USDA Natural Resources
Conservation Service

Ecological site VX226X00A104
Aleutian Riparian and Lake Shore Complex

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

MLRA notes

Major Land Resource Area (MLRA): 226X–Aleutian Islands-Western Alaska Peninsula

MLRA 226X is the only MLRA in the Aleutian Alaska Region. It makes up about 5,190 square miles (13,450 square kilometers). The chain of islands includes west of Unimak Island to Attu Island, the Pribilof Islands, and the Sanak Islands. Characteristics and weather patterns of the far western end of the Alaska Peninsula is being included in this MLRA. It is bordered on the south by the Pacific Ocean and on the north by the Bering Sea (the Pribilof Islands are bordered on all sides by the Bering Sea). The coastline is complex, with many prominent headlands, sea cliffs, and narrow, steep-walled bays. Elevation ranges from sea level to more than 4,000 feet (1,220 meters) on many of the islands. Islands drain into the North Pacific and the Bering Sea by numerous short, steep-gradient rivers and streams. Lakes make up less than 2 percent of the area.

Geology
This MLRA includes more than 50 volcanoes, with an estimated 27 with activity since the 1950s. Volcanic rocks and unconsolidated deposits from the Quaternary and Tertiary period overlie a submarine ridge of Tertiary sedimentary rocks. Glacial ice once covered the eastern part of the area to approximately Umnak Island. West of Umnak, only the upper elevations were glaciated. Glaciers account for only 1.5 percent, occurring on the highest volcanoes. Volcanic activity has mantled most of the area with thick deposits of silty volcanic ash, sandy and gravelly cinders, and volcanic rubble. Lower elevations have areas of glacial influenced landforms. Recent coastal and fluvial deposits occur in scattered areas along the coast and on flood plains.

Water
Precipitation is adequate for crops generally. Permanent mountain streams feed most of

the MLRA. The surface water generally is suitable for all uses. The ground water used in this MLRA is primarily from unconsolidated river valley sediments and bedrock aquifers. Iron is commonly high in the ground water, causing staining and precipitate in pipes. Wells are shallow with constant recharge by freshwater (rainfall and runoff); and are highly susceptible to contamination from runoff. The intrusion of seawater can be a problem along the coast.

Soils
The dominant soil orders in this MLRA are Andisols and Histosols. Miscellaneous areas (cinder land, rock outcrop, water, riverwash, and beaches) make up about 45 percent of this MLRA. The main soils are: Cryofibrists are poorly drained or very poorly drained and formed in thick deposits of organic material, along the margins of streams and lakeshores. Tsammana series, Andic Dystrocryepts, Aquandic Dystrocryepts and Vitrandic Dystrocryepts are coarse marine sediments underlain by volcanic deposits. Zolotoi series and other Haplocryands are shallow to deep, well drained to excessively drained, and formed in moderately thick or thick deposits of silty to sandy volcanic ash and coarse sandy to gravelly cinders over basalt bedrock. Polovina series and other Vitricryands are shallow to deep, well drained to excessively drained, and formed in moderately thick or thick deposits of silty to sandy volcanic ash and coarse sandy to gravelly cinders over basalt bedrock.

Biological Resources
Higher elevation vegetation consists of a mosaic of dwarf shrub scrub and lower elevations are wet and dry grasslands. Peatland vegetation consists of low ericaceous shrub scrub. No naturally occurring forests occur on the islands. Aleutian shield fern, Steller sea lion, and the Aleutian Canada goose are currently listed as threatened or endangered. The area is an important winter habitat and nesting habitat for waterfowl and a variety of other birds. Some of the eastern islands support small herds of caribou.

Land Use
Commercial fishing is the primary enterprise, with fur seal harvesting for pelts and meat, Reindeer herding, and small cattle herds. Subsistence hunting, fishing, and gathering are critical for local residents. The major resource concerns are water erosion and mass wasting of soils. Overgrazing by reindeer has impacted vegetation and introduction of rats, dogs, cats, and foxes has severely impacted the nesting bird populations.

LRU notes

MLRA 226X, although very size-limited, contains a very complex and dynamic of weather patterns driven by the Pacific air currents on the southern exposure of the islands, and the Bering Sea to the north. The mixing or colliding of these two systems, creates very dramatic and intense storm systems that batter the islands. Weather variables from the Pacific to the Bering Sea, extent from west to east, as well as the extreme elevational gradient moving from sea level to Alpine life zone lends to a community diversity that is difficult to describe across an MLRA extent. Land Resource Units (LRUs) will need to be

developed for this MLRA, as more extensive soils survey mapping is completed.

Classification relationships

Alaska-Aleutian province of the Pacific Mountain System.

USFS Description of Ecoregions of the United States
100 Polar Domain
120 Tundra Division
126 Bering Tundra (Southern) Province
M120 Tundra Division - Mountain Province
M127 Aleutian Oceanic Meadow--Heath Province
(USFS, 1994)

United States National Vegetation Classification
C04. Polar & High Montane Scrub, Grassland & Barrens Class
S12. Temperate to Polar Alpine & Tundra Vegetation Subclass
F031. Polar Tundra & Barrens Formation
D044. Arctic Tundra & Barrens Division
(USNVC, 2019)

LandFire BpS Model/Description Version: Nov. 2024
- 16400: Aleutian Mesic-Wet Willow Shrubland
- 16390: North American Arctic Mesic-Wet Low Willow Shrubland
(Landfire, 2009)

Ecological site concept

- Soils occur along drainages, on steep to gentle slopes, extending from Alpine to coastal areas. Vegetation is driven by hydrologic function.
- Flooding is the major driver in this system, however, a water table may be associated.
- Drainages in relation to flowing streams and lake shorelines are the prominent features in this ecological site.
- Vegetation grows in a gradient based on relation to water often growing in bands. Gravel and cobble beds occur in the vegetation community.
- Sedge, grass, willows, and crowberry are the common gradient plant communities.

Associated sites

VX226X00A113	**Aleutian Shrub Meadow Ashy Slopes** The organic ashy slopes will occur in association with the drainages moving down these slopes and carries outward with the sedge-crowberry community.

Similar sites

VX226X00A114	**Aleutian Dwarf Shrub Terraces** The Terraces ecological site will occur in association with and be similar to the drainage complex with common wetlands and lake depressions across the low sloping, gravel deposits from prior drainage systems. The Crowberry-sedge community will be found in patchwork across this landform with the drainage complex ecological site.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Salix* (2) *Empetrum nigrum*
Herbaceous	(1) *Carex* (2) *Eriophorum*

Legacy ID

R226XY104AK

Physiographic features

- Landforms are the drainageways and flood plains or lake areas.
- Elevation ranges from 0 to 1130 feet elevation.
- Slopes range from 0 to 2 percent, however, steeper higher elevation channels are included.
- Flooding is frequent with the intense storm systems, fluctuating with the weather patterns.

Table 2. Representative physiographic features

Landforms	(1) Island > Drainageway (2) Flood plain (3) Lake plain (4) Lake (5) Stream terrace
Runoff class	Low to high
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	Occasional to frequent
Ponding duration	Very brief (4 to 48 hours)
Ponding frequency	None to rare
Elevation	330–1,130 ft
Slope	0–2%

Water table depth	14–20 in
Aspect	W, NW, N, NE, E, SE, S, SW

Table 3. Representative physiographic features (actual ranges)

Runoff class	Not specified
Flooding duration	Long (7 to 30 days)
Flooding frequency	None to frequent
Ponding duration	Brief (2 to 7 days)
Ponding frequency	None to frequent
Elevation	0–1,130 ft
Slope	0–8%
Water table depth	0–30 in

Climatic features

The climate is similar to that on the arctic coastal plain, except Islands are impacted by the tides, air movement, and storms influenced by the Pacific Ocean and Bering Sea, and really no inland influence. Winters are less severe than those on the coastal plain, with temperature ranges of 18 to 27 degrees F (10 to 15C), as compared to a 54 degrees F (30C) range on the coastal plain. The climate is characterized by fog and rain, with the amount of precipitation varying little from month to month. Annual precipitation varies from 21 in (530 mm) to more than 78 in (2,000 mm) across all islands. The higher elevations average 46 to 58 inches per year, with smaller islands receiving less precipitation than larger islands. Winds are often severe on the islands. Pacific Ocean water moving northward through the straits between the islands produces complex mixing with Bering Sea water, including upwelling. The Pribilof Islands in the Bering Sea are the southern limit of the arctic ice pack in winter (USDA-NRCS 2022). Weather information below is captured by climate stations located at Dutch Harbor and Cold Bay. The location of these stations represents only a small segment of the dynamic climate across this chain of islands.

Table 4. Representative climatic features

Frost-free period (characteristic range)	78-92 days
Freeze-free period (characteristic range)	122-136 days
Precipitation total (characteristic range)	46-58 in
Frost-free period (actual range)	75-95 days
Freeze-free period (actual range)	119-139 days
Precipitation total (actual range)	43-61 in

Frost-free period (average)	85 days
Freeze-free period (average)	129 days
Precipitation total (average)	52 in

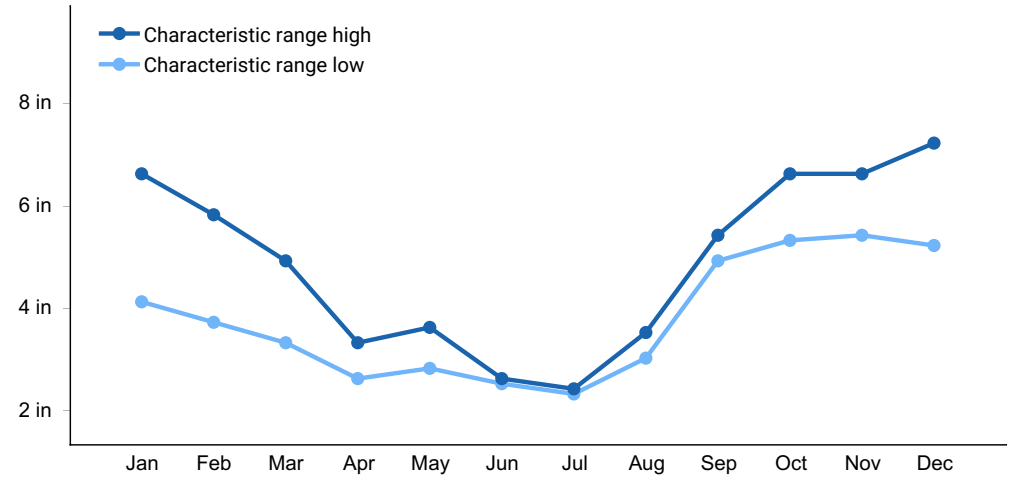


Figure 1. Monthly precipitation range

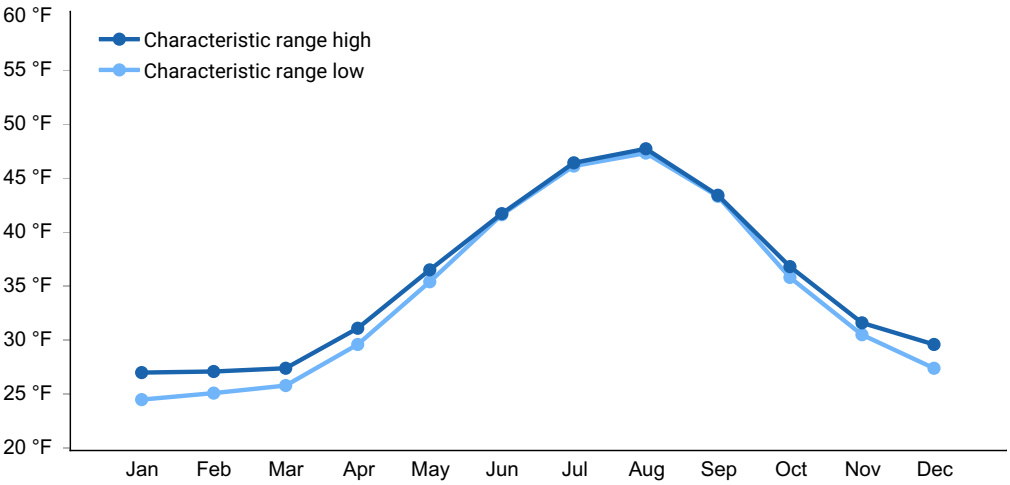


Figure 2. Monthly minimum temperature range

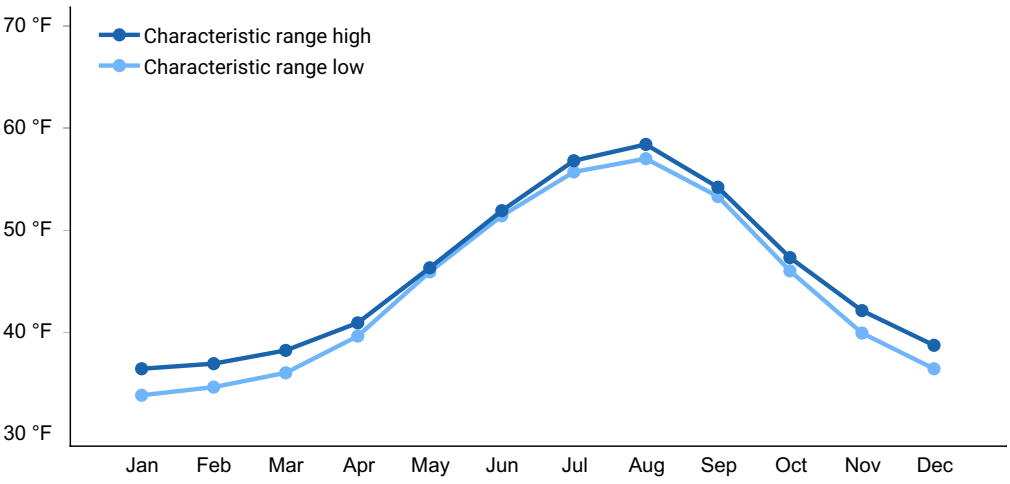


Figure 3. Monthly maximum temperature range

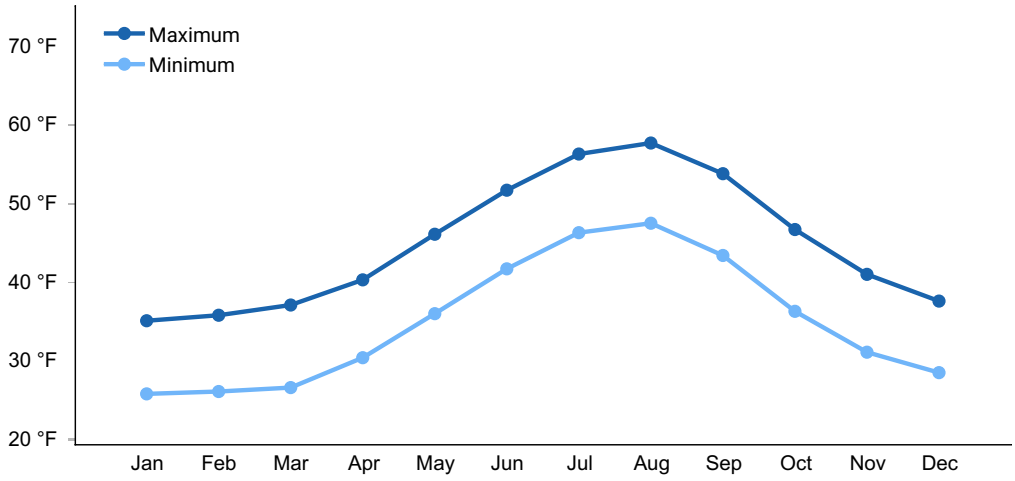


Figure 4. Monthly average minimum and maximum temperature

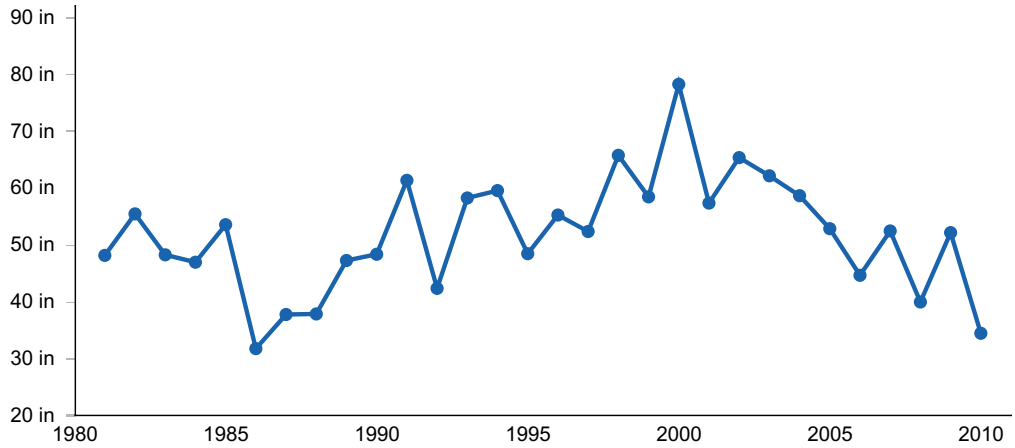


Figure 5. Annual precipitation pattern

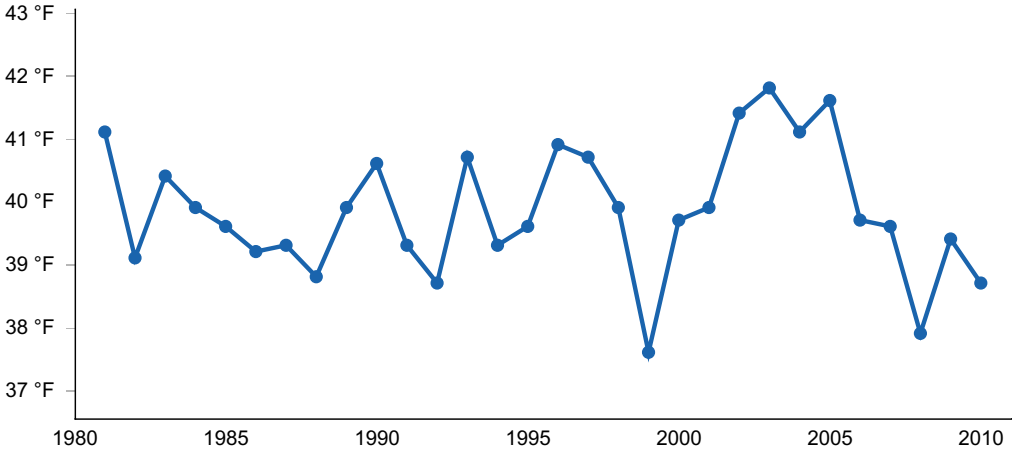


Figure 6. Annual average temperature pattern

Climate stations used

- (1) DUTCH HARBOR [USC00502587], Unalaska, AK
- (2) COLD BAY AP [USW00025624], Cold Bay, AK

Influencing water features

Channel morphology is variable within this drainage complex. Further research into the specific channel classification is needed. Connectivity to ground water and overland flow, subsurface seep, and precipitation is key to this ecological site.

Wetland description

A variety of wetland types are included in this concept, but at this time, documented classifications are not researched.

Soil features

- Soils generally poorly to moderately well drained in a gradient progressing away from the water source.
- Permeability variable based on texture and saturation.
- Isolated areas of deep and very deep bedrock shelves control depth of channel and depressions.
- Soils have 30 to 40 percent gravels and cobbles in the profile, with 0 to 5 percent stones and boulders. Stones, boulders and some cobbles common on the surface.
- Soils formed in alluvium as well as lake deposits.
- Peaty or mucky surfaces are common along stream and lake margins.
- Soils slightly acidic to neutral.
- Soil textures range from coarse sands to silty loams.
- Common soils are: Andic Haplocryods, Cryofluvents, Histic Cryaquepts, Terric Cryohemists, and Typic Cryaquents.

Table 5. Representative soil features

Parent material	(1) Alluvium–basalt (2) Organic material (3) Lacustrine deposits (4) Residuum
Surface texture	(1) Peaty, mucky (2) Extremely cobbly coarse sand (3) Sand (4) Medial silt loam (5) Fine sandy loam
Drainage class	Poorly drained to moderately well drained
Permeability class	Moderately slow to moderately rapid
Depth to restrictive layer	54–72 in
Soil depth	54–72 in
Surface fragment cover <=3"	0%

Surface fragment cover >3"	0–5%
Available water capacity (0-40in)	3.4–4.8 in
Soil reaction (1:1 water) (0-10in)	4.5–6.5
Subsurface fragment volume <=3" (0-60in)	30–40%
Subsurface fragment volume >3" (0-60in)	5–15%

Table 6. Representative soil features (actual values)

Drainage class	Very poorly drained to well drained
Permeability class	Moderately rapid
Depth to restrictive layer	20–72 in
Soil depth	20–72 in
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	0–29%
Available water capacity (0-40in)	Not specified
Soil reaction (1:1 water) (0-10in)	4.5–7
Subsurface fragment volume <=3" (0-60in)	0–50%
Subsurface fragment volume >3" (0-60in)	0–45%

Ecological dynamics

The vegetation within the Aleutian Riparian and Lake Shore Complex ecological site is driven by the hydrologic dynamics. Within the complex, there are two distinctions that are unique but strongly overlapping with vegetation, is the lacustrine (lake, wetland) and riparian (river/stream, channel) drainage systems.

Vegetation patterns have three major types recognizing the willow shrubland, shrub-sedge community, and sedge-grass community. Willows, alder, dwarf birch, crowberry, cranberry, sedges, cottongrass, reedgrass, ladyfern and a variety of forbs are the major vegetative cover. Sphagnum, reindeer lichen and other lichen, as well as a variety of mosses, liverworts, and other bryophytes are a strong component of the undercover of these communities.

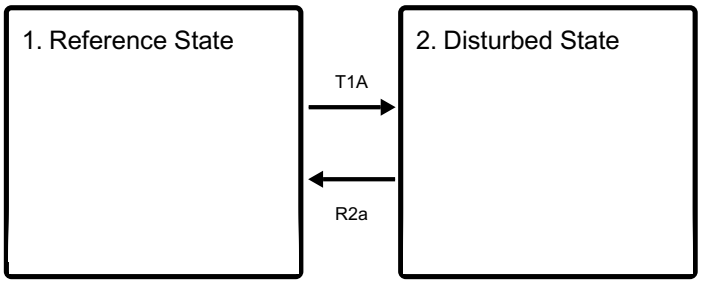
This system will maintain stability for a long duration of time, if the hydrologic function is not interrupted or disturbed. Resilience to the natural disturbance regimes allows for a diverse swing in communities in response to intense storm systems, seasonal flooding, volcanic depositions, potential fire, and minor animal impacts.

However, with increasing human pressures on the system, changes in storm patterns and intensities, receding glaciers, increased temperatures and changes in seasonal patterns is having impacts on the type and vigor of vegetative cover. Changes in vegetation and soil cover is impacting soil stability, increasing erosion, altering hydrology, and affecting channel morphology. This further degrades the hydrologic function and ecological site stability.

Specific research to further this discussion has not been completed to any extent across the Island chains and further ecologic dynamic data is needed within the Aleutian Islands.

State and transition model

Ecosystem states



T1A - Catastrophic event, major disturbance

R2a - Time following end of disturbance

State 1 submodel, plant communities

CP1a - Increase in hydrologic depth and chemistry

CP1b - Increased organics and duration in hydrologic properties

CP1c - Decrease in hydrologic properties

State 2 submodel, plant communities

2.1.
Willows/Sphagnum

State 1
Reference State

The Reference State is covering a highly diverse complex that is covering from the channel or water edge to the transition to the upland or dry communities that are not hydrologically driven. The lines between these communities are highly blurred and overlapped. General statements are being applied to categorize the three major plant communities within the Reference State.

Dominant plant species

- willow (*Salix*), shrub
- Sitka alder (*Alnus viridis ssp. sinuata*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- bluejoint (*Calamagrostis canadensis*), grass
- sedge (*Carex*), grass
- cottongrass (*Eriophorum*), grass
- boreal yarrow (*Achillea millefolium var. borealis*), other herbaceous
- seacoast angelica (*Angelica lucida*), other herbaceous
- fireweed (*Chamerion angustifolium ssp. angustifolium*), other herbaceous
- horsetail (*Equisetum*), other herbaceous

Community 1.1
Willows-Alder/Sedges-Herbaceous

Willows are the dominant cover for this community, with an herbaceous understory. The major willows are barclay's willow (*Salix barclayi*), grayleaf willow (*Salix glauca*), tealeaf willow (*Salix pulchra*), feltleaf willow (*Salix alaxensis*), and undergreen willow (*Salix commutata*). Sitka alder (*Alnus viridis* ssp. sinuata) will intermix with the willow cover, with an understory of dwarf birch (*Betula nana*), black crowberry (*Empetrum nigrum*), (*Rubus arcticus*), lingonberry (*Vaccinium vitis-idaea*), and bog blueberry (*Vaccinium uliginosum*). The herbaceous cover includes a strong cover of grasses and forbs. Common species include boreal yarrow (*Achillea millefolium* var. borealis), seacoast angelica (*Angelica*

lucida), bluejoint (*Calamagrostis canadensis*), Kellog's sedge (*Carex lenticularis* var. lipocarpa), water sedge (*Carex aquatilis* var. aquatilis), Northwest Territory sedge (*Carex utriculata*), fireweed (*Chamerion angustifolium* ssp. angustifolium), field horsetail (*Equisetum arvense*), meadow horsetail (*Equisetum pratense*), woolly geranium (*Geranium erianthum*), common cowparsnip (*Heracleum maximum*), and Canadian burnet (*Sanguisorba canadensis*).

Dominant plant species

- Barclay's willow (*Salix barclayi*), shrub
- willow (*Salix*), shrub
- Sitka alder (*Alnus viridis ssp. sinuata*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- bluejoint (*Calamagrostis canadensis*), grass
- Kellogg's sedge (*Carex lenticularis var. lipocarpa*), grass
- water sedge (*Carex aquatilis var. aquatilis*), grass
- Northwest Territory sedge (*Carex utriculata*), grass
- boreal yarrow (*Achillea millefolium var. borealis*), other herbaceous
- seacoast angelica (*Angelica lucida*), other herbaceous
- fireweed (*Chamerion angustifolium ssp. angustifolium*), other herbaceous
- horsetail (*Equisetum*), other herbaceous

Community 1.2 Sphagnum/Scrubs/Forbs

The Sphagnum/Scrubs/Forbs Plant Community is characteristic of peatlands associated with seeps, low sloping channels, depressions, and water margins. These areas have a strong ground cover of sphagnum, mosses, and liverworts as well as dwarf (ericaceous) shrubs and forbs. Sedges are also a common component as well as lichens on hummocks occurring within this community. *Sphagnum fuscum* is the prominent sphagnum cover. Common shrubs include bog rosemary (*Andromeda polifolia*), dwarf birch (*Betula nana*), black crowberry (*Empetrum nigrum*), bog laurel (*Kalmia polifolia*), marsh Labrador tea (*Ledum palustre* ssp. decumbens), tealeaf willow (*Salix pulchra*), bog blueberry (*Vaccinium uliginosum*), and small cranberry (*Vaccinium oxycoccos*). Frequent grass and grass-like species to the community are Sitka sedge (*Carex aquatilis* var. dives), livid sedge (*Carex livida*), manyflower sedge (*Carex pluriflora*), fewflower sedge (*Carex pauciflora*), tall cottongrass (*Eriophorum angustifolium*) and other cottongrass species. Common forbs and other herbaceous species include purple marshlocks (*Comarum palustre*), Lapland cornel (*Cornus suecica*), Sundew (Drosera spp.), Kotzebue's grass of Parnassus (*Parnassia kotzebuei*), cloudberry (*Rubus chamaemorus*), and tufted bulrush (*Trichophorum cespitosum*)

Dominant plant species

- bog rosemary (*Andromeda polifolia*), shrub
- dwarf birch (*Betula nana*), shrub

- bog laurel (*Kalmia polifolia*), shrub
- cottongrass (*Eriophorum*), grass
- Sitka sedge (*Carex aquatilis var. dives*), grass
- sedge (*Carex*), grass
- sphagnum (*Sphagnum fuscum*), other herbaceous
- sundew (*Drosera*), other herbaceous
- cloudberry (*Rubus chamaemorus*), other herbaceous

Community 1.3
Sedges/Forbs

The vegetation is driven by the hydrogeochemistry of the depressions and wet meadows involved in this community. Elevation is another shift in the dominant species, but the general structure of the communities is similar. Sedges are the dominant plant group with other species from the grass-like tribes will occur in the Sedges/Forbs Plant Community. Shrub cover, unlike the accompanying communities, are a lower level of cover, generally being less than 25 percent of the cover. Forbs are a significant component of this community with sedges and other grass species. The dominant herbacous species are (*Carex aquatilis* var. dives), (*Carex saxatilis*), (*Eriophorum russeolum*), (*Dodecatheon pulchellum*), (*Parnassia fimbriata*), (*Menyanthes trifoliata*) and (*Comarum palustre*). Diamondleaf willow (*Salix planifolia*) is the only common shrub, other ericaceous shrubs will vary between fens and bogs. Sphagnum species include (*S. squarrosum*) and (*S. riparium*). Other common herbaceous species are (*Eriophorum angustifolium*), (*Eriophorum scheuchzeri*), (*Carex anthoxanthea*), (*Juncus mertensianus*), (*Equisetum fluviatile*), (*Sanguisorba canadensis*), (*Swertia perennis*), (*Platanthera dilatata*), (*Lupinus nootkatensis*), (Valeriana stitchensis), (*Castilleja parviflora*), (*Petasites frigidus* var. frigidus), (Mimulus spp.), (Saxifraga spp.), (Caltha spp.), and (Ranunculus spp.).

Dominant plant species

- Sitka sedge (*Carex aquatilis var. dives*), grass
- rock sedge (*Carex saxatilis*), grass
- red cottongrass (*Eriophorum russeolum*), grass
- darkthroat shootingstar (*Dodecatheon pulchellum*), other herbaceous
- fringed grass of Parnassus (*Parnassia fimbriata*), other herbaceous
- buckbean (*Menyanthes trifoliata*), other herbaceous

Pathway CP1a
Community 1.1 to 1.2

Changes in water table depth will alter the dominant species present in the community, shifting to a more sphagnum, dwarf-scrub community when water movement slows, and depth increases. As pH changes or depth of organic material will see a shift in the species present more than structure.

Pathway CP1b
Community 1.2 to 1.3

Shifts in organic content and length of ponding and flooding will transition the community to an herbaceous-dominated community.

Pathway CP1c
Community 1.3 to 1.1

When channels shift, either removing or gaining channel flow and lower the connected water table, and vegetation relies more on flooding than ponding, Willows increase and become the dominant cover in the community.

State 2
Disturbed State

Frost action within the soils, human degradation, catastrophic events such as avalanches, landslides, glacial events, or other extreme events will alter the hydrologic function, soil stability, and shift the vegetation within the variable communities. There is currently a minimal data set on wide-extent responses to disturbances. Data presented is an inference of LandFire Biophysical models.

Dominant plant species

- willow (*Salix*), shrub
- dwarf birch (*Betula nana*), shrub
- black crowberry (*Empetrum nigrum*), shrub
- marsh Labrador tea (*Ledum palustre ssp. decumbens*), shrub
- cottongrass (*Eriophorum*), grass
- sedge (*Carex*), grass
- sphagnum (*Sphagnum*), other herbaceous
- water horsetail (*Equisetum fluviatile*), other herbaceous

Community 2.1
Willows/Sphagnum

The Willows/Sphagnum Plant Community 2.1 is early- and mid-seral community that will occur following a catastrophic natural event or disturbances. In newly deposited wet or saturated soils sedges and sphagnum will be the first to colonize. Following further events or settling, dry or high zones uplifted above the water influence will maintain the low shrub and scrub cover with the herbaceous species dwindling. Lichen and mosses may be abundant in the understory or as a primary soil cover. Common low shrub/scrub species are tealeaf willow (*Salix pulchra*) and Grayleaf willow (*Salix glauca*) with dwarf birch (*Betula nana*), black crowberry (*Empetrum nigrum*), and marsh labrador tea (*Ledum palustre* ssp. decumbens). Cottongrass (Eriophorum spp.), Sedges (Carex spp.)

Sphagnum species, and water horsetail (*Equisetum fluviatile*) are the herbaceous colonizers that will initially settle in the community. Other primary and secondary forbs will establish depending on the water connectivity and position of the community.

Dominant plant species

- tealeaf willow (*Salix pulchra*), shrub
- grayleaf willow (*Salix glauca*), shrub
- arctic willow (*Salix arctica*), shrub
- black crowberry (*Empetrum nigrum*), shrub
- marsh Labrador tea (*Ledum palustre ssp. decumbens*), shrub
- dwarf birch (*Betula nana*), shrub
- Sitka sedge (*Carex aquatilis var. dives*), grass
- grassyslope arctic sedge (*Carex anthoxanthea*), grass
- rock sedge (*Carex saxatilis*), grass
- tall cottongrass (*Eriophorum angustifolium*), grass
- white cottongrass (*Eriophorum scheuchzeri*), grass
- sphagnum (*Sphagnum*), other herbaceous
- water horsetail (*Equisetum fluviatile*), other herbaceous

Transition T1A
State 1 to 2

Catastrophic event, human disturbance, natural morphological cycling of channels and frost heave.

Restoration pathway R2a
State 2 to 1

Time for successional recover following removal of the disturbance, or completion of catastrophic event impact. Time is a vague term that at this time is undefined.

Additional community tables

Animal community

Sedges provide high value reindeer forage during winter when covered by snow. Wide leaf polargrass maintains its forage value well into the winter and provides excellent early spring forage.
Excellent winter range because of succulent green sedge shoots and roots covered by snow that may be available to foraging reindeer. Areas that are ponded during spring are poor for spring grazing. During periods of heavy rain or high tide the site may be severely flooded.
The area is an important winter habitat for emperor geese and other waterfowl. It provides nesting habitat for a variety of birds, including green-winged teal, rock sandpiper, whiskered auklet, rock ptarmigan, song sparrow, rosy finch, and winter wren. The

introduction of dogs, cats, and foxes has severely reduced the population of ground-nesting birds. Rats, coming from ships, also are a danger to these birds. Some of the eastern islands support small herds of caribou. Overgrazing by reindeer is a local concern. Control of animal numbers and proper herd management help to prevent overgrazing and allow natural restoration of depleted range.

Recreational uses

Tourism and wildland recreation are becoming increasingly important. Subsistence hunting and gathering provide food and a variety of other resources to local residents and are a major component of the local economy.

Wood products

None - limited to small willows or dwarf shrubs.

Inventory data references

Very limited data is available and resides more on the coastal zone than the higher volcanics. Information used to build this ecological site was obtained from existing land cover and vegetation maps, literature review, and vegetative summaries from partnering agencies.

References

Hansford T. Shacklette, L. W. Durrell, James A. Erdman, John R. Keith, William M. Klein, Hildur Krog, Herman Persson, H. Skuja, and William A. Weber. 1969. Vegetation of Amchitka Island, Aleutian Islands, Alaska. Geological Survey Professional Paper 648. United States Geological Survey, United States Government Printing Office, Washington : 1969.

Other references

Landfire National Vegetation Dynamics Models; USGS; http://www.LANDFIRE.gov/index.php, 2009 (Date accessed)

USDA PLANTS Database; http://plants.usda.gov, 2021

USNVC [United States National Vegetation Classification]. 2019. United States National Vegetation Classification Database, V2.03. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. USNVC: http://usnvc.org/

AMUNDSEN, C.C. 1972. Amchitka Bioenvironmental Program: Plant ecology of Amchitka Island, Final Report. Batelle, Columbus Laboratories, under AEC Prime, Contract No.

AT(26-l)-171. 27 p.

AMUNDSEN, c.c. and E.E.C. CLEBSCH. 1971. Dynamics of the terrestrial ecosystem vegetation of Amchitka Island, Alaska. Bioscience 21:619-623.

AMUNDSEN, C.C. 1977. Terrestrial plant ecology. Pages 203-226 in M.L. Merritt and R.G. Fuller, eds. The environment of Amchitka Island, Alaska. ERDA TID-26712.

Bailey, R.G. [in prep.] Description of the ecoregions of the United States. 2d ed. Misc. Publ. No. 1391 [rev.]. Washington, DC: U.S. Department of Agriculture, Forest Service. Bailey, Robert G.; Avers, Peter E.; King, Thomas; McNab, W. Henry, eds. 1994. Ecoregions and subregions of the United States (map). Washington, DC: U.S. Geological Survey. Scale 1: 7,500,000; colored. Accompanied by a supplementary table of map unit descriptions compiled and edited by McNab, W. Henry, and Bailey, Robert G. Prepared for the U.S. Department of Agriculture, Forest Service.

BANK, T.B. II. 1951. Botanical and ethnobotanical studies in the Aleutian Islands. I. Aleutian vegetation and Aleut culture. Mich. Acad. Sci., Arts, and Lett. 37:13-30 + 6 plates.

BYRD, G.V. 1984. Vascular vegetation of Buldir Island, Aleutian Islands, Alaska compared to another Aleutian Island. Arctic 37(1):37-48.

Fosberg, Francis Raymond. "Succession and condition of ecosystems." (1967).

Hultén, Eric (1937) Flora of the Aleutian Islands and westernmost Alaska Peninsula with notes on the flora of Commander islands. Stockholm, Thule. 397 pp. 2nd ed. 1960 (series: Flora et vegetation mundi, vol. 1) Weinheim, Cramer. 376 pp.

SHACKLETTE, H.T., L.W. ERDMAN-J.R. KEITH, W.M. KLEIN, H. KROG, H. PERSSON, H. SKUJA, and W.A. WEBER. 1969. Vegetation of Amchitka Island, Aleutian Islands, Alaska. U.S. Geol. Surv. Prof. Pap. 648. 66p.

Swanson, D.J., Lehner, D., Zimmerman, J., and Pauling, D. Range survey of Nunivak Island, Alaska, 1986.

TATEWAKI. M. 1963. Phytogeography of. the islands of the north Pacific Ocean. Pages 23-27 in J.L. Gressitt, ed. Pacific Basin Biogeography. lOth Pacific Science Congress. Bishop Museum Press, Honolulu.

TALBOT, S.S., S.L. TALBOT, and L.R. Walker. 2010. Post-eruption legacy effects and their implications for long-term recovery of the vegetation on Kasatochi Island, Alaska. Arctic, Antarctic, and Alpine Research, Vol. 42, No. 3, pp. 285-296

WALKER., H. 1945. Plants of the Aleutian Islands. Pages 63-;71 in Collins, H.B., Jr., A.H. Clark, and E.H. Walker, eds. The Aleutian Islands: Their people and natural history.

Smithsonian Inst. War Background Studies 21, Publ. 3775.

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	02/06/2026
Approved by	Blaine Spellman
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

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2. **Presence of water flow patterns:**

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3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

Other:

Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

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17. **Perennial plant reproductive capability:**
