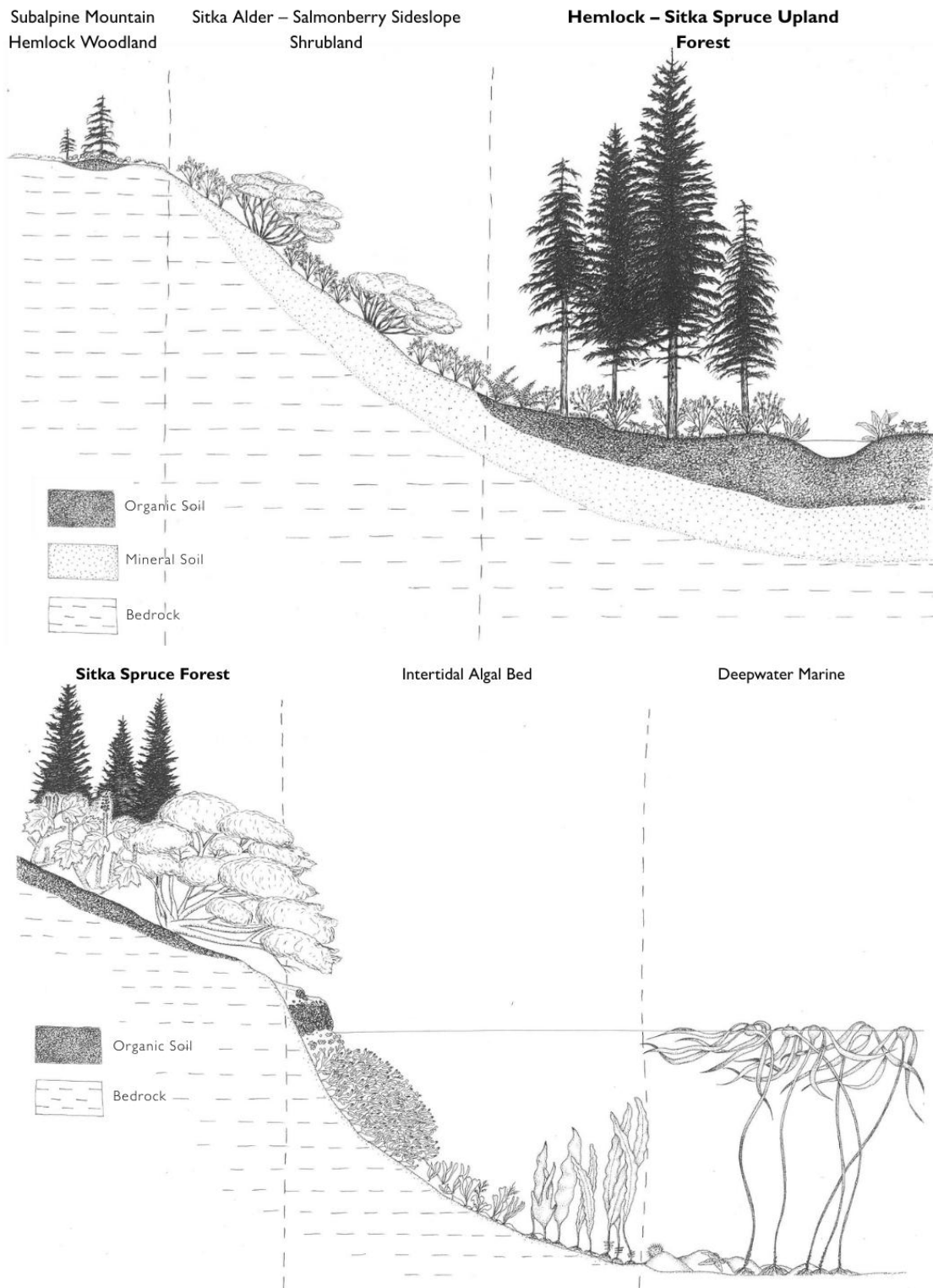


Hemlock – Sitka Spruce Upland Forest



Hemlock–Sitka Spruce Upland Forest

Hemlock–Sitka Spruce upland forests are co-dominated by hemlock (*Tsuga* species) and Sitka spruce (*Picea sitchensis*) trees; mountain hemlock (*Tsuga mertensiana*) is the dominant hemlock but stands may include western hemlock (*Tsuga heterophylla*). Canopy cover ranges from open with a well-developed deciduous shrub understory to closed with a species-poor understory of pocket wetlands and bryophyte carpets. The shrub understory is comprised of early blueberry (*Vaccinium ovalifolium*), rusty menziesia (*Menziesia ferruginea*), and copperbush (*Elliottia pyroliflora*), with the feathermosses *Hylocomium splendens* and *Rhytidiadelphus loreus* carpeting the ground. Epiphytic, arboreal lichens (*Usnea lapponica*, *Bryoria capillaris*, *Alectoria sarmentosa*) can be abundant in this habitat type. The contribution of hemlock increases as forest mature, organic matter builds, and soils become wetter (see Mountain Hemlock Wetland Forest description); the contribution of Sitka Spruce increases on sites prone to disturbance or exposed to salt spray.

Sitka Spruce Forest

Pure stands of Sitka spruce occur in isolated patches along the headland rim on well-drained soils, especially where streams enter the ocean as well as on extremely steep bedrock headwalls where land slide or creep retards soil development. In these early seral habitats, the understory includes shrubs such as Sitka alder (*Alnus viridis* ssp. *sinuata*), salmonberry (*Rubus spectabilis*), and Devil's club (*Oplopanax horridum*). Ferns such as lady fern (*Athyrium filix-femina*) and spreading woodfern (*Dryopteris expansa*), and forbs including foam flower (*Tiarella trifoliata*) and Lapland cornel (*Cornus suecica*) are common in the understory.

Environment:

Stands develop over a broad elevational range from sea level to the subalpine. Common topographies are mountain sideslopes, footslopes, valleys, and coastal headlands and beaches. Terrain slope, or mineral substrates impart good drainage. Wet pockets may develop in mature forests with pit and mound topography.

Disturbance:

Regionally, timber harvest is the primary large-scale disturbance. At the local scale, windthrow is a driver of secondary gap succession. Avalanche and landslides control the extent of the habitat type, with pests and pathogens affecting forest health.

Animal Species Supported:

Mammals:

Porcupine (*Erethizon dorsatum*) – **Nuuniq** [NW, PG], **Qangataaq** [Chenega]

Showshoe hare (*Lepus americanus*) – **Uskaanaq** [NW, PG]

Northern vole (*Microtus oeconomus*) – **Kriisaq** [N Alutiiq], **Ugna’aq** [S Alutiiq]

Short-tailed weasel (*Mustela erminea*) – **Amitatuk** [NW, PG]

Mink (*Mustela vison*) – **Qaugciciaq** [NW, PG]

Sitka black-tailed deer (*Odocoileus hemionus ssp. sitkensis*) – **Tuntuq, Puhgutaq** [Chenega]

Ground squirrel (*Spermophilus parryii*) – **Qanganaq**

Black bear (*Ursus americanus*) – **Tan'erliq**

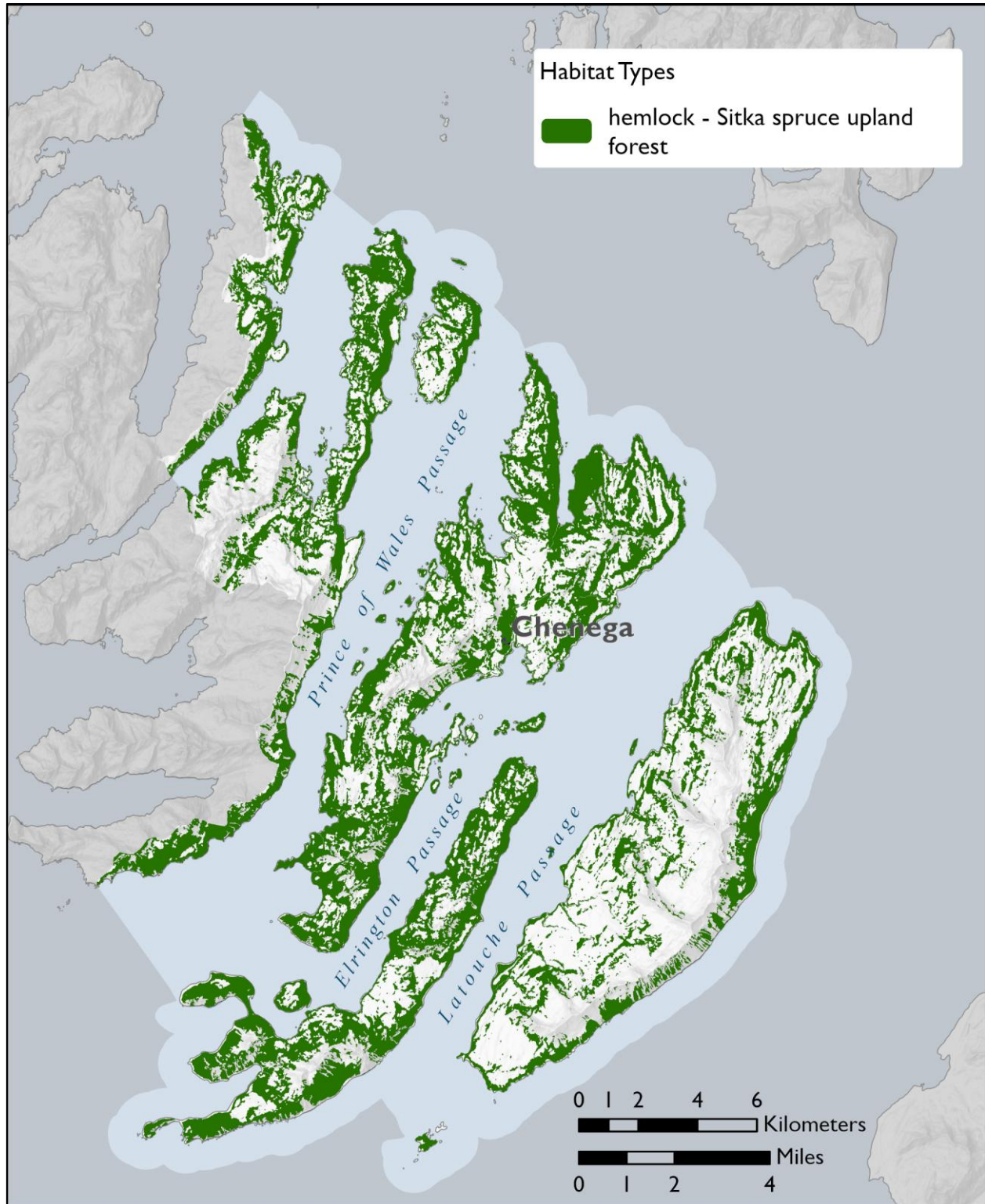
Fox (*Vulpes vulpes*) – **Kaugya’aq; Kangilngaq, Uuquciik** [NW, PG]

Birds:

Grouse (*Falcapennis canadensis, Bonasa umbellus*) – **Elcaayuq** [NW, PG], **Egtugtuliq**

Bald eagle (*Haliaeetus leucocephalus*) – **Kuckalaq** [Chenega], **Kum'agyak** [NW, PG]





Subsistence Plants:

Species: Common name (*Scientific name*) – **Alutiiq name** [if known]
[NW = Nanwalek; PG = Port Graham; PWS = Prince William Sound]

Mountain hemlock (*Tsuga mertensiana*) – **Allcig**: No documented use by Alutiiq, but other regional groups used bark and pitch as an infusion for tuberculosis, diarrhea, tooth aches, and as a poultice for burns and skin trouble. Bark can be used as fiber and branches are used to collect herring eggs during spawning.

Western hemlock (*Tsuga heterophylla*) – **Quntarraaliq**: No documented use by Alutiiq, but other regional groups used bark and pitch as an infusion for tuberculosis, diarrhea, tooth aches, and as a poultice for burns and skin trouble.

Sitka spruce (*Picea sitchensis*) – **Napaq** [PG], **Anggarnarliq** [PWS], **Napargiaq**: Spruce trees are an extremely versatile subsistence species. Spruce tips are harvested in late spring and can be eaten raw. Spruce bud tea is used to treat coughs, pneumonia, and other respiratory problems. Young spruce cone tea can be used for tuberculosis, stomach troubles, and colds. Spruce pitch can be used to heal boils, warts, sores, and burns; chewed as a gum to alleviate headaches or sore throats; or spread on wounds as a sticky bandage. Roots can be ground into a powder and cooked into a paste to be spread on wounds related to sickness, frostbite, and cuts. The thin cambium may be eaten raw or boiled into a tea. Wood is used in house construction and carved for traditional tools, such as buckets, shovels, arrows, spear shafts, drying racks, pegs, wedges, snowshoes, drums, and boat parts. Branches can be used as bedding. Roots can be harvested for weaving material or as binding splints for broken bones. Pitch can be used to waterproof kayak seams or as fire starter. Spruce cone ashes can be mixed with chewing tobacco, while old cones can be used as toilet paper. Wood is also a major source of fire wood, while bark and twigs are used as fire kindling.

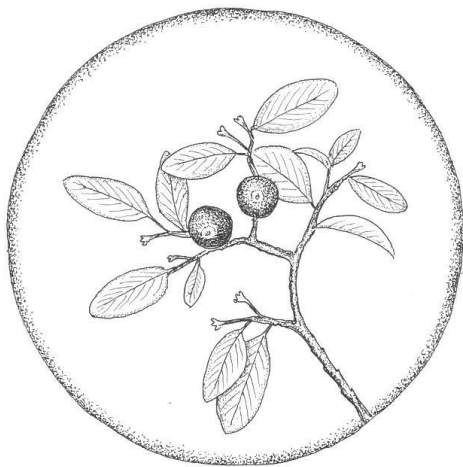
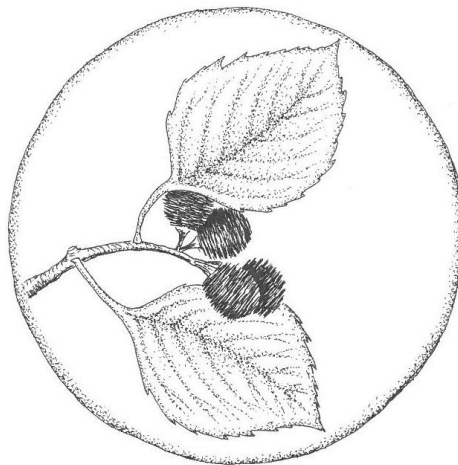
Pink wintergreen (*Pyrola asarifolia*): No documented use by Alutiiq, but other regional groups used the plant as a poultice for sores and swelling.

Northern red currant (*Ribes triste*) – **Kawirqaq**, **Qunisiq** [NW, PG]: Bark and cambium can be boiled into a decoction and used as an eye wash. Berry juice can also be squeezed directly into sore eyes.

Nagoonberry (*Rubus arcticus*) – **Puyurniq**: Berries are edible and highly prized, but difficult to collect due to size and abundance; can be eaten fresh or made into jams or jellies.



Sitka alder (*Alnus viridis* ssp. *sinuata*) – **Uqgwik** [Chenega, PG], **Caariin, Caa'in**: Alder branches are gathered in the spring and early summer when leaves are mature and no longer sticky. Branches can be used as steam bath switches to relieve aches and pains, alleviate arthritis, prevent skin sores, and promote good health. Wood can be used for heating homes, smoking fish, as well as for the construction of kayak ribs, snowshoes, tool handles, shelters, spear shafts, fish traps, and children's toys (game pieces, whistles). Bark can be used to make a reddish-brown dye. Green cones can be chewed or boiled into a tea and used to treat sore throats, laryngitis, and diarrhea. Alutiiq people historically ate bark cooked in fat as a famine food.

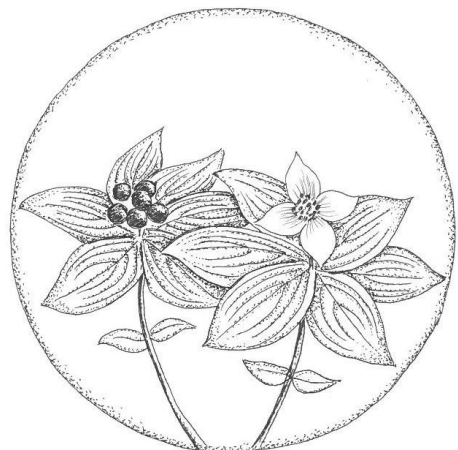


Early blueberry (*Vaccinium ovalifolium*) – **Cuawak**: Berries are collected in August to September for use in jams, jellies, and deserts; often added to *akutaq*. Berries were once stored in oil, but are now frozen for long-term storage. Berries can be mashed to make a purplish-red dye.

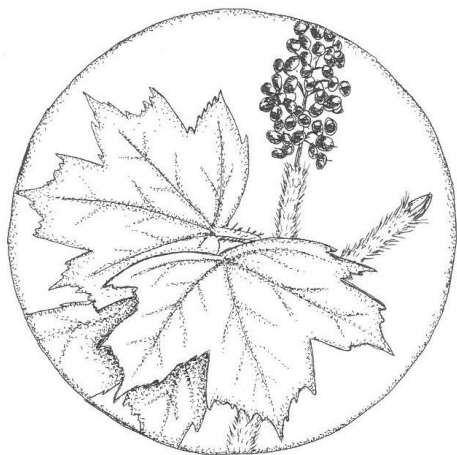
Lingonberry (*Vaccinium vitis-idea*) – **Kenegtaq**: Berries are collected in late-August to late-September and added to soups and stews for flavoring. Berries are made into meat sauces, jams, jellies, puddings, desserts, and *akutaq*, and are now frozen for long-term storage.

Leaves can be boiled into a tea to treat colds or promote urination, while berries are used for kidney problems, kidney sores, and thrush. Berries can also be used as a red dye for basket making.

Bunchberry dogwood (*Cornus canadensis*, *C. suecica*) – **Alagnaq, Tatangqurhnaq** [PWS]: Leaves can be used as a poultice and placed on wounds to help with healing. Berries are eaten opportunistically but not harvested in quantity. **CAUTION:** can cause nausea and vomiting when eaten in large amounts.



Shy maiden (*Moneses uniflora*) – **Ikignganaq** [PG]: Plants are collected mid-summer through fall, but especially when in flower. Can be boiled into a tea to treat an array of illnesses, including pleurisy, pneumonia, tuberculosis, sore throats, and stomach ailments. The tea can also be used as a wash for wounds, sores, rashes, bunions, or corns. Flowers can be used in the steam bath to treat uterine tumors and other suspicious hard lumps.



Devil's club (*Oplopanax horridus*) – **Cukilanarpak**: Although heavily armored with thorns, devil's club is one of the most widely-used plants in southcentral Alaska. Harvested in the spring, the inner bark can be boiled into a tea to alleviate colds, fevers, coughing, stomach problems, rheumatism, tuberculosis, cancer, and recently, diabetes. Cambium can also be chewed until soft and placed on cuts, burns, and broken bones. The outer bark and roots can be burnt and applied as a poultice to inflamed eyes or sprinkled as ash on wounds as an antibiotic before bandaging. Roots can be mashed, heated into a poultice, and applied to alleviate arthritis, wounds, tooth aches, and boils. Roots and stems are very woody and can be used to make hooks,

handles, and small utensils. Traditionally, a piece of wood was placed over a door to ward off evil spirits. Shamanic uses have been associated with this plant. **CAUTION:** thorns can cause festering wounds when embedded in the skin; berries and fermented sap are poisonous and should not be consumed.

Salmonberry (*Rubus spectabilis*) – **Alagnaq** (berry), **Cugelenuk** (shoots), **Qimalaa**, **Qateguatagiaq**: Berries are collected mid-summer for use in jams, jellies, and wine. People also suck nectar from blossoms and eat flower petals. Leaves and powdered bark can be turned into a heated poultice for rashes, cuts, and sores to promote healing. Peeled shoots can be sautéed and eaten or may be chewed to aid digestion.



Deer fern (*Blechnum spicant*) – **Tuquyuilnguq**: Shoots can be used as a steam bath switch to prevent sores from breaking out.

Old man's beard (*Bryoria trichodes*, *Usnea* spp.) – **Nakuraartum nuyii**, **Napamungaguai**: These hanging lichens are collected from branches of trees and shrubs. Strands can be used as a poultice to stop bleeding, piled into a pillow to help with asthma, or placed on a sick person during a steam bath to help retain body heat.

Twisted stalk/Watermelon berry (*Streptopus amplexifolius*) – **Muuguaq**, **Cugelenuk** (shoots), **Kakegluguat** [NW, PG], **Mugauat**: Young shoots can be harvested and added to salads or vegetable dishes, while berries can be collected and consumed.

Club mosses (*Lycopodium* spp.) – **Uruq**, **Muruq**: Plants can be collected and used to make grave wreaths.

Lady fern (*Athyrium filix-femina*) – **Qaataq, Qaataqutaq, Kun'aquataq, Kunraanguasaaq**: Fiddleheads are cooked in butter, while rhizomes are steamed and eaten. Shoots are high in iron, potassium, and vitamins A, B, and C. **CAUTION**: fronds become toxic with age; only young fiddleheads should be consumed.

Licorice fern (*Polypodium glycyrrhiza*) – **Qaataq, Tuquyuilnuq** [PG]: Fern fronds can be soaked in hot water in the steam bath and placed on afflicted areas to treat severe arthritis, broken bones, and sprains. Leaves can also be diced, simmered in water, and added to rubbing alcohol (historically human urine) and applied externally to afflicted areas.



Nootka rose (*Rosa nutkana*) – **Shnapiishniik, Cipau'iniik** (flower); **Qelempaq** (rose hip): Petals can be collected and eaten fresh or boiled into a tea to help with coughs and colds. Rose hips are picked in the fall once sweetened and softened by frosts. Hips can be dried and boiled into a cleansing tea and used to treat colds and bronchitis. Sitting on rose hips soaked in hot water can help a woman pass her placenta after giving birth. Hips can also be eaten raw or used in jams, jellies, syrups, and desserts.

Pacific red elder (*Sambucus racemosa*) – **Tuuciik, Qaruckaq, Angutgwakutaq** [NW, PG], **Sanuuliiq, Cirt'aungkaa**: Berries can be preserved as jelly. Hollow stems can be used to make children's pop guns. Flowers and unripe berries can be boiled into a tea to flush kidneys and induce a cleansing sweat in those with fever, pneumonia, chills, flu, and tuberculosis, and other chronic diseases. The inner and outer bark can both be used to relieve back problems in the steam bath. Branches can be used as steam bath switches to relieve aches, pains, rheumatism, and menstrual cramps. **CAUTION**: seeds are poisonous and can cause diarrhea and vomiting.

High-bush cranberry (*Viburnum edule*) – **Amarsaq** [N Alutiiq], **Amaryaq** [Kodiak], **Qalakuaq** [PWS, PG]: Berries are picked when ripe in September and October for use in juices, jams, jellies, and syrups. Berries can be mashed or added whole to *akutaq*, puddings and desserts. Berries can be eaten to help sore throats, treat tapeworm, and to relieve menstrual cramps, bleeding, and stomach problems. Stems can be boiled, soaked, and applied as a poultice for infected cuts on hands and feet. Bark and berries can be boiled into a tea to treat laryngitis, constipation, sore throats, infected cuts, and to prevent colds and coughs.



Examples of hemlock – Sitka spruce upland forest habitat (PC: ACCS – Kenai Fjords NP)