11230

Columbia Plateau Steppe and Grassland

BpS Model/Description Version: Aug. 2020

|  |  |  |  |
| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
| Eric Limbach | eric\_limbach@blm.gov | Jon Bates | jon.bates@oregonstate.edu |
| None | None | None | None |
| None | None | None | None |

Vegetation Type

Steppe/Savanna

Map Zones

10, 18

Geographic Range

Idaho, Nevada, and Oregon. This system occurs throughout much of the Columbia Plateau.

Biophysical Site Description

Elevations range from 5,000-5,500ft. This type is mostly found with basalt or rhyolite substrate. Soils range from relatively very deep, medium- to fine-textured, imperfectly drained and non-saline often with a microphytic crust. Biophysical Setting (BpS) is often associated with large depressions that accumulate soil moistures. Temperature regime is usually frigid. Slopes are generally <2%.

Vegetation Description

These are grasslands within the sagebrush shrub-steppe ecological system and share the same species but in different proportions. This grassland is dominated by rhizomatous perennial grasses and forbs (>75% cover), sometimes with a sparse (<10% cover) shrub layer. Associated graminoids include creeping wildrye, mat muhly, and slender wheatgrass. Common forbs are poverty weed and dandelion. Grasslands are used abundantly by greater sage grouse, antelope, and other native herbivores.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| LETR5 | *Leymus triticoides* | Beardless wildrye |
| MURI | *Muhlenbergia richardsonis* | Mat muhly |
| ARCAV2 | *Artemisia cana ssp. viscidula* | Silver sagebrush |
| ELTR7 | *Elymus trachycaulus* | Slender wheatgrass |

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

Disturbance Description

Wet cycles (mean 55yrs) or fire eliminated shrubs from the community. Fire frequency is presumed to be ~50yrs, maintaining this system as a grassland. Fire interval was probably coupled to those of the surrounding sagebrush steppe.

Native herbivory is very likely in this system. During pre-settlement times, antelope and bison, if the species reached the southern Columbia Plateau, were likely herbivores.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 50 | 100 | 20 | 100 |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 50 | 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 10-300ac in size on the southern Columbia Plateau. Grasslands are often associated with large depression areas within the sagebrush matrix.

Adjacency or Identification Concerns

Similar system on drier sites would be dominated by mountain silver sagebrush (>25% shrub cover).

Sites are suitable for conversion via dryland pasture grass seeding.

Fine-textured soils are prone to compaction with heavy off-highway vehicle and grazing use.

With ground disturbance, sites are prone to increase in tap-rooted and annual, weedy forbs, increase in shrubs, and increase in less desirable forbs (poverty weeds).

Issues or Problems

Native Uncharacteristic Conditions

Comments

Map zones 10 and 18 were combined during 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 | 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 | B | B | B | B | B | B | B | B | B | B |
| Shrub | 0.5-1.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | 1.0-3.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | >3.0 | B | B | B | B | B | B | B | B | B | B |
| 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 67 Early Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| LETR5 | Leymus triticoides | Beardless wildrye | Upper |
| MURI | Muhlenbergia richardsonis | Mat muhly | Lower |

Description

Grassland dominated by rhizomatous grasses.

*Maximum Tree Size Class*  
None

Class B 33 Mid Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ARCAV2 | Artemisia cana ssp. viscidula | Silver sagebrush | Upper |
| LETR5 | Leymus triticoides | Beardless wildrye | Upper |
| MURI | Muhlenbergia richardsonis | Mat muhly | Lower |

Description

Grasslands with significant shrubs (mountain silver sagebrush). Dominant cover is herbaceous (generally <60% cover). Wet cycles remove shrubs.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:OPN | 0 | Mid1:OPN | 54 |
| Mid1:OPN | 55 | Mid1: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** |
| Replacement Fire | Early1:OPN | Early1:OPN | 0.02 | 50 | No | 0 |
| Wind or Weather or Stress | Mid1:OPN | Early1:OPN | 0.018 | 56 | Yes | 0 |
| Replacement Fire | Mid1:OPN | Early1:OPN | 0.02 | 50 | Yes | 0 |
| Native Grazing | Mid1:OPN | Mid1:OPN | 0.05 | 20 | No | 0 |

References

Hironaka, M., M.A. Fosberg and A.H. Winward. 1983. Sagebrush-Grass Habitat Types of Southern Idaho. Forest, Wildlife and Range Experiment Station, University of Idaho, Moscow, ID.

NatureServe. 2004. International Ecological Classification Standard: Terrestrial Ecological Systems of the United States. Natural Heritage Central Databases. NatureServe, Arlington, VA.

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

Peck, N.L. and M.E. Jensen. 1987. Sagebrush-Grass Community Types of the Humboldt National Forest. Elko, NV

USDA-NRCS. 2005. The PLANTS Database (http://plants.usda.gov, 2005). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA-NRCS. 1992. Major Land Resource Area 25, Owyhee High Plateau Ecological Site Descriptions. Elko, NV. Available online: http://esis.sc.egov.usda.gov/Welcome/pgESDWelcome.aspx.