

***Picea sitchensis/Oplopanax horridus/Circaea alpina* Plant Association**

Sitka Spruce/Devil's Club/Enchanter's Nightshade Plant Association

Southern Alaska

Conservation Status Rank: S4 (apparently secure)

Introduction

The *Picea sitchensis/Oplopanax horridus/Circaea alpina* (Sitka spruce/devil's club/enchanter's nightshade) Plant Association is a forested type codominated by *Picea sitchensis* and *Tsuga heterophylla* (western hemlock) in the overstory and *Oplopanax horridus* and *Circaea alpina* in the understory, occurring on loess-covered hills. This association has been described from hillslopes adjacent to the Stikine River Delta in Southeast Alaska (Figure 1) and has been identified as one of conservation concern by the Tongass National Forest (Pawuk and Kissenger 1989). Despite its apparently restricted occurrence, impacts are thought to be low.



Figure 1. Typical setting of the *Picea sitchensis/Oplopanax horridus/Circaea alpina* Plant Association at the mouth of the Stikine River, Alaska (photo by Wayne Nicolson).

Distribution

This association is known only from hillslopes adjacent to the Stikine River Delta, however it is suspected to occur on other loess-covered hills adjacent to river valleys in Southeast Alaska (Figure 2). The *Picea sitchensis/Oplopanax horridus/Circaea alpina* Plant Association distribution was developed from Sitka spruce-dominated landcover classes of the Vegetation Map of Southern Alaska and the Aleutian Islands (Boggs et al. 2016b). Occurrence records are derived from herbarium records of *Circaea alpina* explicitly collected from *Picea sitchensis* forests (CPNWH 2016)

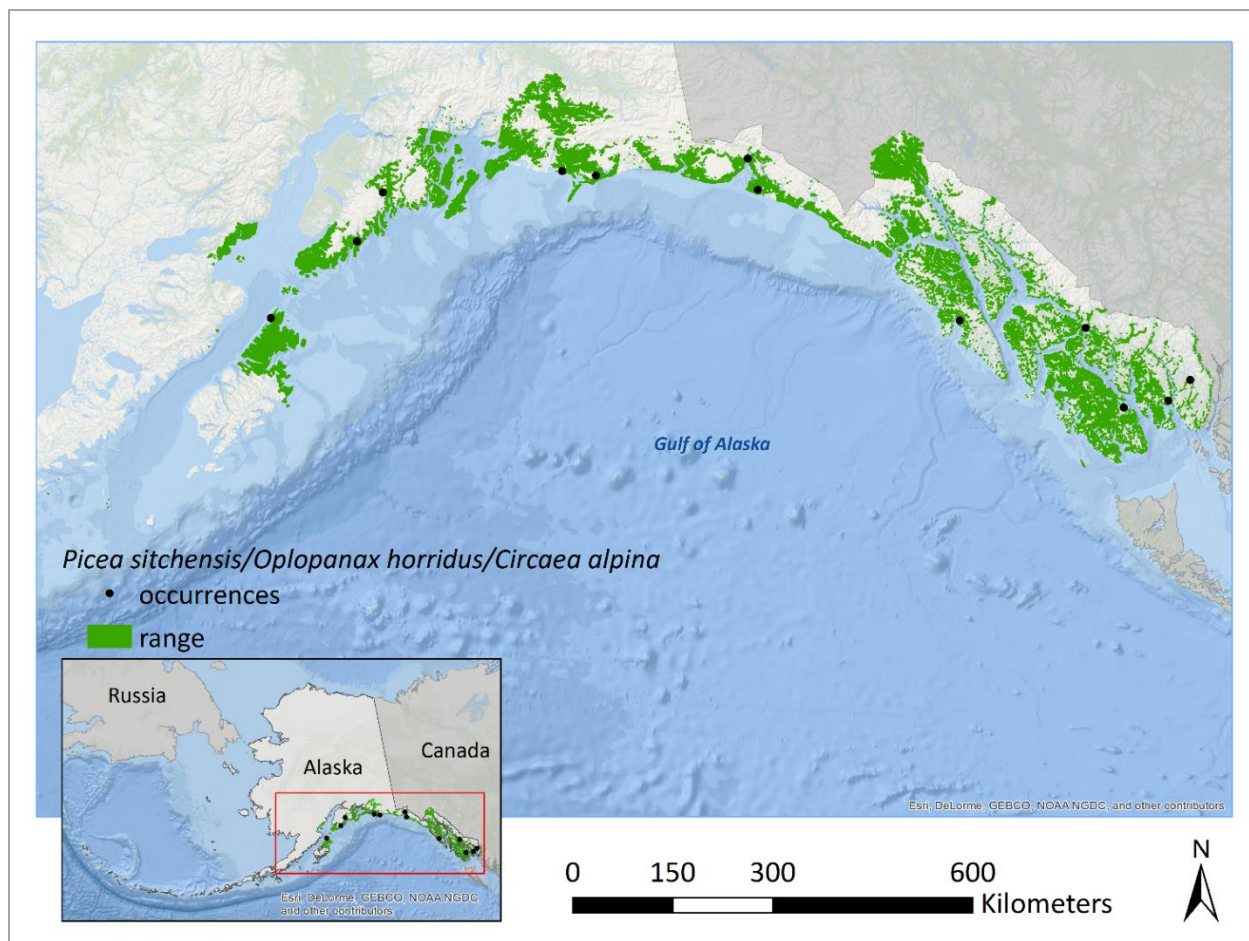


Figure 2. Distribution of the *Picea sitchensis/Oplopanax horridus/Circaea alpina* Plant Association. Note that the areas of occupancy in this map are buffered for greater visibility.

Climate

Southeast Alaska has a cool, wet maritime climate (Gallant et al. 1995, Nowacki et al. 2001). Mean annual total precipitation in the coastal rainforest ranges from 135 to 390 cm, with 80 to 600 cm falling as snow. Average summer temperatures range from 7 to 18 °C; average winter temperatures are between -3 and 3°C. Consequently, these forests have developed under relatively short, cool and extremely wet growing seasons. Rainfall and temperature show highly variable patterns dependent upon proximity to mainland ice-fields, the Pacific Ocean, topography and regional weather patterns.

Environmental Characteristics

The *Picea sitchensis/Oplopanax horridus/Circaea alpina* Plant Association occurs on loess-covered hills adjacent to river valleys. Windblown silt is deposited on these sites throughout the year, with most deposition likely occurring during the winter. Site elevations are less than 152 meters. Soils are classified as typic lityic cryumbrepts. While soil development is minimal, layers are deep. Soils are well to moderately well drained, and have a thin organic duff layer. Likely due to the input of loess, surface layers have a pH of 5.5.

Vegetation and Succession

The trees *Picea sitchensis* and *Tsuga heterophylla* codominate this type. Overstory height averages 47 meters; *Picea sitchensis* and *Tsuga heterophylla* provide approximately 60% coverage with *Picea sitchensis* more common. Understory tree coverage is 10% with *Tsuga heterophylla* more common. Shrub cover averages 60% and is dominated by *Oplopanax horridus*; *Rubus spectabilis* sometimes codominates, and *Menziesia ferruginea*, *Sambucus racemosa* and *Vaccinium* species occur as scattered plants. The forb layer averages 25% cover. *Circaea alpina* is well represented and occupies both low and raised microsites; *Streptopus amplexifolius*, *Streptopus lanceolatus* var. *roseus* and *Tiarella trifoliata* are also common. Fern cover averages 60% and includes *Athyrium filix-femina*, *Dryopteris austriaca* var. *spinulosa*, *Gymnocarpium dryopteris*, *Polypodium glycyrrhiza* and *Thelypteris phegopteris*. Graminoids are typically absent (Pawuk and Kissinger 1989). Exposure of mineral subsurface layers favors the establishment of shrubs such as *Alnus* species, *Rubus spectabilis* and *Oplopanax horridus*. Young second growth stands consist primarily of *Picea sitchensis* with some *Tsuga heterophylla*.

Conservation Status

Rarity: This plant association has only been sampled on hillslopes adjacent to the Stikine River Delta; it likely occurs in other glacial river corridors that experience high winds and extensive aeolian deposition.

Threats: Timber harvest and spruce bark beetle (*Dendroctonus rufipennis*) infestations of *Picea sitchensis* could threaten this association.

Trend: Extent and condition of this association are not expected to change in the short- or long-term.

Species of Conservation Concern

Only one bird, one plant, and no mammal or amphibian species of conservation concern are known or suspected to occur in the *Picea sitchensis*/*Oplopanax horridus*/*Circaea alpina* Plant Association (Table 1, Table 2). Additional study is required to evaluate whether this plant association supports species of conservation concern. Please visit the Alaska Center for Conservation Science website for species descriptions (ACCS 2016).

Table 1. Bird species of conservation concern within the *Picea sitchensis*/*Oplopanax horridus*/*Circaea alpina* Plant Association.

Common Name	Scientific Name	Global Rank	State Rank	Habitat Description
Black-backed Woodpecker	<i>Picoides arcticus</i>	G5	S3	Found in coniferous forests of southcentral Alaska, these woodpeckers prefer standing dead trees near bogs or from forest fires.

Table 2. Plant species of conservation concern within the *Picea sitchensis*/*Oplopanax horridus*/*Circaea alpina* Plant Association.

Scientific Name	Global Rank	State Rank	Habitat Description
<i>Tiarella trifoliata</i> var. <i>laciniata</i>	G5T5?	S3	Moist woods in the islands of southern Alaska.

Classification Concept Source

This association was first defined and ranked by the USDA Tongass National Forest (Pawuk and Kissinger 1989).

Literature Cited

- ACCS (Alaska Center for Conservation Science) 2016. Rare Plant Data Portal. April 28, 2016. <http://aknhp.uaa.alaska.edu/maps-js/rare-vascular-plant-portal>.
- ACCS (Alaska Center for Conservation Science) 2016. BIOTICS Animal Data Portal. April 28, 2016. <http://aknhp.uaa.alaska.edu/maps-js/integrated-map/biotics.php>.
- Boggs, K., L. Flagstad, T. Boucher, J. Tande, J. Michaelson, T. Kuo, and M. Aisu. 2016b. Vegetation map and classification: Southern Alaska and Aleutian Islands - Second Edition. Alaska Center for Conservation Science, University of Alaska Anchorage, Anchorage, Alaska. 97 pp.
- Consortium of Pacific Northwest Herbaria. Burke Museum, University of Washington. Herbarium specimen data provided by: University of Alaska, Fairbanks – Museum of the North, University of Alaska Anchorage Herbarium. Herbarium specimen data accessed February 2016 from: <http://www.pnwherbaria.org/index.php>.
- Gallant, A. L., E. F. Binnian, J. M. Omernik, and M. B. Shasby. 1995. Ecoregions of Alaska. U.S. Geological Survey Professional Paper 1576.
- Nowacki, G., M. Shephard, P. Krosse, W. Pawuk, G. Fisher, J. Baichtal, D. Brew, E. Kissinger, and T. Brock. 2001. Ecological subsections of Southeast Alaska and neighboring areas of Canada. Draft Rep. U.S. Forest Service, Tongass National Forest, Juneau, Alaska.
- Pawuk, W. H., and E. J. Kissinger. 1989. Preliminary forest Plant Associations of the Stikine area, Tongass National Forest. Technical Publication R10-TP-72. U.S. Forest Service, Juneau Alaska.