16760

Alaskan Pacific Maritime Alpine Floodplain

BpS Model/Description Version: Nov. 2024

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

Woody Wetland

Map Zones

75, 77, 78

Geographic Range

This Biophysical Setting (BpS) is found in alpine environments throughout southeast AK.

Biophysical Site Description

This BpS includes active alpine and subalpine floodplains and consists of a complex of riparian vegetation including gravel bars, herbaceous vegetation, and dwarf, low, or tall shrubs (NatureServe 2008). These are often glacially fed systems that are characterized by high energy flooding, shifting channels, and transport and deposition of alluvium (NatureServe 2008). Tall and low shrubs reach their maximum elevation extent in riparian zones. This may be due to protection from climatic extremes in valley bottoms and the deeper winter snowpack or the favorable growing conditions of the riparian zone. Flooding regime and soil moisture control the pattern of vegetation cover (NatureServe 2008).

Vegetation Description

Common species occurring in frequently flooded areas include *Chamerion latifolium, C. angustifolium, Lupinus nootkatensis, Alnus viridis* ssp. *sinuata,* and *Salix alaxensis*. Species occurring in more stabilized areas of the floodplain may include *Salix reticulata, S. alaxensis, S. stolonifera, Phyllodoce aleutica, Harrimanella stelleriana, Luetkea pectinata, Petasites frigidus,* and *Sanguisorba canadensis*.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| CHLA13 | *Chamerion latifolium* | Dwarf fireweed |
| CHAN9 | *Chamerion angustifolium* | Fireweed |
| SAAL | *Salix alaxensis* | Feltleaf willow |
| LUNO | *Lupinus nootkatensis* | Nootka lupine |
| ALVIS | *Alnus viridis ssp. sinuata* | Sitka alder |
| SAST2 | *Salix stolonifera* | Sprouting leaf willow |
| SACA14 | *Sanguisorba canadensis* | Canadian burnet |

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

Disturbance Description

Frequent flooding is the dominant disturbance factor and serves to maintain the alpine riparian community.

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

Linear. Alpine floodplain riparian areas tend to be narrow, maybe up to 100ft wide.

Adjacency or Identification Concerns

This type occurs adjacent to other alpine herbaceous and shrub communities.

Issues or Problems

This system is represented by a one-box model because the successional dynamics are unclear and it is unlikely that seral stages could be identified for mapping, even if defined, due to the narrow, linear nature of this community.

Some feedback from southeast AK experts indicated that this BpS was uncommon or too small for mapping. Mapping its component parts might be more feasible.

Native Uncharacteristic Conditions

Comments

This model was developed based on the draft Maritime Ecological Systems description (NatureServe 2008) and input from Rick Turner. Alpine floodplains were treated differently in the AK Sub-Boreal region where a lower and a higher elevation alpine floodplain were modeled. Due to lack of information and the narrow, linear nature of this system in southeast AK, a one-box model is used to represent all alpine floodplains in the AK Maritime region. A reviewer suggested that this model should have herbaceous and shrub seral stages but did not recommend changing the model because it was probable that this type could not be mapped.

Flooding (represented by Option 1) is included in the state-and-transition simulation model to represent this important disturbance, but its probability (.1) is only included as a placeholder. Some flooding occurs annually but flood frequency and severity varies by location.

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 | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | A | A | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | A | A | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | A | A | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | >50 | A | A | 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** |
| CHLA13 | *Chamerion latifolium* | Dwarf fireweed | Upper |
| LUNO | *Lupinus nootkatensis* | Nootka lupine | Upper |
| PEFR5 | *Petasites frigidus* | Arctic sweet coltsfoot | Upper |
| SAAL | *Salix alaxensis* | Feltleaf willow | Upper |

Description

This class represents the Alpine Floodplain community. Species composition is variable. See the Vegetation Description for a list of common species.

This community will persist under appropriate hydrological conditions.

*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** |
| Optional 1 | Mid1:ALL | Mid1:ALL | 0.1 | 10 | No | 0 |

Optional Disturbances

Optional 1: Flooding

References

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