

10200

Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
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None	None	None	None

Vegetation Type

Forest and Woodland

Map Zone

13

Geographic Range

Dry windswept ridges, mountain slopes, and exposed upper elevations of Nevada, Utah, southern Idaho, and eastern California.

Biophysical Site Description

Elevation ranges from 9,000-12,500ft on mid to upper slopes. These areas are typically in rain shadows and are the dry and cold extent of tree cover. Stands occur on both thin, stony soils (south aspects and high windswept ridges) and deep colluvial soils on northerly aspects and on open slopes with minimal ground cover.

Vegetation Description

Pinus longaeva and *Pinus flexilis* can exist separately or as mixed stands. Pure stands of *P. longaeva* are found at the highest elevations. Sparse understory of forbs, grass, and short shrubs. Understory species include *Artemisia tridentata*, *A. arbuscula*, *Ribes montigenum*, *R. cereum*, and *Ericameria compacta*. *Carex rossii* is a common graminoid. Seed dispersal of limber and bristlecone pines highly dependent on seed-caching birds.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PILO	<i>Pinus longaeva</i>	Great basin bristlecone pine
PIFL2	<i>Pinus flexilis</i>	Limber pine
RIBES	<i>Ribes</i>	Currant
SADOC5	<i>Salvia dorrii</i> ssp. <i>dorrii</i> var. <i>clokeyi</i>	Purple sage
ARTR2	<i>Artemisia tridentata</i>	Big sagebrush
ARAR8	<i>Artemisia arbuscula</i>	Little sagebrush

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 (up to 6,000yrs documented) and *Pinus flexilis* ages of 500yrs+. Understories are often sparse, with little fine fuel to carry fires across the surface. On windswept and south aspects, the lack of fine fuel contributes to the complete absence of surface fire. Fire occurrence is typically low frequency and surface fires (mean fire return interval [MFRI] of 500yrs+). In the absence of

wind, fires are likely limited in extent (2ac or less). Fires >0.1ac in size are mostly on north aspects. Stand-replacement fires (MFRI of 1,000yrs) 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	969	36		
Moderate (Mixed)				
Low (Surface)	535	64		
All Fires	345	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 10s to 1,000s of acres in size. Stand-replacement fires of 1/10th acres to 100ac have been experienced.

Adjacency or Identification Concerns

A new and uncharacteristic disturbance is the potential for the introduction of white pine blister rust in both of these species. Blister rust is not yet occurring in the Utah High Plateau, western Great Basin, and Mojave Desert. Note: blister rust has been found in Nevada in PIAL. Surveys in 2004 in Nevada bristlecone found no blister rust in PILO.

This is an open system. Uncharacteristically high tree cover could be due to grazing. It is also possible that while using remote sensing, because of shadows and the slope in this system, it might be perceived as looking denser than it actually is.

Issues or Problems

It is possible that while using remote sensing, because of shadows and the slope in this system, it might be perceived as looking denser than it actually is.

Native Uncharacteristic Conditions

Cover of native trees >50% (remote sensing) is considered uncharacteristic, and >40% on-the-ground is considered uncharacteristic. This is an open system.

Comments

Comments by one reviewer caused editorial and model changes: 1) *Artemisia tridentata* and *A. arbuscula* were added as important shrub species. 2) Upper elevation was increased to 12,500ft. 3) Sentences about endemism in the Spring Mountains were deleted because high endemism is unique to these mountains. 4) The age of *Pinus longaeva* was increased to 6,000yrs. 5) Comments were added about the important role of aspect and position on fuel loads and fire regimes and size. 6) Duration of classes A and B were increased by 50yrs (reviewer suggested 100yrs, but this made the HRV even less desirable) and increased duration of all fire return intervals, especially in Class A. These changes reduced the percentage of Class A from 20% to 15%. This also caused a change from Fire Regime Group III to V. The other reviewer added understory species to Vegetation Description and suggested no other changes.

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	UN	UN	UN	UN	UN
Herb	0.5-1.0	A	A	A	A	A	UN	UN	UN	UN	UN
Herb	>1.0	A	A	A	A	A	UN	UN	UN	UN	UN
Shrub	0-0.5	A	A	A	A	A	UN	UN	UN	UN	UN
Shrub	0.5-1.0	A	A	A	A	A	UN	UN	UN	UN	UN
Shrub	1.0-3.0	A	A	A	A	A	UN	UN	UN	UN	UN
Shrub	>3.0	A	A	A	A	A	UN	UN	UN	UN	UN
Tree	0-5	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	5-10	C	C	C	C	C	UN	UN	UN	UN	UN
Tree	10-25	C	C	C	C	C	UN	UN	UN	UN	UN
Tree	25-50	C	C	C	C	C	UN	UN	UN	UN	UN
Tree	>50	C	C	C	C	C	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 14 Early Development 1 - All Structures

Upper Layer Lifeform: Shrub

Upper Layer Lifeform is not the dominant lifeform

Cover of trees will be <10% with heights <5m.

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PILO	Pinus longaeva	Great basin bristlecone pine	All
PIFL2	Pinus flexilis	Limber pine	All
ARTR2	Artemisia tridentata	Big sagebrush	Low-Mid
ARAR8	Artemisia arbuscula	Little sagebrush	Lower

Description

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

Class B 16 Mid Development 1 - Open

Upper Layer Lifeform: Tree

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PILO	<i>Pinus longaeva</i>	Great basin bristlecone pine	Upper
PIFL2	<i>Pinus flexilis</i>	Limber pine	Upper
ARTR2	<i>Artemisia tridentata</i>	Big sagebrush	Low-Mid
ARAR8	<i>Artemisia arbuscula</i>	Little sagebrush	Lower

Description

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

Class C 70**Late Development 1 - Open**

Upper Layer Lifeform: Tree

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PILO	<i>Pinus longaeva</i>	Great basin bristlecone pine	Upper
PIFL2	<i>Pinus flexilis</i>	Limber pine	Upper
ARTR2	<i>Artemisia tridentata</i>	Big sagebrush	Low-Mid
ARAR8	<i>Artemisia arbuscula</i>	Little sagebrush	Lower

Description

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

Model Parameters**Deterministic Transitions**

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	149
Mid1:OPN	150	Late1:OPN	349
Late1:OPN	350	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
Surface Fire	Early1:ALL	Early1:ALL	0.001	1000	No	0
Replacement Fire	Early1:ALL	Early1:ALL	0.001	1000	Yes	0
Wind or Weather or Stress	Early1:ALL	Early1:ALL	0.01	100	No	0
Replacement Fire	Mid1:OPN	Early1:ALL	0.001	1000	Yes	0
Surface Fire	Mid1:OPN	Mid1:OPN	0.002	500	No	0

Replacement Fire	Late1:OPN	Early1:ALL	0.001	1000	Yes	0
Surface Fire	Late1:OPN	Late1:OPN	0.002	500	No	0

References

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