11390

Northern Rocky Mountain Lower Montane-Foothill-Valley Grassland

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
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Vegetation Type

Herbaceous

Map Zone

8, 9

Geographic Range

This type occurs in the Blue Mountains, Zumwalt Prairie, Umatilla Plateau, and Hells Canyon. It is more common as one goes east and north.

Biophysical Site Description

This biophysical setting (BpS) generally occurs on flats and gentle (<30%) northerly aspects above 3000ft, gentle southerly aspects in the montane zone, and steep (>30%) southerly aspects in the upper montane zone (FRCC model MGRA1). It is typically dominated by one or more perennial bunchgrasses (e.g., *Festuca idahoensis*) but may contain a strong forb component on more mesic sites. It usually occurs on loess and colluvium, on basalts, with some soil development, but not on very deep soils.

Vegetation Description

It is typically dominated by one or more perennial bunchgrasses, usually fescues (*Festuca idahoensis* and/or *Festuca campestris*), *Koeleria macrantha*, *Pseudoroegneria spicata*, and *Poa secunda*. The type has a strong forb component, including *Geum trifolorum*, *Hieracium cynoglossoides*, *Lupinus sericeus*, and *Lupinus latifolius*.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| FEID | *Festuca idahoensis* | Idaho fescue |
| FECA4 | *Festuca campestris* | Rough fescue |
| KOMA | *Koeleria macrantha* | Prairie junegrass |
| PSSP6 | *Pseudoroegneria spicata* | Bluebunch wheatgrass |

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

Disturbance Description

Grasslands retain little evidence of historic fire regimes. Native Americans likely played a role in fire occurrence near populated areas, but the evidence is inconclusive as to their impact at a larger spatial scale, and it is likely that fuel conditions and weather were more important drivers of historic fire regimes (Whitlock and Knox 2002). Grasslands in this area dominated by Idaho fescue may have enough fuel to burn annually but probably did not because of low flammability early in the season and lack of fire starts across grasslands late in the season (Agee 1994). Response to fire varies, with Idaho fescue susceptible to mortality if fuel load allows smoldering of the root crown to occur. Following fire, this type typically exhibits an increase in forb cover (Agee 1994).

The rangelands of this region and many of the major perennial grasses (e.g., bluebunch wheatgrass and Idaho fescue) did not evolve with substantial ungulate grazing (Daubenmire 1970).

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 45 | 81 |  |  |
| Moderate (Mixed) | 190 | 19 |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 36 | 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 prairies and plateau grasslands, generally in a forest zone.

Adjacency or Identification Concerns

Many of the soils are suitable for agriculture, and ~56% of the dry grass zone has been converted to agriculture or urban use (Quigley and Arbelbide 1997).

Issues or Problems

This type lacks fire history data.

Native Uncharacteristic Conditions

Comments

Kori Blankenship combined zones 8 and 9 during the 2016 BpS Review. The descriptions were nearly identical. Small differences in the state-and-transition models appeared to be the result of quality control efforts (see next paragraph) rather than intentional changes made by model contributors. Blankenship retained the zone 9 model to represent both zones.

During LANDFIRE National quality control, Foster removed relative age parameters from Class B of the VDDT model and changed Alternate Succession to a time-since-disturbance in Class B (as per LANDFIRE restrictions). Also, Foster moved mixed-severity fire from Class B (MFRI=100yrs) to Class C (MFRI=25yrs).

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 | B | B | B | B | B | B |
| Herb | 0.5-1.0 | A | A | A | A | B | B | B | B | B | B |
| Herb | >1.0 | A | A | A | A | B | B | B | B | B | B |
| 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 | 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 3 Early Development 1 - All Structures

Structural Information֮

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PSSP6 | Pseudoroegneria spicata | Bluebunch wheatgrass | Middle |
| POSA | Poa saltuensis | Oldpasture bluegrass | Middle |
| EPILO | Epilobium | Willowherb | Middle |
| FEID | Festuca idahoensis | Idaho fescue | Middle |

Description

This early seral community follows a topkill event in which cover of bunchgrasses and perennial forbs has been reduced. Forb composition is relatively higher in this stage than at later stages with increased occurrence of *Colinsia*, *Lupinus*, *Epilobium*, *Balsamorhiza*, *Geum*, and *Potentilla*. *Poa* and *Vulpia* may also increase.

*Maximum Tree Size Class*  
None

Class B 84 Late Development 2 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| FEID | Festuca idahoensis | Idaho fescue | Middle |
| LUPIN | Lupinus | Lupine | Middle |
| PSSP6 | Pseudoroegneria spicata | Bluebunch wheatgrass | Middle |
| KOMA | Koeleria macrantha | Prairie junegrass | Middle |

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.

*Maximum Tree Size Class*  
None

Class C 13 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SYAL | Symphoricarpos albus | Common snowberry | Upper |
| ROSA | Rorippa sarmentosa | Longrunner | Upper |
| CRDO2 | Crataegus douglasii | Black hawthorn | Upper |
| FEID | Festuca idahoensis | Idaho fescue | Lower |

Description

Open shrubland resulting from long absences of fire. Shrub component has largely encroached from adjacent deciduous shrublands. These sites are more mesic than the similar Class B. Aspen and ponderosa pine also invade with long periods of fire suppression.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Late2:CLS | 1 |
| Late2:CLS | 2 | Late2:CLS | 999 |
| Late1:CLS | 60 | Late1: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** |
| Replacement Fire | Early1:ALL | Early1:ALL | 0.01 | 100 | Yes | 0 |
| Competition or Maintenance | Late1:CLS | Late1:CLS | 0.001 | 1000 | No | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.0133 | 75 | Yes | 0 |
| Mixed Fire | Late1:CLS | Late2:CLS | 0.02 | 50 | Yes | 0 |
| Mixed Fire | Late1:CLS | Late1:CLS | 0.02 | 50 | No | 0 |
| Alternative Succession | Late2:CLS | Late1:CLS | 1 | 1 | Yes | 70 |
| Replacement Fire | Late2:CLS | Early1:ALL | 0.025 | 40 | Yes | 0 |
| Competition or Maintenance | Late2:CLS | Late2:CLS | 0.25 | 4 | No | 0 |

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