaulis* colonize a sheltered site such as the lee side of a rock. *Abies lasiocarpa* then can colonize in the shelter of the *Picea engelmannii*, and may form a dense canopy by branch layering.

Major tree species are *Pinus albicaulis* and *Abies lasiocarpa*. Major shrub species are *Artemesia tridentata vaseyana*, *Juniperus communis*, *Ribes montigenom*, and *Vaccinium scoparium*. Major grass species are *Carex geyeri*, *Carex rossii*, and *Festuca idahoensis*.

The herbaceous and shrub layer within tree clumps is sparse. In open areas, tree and herbaceous cover is high.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PIAL | *Pinus albicaulis* | Whitebark pine |
| ABLA | *Abies lasiocarpa* | Subalpine fir |
| PIEN | *Picea engelmannii* | Engelmann spruce |
| ARTRV | *Artemisia tridentata ssp. vaseyana* | Mountain big sagebrush |
| VASC | *Vaccinium scoparium* | Grouse whortleberry |
| FEID | *Festuca idahoensis* | Idaho fescue |
| CAGE | *Carex geophila* | White mountain sedge |

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

Disturbance Description

Disturbance occurs at a low frequency in this system. Identified disturbances include fire and windthrow. Fire disturbance frequency is highly variable ranging from more frequent surface to infrequent mixed or replacement fires.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 227 | 18 |  |  |
| Moderate (Mixed) | 385 | 11 |  |  |
| Low (Surface) | 57 | 71 |  |  |
| All Fires | 41 | 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

Large (100-1,000ac) patches

Adjacency or Identification Concerns

This BpS should typically be adjacent and upslope of Rocky Mountain Subalpine Dry-Mesic Spruce-fir Forest and Woodland (1055) and down slope of Rocky Mountain Dwarf Shrubland (1070). Fire regime of this BpS is strongly influenced by adjacent forest vegetation.

Issues or Problems

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 | B | B | B | B | B | B | B | B | B | B |
| Tree | 5-10 | B | B | B | B | D | D | D | D | D | D |
| Tree | 10-25 | B | B | C | C | D | D | D | D | D | D |
| Tree | 25-50 | B | B | C | C | D | D | D | D | D | D |
| Tree | >50 | B | B | C | C | D | D | D | D | D | D |

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 20 Early Development 3 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ARTRV | Artemisia tridentata ssp. vaseyana | Mountain big sagebrush | Upper |
| VASC | Vaccinium scoparium | Grouse whortleberry | Mid-Upper |
| FEID | Festuca idahoensis | Idaho fescue | Low-Mid |
| CAGE | Carex geophila | White mountain sedge | Low-Mid |

Description

Herbaceous and shrub species dominate this class. Conifer seedlings are generally present and at variable densities in the understory. Occasionally, a lack of conifer seed source may maintain this condition. Replacement fire occurs typically from adjacent forest ignitions.

*Maximum Tree Size Class*  
Seedling <4.5ft

Class B 28 Mid Development 3 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PIAL | Pinus albicaulis | Whitebark pine | Upper |
| PIEN | Picea engelmannii | Engelmann spruce | Upper |
| ARTRV | Artemisia tridentata ssp. vaseyana | Mountain big sagebrush | Middle |
| CAGE | Carex geophila | White mountain sedge | Low-Mid |

Description

Saplings and pole-sized conifers at varying densities in tree patches and krummolz. Tree patch growth form generally conical.

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

Class C 43 Late Development 3 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PIAL | Pinus albicaulis | Whitebark pine | Upper |
| PIEN | Picea engelmannii | Engelmann spruce | Upper |
| ARTRV | Artemisia tridentata ssp. vaseyana | Mountain big sagebrush | Middle |
| ABLA | Abies lasiocarpa | Subalpine fir | Middle |

Description

Open parkland with tree patches dominated by medium-large diameter trees (9-21in+ DBH). Tree patch growth form generally cylindrical with large rounded tree canopies. *Abies lasiocarpa* saplings present in the understory of tree patches.

*Maximum Tree Size Class*  
Medium 9-21"DBH

Class D 9 Late Development 3 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ABLA | Abies lasiocarpa | Subalpine fir | Upper |
| PIAL | Pinus albicaulis | Whitebark pine | Mid-Upper |
| PIEN | Picea engelmannii | Engelmann spruce | Mid-Upper |
| ABLA | Abies lasiocarpa | Subalpine fir | Low-Mid |

Description

*Abies lasiocarpa* dominates as *Pinus albicalus* and *Picea engelmanii* die due to old age and competition induced stress. Increased canopy closure results in a transition from parkland to woodland.

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

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early3:OPN | 0 | Mid3:OPN | 49 |
| Mid3:OPN | 50 | Late3:OPN | 149 |
| Late3:OPN | 150 | Late3:CLS | 349 |
| Late3:CLS | 350 | Late3:CLS | 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 | Early3:OPN | Early3:OPN | 0.003 | 333 | Yes | 0 |
| Competition or Maintenance | Early3:OPN | Early3:OPN | 0.01 | 100 | No | 0 |
| Replacement Fire | Mid3:OPN | Early3:OPN | 0.007 | 143 | Yes | 0 |
| Surface Fire | Mid3:OPN | Mid3:OPN | 0.025 | 40 | No | 0 |
| Replacement Fire | Late3:OPN | Early3:OPN | 0.003 | 333 | Yes | 0 |
| Mixed Fire | Late3:OPN | Late3:OPN | 0.004 | 250 | No | 0 |
| Surface Fire | Late3:OPN | Late3:OPN | 0.025 | 40 | No | 0 |
| Replacement Fire | Late3:CLS | Early3:OPN | 0.007 | 143 | Yes | 0 |
| Mixed Fire | Late3:CLS | Late3:OPN | 0.01 | 100 | Yes | 0 |

References

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