11370

Mediterranean California Subalpine Meadow

BpS Model/Description Version: Aug. 2020

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

Herbaceous

Map Zones

3, 6

Geographic Range

Found in Sierra Nevada, Oregon Cascades, and occasionally in northern California.

Biophysical Site Description

This ecological system occurs at subalpine elevations where finely textured soils, snow deposition, or windswept dry conditions limit tree establishment. It is typically found >3,000m (9,100ft) in elevation. The soils in these sites can be seasonally moist to saturated in the spring but if so will dry out later in the growing season.

Vegetation Description

Characteristic plant species include *Achillea millefolium* var. *occidentalis* (=*Achillea lanulosa*), *Artemisia rothrockii*, *Oreostemma alpigenum* (=*Aster alpigenus*), *Calamagrostis breweri*, *Cistanthe umbellata* (=*Calyptridium umbellatum*), *Carex exserta*, *Eriogonum incanum*, *Horkeliella purpurascens* (=*Ivesia purpurascens*), and *Trisetum spicatum*. Burrowing mammals

can increase the forb diversity. Herbs can include *Carex subnigricans*, *Carex vernacula*, *Calamagrostis breweri*, *Antennaria media*, *Potentilla drummondii*, *Lewisia pygmaea*, *Erigeron algidus*, *Lupinus lepidus*, *Dodecatheon alpinum*, and *Solidago multiradiata*.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| ACMIO | *Achillea millefolium var. occidentalis* | Western yarrow |
| ARRO4 | *Artemisia rothrockii* | Timberline sagebrush |
| ORAL4 | *Oreostemma alpigenum* | Tundra aster |
| CABR | *Calamagrostis breweri* | Shorthair reedgrass |
| CIUM | *Cistanthe umbellata* | Mt. hood pussypaws |
| CAEX4 | *Carex exserta* | Shorthair sedge |
| ERIN9 | *Eriogonum incanum* | Frosted buckwheat |
| HOPU8 | *Horkeliella purpurascens* | Purple false horkelia |

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

Disturbance Description

Fires are primarily replacement. Mixed-severity fire occurs in late-development meadows and removes shrubs. The ignition source in this type is probably associated with native burning in the fall and spring, but fire spreads from adjacent shrub- or tree-dominated sites, such as mountain big sagebrush, ponderosa pine, and aspen.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 40 | 80 |  |  |
| Moderate (Mixed) | 161 | 20 |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 32 | 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 type ranges in size from <10ac to 300ac.

Adjacency or Identification Concerns

With heavy grazing, these sites can convert to undesirable forbs and grasses. Roads and trails can impact these sites.

Issues or Problems

Native Uncharacteristic Conditions

Comments

Map zones 03 and 06 were combined during 2015 Biophysical Setting (BpS) Review.

For LANDFIRE National, Foster imported this BpS from 121145 -- Rocky Mountain Subalpine Mesic Meadow. Geography, vegetation, and other fields were informed from NatureServe, but the VDDT model was left as is. Comments for 121145 include: "There is not much information about this type. We estimated the fire frequency of 40yrs based on adjacent aspen, herbaceous and sagebrush communities. Also, because fire was assumed to occur in the fall and spring when the summer's green and wet biomass would be dead and cured, replacement fire has little effect on tall forbs themselves and probably result in exposing more bare ground. Fires would affect encroaching shrubs."

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 | B | B | B | B |
| Herb | 0.5-1.0 | A | A | A | A | A | A | B | B | B | B |
| Herb | >1.0 | A | A | A | A | A | A | B | B | B | B |
| Shrub | 0-0.5 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 0.5-1.0 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Shrub | >3.0 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Tree | 0-5 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | C | C | C | UN | UN | UN | UN | UN | UN | UN |
| Tree | >50 | C | C | C | UN | UN | 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 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ACMIO | Achillea millefolium var. occidentalis | Western yarrow | Upper |
| CAEX4 | Carex exserta | Shorthair sedge | Upper |
|  |  |  |  |
|  |  |  |  |

Description

Vegetation is typically forb-rich, with forbs contributing more to overall herbaceous cover than graminoids.

*Maximum Tree Size Class*  
None

Class B 47 Mid Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ACMIO | Achillea millefolium var. occidentalis | Western yarrow | Upper |
| CAEX4 | Carex exserta | Shorthair sedge | Upper |
|  |  |  |  |
|  |  |  |  |

Description

Vegetation is typically forb-rich, with forbs contributing more to overall herbaceous cover than graminoids. There is some increase in shrub component but will occupy <5% cover. Replacement fire removes shrubs.

*Maximum Tree Size Class*  
None

Class C 48 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| POTR | Poa tracyi | Tracy's bluegrass | Middle |
| Artem | <NOT FOUND IN NRCS> | <NOT FOUND IN NRCS> | Middle |
| Rosa | <NOT FOUND IN NRCS> | <NOT FOUND IN NRCS> | Middle |

Description

Vegetation is typically forb-rich, with forbs contributing more to overall herbaceous cover than graminoids. Mixed-severity fire removes shrubs from overstory.

Up to 10% of cover in late seral may be woody species from adjacent plant communities such as *Populus tremuloides* (acting as a shrub), *Artemisia cana*, *Artemisia tridentata*, *Rosa woodsii*, *Ribes* spp., and *Amelanchier* spp.

*Maximum Tree Size Class*  
Seedling <4.5ft

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:OPN | 0 | Mid1:CLS | 2 |
| Mid1:CLS | 3 | Late1:OPN | 22 |
| Late1:OPN | 23 | Late1:OPN | 522 |

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 | 0.025 | 40 | Yes | 0 |
| Replacement Fire | Mid1:CLS | Early1:OPN | 0.025 | 40 | Yes | 0 |
| Mixed Fire | Late1:OPN | Mid1:CLS | 0.013 | 77 | Yes | 0 |
| Replacement Fire | Late1:OPN | Early1:OPN | 0.025 | 40 | Yes | 0 |

References

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