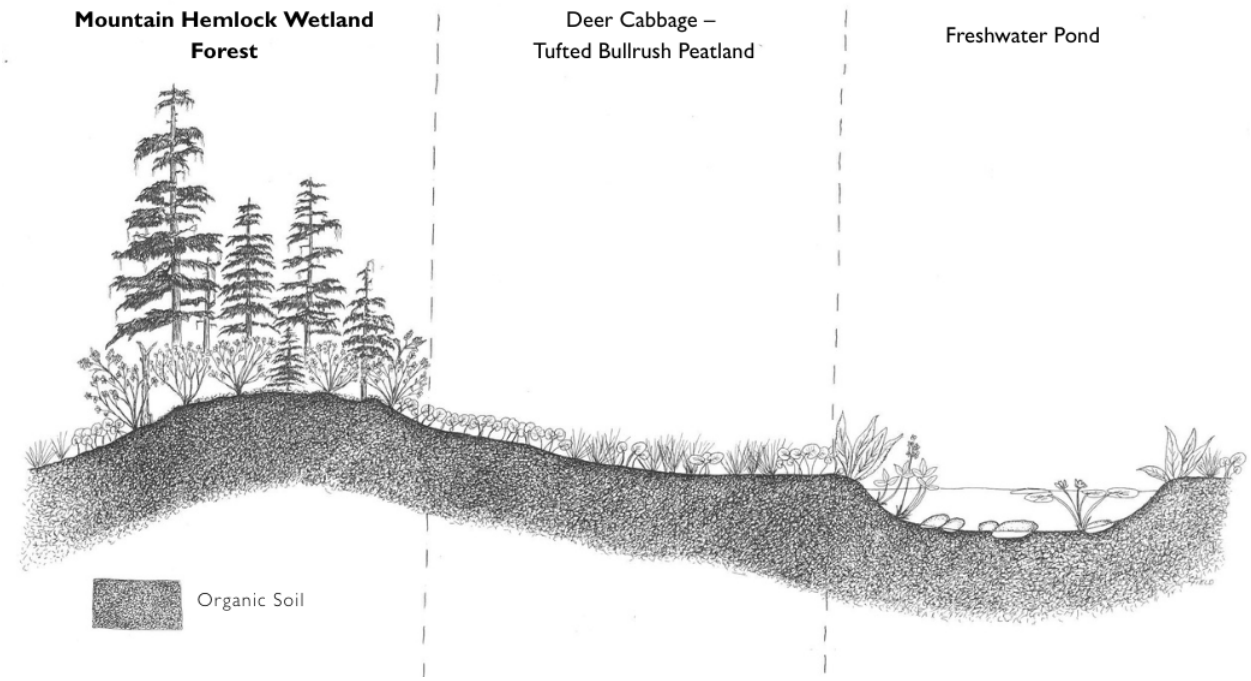
Mountain Hemlock Wetland Forest



Mountain hemlock wetland forests develop at the transition from saturated, herbaceous wetlands to upland forest, as drier inclusions in herbaceous wetlands, or as wetter inclusions in upland forest. Trees are often dwarfed due to waterlogging. Full-stature, mature trees are uncommon, occurring only on the most stable lowlands. The canopy is dominated by mountain hemlock (*Tsuga mertensiana*) with minor contributions of western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*). Low shrubs such as copperbush (*Elliottia pyroliflora*), rusty menziesia (*Menziesia ferruginea*), and early blueberry (*Vaccinium ovalifolium*) skirt the stands of trees. Herbaceous patches, codominated by deercabbage (*Nephrophyllidium crista-galli*) and tufted bulrush (*Trichophorum caespitosum*) may be interspersed. Under closed canopies, lower strata tend to be dominated by ferns and non-vascular species. Spreading woodfern (*Dryopteris expansa*), northern oakfern (*Gymnocarpium dryopteris*), five-leafed bramble (*Rubus pedatus*), and bunchberry dogwood (*Cornus canadensis*) are common in the lowest herbaceous stratum with the feathermosses, *Hylocomium splendens* and *Rhytidiadelphus loreus,* the leafy moss *Rhizomnium glabrescens*, and *Sphagnum* species carpeting the ground. American skunkcabbage (*Lysichiton americanus*) occurs in pockets of standing water.

Environment:

Open wetland forests can occur at high elevations on surprisingly steep slopes (up to 30°). Despite the drainage afforded by terrain, saturation is maintained by abundant precipitation and shallow bedrock, which retards infiltration. The saturation and inundation that, in part, defines the wetland condition, slows soil decomposition such that organic matter accumulates as woody, sphagnum, or sedge peat. Poorly drained soils range from organic veneers over wet mineral soils to peat over shallow bedrock, to deeper organics.

Disturbance:

Any activity that influences the balance between surface and ground water inflow and discharge will impact wetlands. Wetland sites with saturated soils and mature, full stature trees are subject to landslide and windthrow. Forested wetlands located in watersheds that are heavily managed for timber may be adversely impacted by the increased runoff following up gradient harvest.

Animal Species Supported:

Mammals:

Moose (*Alces alces*) – **Tunturpak, Teqliq** [Chenega], **Teggliq** [NW, PG]

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, Puhgutaaq** [Chenega]

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

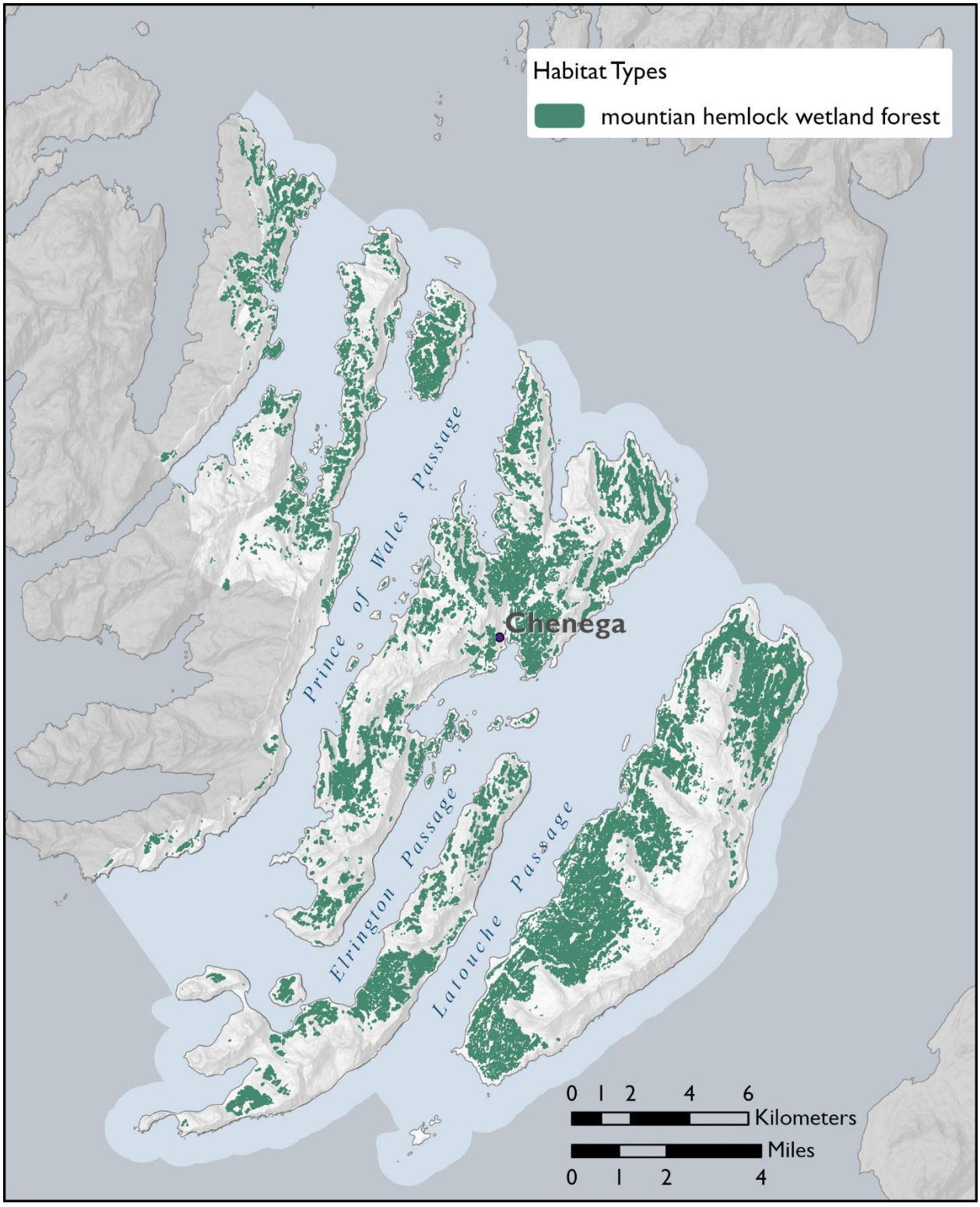
Black bear (*Ursus americanus*) – **Tan'erliq**

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

Birds:

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

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


Habitat Types
mountian hemlock wetland forest
Prince of Wales Passage
Chenega
Elrington Passage
Latouche Passage
0 1 2 4 6
Kilometers
Miles
0 1 2 4

Subsistence Plants:

Species: Common name (S*cientific 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, toothache, 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, toothache, and as a poultice for burns and skin trouble.

Wood fern (*Dryopteris expansa*) – **Qaataq, Qaataqutaq**: Fiddleheads are collected in the early spring and 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.

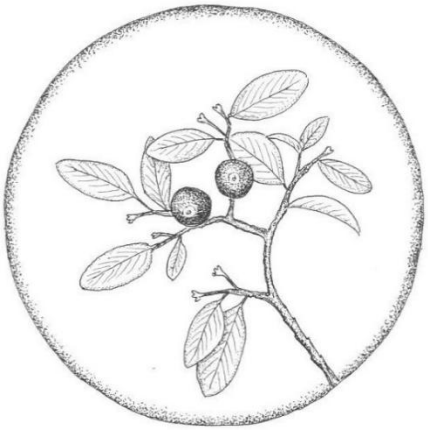
Trailing raspberry (*Rubus pedatus*) – **Puyurniq, Malhukegtat** [NW, PG]: Berries are small and tasty, but time consuming to gather in large quantities. Some people use the berries in jams and jellies.

Cloudberry (*Rubus chamaemorus*) – **Akagwik; Aqagwiik, Alagnaq** [NW, PG]; **Qumalat** [Chenega]: Berries are collected in early to mid-summer and eaten fresh or used in *akutaq*, jams, and jellies. Traditionally kept in seal oil, but now frozen for long-term storage.

Trailing black currant (*Ribes laxiflorum, R. bracteosum*) – **Qunisiq** [PWS], **Uqugnilnguq**: The outer bark can be boiled until dark and kept until settled and clear. The resulting decoction can be used as eye drops to relieve soreness and to help with cataracts. Branches can be used as switches to increase appetite.

Labrador tea (*Rhododendron tomentosum*) – **Atsaqutarpak, Nunallaq Caayuq** [NW, PG], **Caa'uq**: Collected late in the season, sometimes dried. Leaves can be boiled into a tea or chewed raw to treat colds, coughs, sore throats, respiratory ailments, and tuberculosis. Can also be gargled to relieve asthma, fever, and to cleanse the blood. **CAUTION:** use in moderation; large quantities can be toxic.

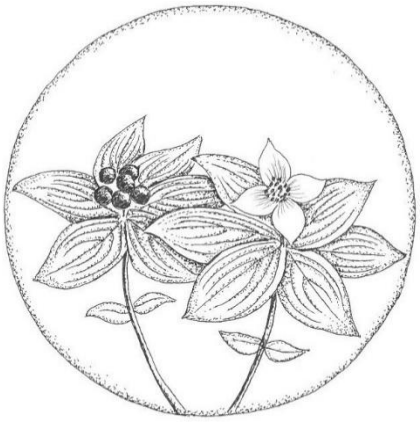
Sitka spruce (*Picea sitchensis*) – **Napaq** [PG], **Anggarnarliq** [PWS], **Naparqiaq**: Spruce is an extremely versatile subsistence species. Spruce tips are harvested in late spring and can be eaten raw. Spruce bud tea can treat coughs, pneumonia, and other respiratory problems. Young spruce cone 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 that is spread on wounds for sickness, frostbite, and cuts. The thin cambium may be eaten raw or boiled into a tea. Wood is used in house construction and carving traditional tools, such as buckets, shovels, arrows, spear shafts, drying racks, pegs, wedges, snow shoes, drums, and boat parts. Branches can be collected for bedding. Roots can be harvested for weaving material or binding splints for broken bones. Pitch was used to waterproof kayak seams or as fire starter. Spruce cone ash can be mixed with chewing tobacco, while old cones can be used as toilet paper. Wood is also a major source of firewood, while bark and twigs are used as fire kindling.



Early blueberry (*Vaccinium ovalifolium*) – **Cuawak**; (*V. uliginosum*) – **Cuaq**: Berries are collected in August to September and used in jams, jellies, and deserts or 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.

Moss (*Sphagnum* spp.) – **Uruq**: Collected and dried for use as baby diapers, toilet paper, and absorbent material for menstruating women. Also used as insulation for houses and clothing, material for camp bedding, camouflage for snares and traps, or a wick for an oil lamp. Moss is also used to cover graves, to remove the hair from seal skins, and to fill leather balls for playing *laptuuk*.

Crowberry (*Empetrum nigrum*) – **Augyaq, Shiksha, Pakik** [Chenega]: Berries are collected in August to September and eaten fresh, used in *akutaq*, or cooked with fish. Berries are used in jams, jellies, and desserts, or frozen. Stems can be boiled into tea to facilitate menstruation, burnt into a smoke used for fumigation, or to cleanse homes and visitors of diseases and evil spirits.



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 can be eaten opportunistically but are not typically harvested in quantity. **CAUTION**: can cause nausea and vomiting when eaten in large amounts.

Skunk cabbage (*Lysichiton americanus)* – **Qaugcaaguaq** [PWS]: No documented use by Alutiiq. However, other regional groups used stem and leaves as an infusion for stomach issues or used as an antibiotic poultice for infections or inflammation. Large leaves have a number of domestic uses, including the lining of delivery bed for childbirth. **CAUTION**: contains calcium oxidate crystals and can cause burning of the mouth unless thoroughly dried; even when properly prepared can still cause nausea and vomiting.

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

Devil's club (*Oplopanax horridus*) – **Cukilanarpak**: Although heavily armored by thorns that can cause festering wounds when embedded in the skin, 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. 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, toothache, and boils. Roots and stems are woody and can be used to make hooks, handles, and small utensils. Traditionally, a piece of wood can be placed over a door to ward off evil spirits. Shamanic uses have been associated with this plant. **CAUTION:** berries and fermented sap are poisonous and should not 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.

An example of mountain hemlock wetland forest habitat (PC: NPS – Kenai Fjords NP).