USDA Natural Resources
Conservation Service

Ecological site R241XY163AK
Arctic Scrub-Tussock Silty Stream Terrace

Last updated: 5/29/2025
Accessed: 03/12/2026

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): 241X–Seward Peninsula Highlands

The Seward Peninsula Highlands (MLRA 241X) occurs in Western Alaska, along the southernmost reaches of Land Resource Region Y, which has an arctic climate and occurs in the zone of continuous permafrost. This MLRA is approximately 13,700 square miles across the central Seward Peninsula. The terrain is defined by broad and extensive rolling hills and plains and solitary groups of rugged mountains expanding from sea level to a high point of 4,714 feet on Mount Osborn. Flood plains systems are common but generally narrow. The MLRA 241X watershed drains into Kotzebue Sound and the Chukchi Sea to the north and the Bering Sea to the West. Major rivers include the Buckland, Kiwalik, Serpentine, Agiapuk-American, Kougarok, and Kuzitrin Rivers. The area is mostly undeveloped wild land that is sparsely populated. Residents use this remote area primarily for subsistence hunting, fishing, and gathering. The largest communities in this predominantly inland MLRA are along the coast and include Teller and Brevig Mission. Reindeer herding is a profitable enterprise and many areas of this MRLA are used for reindeer graze and subsistence activities. Parts of this MLRA were mined for gold during the Nome gold rush. Several mines still operate within this boundary (USDA, 2022). Federally managed lands in this MLRA include parts of the Selawik National Wildlife Refuge and parts of Bering Land Bridge National Preserve.

Geology and Soils

MLRA 241X was mostly unglaciated during the late Pleistocene. Glaciers were present during the middle and early Pleistocene in scattered areas such as the York Mountains in the west, the Kiglauik Mountains to the south, and the Upper Kiwalik River drainage. The present-day landscape is mantled with loess, colluvium, and slope alluvium (USDA, 2022).

Modified glacial moraines are evident in areas of past glacial activity. Bedrock material is a mix of rock types, with areas of sedimentary, volcanic and igneous throughout the MLRA. Bedrock is at or near the surface in most upland areas of this MLRA, which is reflected in soil development and vegetative patterns.

This MLRA is in the zone of continuous permafrost. Frozen soils are common across the landscape, though may be absent from high energy systems on floodplains, around lakes and on gravelly, well drained soils. Permafrost is generally shallow to moderately deep (10 to 40 inches) that results in a restrictive layer that perches water and creates poorly to very poorly drained soils. Alongside these permafrost soils (Gelisols), other common soil orders include soils with little to no development in the Entisol and Inceptisol orders. Periglacial features are common and include solifluction lobes, polygonal ground, and thermokarst pits (USDA, 2022). Non-soil areas (rock outcrop, riverwash, and surface water) make up approximated five percent of the MLRA surface.

Climate

Climate is predominantly continental arctic, with brief, cool summers and long, cold winters. Maritime conditions, where summer temperatures are moderated by the proximity to open water, persist through the summer along the Bering Sea coast. Mean annual precipitation is 10 to 15 inches in the north and west, increasing to 20 to 40 inches in the mountainous areas in the south and east (USDA, 2022). Mean annual temperatures ranges from 20 to 26 degrees Fahrenheit (PRISM, 2018; SNAP, 2014).

Vegetation

Vegetation is mainly influenced by climate, site, and soil characteristics such as temperature-degree days, elevation, exposure to wind, soil depth, and soil hydrology. Dwarf scrublands are present across most of the upland, with vegetation further restricted on shallow soils. Lower elevations generally support more developed soils, and host willow-sedge scrublands, mixed ericaceous shrub scrublands, and herbaceous graminoid meadows. Tussock tundra is ubiquitous across much of the poorly drained, low-sloped landforms across the MRLA. Wetland communities dominate in closed depressions and drainages (USDA, 2022).

LRU notes

There are currently no Land Resource Areas (LRUs) delineated or described in MLRA 241X. There is potential for two or more LRUs along a climatic break between the lowlands and low-elevation hills of the north and west, and the higher, mountainous regions more prevalent in the south and east. However, vegetation and land management may not differ between these areas, as soils and vegetation are already restricted by cold annual temperatures even at low elevations.

Classification relationships

Alaska Vegetation Classification:
Open low scrub (II.C.2 - level III) / Open low willow-sedge shrub tundra (II.C.2.h – level IV)
(Viereck et al., 1992)

BioPhysical Settings: 6817150 – Alaska Arctic Floodplain
(LANDFIRE, 2009)

Seward Rangesites
34 – Low shrub flood plain
(SCS, 1984; Swanson et al., 1985)

Ecological site concept

Ecological Site characteristics:
• Describes stream terraces often associated with flood plains. Turf hummocks are the dominant features on this landform.
• Fire is the major disturbance on site. Flooding does not occur.
• The reference plant community is an open low scrubland of willow and ericaceous shrubs, along with tussock-forming graminoids
• Soils are cold, wet Gelisols with an 11-inch cap of insulating organic material
• Non-sorted circles are common periglacial features on the described landform. These are represented by an alternate state.

Associated sites

R241XY160AK	**Arctic Scrub Riparian Complex** R241XY160AK describes the active flood plain. This ecological site experiences active flooding, which is reflected in the unique vegetation and soils found here.

Similar sites

R241XY111AK	**Alpine Sedge-Scrub Frozen Loamy Slopes** R241XY111AK describes sedge frozen slopes on upper mountain slopes. There is overlap in community composition, as both sites are cold with wet soils. R241XY111AK does not burn and does not support the tussocks described by this ecological site.
R241XY119AK	**Alpine Scrub-Tussock Frozen Silty Slopes** R241XY119AK site describes a scrub-tussock community in the mountainous alpine. Similarities in vegetation are due to similar soil wetness levels due to permafrost. Climate differences on the growing season are also reflected in the vegetation.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Salix pulchra* (2) *Vaccinium uliginosum*
Herbaceous	(1) *Carex bigelowii* (2) *Eriophorum vaginatum*

Physiographic features

This ecological site occurs on stream terrace treads. Turf hummocks are the common Elevation ranges from 100 to 700 feet above sea level. Slope gradients are nearly level (0 to 2 percent), and this site occurs on all aspects. Ponding is frequent and long, except where circles are present. A shallow water table is present during the growing season.

Non-sorted circles are common periglacial microfeatures. They have unique soil and site properties that result in a mosaic of vegetation. Non-sorted circles have drier soils that do not pond.

Table 2. Representative physiographic features

Slope shape across	(1) Linear (2) Convex
Slope shape up-down	(1) Linear (2) Convex
Geomorphic position, terraces	(1) Tread
Landforms	(1) Hills > Stream terrace (2) Hills > Stream terrace > Turf hummock (3) Hills > Stream terrace > Circle
Runoff class	Negligible to very low
Flooding frequency	None
Ponding duration	Long (7 to 30 days)
Ponding frequency	Frequent
Elevation	30–213 m
Slope	0–2%
Ponding depth	0–61 cm
Water table depth	0–20 cm
Aspect	W, NW, N, NE, E, SE, S, SW

Table 3. Representative physiographic features (actual ranges)

Runoff class	Not specified
Flooding frequency	Not specified
Ponding duration	Long (7 to 30 days)
Ponding frequency	Frequent
Elevation	Not specified
Slope	Not specified
Ponding depth	0–152 cm
Water table depth	Not specified

Climatic features

The Arctic climate of this ecological site includes short, cool growing seasons and long, cold winters. Mean annual temperature at sea level is about 22 degrees Fahrenheit in the coastal village of Wales. Approximately 35 percent of total precipitation occurs during the growing season months of June through August. Across the MLRA, snowfall ranges from 40 to 100 inches (USDA-NRCS, 2022).

Table 4. Representative climatic features

Frost-free period (characteristic range)	60-90 days
Freeze-free period (characteristic range)	50-80 days
Precipitation total (characteristic range)	356-406 mm
Frost-free period (actual range)	50-90 days
Freeze-free period (actual range)	40-80 days
Precipitation total (actual range)	254-457 mm
Frost-free period (average)	75 days
Freeze-free period (average)	65 days
Precipitation total (average)	381 mm

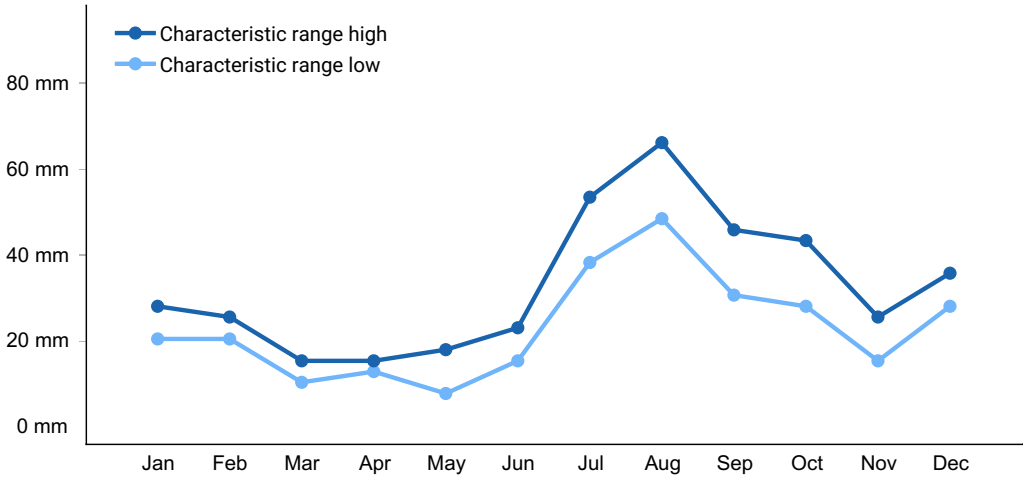


Figure 1. Monthly precipitation range

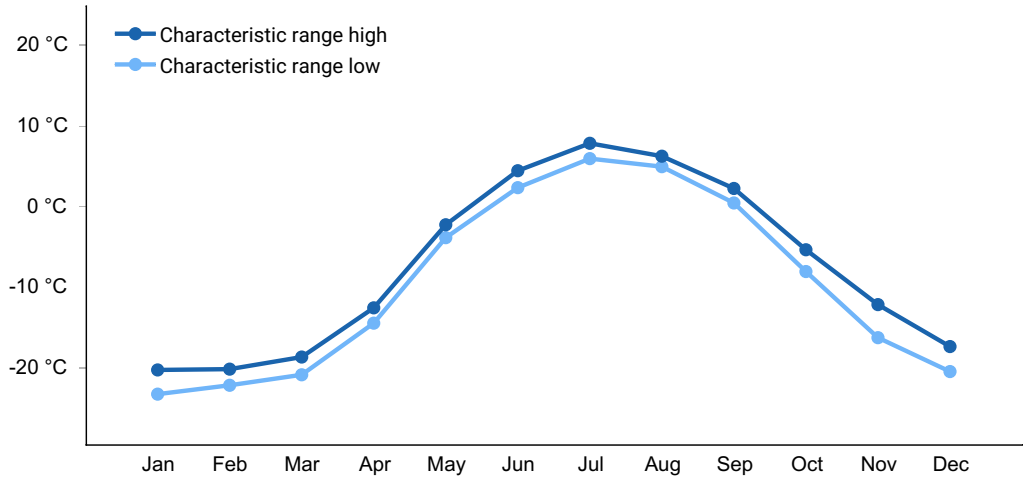


Figure 2. Monthly minimum temperature range

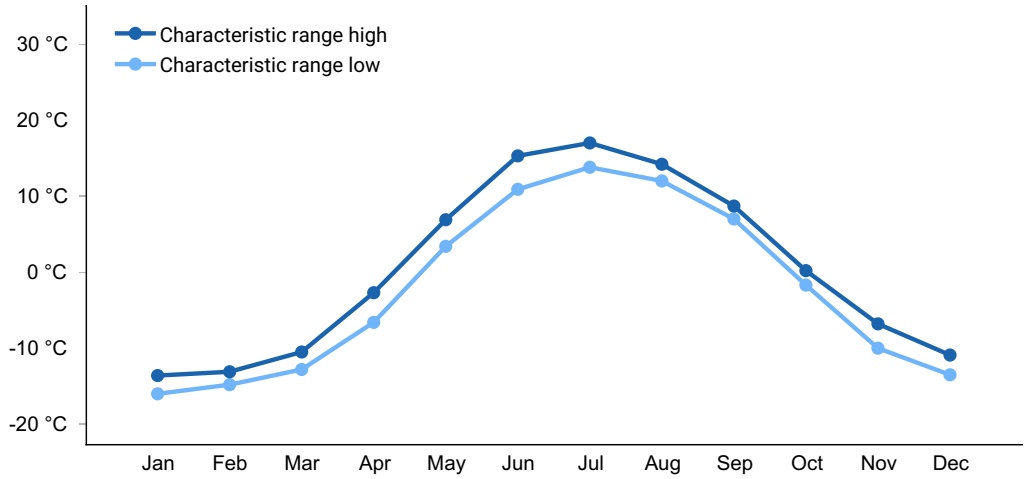


Figure 3. Monthly maximum temperature range

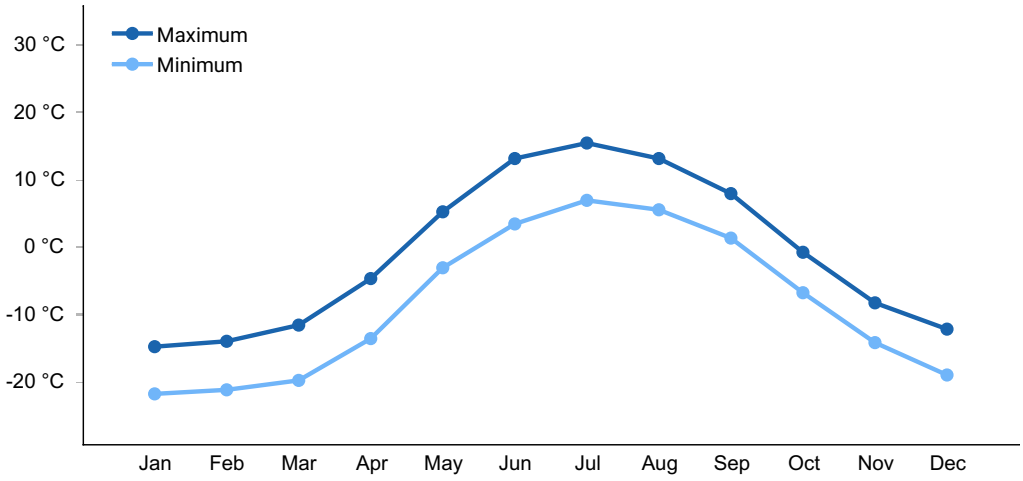


Figure 4. Monthly average minimum and maximum temperature

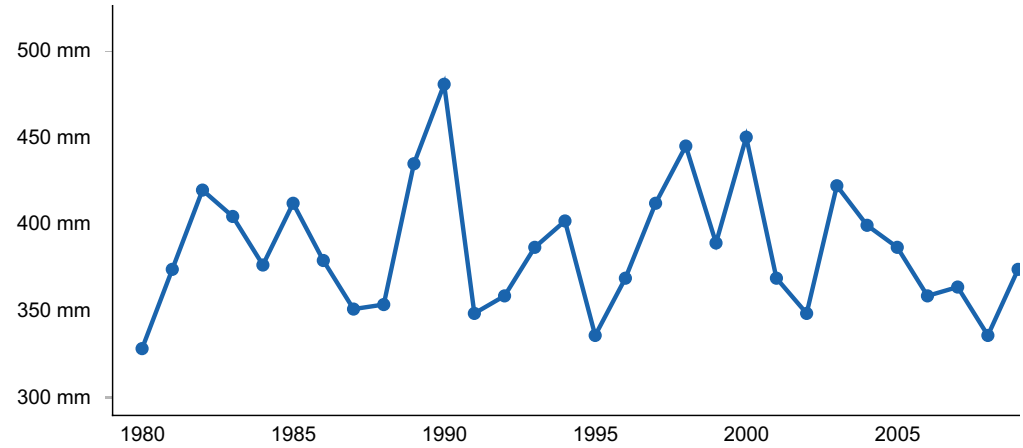


Figure 5. Annual precipitation pattern

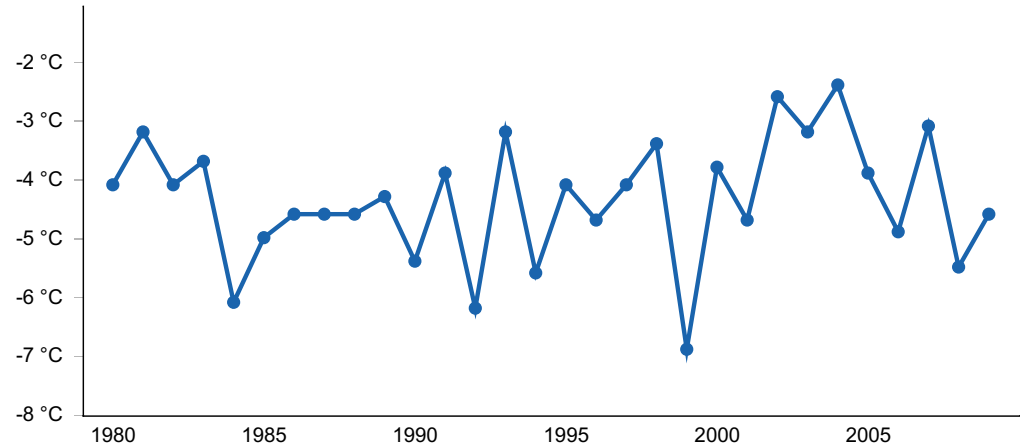


Figure 6. Annual average temperature pattern

Influencing water features

This ecological site developed as part of a riverine system. However, it no longer floods. Flooding of associated flood plains does not affect the seasonal water table. Precipitation and seasonal melt from snow and frozen soil are the main sources of water.
Surface runoff and throughflow empty to the riparian ecological site.

Wetland description

This ecological site is classified as a riverine wetland under the Hydrogeomorphic (HGM) classification system (Smith et al. 1995; USDA-NRCS 2008). It may grade into a slope wetland where it meets surrounding toe slopes. Depth to water table is not affected by seasonal flooding in adjacent flood plains.

Soil features

Soils in the reference state are frozen, highly organic Historthels (Soil Survey Staff, 2013). All soils formed in sandy, silty, or gravelly cryoturbate. Rock fragments are absent from the surface. The organic cap is about 11 inches. Soils are deep to very deep. Permafrost is shallow to moderately deep, and strongly contrasting textural stratification is shallow when present. Subsurface rock fragment volume is generally absent. Soil pH is extremely to slightly acidic. Reference state soils are very poorly drained.
Soils in the alternate state are cryoturbated turbels. They lack the high organics in the soil profile found in the reference state soils. Non-sorted circles have unique soil properties distinct from the reference state. Soils are drier without high organics. Surface and subsurface rock fragment cover and volume are greater than in the reference state soils.

Table 5. Representative soil features

Parent material	(1) Cryoturbate (2) Eolian deposits
Surface texture	(1) Peat (2) Silt loam
Drainage class	Very poorly drained
Permeability class	Moderate
Depth to restrictive layer	46–64 cm
Soil depth	152 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	23.11–33.27 cm
Soil reaction (1:1 water) (0-25.4cm)	4.1–6.6
Subsurface fragment volume <=3" (0-152.4cm)	0%
Subsurface fragment volume >3" (0-152.4cm)	0%

Table 6. Representative soil features (actual values)

Drainage class	Poorly drained to very poorly drained
Permeability class	Not specified
Depth to restrictive layer	3–64 cm
Soil depth	Not specified
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0–5%
Available water capacity (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-25.4cm)	Not specified
Subsurface fragment volume <=3" (0-152.4cm)	0–29%
Subsurface fragment volume >3" (0-152.4cm)	0–5%

Ecological dynamics

The Seward Peninsula Highlands (MLRA 241X) is in the arctic where the harsh climate limits the composition and structure of plant communities. This area has cool, short summers and long, cold winters. Limited warmth during the short growing season inhibits trees from occurring. Both lowland and upland landscapes are a mix of shrubs, graminoids, forbs, mosses, and lichens. Cold temperatures limit the vertical structure of shrubs and other functional groups (Raynolds et al., 2006).

This ecological site describes stream terraces. The reference plant community is a scrub-tussock open scrubland. This community is shaped by factors including cold annual air temperatures and soil wetness caused by permafrost and seasonal melt. Snow pack may further shorten an already short growing season in concave positions.

Fire is the major natural disturbance on this ecological site. It is responsible for a unique post-disturbance community. Post-fire community composition depends on fire factors such as frequency and severity. Slight to moderate fires may only burn surface vegetation, leaving the wet organic horizon intact. A severe fire burns the insulating organic layer, causing permafrost to drop in the soil profile. Soil drainage improves and less hydric species colonize. Alder may colonize from nearby flood plains. As the organic horizon thickens, permafrost rises, the soil becomes wetter, and the community shifts back to community 1.1.

One alternate state is recognized in this ecological site. Non-sorted circles are a type of patterned ground that is not managed for. On gentle slopes, these patterned features are

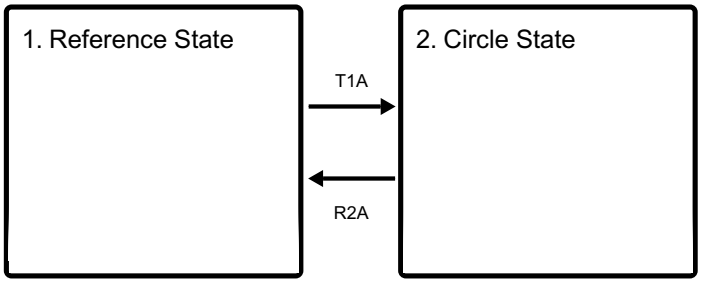
roughly circular and become elongated as steepness increases. These circles are considered non-sorted due to an absence of coarse rock fragments on their borders (Schoeneberger and Wysocki 2017). The formation of these non-sorted circles leads to a distinct mosaic of vegetation.

Non-sorted circles have distinct plant communities that are associated with different positions on the non-sorted circle. The first plant community occurs between the non-sorted circles (community 2.2) and generally resembles the reference plant community. Plant community 2.2 is classified as open low scrub (Viereck et al. 1992). The second community is represented by a mostly unvegetated area with high surface rock fragments (community 2.1).

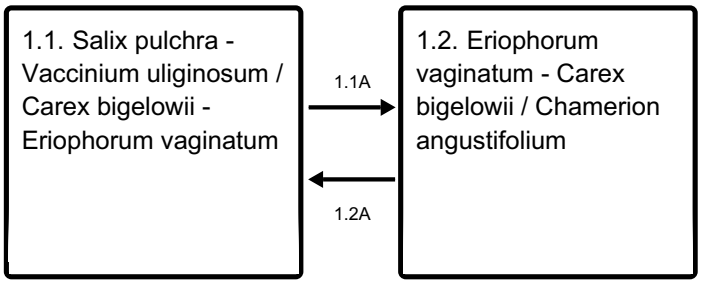
The information in this Ecological Dynamics section, including the state-and-transition model (STM), was developed based on professional experience and a review of available scientific literature. As a result, all possible scenarios or plant species may not be included. Key indicator plant species, disturbances, and ecological processes are described to inform land management decisions.

State and transition model

Ecosystem states



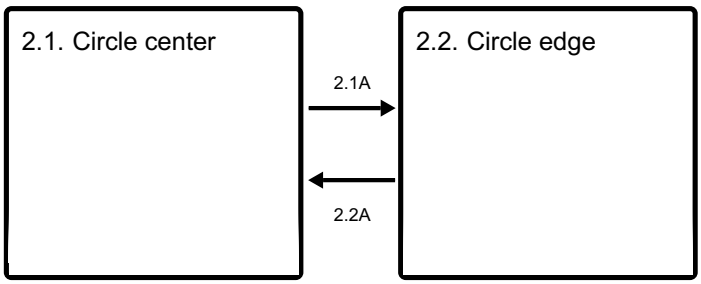
State 1 submodel, plant communities



1.1A - Fire

1.2A - Fire recovery

State 2 submodel, plant communities



2.1A - Frost heave sorting

2.2A - Frost heave sorting

State 1
Reference State

This reference state is developed and characterized using available vegetation models, most notably United States Department of Agriculture - Soil Conservation Service range surveys (SCS, 1984; Swanson et al., 1985). The reference state describes two distinct vegetative communities supported by a fire cycle regime. Along with a fire regime, soil wetness, caused by water perched by permafrost, is the major factor influencing vegetation. There is no indication of an alternate grazing state on this site. Targeted data collection may be able to address whether grazing or browsing in the reference state result in an alternate state.

Dominant plant species

- tealeaf willow (*Salix pulchra*), shrub
- dwarf birch (*Betula nana*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- black crowberry (*Empetrum nigrum*), shrub
- Bigelow's sedge (*Carex bigelowii*), grass
- tussock cottongrass (*Eriophorum vaginatum*), grass
- bluejoint (*Calamagrostis canadensis*), grass
- field horsetail (*Equisetum arvense*), other herbaceous

Community 1.1
Salix pulchra - Vaccinium uliginosum / Carex bigelowii - Eriophorum vaginatum

This community is a wet tundra (Viereck et al., 1992). Major plant groups are medium and low shrubs, and medium graminoids (Swanson et al., 1985). Tussocked sedges and cottongrasses are generally present. Ground cover is made up of mosses, herbaceous litter, and lichen. Tabular data for this community is from the 1984 Seward range site publication (SCS, 1984), with supplemental information from Swanson et al. (1985).

Forest understory. Live lichen and moss annual production cannot be measured accurately due to a lack of information on growth rates and/or slow annual growth rates. Lichen and moss biomass data below refers to total biomass, while vascular plants biomass refers to annual production.

Dominant plant species

- tealeaf willow (*Salix pulchra*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- dwarf birch (*Betula nana*), shrub
- marsh Labrador tea (*Ledum palustre ssp. decumbens*), shrub
- Bigelow's sedge (*Carex bigelowii*), grass
- bluejoint (*Calamagrostis canadensis*), grass
- tussock cottongrass (*Eriophorum vaginatum*), grass
- field horsetail (*Equisetum arvense*), other herbaceous

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Moss	2477	3172	3643
Shrub/Vine	516	762	1009
Grass/Grasslike	146	219	291
Lichen	45	112	179
Forb	73	112	146
Total	**3257**	**4377**	**5268**

Table 8. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	12-25%
Grass/grasslike foliar cover	12-25%
Forb foliar cover	6-12%
Non-vascular plants	10-30%
Biological crusts	0%
Litter	12-25%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0-6%
Bedrock	0%
Water	0-6%

Bare ground	0-6%

Community 1.2
Eriophorum vaginatum - Carex bigelowii / Chamerion angustifolium

This community is a mix of extant species that survived the fire and fast-growing colonizing species. Community composition depends on various factors including fire severity, fire frequency and the pre-fire community. Major plant groups are typically medium graminoids, and medium and low forbs (Landfire, 2009). Ground cover varies based on burn severity and time since burn, but usually supports mosses, lichens, herbaceous litter, and water.

Dominant plant species

- tussock cottongrass (*Eriophorum vaginatum*), grass
- Bigelow's sedge (*Carex bigelowii*), grass
- fireweed (*Chamerion angustifolium*), other herbaceous

Pathway 1.1A
Community 1.1 to 1.2

Fire is the major disturbance on this site. Fire dynamics on terraces are poorly understood. Fire may burn the insulating layer of herbaceous litter, mosses and lichens. Soils would thaw and create conditions where quick growing forbs and graminoids colonize and intermix with surviving plants. Terrace landforms do not flood.

Pathway 1.2A
Community 1.2 to 1.1

Fire dynamics are poorly understood on terrace landforms. It is expected that as the insulating layer of organic material builds, the thawed soils would refreeze and stabilize.

State 2
Circle State

This state is developed and characterized using available vegetation models and published literature and is supplemented with field experience. This state describes two communities that make up circles. The inner part of the circle is often unvegetated and is dominated by surface rock fragments and bare soil. The circle ring is comprised of similar vegetation to that of the reference state. This community does not appear to be susceptible to fire. Exposure to wind and low annual temperatures restrict vegetation height. The historic and current use of introduced ungulates in MLRA 241X may have altered the potential natural vegetation on this ecological site. No data indicates an alternate grazing state on this site. Targeted data collection may be able to address

whether grazing or browsing in the reference state result in an alternate state.

Community 2.1
Circle center

Vegetation in this community is sparse or absent. Surface rock fragments and bare soil make up the majority of ground cover.

Community 2.2
Circle edge

This community is a low scrubland (Viereck et al., 1992). It is typically made up of species present in the reference state. Community composition of circle ring vegetation varies between and within areas. Plant height is restricted by wind exposure.

Dominant plant species

- tealeaf willow (*Salix pulchra*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- marsh Labrador tea (*Ledum palustre ssp. decumbens*), shrub
- Bigelow's sedge (*Carex bigelowii*), grass
- tussock cottongrass (*Eriophorum vaginatum*), grass
- Altai fescue (*Festuca altaica*), grass

Pathway 2.1A
Community 2.1 to 2.2

The process that creates circles creates communities 2.1 and 2.2 simultaneously. Soil at the center of a circle is frozen and cryoturbated, restricting most vegetation colonization and growth.

Pathway 2.2A
Community 2.2 to 2.1

The process that creates circles creates communities 2.1 and 2.2 simultaneously. Soil pushed to the edge of the circle generally remains vegetated with the same species found in the reference state.

Transition T1A
State 1 to 2

This process creates communities 2.1 and 2.2 simultaneously. The creation dynamics of circles are not fully understood. It is suggested that gaps in the insulation provided by the organic layer allow available water to freeze. Surface and subsurface freezing restrict plant roots and growth, eventually removing vegetation from the center. A ring of

vegetation is created as water is pulled into the center of the bare circle (Daanen et al., 2008).

Restoration pathway R2A
State 2 to 1

The full cycle of circles is poorly understood. It is suggested that if the freeze/thaw process that creates and maintains circles ends, then edge vegetation may colonize the circle, reestablishing the reference state across the microfeature.

Additional community tables

Table 9. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Undefined					
1	**Vascular Plants**			740–1435	
Shrub/Vine					
2	**Shrub**			516–1009	
	tealeaf willow	SAPU15	*Salix pulchra*	224–437	–
	willow	SALIX	*Salix*	62–118	–
	bog blueberry	VAUL	*Vaccinium uliginosum*	56–106	–
	feltleaf willow	SAAL	*Salix alaxensis*	50–101	–
	black crowberry	EMNI	*Empetrum nigrum*	28–56	–
	resin birch	BEGL	*Betula glandulosa*	22–50	–
	dwarf birch	BENA	*Betula nana*	28–50	–
	netleaf willow	SARE2	*Salix reticulata*	17–28	–
	shrubby cinquefoil	DAFR6	*Dasiphora fruticosa*	11–21	–
	red fruit bearberry	ARRU	*Arctostaphylos rubra*	8–15	–
	grayleaf willow	SAGL	*Salix glauca*	8–15	–
	bulltongue arrowhead	SALA	*Sagittaria lancifolia*	6–10	–
	lingonberry	VAVI	*Vaccinium vitis-idaea*	4–9	–
	marsh Labrador tea	LEPAD	*Ledum palustre ssp. decumbens*	3–7	–
	entireleaf mountain-avens	DRIN4	*Dryas integrifolia*	2–4	–

	mountain alder	ALVIC	*Alnus viridis ssp. crispa*	1	–
	bog rosemary	ANPO	*Andromeda polifolia*	1	–
	beauverd spirea	SPST3	*Spiraea stevenii*	0–1	–
	Alaska bog willow	SAFU	*Salix fuscescens*	1	–
Grass/Grasslike					
3	**Grass/Grasslike**			146–291	
	sedge	CAREX	*Carex*	45–84	–
	Bigelow's sedge	CABI5	*Carex bigelowii*	39–78	–
	bluejoint	CACA4	*Calamagrostis canadensis*	22–45	–
	water sedge	CAAQ	*Carex aquatilis*	10–20	–
	Altai fescue	FEAL	*Festuca altaica*	6–10	–
	cliff fendlerbush	FERU	*Fendlera rupicola*	2–4	–
	bluegrass	POA	*Poa*	0–1	–
	threadleaf sedge	CAFI	*Carex filifolia*	0–1	–
		ERSC	*Eragrostis scabriflora*	1	–
	tussock cottongrass	ERVA4	*Eriophorum vaginatum*	1	–
	Pumpelly's brome	BRINP5	*Bromus inermis ssp. pumpellianus var. pumpellianus*	1	–
Forb					
4	**Forb**			73–146	
	field horsetail	EQAR	*Equisetum arvense*	22–39	–
	tall Jacob's-ladder	POAC	*Polemonium acutiflorum*	7–13	–
	arctic raspberry	RUAR	*Rubus arcticus*	6–11	–
	cloudberry	RUCH	*Rubus chamaemorus*	6–11	–
	captiate valerian	VACA3	*Valeriana capitata*	4–9	–
	tall bluebells	MEPA	*Mertensia paniculata*	3–7	–
	northern bedstraw	GABO2	*Galium boreale*	3–7	–
	locoweed	OXYTR	*Oxytropis*	3–6	–
	arctic sweet coltsfoot	PEFR5	*Petasites frigidus*	3–6	–
	bluebells	MERTE	*Mertensia*	2–4	–

	variegated scouringrush	EQVA	*Equisetum variegatum*	2–4	–
	dwarf fireweed	CHLA13	*Chamerion latifolium*	1–3	–
	twoflower cinquefoil	POBI8	*Potentilla biflora*	1–3	–
	licorice-root	LIGUS	*Ligusticum*	1–3	–
	violet	VIOLA	*Viola*	0–1	–
	largeflowered wintergreen	PYGR	*Pyrola grandiflora*	1	–
	buttercup	RANUN	*Ranunculus*	1	–
	arctic dock	RUAR6	*Rumex arcticus*	0–1	–
	roseroot stonecrop	RHRO3	*Rhodiola rosea*	1	–
	small blacktip ragwort	SELU	*Senecio lugens*	1	–
	Rocky Mountain goldenrod	SOMU	*Solidago multiradiata*	1	–
	sweetvetch	HEDYS	*Hedysarum*	1	–
	boreal yarrow	ACMIB	*Achillea millefolium var. borealis*	1	–
	boreal sagebrush	ARAR9	*Artemisia arctica*	0–1	–
	Tilesius' wormwood	ARTI	*Artemisia tilesii*	1	–
Lichen					
5	**Live lichen biomass**			45–179	
	island cetraria lichen	CEIS60	*Cetraria islandica*	28–101	–
	reindeer lichen	CLAR60	*Cladina arbuscula*	8–31	–
	cup lichen	CLGR13	*Cladonia gracilis*	2–10	–
		FLCU	*Flavocetraria cucullata*	1–6	–
	snow lichen	STERE2	*Stereocaulon*	0–2	–
	cup lichen	CLADO3	*Cladonia*	0–2	–
	Lichen	2LICHN	*Lichen*	1–2	–
Moss					
6	**Moss/Clubmoss biomass**			2477–3643	

Animal community

This site, characteristic of stabilized drainageways, provides unique and valuable wildlife habitats where it occurs. It is dominated by willows 3 to 5 feet tall, which provide excellent food and cover to a variety of birds and mammals, including moose, caribou, snowshoe hare, willow ptarmigan, savannah and American tree sparrows, and white- and golden-crowned sparrows. Both moose and caribou browse extensively on emerging willow leaves in early summer; in winter, willow twigs and stems become important to both of these species as herbaceous vegetation dies or is buried by snow. Because of the lush understory of grasses and forbs characteristic of these riparian sites, a large variety of small mammals may find suitable habitats here, e.g., snowshoe hares, brown lemmings, red-backed voles, northern bog lemmings, muskrats, singing and tundra voles, Large numbers of small mammals, in turn, provide plentiful food for mammalian predators such as least weasels, mink, red fox, lynx, river otter, and wolverine, as well as for avian predators, such as rough-legged hawks and short-eared owls. In addition, many bird species nest in these shrublands, among them willow ptarmigans, fox sparrows, Wilson's warblers, and arctic and orange-crowned warblers. Nesting birds, especially their eggs and young, also provide food for mammalian and avian predators. Some species from adjacent tundra or herbaceous habitats may also be found in these shrublands, seeking alternative foods or temporary cover.

Recreational uses

This site is excellent for wildlife observation because of the diversity of the vegetation and accessibility to the site. Hunting and trapping for moose, bear, and wolverine and fishing are excellent; generally, this site is near char and grayling streams and in the larger rivers, river chum salmon migrate. Blueberry and cloudberry can be plentiful for the berry picker. Picnicking, birdwatching, boating, gold panning, and sightseeing, especially where abandoned gold dredges are found, are a few of the potential recreational activities on this site.

Other products

Grazing

This site is a poor spring range, and a good summer and fall range. Dwarf arctic birch (Betula nana), Alaska bog willow (Salix fuscescens), and bog blueberry (*Vaccinium uliginosum*), can provide high quality forage. The large variety of forbs can provide additional nutritious forage during these periods. Associated windswept barren gravel bars provide insect relief.

Other information

These interpretive narratives were developed for USDA reports of range sites on the Seward Peninsula and appear here as written when originally published (SCS, 1984;

Swanson et al., 1985).

Inventory data references

Vegetative communities and transitions are described using existing models and expert knowledge. There are no vegetation inventory data points in NASIS associated with this ecological site.

External data sources:
The Alaska Vegetation Classification (Viereck et al., 1992)

LANDFIRE Biophysical Settings Models (LANDFIRE, 2009)

Ecological site descriptions of the Seward Peninsula (SCS, 1984).

Range survey of the Seward Peninsula reindeer ranges (Swanson et al., 1985)

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Acknowledgments

The described soil – ecological site correlations described in this document were reviewed during a February 2024 Provisional Ecological Site workshop in Wasilla, AK. Many thanks are given to the NRCS staff who have provided feedback regarding the MLRA 241X ecological site key and ESDs delivered under the PES national initiative.

This ecological site description (ESD) fulfills the requirements of the Provisional Ecological Site (PES) national initiative. This ESD is published to fit current site-soil correlations as they are currently mapped and understood. Further data collection may provide the information to update this ESD from the provisional level to the approved level.

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	03/12/2026
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:**

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

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

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

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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):**

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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:

---

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

---

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):**

---

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:**
