10460
Northern Rocky Mountain Subalpine Woodland and Parkland

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
Steve Rust	srust@idfg.idaho.gov	None	None
Don Major	dmajor@tnc.org	None	None
None	None	None	None

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

Bradley, A.F., W.C. Fischer and N.V. Noste. 1992. Forest ecology of the forest habitat types of eastern Idaho and western Wyoming. USDA Forest Service Gen. Tech. Rep. INT-290.

Crane M.F. and W.C. Fischer. 1986. Fire Ecology of the Forest habitat Types of Central Idaho. General Technical Report INT-218. USDA Forest Service Intermountain Research Station, Ogden, Utah. 85 pp.

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications. NatureServe Central Databases. Arlington, VA. Data current as of 10 February 2007.

Steele, R., R.D. Pfister, R.A. Ryker and J.A. Kittams. 1981. Forest habitat types of central Idaho. USDA Forest Service General Technical Report INT-114. Intermountain Forest and Range Experiment Station, Ogden, Utah. 138 pp.

Steele, R., S.V. Cooper, D.M. Ondov, D.W. Roberts and R.D. Pfister. 1983. Forest habitat types of eastern Idaho-western Wyoming. USDA Forest Service, Intermountain Forest and Range Experiment Station. General Technical Report INT-144, Ogden, UT. 122 pp.