

11420

Columbia Basin Palouse Prairie

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
Don Major	dmajor@tnc.org	None	None
None	None	None	None
None	None	None	None

Vegetation Type

Herbaceous

Map Zones

9, 10

Geographic Range

This once-extensive grassland system occurs in southern British Columbia, eastern Washington, and Oregon. This biophysical setting (BpS) likely occurs as remnant patches in the Owyhee Upland province, Payette section, of the Columbia Plateau.

Biophysical Site Description

This BpS is characterized by rolling topography composed of loess hills and plains over basalt plains. The climate of this region has warm-hot, dry summers and cool, wet winters. Remnant grasslands are now typically restricted to steep and rocky sites.

Vegetation Description

This BpS characterizes one of the most endangered ecosystems in the United States, with only 1% of the original habitat remaining. It is highly fragmented, with most sites <10ac. The cool-season bunchgrasses that dominate the vegetation are adapted to winter precipitation. Characteristic species are *Pseudoroegneria spicata* and *Festuca idahoensis*, with *Hesperostipa comata*, *Achnatherum scribneri*, *Leymus condensatus*, *Leymus cinereus*, *Koeleria macrantha*, *Pascopyrum smithii*, and *Poa secunda*. Shrubs commonly found include *Amelanchier alnifolia*, *Rosa* spp., *Eriogonum* spp., *Symphoricarpos albus*, and *Crataegus douglasii*.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
PSSP4	<i>Pseudelephantopus spicatus</i>	Dog's-tongue
FEID	<i>Festuca idahoensis</i>	Idaho fescue
HECO	<i>Hedeoma costata</i>	Ribbed false pennyroyal
ACSC	<i>Acacia schottii</i>	Schott's wattle
AMAL	<i>Amaranthus albus</i>	Prostrate pigweed

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

Disturbance Description

Excessive grazing, past land use, and invasion by introduced annual species have resulted in a massive conversion to agriculture or shrub-steppe and annual grasslands dominated by *Artemisia* spp. and *Bromus tectorum* or *Poa pratensis*.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	25	100		
Moderate (Mixed)				
Low (Surface)				
All Fires	25	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 patch

Adjacency or Identification Concerns

Issues or Problems

Native Uncharacteristic Conditions

Comments

Map zones 9 and 10 were combined during the 2015 BpS Review.

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	B	B	B	B	B	B	B
Herb	0.5-1.0	A	A	A	B	B	B	B	B	B	B
Herb	>1.0	B	B	B	B	B	B	B	B	B	B
Shrub	0-0.5	B	B	B	B	B	UN	UN	UN	UN	UN
Shrub	0.5-1.0	B	B	B	B	B	UN	UN	UN	UN	UN
Shrub	1.0-3.0	B	B	B	B	B	UN	UN	UN	UN	UN
Shrub	>3.0	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	0-5	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	5-10	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	10-25	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	25-50	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	>50	B	B	B	B	B	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	15	Early Development 1 - All Structures
----------------	-----------	---

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PSSP4	Pseudelephantopus spicatus	Dog's-tongue	Upper
FEID	Festuca idahoensis	Idaho fescue	Upper

Description

This early-seral community follows a top-kill event in which cover of bunchgrasses and perennial forbs has been reduced. Forb composition is relatively greater during this stage than at later stages. Replacement fire occurs.

Maximum Tree Size Class

None

Class B	85	Mid Development 1 - Closed
----------------	-----------	-----------------------------------

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
PSSP4	Pseudelephantopus spicatus	Dog's-tongue	Upper
FEID	Festuca idahoensis	Idaho fescue	Upper

Description

Very little bare ground; litter cover is high. Plants are vigorous and well established. Fires are rarely lethal, and the community responds quickly to fire. Cover values are high, ranging from 31-80%.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:CLS	4
Mid1:CLS	5	Mid1:CLS	204

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	0.04	25	Yes	0
Replacement Fire	Mid1:CLS	Early1:ALL	0.04	25	Yes	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 and J. Teague. 2003. Ecological Systems of the United States: A Working Classification of U.S. Terrestrial Systems. NatureServe, Arlington, Virginia. Available online at: <http://www.natureserve.org/publications/usEcologicalsystems.jsp>

Daubenmire, R. 1988. Steppe vegetation of Washington. Washington State University Cooperative Extension Service Publication EB1446. (Revised from and replaces Washington Agricultural Experiment Station Publication XT0062.) 131 pp.

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

Tisdale, E.W. 1982. Grasslands of western North America: The Pacific Northwest bunchgrass. Pages 223-245 in: A.C. Nicholson, A. Mclean, and T.E. Baker, editors. Grassland Ecology and Classification Symposium, Kamloops, BC.