

LANDFIRE Biophysical Setting Model

Biophysical Setting 7816430

Alaskan Pacific Maritime Alpine Herbaceous Dwarf Shrubland

☒ This BPS is lumped with: See below

☐ This BPS is split into multiple models: The Alpine Herbaceous Dwarf Shrubland BpS represents the following Ecological Systems: Alaska Sub-boreal and Maritime Alpine Mesic Herbaceous Meadow (1645), Maritime Alpine Sparse Dwarf-Shrub (1674), Maritime High Alpine Herbaceous (1675). These types may be distinct existing vegetation communities but little is known about their successional relationships. Furthermore, these types may be difficult to map separately because they occur either adjacent or in a mosaic with one another and several of them are small patch systems. For these reasons, these types are modeled as one BpS.

General Information

Contributors (also see the Comments field)

Date 7/30/2008

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Reviewer

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Reviewer

Modeler 3

Reviewer

Vegetation Type

Upland Shrubland

Map Zone

78

Model Zone

- | | |
|--|--|
| ☒ Alaska | ☐ N-Cent.Rockies |
| ☐ California | ☐ Pacific Northwest |
| ☐ Great Basin | ☐ South Central |
| ☐ Great Lakes | ☐ Southeast |
| ☐ Northeast | ☐ S. Appalachians |
| ☐ Northern Plains | ☐ Southwest |

Dominant Species*

EMNI CAMA11
PHAL4 LUNO
HAST3 VASI
ARAR9 GEER2

General Model Sources

- ☐ Literature
☐ Local Data
☒ Expert Estimate

Geographic Range

This BpS is found from Prince William Sound south through southeast AK.

Biophysical Site Description

Alpine herb and shrub systems occur on a variety of sites in the subalpine and alpine zones. Much of the alpine zone will be under snow for most of the year leading to a short growing season. Environmental conditions are often harsh, particularly on exposed summits and ridge tops where vegetation may be sparse with a high proportion of exposed rock or soil.

Vegetation Description

This BpS represents several existing vegetation types so species composition is highly variable.

Shrub species may include: *Artemisia arctica*, *Cassiope mertensiana*, *Empetrum nigrum*, *Harrimanella stelleriana*, *Luetkea pectinata*, *Loiseleuria procumbens*, *Phyllodoce aleutica*, *P. glanduliflora*, *Salix arctica*, *S. reticulata*, *S. rotundifolia*, *Sibbaldia procumbens*, *Vaccinium uliginosum* and *Vaccinium vitis-idaea*.

Herbaceous species may include: *Aconitum delphinifolium*, *Anemone narcissiflora*, *Astragalus alpinus*,

*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

**Fire Regime Groups are: I: 0-35 year frequency, surface severity; II: 0-35 year frequency, replacement severity; III: 35-100-year frequency, mixed severity; IV: 35-100+ year frequency, replacement severity; V: 200+ year frequency, replacement severity

Athyrium filix-femina, Carex macrochaeta, Castilleja unalaschcensis, Chamerion angustifolium, Chamerion latifolium, Calamagrostis canadensis, Geranium erianthum, Lupinus nootkatensis, Minuartia arctica, Nephrophyllidium crista-galli, Saxifraga bracteata, Saxifraga bronchialis, Silene acaulis, Sanguisorba canadensis, Senecio triangularis, Valeriana sitchensis, Veratrum viride and Viola spp.

Disturbance Description

These communities tend to be quite stable over time. Soil disturbance, such as soil creep or freeze-thaw cycles, is likely the main disturbance factor although snow avalanche is possible in some areas. Wind plays a role in inhibiting vegetation growth on exposed summits and ridge tops. Reduced snow levels could allow invasion of other plants and lead to succession to another system. This type is unlikely to carry fire.

Adjacency or Identification Concerns

Native Uncharacteristic Conditions

Scale Description

Issues/Problems

It is unclear whether there is a successional relationship between herbs and shrubs in some alpine types or whether soil differences result in the prevalence of different life forms on different sites. Because of the uncertainty, this system is represented by a single seral stage.

Comments

This model was based on the draft Maritime Ecological Systems description (NatureServe 2008) with input by Tom DeMeo. Review comments resulted in minor additions to the description.

Vegetation Classes

Class A 100%

Mid Development 1 All Structures

Upper Layer Lifeform

- ☐ Herbaceous
☒ Shrub
☐ Tree

Indicator Species* and Canopy Position

EMNI Upper
 PHAL4 Upper
 CAMA11 Upper
 LUNO Upper

Structure Data (for upper layer lifeform)

	Min	Max
Cover	Open Shrub (25-74% shrub cover)	Closed Shrub (> 75% shrub cover)
Height	Dwarf Shrub (< 20 cm)	Low Shrub (20 cm to 1.5 m)
Tree Size Class	None	

☐ Upper layer lifeform differs from dominant lifeform.

Herbaceous vegetation may also be dominant.

Description

Zero plus years

Alpine Herbaceous-Dwarf Shrub communities may include a diverse mix of species and species assemblages. The Class Indicator Species listed are not true indicators -- refer to the Vegetation Description for species information.

No disturbances modeled.

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Class B 0 %

[Not Used] [Not Used]

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

**Indicator Species* and
Canopy Position****Structure Data (for upper layer lifeform)**

	Min	Max
Cover		
Height		
Tree Size Class		

☐ Upper layer lifeform differs from dominant lifeform.**Description****Class C 0 %**

[Not Used] [Not Used]

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

**Indicator Species* and
Canopy Position****Structure Data (for upper layer lifeform)**

	Min	Max
Cover		
Height		
Tree Size Class		

☐ Upper layer lifeform differs from dominant lifeform.**Description****Class D 0 %**

[Not Used] [Not Used]

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

**Indicator Species* and
Canopy Position****Structure Data (for upper layer lifeform)**

	Min	Max
Cover		
Height		
Tree Size Class		

☐ Upper layer lifeform differs from dominant lifeform.**Description****Class E 0 %**

[Not Used] [Not Used]

Upper Layer Lifeform

- ☐ Herbaceous
☐ Shrub
☐ Tree

**Indicator Species* and
Canopy Position****Structure Data (for upper layer lifeform)**

	Min	Max
Cover		
Height		
Tree Size Class		

☐ Upper layer lifeform differs from dominant lifeform.**Description****Disturbances**

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Fire Regime Group:** NA

Historical Fire Size (acres)

Avg 0

Min 0

Max 0

Sources of Fire Regime Data

- ☐ Literature
☐ Local Data
☒ Expert Estimate

Additional Disturbances Modeled

- ☐ Insects/Disease ☐ Native Grazing ☐ Other (optional 1)
☐ Wind/Weather/Stress ☐ Competition ☐ Other (optional 2)

Fire Intervals

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
Replacement					
Mixed					
Surface					
All Fires					

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class.

References

NatureServe. 2008. International Ecological Classification Standard: Terrestrial Ecological Classifications. Draft Ecological Systems Description for Alaska Maritime Region.

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