16520

**Alaskan Pacific-Aleutian Alder-Salmonberry-Copperbush Shrubland**

Model Date: 07/30/08 Report Date: 9/11/15

|  |  |  |  |
| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
| Tom DeMeo | tdemeo@fs.fed.us | Paul Hennon | phennon@fs.fed.us |
| Randy Swaty | rswaty@tnc.org | Jeff\_Williams@fws.gov | Jeff\_Williams@fws.gov |
| Keith Boggs | ankwb@uaa.alaska.edu | None | None |

Reviewer: Robin Innes

Vegetation Type

Upland Shrubland

Map Zones

76, 77, 78

Geographic Range

This BpS is found from southeast AK, north to Prince William Sound and along the Alaska Peninsula, including Kodiak Island. It diminishes moving west and is absent by Dutch Harbor.

Biophysical Site Description

This BpS is found from low elevations to above treeline. Soils are typically mesic, well-drained, shallow, and stony, and underlain by colluvium, glacial till, or residuum (NatureServe 2008).

Vegetation Description

Alnus viridis ssp. Sinuate, Alnus viridis ssp. Fruticose, or Vaccinium ovalifolium are often the dominant species, but Rubus spectabilis may be codominant. Rubus spectabilis is dominant primarily on the oldest stabilized talus slopes and stable colluvial slopes (older substrates), while Alnus viridis may be the dominant shrub on recently disturbed sites, wind sheltered sites, or recent ash deposits. Alder height ranges from 0.5 m at higher elevations to 8 m downslope. Other common species include Sambucus racemosa, Oplopanax horridus, Spiraea stevenii, and tall willows such as Salix barclayi or Salix glauca. Common understory species include Athyrium filix-femina, Dryopteris expansa, Phegopteris connectilis, Equisetum arvense, and Streptopus amplexifolius (Talbot et al. 2005, DeVelice et al. 1999).

Herbaceous species include Calamagrostis canadensis, Chamerion angustifolium, Veratrum viride, Heracleum maximum, Aconitum maximum, and Deschampsia caespitosa. Rich forb meadows become more common near the elevational limit of tall shrubs and common species include Lupinus nootkatensis, Valeriana sitchensis, Geranium erianthum, Aconitum delphiniifolium, Castilleja unalaschcensis, Sanguisorba canadensis, and Carex machrochaeta.

Lower alpine and subalpine communities are dominated by Elliottia pyroliflora (10 to 80% cover) which ranges in height from 2 to 5 feet. Other species include Phyllodoce aleutica, Nephrophyllidium crista-galli, Cornus suecica, Luetkea pectinata, Athyrium filix-femina, Cassiope mertensiana, Dryopteris expansa, Gymnocarpium dryopteris, Viola glabella, Rubus spectabilis, Achillea millefolium var. borealis, Geum calthifoliumSolidago spp., and Veratrum viride. Krumholtz Tsuga mertensiana occurs in some sites (DeVelice et al. 1999, Boggs et al. 2008). Empetrum nigrum may also be common.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| ALVIS | Alnus viridis ssp. sinuata | Sitka alder |
| ALVIC | Alnus viridis ssp. crispa | Mountain alder |
| RUSP | Rubus spectabilis | Salmonberry |
| SARA2 | Sambucus racemosa | Red elderberry |
| SABA3 | Salix barclayi | Barclay's willow |
| VAOV | Vaccinium ovalifolium | Oval-leaf blueberry |
| OPHO | Oplopanax horridus | Devilsclub |
| ELPY | Elliottia pyroliflorus | Copperbush |
| CACA4 | Calamagrostis canadensis | Bluejoint |
| ATFI | Athyrium filix-femina | Common ladyfern |
| DREX2 | Dryopteris expansa | Spreading woodfern |

Disturbance Description

This BpS appears to be relatively stable (Mitchell 1968, Viereck et al. 1992). In this model it is hypothesized that infrequent soil disturbance can lead to a short-lived herbaceous sere. Insects and disease may affect alder (Keith Boggs, Alaska Natural Heritage Program, pers. comm.).

In 2015, an extensive literature search was done by Fire Effects Information System staff to locate information for a synthesis on Fire regimes of Alaskan alder and willow shrublands with few results for this BpS (Innes 2015). Descriptions of fire ignition, season, pattern, and size specific to alder and willow shrublands were not found in the literature (Innes 2015). Alder and willow shrublands are frequently associated with landscape features that can form firebreaks, including wetlands, riparian areas, talus and boulder fields, and avalanche tracks (Innes 2015).

Fire Frequency

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

Scale Description

Small to large patch and matrix forming.

Non-Fire Disturbances

Other 1: Soil Disturbance

Adjacency or Identification Concerns

Alaskan Pacific-Aleutian Alder-Salmonberry-Copperbush Shrubland and Alaskan Pacific Maritime Avalanche Slope Shrubland have similar species composition but have distinct models to reflect the differences in disturbance processes (i.e. snow avalanche and/or mass wasting events) affecting the two types.

In the Aleutians this type can occur adjacent to Aleutian Ericaceous Dwarf-shrubland, Heath and Fell-field and Aleutian Mesic Herbaceous Meadow (BpS 1651).

Issues or Problems

Native Uncharacteristic Conditions

There may be an upward trend in the elevation of this BpS today (NatureServe 2008). Treeline conifers appear to be invading from below in some areas, and the elevational limit of low and tall shrub establishment appears to be rising (NatureServe 2008).

Comments

In 2021 NatureServe merged:

* Alaskan Pacific Maritime Subalpine Alder-Salmonberry Shrubland (BpS 16520)
* Alaskan Pacific Maritime Subalpine Copperbush Shrubland (BpS 16720)
* Aleutian Mesic Alder-Salmonberry Shrubland (BpS 17180)
* Aleutian Oval-leaf Blueberry Shrubland (BpS 17310)

to create one Ecological System: Alaskan Pacific-Aleutian Alder-Salmonberry-Copperbush Shrubland. Kori Blankenship created one unified BpS model and description for this new Ecological System. The new model is based on the models for BpS 16520 developed by Tom DeMeo and reviewed by Paul Hennon for the Maritime region and BpS 17180 developed by Randy Swaty and Keith Boggs and reviewed by Jeff Williams. The models had similar states and deterministic transition. During this revision Blankenship incorporated review comments from Robin Innes for BpS 17180 and 17310.

Succession Classes

Class A 10 Early Development 1 - All Structures

Structural Information

Upper Layer Lifeform: Herb

Upper Layer Canopy Cover: Herbaceous - Herbaceous%

Upper Layer Canopy Height: Herbaceous - Herbaceous

Tree Size Class: None

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| CACA4 | Calamagrostis canadensis | Bluejoint | Upper |
| CHAN9 | Chamerion angustifolium | Fireweed | Upper |
| VEVI | Veratrum viride | Green false hellebore | Upper |
| HEMA80 | Heracleum maximum | Common cowparsnip | Upper |

Description

Post-disturbance mesic herbaceous stage. Grasses, sedges and/or forbs dominate the site.

Class B 90 Late Development 1 - All Structures

Structural Information

Upper Layer Lifeform: Shrub

Upper Layer Canopy Cover: Open Shrub (25-74% shrub cover) - Closed Shrub (> 75% shrub cover)%

Upper Layer Canopy Height: Low Shrub (20 cm to 1.5 m) - Tall Shrub (>1.5 m)

Tree Size Class: None

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ALVIS | Alnus viridis ssp. sinuata | Sitka alder | Upper |
| RUSP | Rubus spectabilis | Salmonberry | Upper |
| SARA2 | Sambucus racemosa | Red elderberry | Upper |
| OPHO | Oplopanax horridus | Devilsclub | Upper |

Description

Mature shrub stage. Shrubs overtop herbaceous layer and become dominant.

References

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.

DeVelice, R., C. Hubbard, K. Boggs, S. Boudreau, M. Potkin, T. Boucher, and C. Wertheim. 1999. Plant community types of the Chugach National Forest: Southcentral Alaska. U.S.D.A., Forest Service: Chugach National Forest, Alaska Region, Anchorage, Alaska. Tech. Pub. R10-TP-76. 375 p.

Dyrness, C. T.; Viereck, L. A.; Van Cleve, K. 1986. Fire in taiga communities of interior Alaska. In: Van Cleve, K.; Chapin, F. S., III; Flanagan, P. W.; Viereck, L. A.; Dyrness, C. T., eds. Forest ecosystems in the Alaskan taiga. A synthesis of structure and function. Ecological Studies 57. New York: Springer-Verlag: 74-86. [3881]

Gabriel, Herman W.; Tande, Gerald F. 1983. A regional approach to fire history in Alaska. BLM-Alaska Tech. Rep. 9. Anchorage, AK: U.S. Department of the Interior, Bureau of Land Management. 34 p. [15388]

Innes, Robin J. 2015. Fire regimes of Alaskan alder and willow shrublands. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/fire\_regimes/AK\_alder\_shrub/all.html [ 2016, August 3].

Mitchell, W.W. 1968. On the ecology of Sitka alder in the subalpine zone of south-central Alaska. In: Trappe, J.M., Franklin, J.F., Tarrant, R.F., Hansen, G.M., eds. Biology of Alder: Proceedings of a symposium held at Northwest Scientific Association 40th annual meeting; 1967 April 14-15; Pullman, WA. Portland, OR: USDA Forest Service Pacific Northwest Research Station, pp. 45-56.

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

Talbot, S.S, Talbot, S.L., Daniels, F.J.A. 2005. Comparative phytosociological investigation of subalpine alder thickets in southwestern Alaska and the North Pacific. Phytocoenologia. 35(4):727-759.

Viereck, L., Dryness, C., Batten A. and K. Wenzlick. 1992. The Alaska vegetation classification. General Technical Report PNW-GTR-286. Portland, Oregon. USDA Forest Service, Pacific Northwest Research Station. 278 p.

Viereck, Leslie A.; Schandelmeier, Linda A. 1980. Effects of fire in Alaska and adjacent Canada--a literature review. BLM-Alaska Tech. Rep. 6; BLM/AK/TR-80/06. Anchorage, AK: U.S. Department of the Interior, Bureau of Land Management, Alaska State Office. 124 p. [28862]