17200

Aleutian Ericaceous Dwarf-shrubland, Heath, and Fell-field

BpS Model/Description Version: Nov. 2024

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
| Randy Swaty | rswaty@tnc.org | Jeff Williams | Jeff\_Williams@fws.gov |
| Keith Boggs | ankwb@uaa.alaska.edu | None | None |
| Kori Blankenship | kblankenship@tnc.org | None | None |

Reviewer: Hunter Gravley, Robin Innes

Vegetation Type

Shrubland

Map Zones

72, 73, 76, 80

Geographic Range

This Biophysical Setting (BpS) occurs throughout the Alaska Peninsula, Aleutian Islands and Kodiak Island.

Biophysical Site Description

This BpS is commonly found throughout the Alaska Peninsula and Aleutian Islands, from low to high elevations and occurs in valley bottoms, sideslopes, stabilized dunes, ridges, terraces, moraines, and fans. Patch size is small and matrix forming. In the mountains, sites often grade upslope into the sparse heath cover. Fell-fields are characterized by harsh environmental conditions and occur on exposed summits, windswept ridges, cliffs, and rocky outcrops, with slopes varying from flat to steep. The continuous dwarf-shrub heaths often fragment into strips that alternate with almost bare ground, possibly due to wind erosion and frost action.

Vegetation Description

Dwarf-shrubs dominate, and herbaceous cover is variable, ranging from 0% to 75%. Shrub cover includes *Harrimanella stelleriana, Phyllodoce aleutica, Salix arctica, Salix rotundifolia, Empetrum nigrum, Cassiope lycopodioides*, *Loiseleuria procumbens, Vaccinium vitis-idaea*, *Vaccinium uliginosum*, *Arctostaphylos alpina*, and otherdwarf willows.

Common herbaceous species include *Carex macrochaeta, Carex aquatilis var. dives, Carex circinata, Chamerion angustifolium, Deschampsia cespitosa, Leymus mollis, Lupinus nootkatensis, Festuca rubra, Geum calthifolium, Polemonium acutiflorum, Polygonum viviparum, Agrostis mertensii, Heuchera glabra, Potentilla villosa, Saxifraga bronchialis, Saxifraga oppositifolia, Veronica wormskjoldii var. stelleri*, and *Tofieldia coccinea* (Shacklette et al. 1969).

On lower elevation sites, dwarf-shrub cover is >25% and dominated by *Empetrum nigrum* (Daniels et al. 2004). However, *Empetrum nigrum* is not the dominant dwarf shrub cover on sites in the Alaska Peninsula and Aleutian Islands. While *Empetrum nigrum* may codominate, it is mixed with other dwarf-shrubs, such as *Vaccinium vitis-idaea* ssp*. minus, Harrimanella stelleriana,* and *Arctostaphylos alpina* (Talbot et al. 2010). A more abundant herbaceous component, particularly graminoids, may be due to nutrient inputs from seabird colonies. Where seabirds have been impacted by introduced predators, the cover of herbaceous species appears to be lower (Croll et al. 2005). Bryophyte cover is often high. Fruticose lichens and *Racomitrium lanuginosum* may also be common. Heath hummocks may occur. Bare ground may be common at higher elevations.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| VAVIM | *Vaccinium vitis-idaea ssp. minus* | Northern mountain cranberry |
| EMNI | *Empetrum nigrum* | Black crowberry |
| HAST3 | *Harrimanella stelleriana* | Alaska bellheather |
| PHAL4 | *Phyllodoce aleutica* | Aleutian mountainheath |
| ARAL2 | *Arctostaphylos alpina* | Alpine bearberry |
| SAAR27 | *Salix arctica* | Arctic willow |
| CALY4 | *Cassiope lycopodioides* | Clubmoss mountain heather |
| CAMA11 | *Carex macrochaeta* | Longawn sedge |
| LUNON | *Lupinus nootkatensis var. nootkatensis* | Nootka lupine |
| CHANA2 | *Chamerion angustifolium ssp. angustifolium* | Fireweed |

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

Disturbance Description

Successional dynamics in this system are unclear, but it is likely a relatively unstable system given the harsh environmental conditions it is subjected to. Solifluction processes represent a dominant ground disturbance on Amchitka Island and other regions (Shacklette et al. 1969).

In 2013, an extensive literature search was done by Fire Effects Information System staff to locate information for a synthesis on fire regimes of Alaskan tundra communities (Innes 2013). This synthesis reported that lightning-caused fires on the Alaska Peninsula and the Aleutian Islands are rare (Innes 2013).

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement |  |  |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires |  |  |  |  |

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

Martix or large patch

Adjacency or Identification Concerns

Issues or Problems

Native Uncharacteristic Conditions

A more abundant herbaceous component, particularly graminoids, may be due to nutrient inputs from seabird colonies. Where seabirds have been impacted by introduced predators, the cover of herbaceous species appears to be lower.

Comments

10/2021 - This description was updated by NatureServe staff and Kori Blankenship based on the updated Ecological Systems classification for Alaska. Edits focused on adjusting the Geographic Range, Biophysical Site Descriptions, and Vegetation Description sections.

In 2021 NatureServe merged Aleutian Mixed Dwarf-Shrub-Herbaceous Shrubland (BpS 1720), Aleutian Crowberry-Herbaceous Heath (BpS 17190), and Aleutian Sparse Heath and Fell-field

(BpS 1730) into one Ecological System named Aleutian Ericaceous Dwarf-shrubland, Heath and Fell-field. Kori Blankenship merged the BpS concepts into this unified description.

For LANDFIRE National, the merged BpS models and descriptions were created by Randy Swaty, Kori Blankenship, and Keith Boggs and reviewed by Jeff Williams.

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 | A | A | A | A | A | A |
| Shrub | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 1.0-3.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | >3.0 | A | A | A | A | A | A | A | A | A | A |
| Tree | 0-5 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | >50 | UN | UN | UN | 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 100 Mid Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| VAVIM | *Vaccinium vitis-idaea* ssp*. minus* | Northern mountain cranberry | Upper |
| EMNI | *Empetrum nigrum* | Black crowberry | Upper |
| HAST3 | *Harrimanella stelleriana* | Alaska bellheather | Upper |
| PHAL4 | *Phyllodoce aleutica* | Aleutian mountainheath | Upper |

Description

This class represents the Aleutian Ericaceous Dwarf-shrubland, Heath and Fell-field.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Mid1:ALL | 0 | Mid1:ALL | 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** |

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