11340

Columbia Basin Foothill and Canyon Dry Grassland

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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| None | None | None | None |

Vegetation Type

Herbaceous

Map Zones

8, 9

Geographic Range

This type occurs in the Columbia Basin including eastern Washington, eastern Oregon, western Idaho, western Montana, and British Columbia.

Biophysical Site Description

Canyon grasslands, foothhill grasslands, and lower-elevation plains in Columbia Basin. Steep to gentle slopes, stony to deep, generally volcanic soils, often with loess.

Vegetation Description

Grassland dominated by *Pseudoregnaria spicata* (see Ecological System CES304.993 (NatureServe 2004)) with *Poa secunda*, *Balsamorhiza sagittata*, *Leymus cinereus*, *Aristida longiseta*, and *Sporobolis cryptandrus*. *Festuca idahoensis* is often present on north slopes and moist sites.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PSSP | *Psilostrophe sparsiflora* | Greenstem paperflower |
| POSE | *Poa secunda* | Sandberg bluegrass |
| BASA3 | *Balsamorhiza sagittata* | Arrowleaf balsamroot |
| FEID | *Festuca idahoensis* | Idaho fescue |
| KOMA | *Koeleria macrantha* | Prairie junegrass |

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

Disturbance Description

Fire is the primary disturbance factor. Historically, fire resulted in topkill and some mortality, although the overall grassland was not changed. Fires were low intensity due to limited fuel and significant internal spacing between fuel. Currently, cheatgrass and other introduced grasses often invade these habitats after fire. The historic frequency was 5-20yrs.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 21 | 43 |  |  |
| Moderate (Mixed) | 16 | 57 | 5 | 20 |
| Low (Surface) |  |  |  |  |
| All Fires | 9 | 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

This Biophysical Setting (BpS) can occur in large landscapes. Patch size and disturbance size limited by broken topography in canyons and by extensive riparian areas. Large areas once occurred on the Umatilla Plateau.

Adjacency or Identification Concerns

This type occurs in a mosaic with steppe vegetation. In the early 1900s, heavy sheep and cattle grazing led to an increase of shrubs into much of the area, although shrubs generally don't occur in the canyon grassland. Fescue dominates more heavily on north aspects and moist sites, which have a lower fire frequency.

Issues or Problems

The foothill sites, which were extensive, are now gone, replaced by farmland. Canyon grasslands are extensive, but long-term fire studies in grasslands are not possible since fire scars do not show up on grasslands.

Native Uncharacteristic Conditions

Comments

The LANDFIRE BpS was derived from R#AGSP. This occurs the same way in both map zones 09 and 08.

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 | B | B | B | B | B |
| Herb | 0.5-1.0 | A | A | A | A | A | B | B | B | B | B |
| Herb | >1.0 | A | A | A | A | A | B | B | B | B | B |
| Shrub | 0-0.5 | C | C | C | C | C | UN | UN | UN | UN | UN |
| Shrub | 0.5-1.0 | C | C | C | C | C | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | C | C | C | C | C | UN | UN | UN | UN | UN |
| Shrub | >3.0 | C | C | C | C | C | UN | UN | UN | UN | UN |
| Tree | 0-5 | C | C | C | C | C | 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 5 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PSSP | Psilostrophe sparsiflora | Greenstem paperflower | Upper |
| POSE | Poa secunda | Sandberg bluegrass | Upper |
| FEID | Festuca idahoensis | Idaho fescue | Upper |

Description

This class is young grassland having just burned.

*Maximum Tree Size Class*  
None

Class B 67 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PSSP | Psilostrophe sparsiflora | Greenstem paperflower | Upper |
| POSE | Poa secunda | Sandberg bluegrass | Upper |
| FEID | Festuca idahoensis | Idaho fescue | Upper |

Description

This class is dominated by perennial bunchgrasses with solid cryptogam cover. Bluebunch grasses are now prominent, POSE and forb cover have declined, but there is greater forb diversity.

*Maximum Tree Size Class*  
None

Class C 28 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SYAL | Symphoricarpos albus | Common snowberry | Upper |
| AMAL | Amaranthus albus | Prostrate pigweed | Upper |
| RHGL | Rhus glabra | Smooth sumac | Upper |
| PSSPS | Pseudoroegneria spicata ssp. spicata | Bluebunch wheatgrass | Lower |

Description

Perennial grassland with invasion of tall deciduous shrubs or small trees, depending on the aspect, slope, and elevation. In lower canyons, CERE, RHGL, RICE, and PHLE occur, in foothills PHMA, AMAL, HODI, and CRDO occur, and in moist sites, SYAL and ROSA spp. occur. The same grasses dominate with the same height as in Class B. Rarely are fire intervals large enough to cause these to become shrublands (CES306.994 -- Northern Rocky Mountain Lower Montane Deciduous Shrubland).

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:CLS | 1 |
| Mid1:CLS | 2 | Late1:OPN | 15 |
| Late1:OPN | 16 | 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** |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.05 | 20 | Yes | 0 |
| Mixed Fire | Mid1:CLS | Mid1:CLS | 0.066 | 15 | No | 0 |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.05 | 20 | Yes | 0 |
| Mixed Fire | Late1:OPN | Mid1:CLS | 0.066 | 15 | Yes | 0 |
| Competition or Maintenance | Late1:OPN | Late1:OPN | 0.1 | 10 | No | 0 |

References

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