16570

Alaskan Pacific Maritime Mountain Hemlock-Shore Pine Peatland

BpS Model/Description Version: Nov. 2024

08/20/08

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| None | None | None | None |

Vegetation Type

Woody Wetland

Map Zones

75, 77, 78

Geographic Range

This Biophysical Setting (BpS) occurs from Kenai Fjords through southeastern Alaska and into British Columbia.

**Biophysical Site Description**

This type is found on flat, rolling, or sloped terrain. Soils are poorly drained with deep organic layers (Viereck et al. 1992) and are usually saturated throughout the growing season. In AK, shore pine occurs from sea level to the subalpine zone (Viereck et al. 1992).

Vegetation Description

Trees are usually stunted, and the tree canopy typically has less than <30% cover. Stunted *Tsuga mertensiana* (more common), *Callitropsis nootkatensis (= Cupressus nootkatensis)*, *Picea sitchensis,* or *Pinus contorta* may be present. *Pinus contorta* does not occur north or west of Yakutat. Shrubs include *Empetrum nigrum, Kalmia* spp., *Ledum* spp., *Vaccinium uliginosum,* and *Vaccinium cespitosum*. Common herbaceous species include *Carex anthoxanthea, Carex aquatilis var. dives (= Carex sitchensis), Carex pluriflora, Carex pauciflora, Carex livida, Eriophorum angustifolium, Sanguisorba menziesii*, *Nephrophyllidium crista-galli, Trichophorum cespitosum, Dodecatheon pulchellum, Geum calthifolium,* and *Cornus canadensis*. *Sphagnum* spp. are usually abundant and dominate the ground layer (DeVelice et al. 1999; Boggs et al. 2008). This system includes a range of canopy structures and compositions from mixed conifer peatlands on sideslopes and benches with *Callitropsis nootkatensis, Tsuga mertensiana, Tsuga heterophylla*, and *Pinus contorta*, to peatlands on level ground with scrub *Pinus contorta* (DeMeo et al. 1992 (forest only); Martin et al. 1995 (forest only); Shephard 1995 (forest and nonforest)). Banner et al. (1988) describes this *Pinus contorta* peatland type as a "slope bog."

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| PICO | *Pinus contorta* | Lodgepole pine |
| CANO | *Callitropsis nootkatensis* | Alaska cedar |
| TSME | *Tsuga mertensiana* | Mountain hemlock |
| PISI | *Picea stichensis* | Sitka spruce |
| EMNI | *Empetrum nigrum* | Black crowberry |
| KALMI | *Kalmia spp.* | Laurel |
| LEDUM | *Ledum spp.* | Labrador tea |
| SPHAG2 | *Sphagnum spp.* | Sphagnum |

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

Disturbance Description

Landslides can affect this community when it occurs on steep slopes. Normal dynamic processes of peatland formation apply here. The system is generally characterized by a lack of disturbance and sites are so poorly drained with deep peat accumulation that few other trees can grow on it. Over long timescales, paludification may occur on these sites leading to tree death and raised bog formation (Viereck et al. 1992). Alternatively, on sites with improved drainage, hemlock or spruce may invade (Viereck et al. 1992). With extended drought and nearby fire sources, dried peatlands can burn, but this dynamic has not been documented for this type. Fire is extremely rare in southeast Alaska and likely not an important factor in the successional dynamics of shore pine communities (Cope 1993).

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

Large patch or small patch

Adjacency or Identification Concerns

This BpS is distinguished from the Alaskan Pacific Maritime Poorly Drained Conifer Woodland (BpS 16810) by the presence of shore pine and a more developed and acidic peatland - often with open canopy and stunted trees (called a "muskeg" elsewhere across the boreal forest), whereas the poorly drained conifer peatland is less well developed as a peatland, has a more persistent tree canopy, and represents the common transition toward the adjacent mesic forest types. This BpS occurs adjacent to other wetland types and in the forest mosaic.

Issues or Problems

Native Uncharacteristic Conditions

Comments

In 2021 NatureServe merged Alaskan Pacific Maritime Shore Pine Peatland (BpS 1657) and Alaskan Pacific Maritime Mountain Hemlock Peatland (BpS 1659) into one Ecological System: Alaskan Pacific Maritime Mountain Hemlock-Shore Pine Peatland. Pat Comer and Kori Blankenship merged the BpS description for 1657, created by Karen Dillman and reviewed by Tom DeMeo, and 1659, created by Rick Turner and reviewed by Tom DeMeo and Tina Boucher, to reflect the new Ecological System concept. Both BpS were represented by models with one seral state.

For LANDFIRE National BpS 1657 and 1659 models and descriptions were based on input from experts who attended the LANDFIRE Juneau Modeling Meeting (Feb. 08).

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 | A | A | A | A | A | A | A | A | A | A |
| Tree | 5-10 | A | A | A | A | A | A | A | A | A | A |
| Tree | 10-25 | A | A | A | A | A | A | A | A | A | A |
| Tree | 25-50 | A | A | A | A | A | A | A | A | A | A |
| Tree | >50 | A | A | A | A | A | A | A | A | A | A |

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 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| PICO | *Pinus contorta* | Lodgepole pine | Upper |
| CHNO | *Callitropsis nootkatensis* | Alaska cedar | Upper |
| KALMI | *Kalmia* spp. | Laurel | Lower |
| SPHAG2 | *Sphagnum* spp. | Sphagnum moss | Lower |

Description

Canopy structure and species composition can be variable, but stands are generally open and overstory trees may include *Pinus contorta, Callitropsis nootkatensis* (*Chamaecyparis nootkatensis*), *Tsuga mertensiana*, and *Picea stichensis*. Trees may be pole to medium sized. This community will persist under appropriate hydrological conditions.

*Maximum Tree Size Class*  
Pole 5–9" (swd)/5–11" (hwd)

Model Parameters

Deterministic Transitions

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