11060

Northern Rocky Mountain Montane-Foothill Deciduous Shrubland

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
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Vegetation Type

Shrubland

Map Zones

10, 19

Geographic Range

Minor but relatively widespread. Occurs throughout the Inter-mountain West and Northern Rockies.

Biophysical Site Description

This biophysical setting (BpS) occupies draws and foothills (all aspects) in the transition zone between grasslands/shrublands and forests, including aspen and montane forests. Ranges widely in elevation (3,000-9,000ft) throughout its geographic range.

Vegetation Description

Various mixes of shrubs such as serviceberry, *Prunus* spp., snowberry, snowbrush, bigtooth maple, and Rocky Mountain maple. (Society of Range Management Cover Types 317-319, 418-421.)

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| AMELA | *Amelanchier* | Serviceberry |
| PURSH | *Purshia* | Bitterbrush |
| SYMPH | *Symphoricarpos* | Snowberry |
| PRUNU | *Prunus* | Plum |

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

Disturbance Description

Moderate-frequency fire regime dominated by replacement fire (80%), but may have a small component of mixed-severity fire (20%). The average fire return interval for this system may range from <60-100yrs+, and there is some debate about the role of mixed-severity fire. Fire regimes of adjacent BpSs have significant impact on the frequency and severity of this BpS. This BpS has significant variation in plant response to disturbance.

Drought, insects/disease, and native grazing may all impact this BpS. However, little or no data exist to attribute to these disturbances.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 99 | 82 | 20 | 150 |
| Moderate (Mixed) | 440 | 18 |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 81 | 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

Variance in scale is a result of topography and localized moisture variability.

Adjacency or Identification Concerns

The fire regime of adjacent BpSs dominate the fire regime here. This system is widespread and may be adjacent to many shrubland systems, mountain grassland systems, and forested types, including montane aspen, ponderosa pine, and Douglas-fir forests.

Issues or Problems

Extreme variability in fire regime, scale, and adjacency make this type difficult to model.

Native Uncharacteristic Conditions

Comments

Map zone (MZ) 10 and MZ19 were combined during the 2015 BpS review.

Additional LANDFIRE National reviewers were Susan Miller (smiller03@fs.fed.us), Lois Olsen (lolsen@fs.fed.us), and Robert Wooley (rwooley@fs.fed.us). One reviewer that the overall mean fire interval should be reduced to 10-60yrs, dominated by mixed-severity fire. The other reviewers agreed with the fire frequency and severity in the model, and it was unchanged.

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 | A | A | A | A | C | C | C | C | C | C |
| Shrub | 0.5-1.0 | B | B | B | B | C | C | C | C | C | C |
| Shrub | 1.0-3.0 | B | B | B | B | C | C | C | C | C | C |
| Shrub | >3.0 | B | B | B | B | 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 9 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| AMELA | Amelanchier | Serviceberry | Upper |
| SYMPH | Symphoricarpos | Snowberry | Upper |

Description

Early succession, usually after frequent stand-replacement fires. Dominated by grasses and forbs, with scattered shrubs sprouting. Grass/forb canopy cover is high and variable (0-100%), but cover of shrubs is <15%.

*Maximum Tree Size Class*  
None

Class B 46 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| AMELA | Amelanchier | Serviceberry | Upper |
| SYMPH | Symphoricarpos | Snowberry | Upper |
| LUPIN | Lupinus | Lupine | Lower |

Description

Sprouting shrubs dominant in scattered openings.

*Maximum Tree Size Class*  
None

Class C 45 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| AMELA | Amelanchier | Serviceberry | Upper |
| SYMPH | Symphoricarpos | Snowberry | Upper |
| LUPIN | Lupinus | Lupine | Lower |

Description

All age classes present but dominated by over-mature shrubs and sparse understory except in gaps.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Mid1:CLS | 9 |
| Mid1:CLS | 10 | Late1:CLS | 69 |
| Late1:CLS | 70 | 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 |
| Mixed Fire | Mid1:CLS | Mid1:CLS | 0.0025 | 400 | No | 0 |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.01 | 100 | Yes | 0 |
| Mixed Fire | Late1:CLS | Mid1:CLS | 0.0025 | 400 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.01 | 100 | Yes | 0 |

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