16560

Alaskan Pacific Wet Low Shrubland and Floodplain Wetland

BpS Model/Description Version: Nov. 2024

Vegetation Type

Woody Wetland

Map Zones

75, 76, 77, 78

Geographic Range

This Biophysical Setting (BpS) is found along glacial and non-glacially-fed rivers and streams along the Gulf Coast of AK, from the eastern Alaska Peninsula, Katmai National Park and Preserve, and Kodiak Island through southeastern AK. It occurs within the floodplain boundaries.

Biophysical Site Description

This wetland system typically occurs as a ring on the outer edge of peatlands or on uplifted tidal marshes that are relatively wet but no longer tidally influenced. It is a minor yet widespread system wherever mature peatlands and uplifted tidal marshes occur, such as the Copper River Delta and Yakutat Forelands. It also occurs on old lakebeds, drained beaver ponds, wet depressions, and the edge of tidal marshes. Soils are saturated for at least a portion of the growing season, and generally have a wet organic layer of variable depth (8 cm to 1 m deep) over silt, sand, or gravel.

Vegetation Description

Species composition is variable due to diverse environmental conditions such as water depth, substrate, and nutrient input. The shrub layer is dominated by *Myrica gale* and/or *Vaccinium uliginosum*. In Katmai National Park and Preserve, *Myrica gale* is the dominant shrub, but *Betula nana* or *Salix barclayi* may also codominate. Species richness is often high, and composition is variable. Common associated species may include *Alnus viridis* ssp*. sinuata, Kalmia microphylla, Carex pauciflora, Carex livida, Carex aquatilis var. dives (= Carex sitchensis), Carex pluriflora, Carex viridula* ssp*. viridula, Trichophorum cespitosum, Eriophorum angustifolium, Equisetum variegatum, Drosera rotundifolia, Sanguisorba canadensis, Sanguisorba officinalis, Calamagrostis canadensis*, and *Rubus arcticus*. *Sphagnum* spp. may be abundant in the ground layer.

Below is a partial list of species that can be found in distinguishable zones of this BpS

Aquatic Bed: *Nuphar lutea, Myriophyllum alterniflorum, M. spicatum, Potamogeton* spp., and *Sparganium* spp. (Shephard 1995, Boggs 2000, Boggs et al. 2008).

Freshwater Emergent Marsh: *Carex rostrata, Equisetum fluviatile, Carex sitchensis, Menyanthes trifoliata, Comarum palustris, Eleocharis palustris,* and *Scirpus validus* (Banner et al. 1986, Shephard et al.1995, Boggs 2000).

Fen and Wet Meadow: *Carex aquatilis var*. *dives, Dodecatheon pulchellum, Parnassia fimbriata, Eriophorum russeolum, Menyanthes trifoliata, Comarum palustris, Calligeron giganteum, Sphagnum squarrosum, S. riparum., Carex saxatilis, C. lyngbyei, Sanguisorba canadensis, Swertia perrenis, Platanthera dilatata, Equisetum varigatum,* and *Equisetum fulviatile* (Shephard 1995, Boggs 2000, McClellan et al. 2003).

Wet Low Shrub: *Myrica gale, Vaccinium uliginosum, Alnus viridis* ssp. *sinuata, Kalmia microphylla, Carex pauciflora, Carex livida, C. sitchensis, C. pluriflora, C. viridula* ssp. *viridula, Trichophorum caespitosum, Eriophorum angustifolium, Equisetum varigatum, Drosera rotundifolia, Sanguisorba canadensis, Sanguisorba officinalis, Calamagrostis canadensis, Rubus arcticus,* and *Sphagnum* spp.

Shrub Swamp: *Alnus viridis* ssp. *sinuata, Salix spp., Carex sitchensis, C. utriculata, Equisetum fluviatile, Lysichiton americanus,* and *Sphagnum* spp.

BpS Dominant and Indicator Species

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

Disturbance Description

Frequent river channel migration and associated flooding and fluvial processes constitute the major disturbances. Wetland succession and species composition is variable due to diverse environmental conditions such as water depth, substrate, and nutrient input. It is unlikely that this type could support a fire.

Fire Frequency

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, small patch

Adjacency or Identification Concerns

Floodplain wetland vegetation includes the following classes: Aquatic Bed, Freshwater Emergent Marsh, Fen and Wet Meadow, Wet Low Shrub, and Shrub Swamp. These classes have also been described as unique Ecological Systems, but because floodplain wetland dynamics are different from wetland dynamics outside the floodplain, these classes were included in this BpS.

Issues or Problems

The lack of information about the successional dynamics of this system and the variability of environmental conditions across floodplain wetlands make it difficult to quantitatively model this BpS. As currently modeled, several distinct communities, which are not necessarily successional related, are lumped together based on two criteria: 1) all communities are located in the floodplain and are characterized by poor drainage, and 2) their fine scale pattern makes them difficult to map separately in the floodplain (however, they are treated as separate BpS outside of the floodplain).

Native Uncharacteristic Conditions

Comments

In 2021 NatureServe merged Alaskan Pacific Maritime Shrub and Herbaceous Floodplain Wetland (BpS 1656) and Alaskan Pacific Maritime Wet Low Shrubland (BpS 1660) into one Ecological System: Alaskan Pacific Wet Low Shrubland & Floodplain Wetland. Kori Blankenship merged the BpS description for 1656 created by Tom DeMeo and reviewed by Barbara Schrader and 1660 created by David D'Amore and reviewed by Tom DeMeo to reflect the new Ecological System concept. Both BpS were represented by models with one seral state.

This model assumes that floodplain wetlands are composed of a mosaic of different communities (Aquatic Bed, Freshwater Emergent Marsh, Fen and Wet Meadow, Wet Low Shrub, and Shrub Swamp) which occur on the floodplain but do not necessarily have a successional relationship to one another. Hydrology, drainage, and other site factors likely dictate the community in a given area.

For LANDFIRE National the model for BpS 1660 was developed based on input from experts who attend the LANDFIRE Juneau Modeling Meeting (Feb. 08) and the draft Maritime Ecological Systems description (NatureServe 2008) and refined by David D'Amore.

Succession Classes

**Mapping Rules**

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

Description

Floodplain wetlands include a diverse mix of species assemblages possibly including Aquatic Bed, Freshwater Emergent Marsh, Fen and Wet Meadow, Wet Low Shrub and Shrub Swamp. The Class Indicator Species listed are not true indicators -- refer to the Vegetation Description for species information.

This community will persist in its various forms. Flooding (represented by Option 1 in the model) is included in the model to represent this important disturbance, but its probability (0.1) is only included as a placeholder. Flood frequency varies by location within the floodplain.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

Probabilistic Transitions

Optional Disturbances

Optional 1: Flooding

References

Banner, A., Pojar, J., Trowbridge, R. 1986. Representative wetland types of the northern part of the Pacific Oceanic Wetland Region. BC Min. For. Research Report RR85008-PR. 45 p.

Boggs, K. 2000. Classification of community types, success ional sequences and landscapes of the Copper River Delta. Gen. Tech. Rep. PNW-GTR-469. Portland, OR. U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station. 244 p.

Boggs, K., J. Grunblatt, S. C. Klein, G. Streveler and B. Koltun. 2008. Landcover classes, plant associations and ecoregions of Glacier Bay National Park and Preserve (in press). Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska Anchorage, 707 A Street, Anchorage, AK 99501

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, C. Nordman, M. Pyne, M. Reid, M. Russo, K. Schulz, K. Snow, J. Teague, and R. White. 2003-present. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA. [!N03COM01ICEC!]

Jorgenson, M. T., J. E. Roth, M. D. Smith, S. Schlentner, W. Lentz, and E. R. Pullman. 2001. An ecological land survey for Fort Greely, Alaska. U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH. ERDC/CRREL TR-01-04. 85 pp.

McClellan, M.H., Brock, T., Baichtal, J.F. 2003. Calcareous Fens in Southeast Alaska. PNW-RN-536. USDA Forest Service, Pacific Northwest Research Station, Portland, OR. 10 p.

Shephard, M.E. 1995. Plant community ecology and classification of the Yakutat Foreland, Alaska. Technical Report R10-TP-56. Juneau, AK: USDA Forest Service, Alaska Region. 206 p.