

11650

Northern Rocky Mountain Foothill Conifer Wooded Steppe

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Steppe/Savanna

Map Zones

1, 7, 8

Geographic Range

This system is found along the periphery of the Columbia Basin along the lower foothills of the eastern Cascades, the southern foothills of the Blues and Wallowas, and in northern California along the southern Cascades.

Biophysical Site Description

These savannas occur at the lower tree line/ecotone between grassland or shrubland; more mesic coniferous forests are seen typically in warm, dry, exposed or shallow-soil sites. Elevations range from <500m in British Columbia to 1,600m in the central Idaho mountains. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. This ecological system generally occurs on glacial till, glacial-fluvial sand and gravel, dune, basaltic rubble, and colluvium to deep loess or volcanic ash-derived soils, with characteristic features of good aeration and drainage, coarse texture, circumneutral to slightly acidic pH, an abundance of mineral material, rockiness, and periods of drought during the growing season. These savannas in the eastern Cascades, Okanagan, and northern Rockies regions receive winter and spring rains, and thus have a greater spring “green-up” than the drier woodlands and savannas in the central Rockies. In Oregon, in the foothills of the Blue Mountains, this type may occur as outlier groves of pines in sagebrush steppes at low elevations, especially on cool, moist sites.

Vegetation Description

Pinus ponderosa (primarily *var. ponderosa*) is the primary conifer in the Pacific states, occasionally occurring with *Juniperus occidentalis*. Understory vegetation in the true savanna occurrences is predominantly fire-resistant shrubs (and sometimes grasses and forbs) that resprout following surface fires; understory trees and downed logs are uncommon. Important species include *Artemisia tridentata* ssp. *vaseyana*, *Purshia tridentata*, *Chrysothamnus viscidiflorus*, and *Ribes cereum*. Grasses, when present, include *Pseudoroegneria spicata*, *Leucopoa kingii*, *Hesperostipa* spp., *Achnatherum* spp., *Festuca idahoensis*, or *Festuca campestris*.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
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Shrub	0-0.5	C	C	C	C	C	C	C	C	C	C
Shrub	0.5-1.0	C	C	C	C	C	C	C	C	C	C
Shrub	1.0-3.0	C	C	C	C	C	C	C	C	C	C
Shrub	>3.0	C	C	C	C	C	C	C	C	C	C
Tree	0-5	A	A	A	A	A	A	A	A	A	A
Tree	5-10	A	A	A	A	A	A	A	A	A	A
Tree	10-25	B	B	C	C	C	C	C	C	C	C
Tree	25-50	B	B	C	C	C	C	C	C	C	C
Tree	>50	B	B	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 25 Early Development 1 - All Structures

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIPO	<i>Pinus ponderosa</i>	Ponderosa pine	Upper
ARTRV	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	Mountain big sagebrush	Low-Mid

Description

These young patches following replacement fire recover quickly in grasses and shrubs. Fires that kill the overstory occasionally reset the stand, but most fires allow quite a few of the trees to survive. Some areas of this type only transition to grassland (Snake River canyon, etc.; modeled as AltSucc).

Maximum Tree Size Class

Medium 9-21" DBH

Class B 16 Late Development 1 - Open

Upper Layer Lifeform Is Not the Dominant Lifeform

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIPO	<i>Pinus ponderosa</i>	Ponderosa pine	Upper
FEID	<i>Festuca idahoensis</i>	Idaho fescue	Lower
PSSP6	<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	Lower

Description

This class is a savanna with grass understory of nearly 100% cover. The upper layer of trees may have a canopy cover of 0-40%, but was defined as 0-20% to keep it distinguishable. For

mapping, if surrounding pixels are grass, tree canopy closure in this class could range from 0-40%.

These established stands are maintained in savanna by surface fires. Replacement fire resets.

Maximum Tree Size Class

Very Large >33" DBH

Class C 59 Late Development 2 - Closed

Upper Layer Lifeform Is Not the Dominant Lifeform

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PIPO	Pinus ponderosa	Ponderosa pine	Upper
ARTRV	Artemisia tridentata ssp. vaseyana	Mountain big sagebrush	Low-Mid

Description

This class is a savanna with shrub understory of 50-60% closure. The upper layer of trees may have a canopy cover of 0-40%, but was defined as 21-40% to keep it distinguishable. For mapping, if surrounding pixels are shrub, tree canopy closure in this class could range from 0-40%.

These savanna-shrublands may be surrounded by mountain big sagebrush systems. Replacement fire resets. Surface fire maintains.

Maximum Tree Size Class

Very Large >33" DBH

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Late2:CLS	40
Late1:OPN	41	Late1:OPN	999
Late2:CLS	41	Late2: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
Alternative Succession	Early1:ALL	Late1:OPN	0.005	200	Yes	0
Replacement Fire	Early1:ALL	Early1:ALL	0.008	125	Yes	0
Mixed Fire	Early1:ALL	Early1:ALL	0.01	100	No	0
Replacement Fire	Late1:OPN	Early1:ALL	0.008	125	Yes	0
Surface Fire	Late1:OPN	Late1:OPN	0.013	77	No	0

Replacement Fire	Late2:CLS	Early1:ALL	0.008	125	Yes	0
Surface Fire	Late2:CLS	Late2:CLS	0.01	100	No	0

References

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, J. Teague. 2003. Ecological Systems of the United States: A Working Classification of US Terrestrial Systems. Arlington, VA: NatureServe. 75pp.

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