USDA Natural Resources Conservation Service

Ecological site R226XY058AK
Rocky Shrub Tundra (Upland) (AK653 St Paul Island)

Accessed: 05/11/2025

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 rocky inland areas. This site is similar to, and frequently associated with Dwarf Shrub Tundra (Upland) site. Rock outcroppings are interspersed throughout the site.

Table 2. Representative physiographic features

Landforms	(1) Hill
Elevation	120–500 ft
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)	24 in

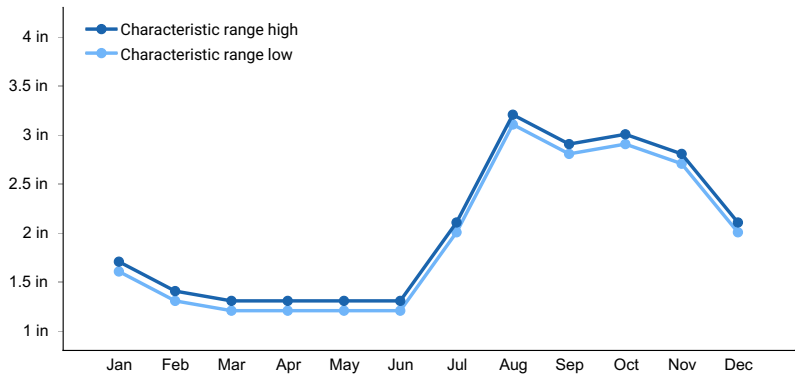

Figure 1. Monthly precipitation range

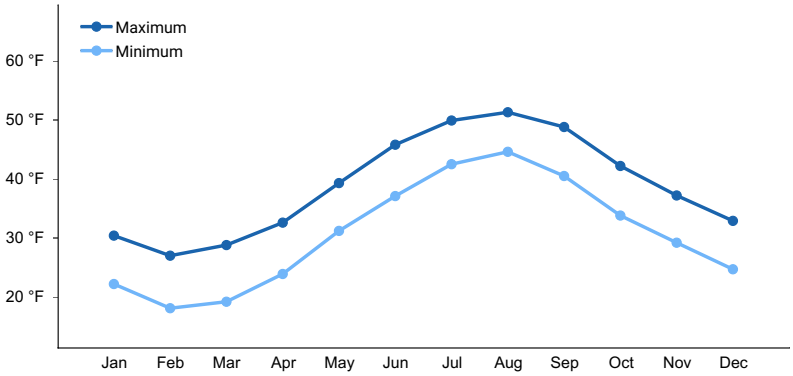

Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Soils are shallow to moderately deep and moderately well to well drained. Soils are stony and cobbly and medium textured. Soil pH is slightly acid. Runoff is very low and permeability is moderately rapid.

Table 4. Representative soil features

Surface texture	(1) Extremely stony silt loam (2) Cobbly
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately rapid
Soil depth	10–40 in
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	4.2–4.4 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.1–6.5
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

State and transition model

Ecosystem states

1. Salix arctica/Achillea borealis

State 1 submodel, plant communities

1.1. Salix arctica/Achillea borealis

State 1
Salix arctica/Achillea borealis

Community 1.1
Salix arctica/Achillea borealis

Shrubs make up about 40% of the composition, forbs about 45% and grasses and sedges about 15% of the composition. Total annual vascular herbage production is1800 pounds/acre. Total live lichen biomass is 5000 pounds/acre.

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Shrub/Vine					
1				550–600	
	northern willow	SAAR6	*Salix arctophila*	370–380	–
	black crowberry	EMNI	*Empetrum nigrum*	85–100	–
	arctic willow	SAAR27	*Salix arctica*	90–100	–
Grass/Grasslike					
1				300–320	
	showy sedge	CASP5	*Carex spectabilis*	95–105	–
	alpine timothy	PHAL2	*Phleum alpinum*	90–100	–
	Bering Sea sedge	CAMIN	*Carex microchaeta ssp. nesophila*	45–55	–
	spike trisetum	TRSP2	*Trisetum spicatum*	25–35	–
	arctic bluegrass	POARA2	*Poa arctica ssp. arctica*	5–15	–
	bluegrass	POA	*Poa*	0–10	–
	red fescue	FERU2	*Festuca rubra*	2–10	–
	polargrass	ARCTA	*Arctagrostis*	5–10	–
	common woodrush	LUMU2	*Luzula multiflora*	2–8	–
	American dunegrass	LEMOM2	*Leymus mollis ssp. mollis*	0–5	–
Forb					
1				900–1000	
	boreal yarrow	ACMIB	*Achillea millefolium var. borealis*	320–330	–

	Nootka lupine	LUNO	*Lupinus nootkatensis*	165–175	–
	seacoast angelica	ANLU	*Angelica lucida*	100–125	–
	Bering chickweed	CEBE2	*Cerastium beeringianum*	60–75	–
	Pacific hemlockparsley	COGM	*Conioselinum gmelinii*	20–25	–
	field horsetail	EQAR	*Equisetum arvense*	15–25	–
	Macoun's poppy	PAMA5	*Papaver macounii*	10–20	–
	boreal draba	DRBO	*Draba borealis*	10–20	–
	sweetflower rockjasmine	ANCH	*Androsace chamaejasme*	5–15	–
	larkspurleaf monkshood	ACDE2	*Aconitum delphiniifolium*	5–15	–
	Tilesius' wormwood	ARTI	*Artemisia tilesii*	5–15	–
	field sagewort	ARCAB4	*Artemisia campestris ssp. borealis var. borealis*	0–10	–
	Hornemann's willowherb	EPHOB	*Epilobium hornemannii ssp. behringianum*	0–10	–
	captiate valerian	VACA3	*Valeriana capitata*	0–10	–
	cloudberry	RUCH	*Rubus chamaemorus*	3–8	–
	northern starwort	STCA	*Stellaria calycantha*	0–5	–
	starwort	STELL	*Stellaria*	0–5	–
	Aleutian violet	VILA6	*Viola langsdorffii*	0–5	–
	whorled lousewort	PEVE	*Pedicularis verticillata*	0–5	–
	tall Jacob's-ladder	POAC	*Polemonium acutiflorum*	0–5	–
	arctic raspberry	RUARS	*Rubus arcticus ssp. stellatus*	0–5	–
	mountain harebell	CALA7	*Campanula lasiocarpa*	0–5	–
	boreal sagebrush	ARAR9	*Artemisia arctica*	0–5	–
	Danish scurvygrass	COGR6	*Cochlearia groenlandica*	0	–
Lichen					
1				0–5	
	whiteworm lichen	THAMN3	*Thamnolia*	0–5	–

Animal community

This is a winter high-value grazing site for reindeer. Salix spp. growing on this site is high forage and preference value during winter and winter-spring months. Reindeer will tend to concentrate on this site which is very sensitive to grazing. Herders need to use caution when moving reindeer through these areas. Herding techniques need to be subtle because crowding the reindeer and causing them to mill may result in hoof injuries and broken legs.

Contributors

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):**

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:**
