USDA Natural Resources Conservation Service

Ecological site R236XY107AK
Western Alaska Maritime Scrub Gravelly Drainages

Last updated: 2/13/2024
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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.

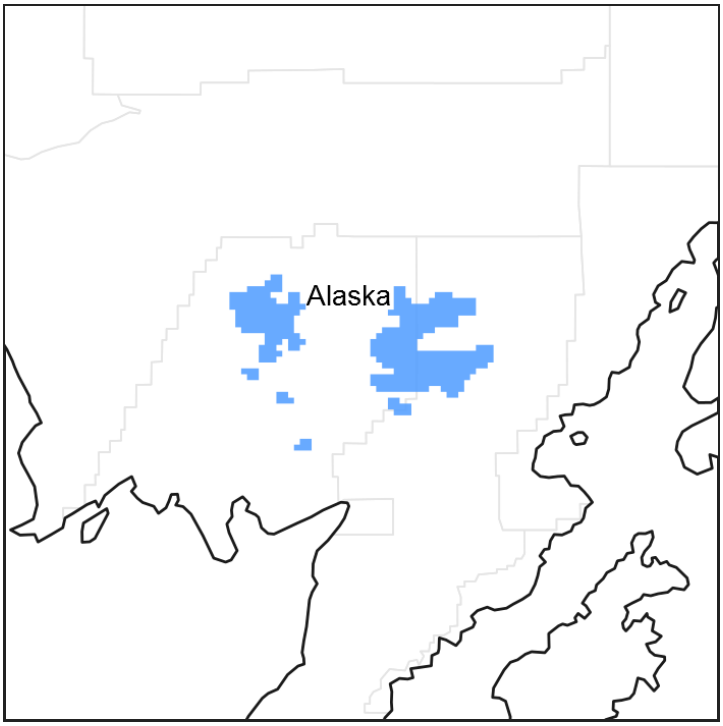

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

MLRA notes

Major Land Resource Area (MLRA): 236X–Bristol Bay-Northern Alaska Peninsula Lowlands

MLRA 236 is in the western region of Alaska. It covers approximately 19,575 square miles

and extends inland from Bristol Bay. It is defined by an expanse of nearly level to rolling lowlands, uplands, and low to moderate hills bordered by long footslopes of mountains. The climate near the coast is dominantly maritime, but the weather systems of Interior Alaska may have a strong influence on inland areas. The entire MLRA was covered by glacial ice during the early to middle Pleistocene. MLRA 236 is dominantly sparsely populated, undeveloped wildland. The communities of Dillingham and King Salmon and other villages are in the MLRA.

Ecological site concept

Information about the ecological site concept is in the "Ecological Dynamics" section.

This report provides baseline inventory data for the vegetation in this ecological site. Future data collection is needed to provide further information about existing plant communities and the disturbance regimes that would result in transitions from one community to another.

Similar sites

R236XY109AK	**Subarctic Low Scrub Peat Drainages** Ecological site R236XY107AK commonly is at higher elevations that have steeper slopes than site R236XY109AK (Western Alaska Maritime Graminoid Peat Drainages). Site R236XY109AK is in drainageways that are wider than 10 meters, and site R236XY107AK commonly is in drainageways that are much narrower. This contributes to differences in the natural drainage class of the soils and the frequency and duration of ponding, leading to distinctly different reference states and community phases.
R236XY136AK	**Subarctic Low Scrub Loamy Plain Drainages** Site R236XY136AK (Western Alaska Maritime Scrub Loamy Drainages) is in lowland drainageways that have steep surrounding slopes (more than 10 percent). The slopes surrounding site R236XY107AK typically are less steep. Site R236XY136AK is correlated to soils mapped at the Order 2 level of intensity, and site R236XY107AK is correlated to soils mapped at the Order 3 level of intensity. The scale of mapping affects how landscapes and landforms are defined and described in terms of soils, plant communities, and land uses, making it necessary to describe the ecological sites differently.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Salix pulchra* (2) *Alnus viridis subsp. sinuata*
Herbaceous	(1) *Calamagrostis canadensis* (2) *Equisetum arvense*

Physiographic features

Information about the physiographic features is in the "Ecological Dynamics" section.

Table 2. Representative physiographic features

Landforms	(1) Drainageway
Elevation	30–610 m
Slope	1–7%
Aspect	Aspect is not a significant factor

Climatic features

Influencing water features

Information about the water features is in the "Ecological Dynamics" section.

Soil features

Information about the soil features is in the "Ecological Dynamics" section. More in-depth soils information is in the soil survey reports.

Ecological dynamics

This maritime ecological site is in lowland drainageways of western Alaska. Elevation typically is 100 to 2,000 feet above sea level, and slopes are 1 to 7 percent. Slope aspect does not influence the plant community dynamics of this site.

This ecological site is correlated to D36-Western maritime scrub drainageways. This soil component has a cryic temperature regime and a udic moisture regime. The saturated hydraulic conductivity is moderately low to a depth of 40 inches. The upper mineral horizon is moderately acid or strongly acid (pH 5.3 to 5.6), and it commonly has an organic matter content of 5 to 20 percent. The annual precipitation is 25 to 70 inches, and the annual frost-free period is 80 to 140 days. The parent material is gravelly alluvium.

The reference community phase is typified by medium to tall scrubland that has an understory of hydrophilic forbs, low shrubs, and bluejoint grass (*Calamagrostis canadensis*).

This site differs from other ecological sites in the maritime lowland drainageways of western Alaska, such as sites R236XY109AK (Western Alaska Maritime Graminoid Peat Drainages) and R236XY136AK (Western Alaska Maritime Scrub Loamy Drainages). This

site commonly is at higher elevations and has steeper slopes than site R236XY109AK. Site R236XY109AK is in drainageways that are wider than 10 meters, and this site commonly is in drainageways that are much narrower. This contributes to differences in the natural drainage class of the soil and the frequency and duration of ponding, leading to distinctly different reference states and community phases. Site R236XY136AK is in lowland drainageways that have steep surrounding slopes (more than 10 percent). The slopes surrounding site R236XY107AK typically are less steep. Site R236XY136AK is correlated to soils mapped at the Order 2 level of intensity, and site R236XY107AK is correlated to soils mapped at the Order 3 level of intensity. The scale of mapping affects how landscapes and landforms are defined and described in terms of soils, plant communities, and land uses, making it necessary to describe the ecological sites differently. All of these ecological sites are on similar landforms, but none of them support similar reference states or community phases or have a similar disturbance regime. Unique ecological sites are needed.

No known major disturbance regime is associated with this ecological site; thus, only a reference community phase is described. Throughflow and overflow from precipitation and seasonal snowmelt and the poorly drained soil may result in localized runoff and ponding. The site is subject to occasional, brief periods of ponding. This community consists dominantly of hydrophilic plants (facultative or obligate wetland species, NWI PSS1B; Cowardin et al., 1979) that can tolerate periods of ponding. Minor natural variations in plant richness and cover may be evident, but no in situ data or observations suggest a disturbance that would alter the community to require an early flooding or ponding community.

Browsing by moose on willow may occur on this site, but it does not appear to affect the ecological processes significantly enough to alter the community.

No alternate states have been observed.

State and transition model

Ecosystem states

1. Reference State

State 1 submodel, plant communities

1.1. Tealeaf willow-Sitka alder/bluejoint grass/field horsetail-Canadian burnet scrubland

State 1
Reference State

The reference state supports one community. The reference community phase is subject to runoff and ponding. This disturbance regime creates a cyclical pattern of disturbance and regrowth, but it does not produce an early sere community. No alternate states have been observed.

Community 1.1
Tealeaf willow-Sitka alder/bluejoint grass/field horsetail-Canadian burnet scrubland

Figure 2. Typical area of community 1.1.

Community Phase Canopy Cover

(Vegetation data in the table are provided as constancy (percent) and average canopy cover (percent) of the most dominant and ecologically relevant species for this community phase.)

Plant group	Common name	Scientific name	USDA plant code	Constancy (percent)	Average canopy cover (percent)
S	Tealeaf willow	*Salix pulchra*	SAPU15	100	65
S	Sitka alder	*Alnus viridis* ssp. *sinuata*	ALVIS	60	20
G	Bluejoint grass	*Calamagrostis canadensis*	CACA4	100	45
F	Seacoast angelica	*Angelica lucida*	ANLU	100	1
F	Field horsetail	*Equisetum arvense*	EQAR	100	40
F	Canadian burnet	*Sanguisorba canadensis*	SACA14	100	7
F	Captiate valerian	*Valeriana capitata*	VACA3	80	3

Figure 3. Constancy and canopy cover of plants in community 1.1.

The reference community phase is characterized by scrubland consisting of medium shrubs and an understory of shade-tolerant, hydrophilic graminoids and forbs. Typically, this community consists of a dense overstory of medium and tall tealeaf willow (*Salix pulchra*) and Sitka alder (*Alnus viridis* ssp. sinuata) and a diverse understory of forbs and graminoids, including bluejoint grass (*Calamagrostis canadensis*), various sedges (Carex spp.), field horsetail (*Equisetum arvense*), and Canadian burnet (*Sanguisorba canadensis*). The commonly wet soil associated with this site may also support smaller densities of myriad facultative or obligate species. Several species of moss generally are present (about 40 percent total mean cover). Other ground cover typically includes herbaceous litter (about 70 percent cover), woody litter (about 1 percent), and water (about 3 percent). Throughflow and overflow from precipitation and seasonal snowmelt may result in runoff and ponding. Because the plant community is dominantly hydrophilic species, it generally can withstand the anoxic conditions caused by the disturbances. Minor natural variations in plant richness and cover may be evident, but no in situ data or observations suggest that the disturbances would alter the community enough to require an early flooding or ponding phase.

Additional community tables

Other references

Cowardin, L. M.; V. Carter; F.C. Golet; and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

Contributors

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Approval

Kirt Walstad, 2/13/2024

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	05/21/2025
Approved by	Kirt Walstad
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):**

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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):**

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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:**
