11460

Southern Rocky Mountain Montane-Subalpine Grassland

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
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| None | None | None | None |

Vegetation Type

Herbaceous

Map Zones

15, 16, 23, 24, 25, 28

Geographic Range

Northern Arizona, southern and northern New Mexico, and southern Colorado

Biophysical Site Description

Elevated plains, valleys, hills, and mountain side-slopes ranging from nearly level to very steep topography. Aspect varies; however, the larger patches are on southern exposures and on summit plains. Elevation ranges from 2,200-3,000m. Moderately deep to deep typic to pachic cryoborolls (FETH) and argiborolls/haploborolls (FEAR2).

Vegetation Description

Thurber fescue (FETH), Arizona fescue (FEAR2), sheep fescue (FEOV), mountain muhly (MUMO), timber/Parry’s oatgrass (DAIN/DAPA2), Kentucky bluegrass (POPR), and nodding brome (BRAN); tufted hairgrass (DECE) and various sedges (CAREX spp.) in moist (concave) sites. See TES map units 560, 561, 563, 566, 198, 131, 132, and 133 of the Carson National Forest; map units 640, 595, and 594 of the Coconino National Forest; 513 and 518 of the Kaibab National Forest, and map units 3164, 3174, and 3094 of the Smokey Bear TES report.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| FETH | *Festuca thurberi* | Thurber’s fescue |
| FEAR2 | *Festuca arizonica* | Arizona fescue |
| MUMO | *Muhlenbergia montana* | Mountain muhly |
| DAPA2 | *Danthonia parryi* | Parry’s oatgrass |
| DAIN | *Danthonia intermedia* | Timber oatgrass |
| FEID | *Festuca idahoensis* | Idaho fescue |
| MUFI | *Muhlenbergia filiculmis* | Slim-stem muhly |
| PSSP6 | *Pseudoroegneria spicata* | Bluebunch wheatgrass |

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

Disturbance Description

Predicted historical stand-replacement fire regime of approximately 30-60yrs based upon historical photographic analysis, personal communication (Barry Johnston, R2), and inference from mean, maximum, and minimum fire regimes of adjacent forest types (PIPO, 3-12yrs; ABCO/PSMEG, 14-46yrs; PIEN/ABLAA, 60-180yrs+). Anthropogenic (pre-European, cf. Spanish colonial?) fire use ignitions, 5-15yrs; current regime >60yrs in montane and 100yrs in subalpine systems.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 19 | 52 | 10 | 100 |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) | 21 | 48 |  |  |
| All Fires | 10 | 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

None

Adjacency or Identification Concerns

Issues or Problems

Native Uncharacteristic Conditions

Comments

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 | C | C | C |
| Herb | 0.5-1.0 | A | A | A | B | B | B | B | C | C | C |
| Herb | >1.0 | A | A | A | B | B | B | B | C | C | C |
| 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 19 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| FETH | Festuca thurberi | Thurber’s fescue | Upper |
| FEAR2 | Festuca arizonica | Arizona fescue | Upper |
| ANPA | Anemone parviflora | Smallflowered anemone | Upper |
| ERFO | Eragrostis fosbergii | Fosberg’s lovegrass | Upper |

Description

Low cover and frequency of Thurber fescue (FETH), Arizona fescue (FEAR2), sheep fescue (FEOV), mountain muhly (MUMO), timber/Parry’s oatgrass (DAIN/DAPA), Kentucky bluegrass (POPR), nodding brome (BRAN); tufted hairgrass (DECE) and various sedges (CAREX spp.) in moist (concave) sites. BLTR is common.

*Maximum Tree Size Class*  
None

Class B 33 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| FETH | Festuca thurberi | Thurber’s fescue | Upper |
| DAPA2 | Danthonia parryi | Parry’s oatgrass | Upper |
| MUMO | Muhlenbergia montana | Mountain muhly | Upper |
| FEAR2 | Festuca arizonica | Arizona fescue | Upper |

Description

Thurber fescue (FETH), Arizona fescue (FEAR2), sheep fescue (FEOV), mountain muhly (MUMO), timber/Parry’s oatgrass (DAIN/DAPA), Kentucky bluegrass (POPR), nodding brome (BRAN); tufted hairgrass (DECE) and various sedges (CAREX spp.) in moist (concave) sites.

*Maximum Tree Size Class*  
None

Class C 48 Late Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| FETH | Festuca thurberi | Thurber’s fescue | Upper |
| FEAR2 | Festuca arizonica | Arizona fescue | Upper |
| DAPA2 | Danthonia parryi | Parry’s oatgrass | Upper |
| MUMO | Muhlenbergia montana | Mountain muhly | Upper |

Description

Thurber fescue (FETH), Arizona fescue (FEAR2), sheep fescue (FEOV), mountain muhly (MUMO), timber/Parry’s oatgrass (DAIN/DAPA), Kentucky bluegrass (POPR), nodding brome (BRAN); tufted hairgrass (DECE) and various sedges (CAREX spp) in moist (concave) sites.

*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 | Late1:CLS | 9 |
| Late1:CLS | 10 | Late1:CLS | 909 |

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 | 0.05 | 20 | Yes | 0 |
| Replacement Fire | Mid1:CLS | Early1:ALL | 0.1 | 10 | Yes | 0 |
| Replacement Fire | Late1:CLS | Early1:ALL | 0.017 | 59 | Yes | 0 |
| Surface Fire | Late1:CLS | Mid1:CLS | 0.1 | 10 | Yes | 0 |
| Competition or Maintenance | Late1:CLS | Late1:CLS | 0.1 | 10 | No | 0 |

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