

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

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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.

| Table 1. Dominant pla | nt 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.

| 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% |

Table 4. Representative soil features

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 | 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 | Ι |
| | tall Jacob's-ladder | POAC | Polemonium acutiflorum | 0–5 | Ι |
| | 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 | _ |
| Licher | 1 | | | | |
| 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:

- 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):
- 15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annualproduction):
- 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:
- 17. Perennial plant reproductive capability: