USDA Natural Resources Conservation Service

Ecological site R226XY033AK
Dwarf Shrub Tundra (AK653 St Paul Island)

Accessed: 05/13/2025

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

Occurs on gently sloping broad summits of hills near the coast. There are a few rock outcrops and incipient drainage ways.

Table 2. Representative physiographic features

Landforms	(1) Hill
Elevation	61–76 m
Slope	1–10%

Climatic features

Table 3. Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	100 days
Precipitation total (average)	610 mm

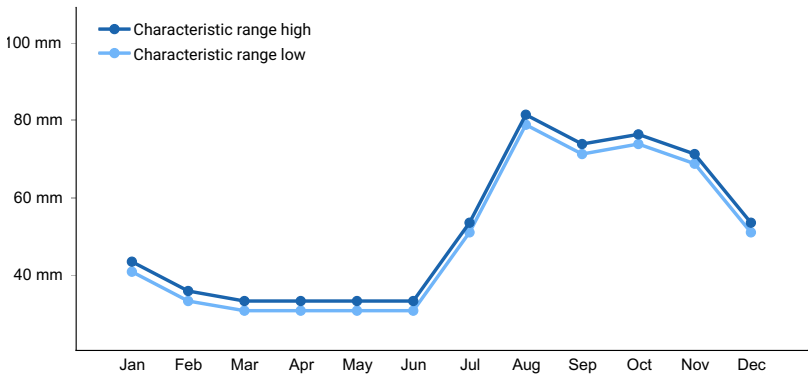

Figure 1. Monthly precipitation range

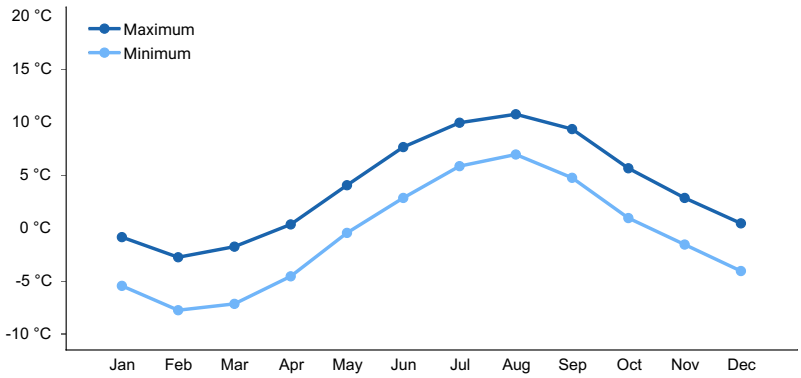

Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Soils are moderately deep and well drained. Textures are medium and soil pH is slightly acid to neutral. Runoff is low and permeability is rapid to moderately rapid.

Table 4. Representative soil features

Surface texture	(1) Medial fine sandy loam
Family particle size	(1) Sandy
Drainage class	Well drained
Permeability class	Rapid to moderately rapid
Soil depth	51–102 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	11.43–11.94 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.1–7.3
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Shrubs make up about 45% of the composition, forbs about 50% and grasses and sedges 5% of the composition. Total annual vascular herbage production is 1130 pounds/acre. Total live lichen biomass is 2,000 pounds/acre.

State and transition model

Ecosystem states

1. Lupinus nootkatensis/Salix arctica

State 1 submodel, plant communities

1.1. Lupinus nootkatensis/Salix arctica

State 1
Lupinus nootkatensis/Salix arctica

Community 1.1
Lupinus nootkatensis/Salix arctica

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Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Shrub/Vine					
1				549–572	
	northern willow	SAAR6	*Salix arctophila*	331–342	–
	netleaf willow	SARE2	*Salix reticulata*	106–118	–
	black crowberry	EMNI	*Empetrum nigrum*	106–118	–
Grass/Grasslike					
1				95–106	
	spike trisetum	TRSP2	*Trisetum spicatum*	78–90	–
	red fescue	FERU2	*Festuca rubra*	11–22	–
	common woodrush	LUMU2	*Luzula multiflora*	0–6	–
	bluegrass	POA	*Poa*	0–6	–
	shortstalk sedge	CAPO	*Carex podocarpa*	0–6	–
Forb					
1				560–673	
	Nootka lupine	LUNO	*Lupinus nootkatensis*	443–454	–
	boreal yarrow	ACMIB	*Achillea millefolium var. borealis*	106–118	–
	whorled lousewort	PEVE	*Pedicularis verticillata*	22–34	–
	larkspurleaf monkshood	ACDE2	*Aconitum delphiniifolium*	0–6	–
	Langsdorf's lousewort	PELAL5	*Pedicularis langsdorffii ssp. langsdorffii*	0–6	–
	thymeleaf saxifrage	SASE7	*Saxifraga serpyllifolia*	0–6	–
	moss campion	SIAC	*Silene acaulis*	0–6	–
	sweetflower rockjasmine	ANCH	*Androsace chamaejasme*	0–6	–
	seacoast angelica	ANLU	*Angelica lucida*	0–6	–
	boreal sagebrush	ARAR9	*Artemisia arctica*	0–6	–
	purple wormwood	ARGL8	*Artemisia globularia*	0–6	–
	bittercress	CARDA	*Cardamine*	0–6	–
	Bering chickweed	CEBE2	*Cerastium beeringianum*	0–6	–
	arctic stitchwort	MIAR3	*Minuartia arctica*	0–6	–
	Lapland poppy	PALA9	*Papaver lapponicum*	0–6	–
	boreal draba	DRBO	*Draba borealis*	0–6	–
	field horsetail	EQAR	*Equisetum arvense*	0–6	–
	Ross' avens	GERO2	*Geum rossii*	0–6	–
	Hornemann's willowherb	EPHOB	*Epilobium hornemannii ssp. behringianum*	0–1	–
	Pacific hemlockparsley	COGM	*Conioselinum gmelinii*	0–1	–
	arctic cinquefoil	PONA6	*Potentilla nana*	0–1	–

Animal community

This is a high value winter grazing site for reindeer due to the exposed windswept hill summits and easily accessible forage. Willows growing on this site have high forage value and are preferred by reindeer during winter and early spring months. Reindeer will tend to concentrate on this site which is very sensitive to grazing.

Contributors

David Swanson

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	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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

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):**

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

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

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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:**
