

# **Ecological site R237XY264AK**

## **Western Alaska Maritime Tall Shrub Coastal Flood Plain**

Last updated: 4/13/2021  
Accessed: 05/20/2025

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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.

### **MLRA notes**

Major Land Resource Area (MLRA): 237X–Ahklun Mountains

The Ahklun Mountains Major Land Resource Area (MLRA 237) is in western Alaska. This MLRA covers approximately 14,555 square miles, and it includes the mountains, hills, and valleys of the Kilbuck Mountains in the north and the Ahklun Mountains in the south. Except for the Kilbuck Mountains and the highest ridges of the Ahklun Mountains, the MLRA was extensively glaciated during the Pleistocene (Kautz et al., 2004). Today, a few small glaciers persist in mountainous cirques (Gallant et al., 1995). The present-day landscape and landforms reflect this glacial history; glacial moraines and glacial drift cover much of the area (USDA-NRCS, 2006). The landscape of the MLRA is primarily defined by low, steep, rugged mountains cut by narrow-to-broad valleys. Flood plains and terraces of varying sizes are common at the lower elevations in the valley bottoms. Glacially carved valleys host many lakes. Togiak Lake is one of the largest lakes in the region. It is 13 miles long and about 9,500 acres in size. Major rivers include the Goodnews, Togiak, Kanektok, Osviak, Eek, and Arolik Rivers. Where the Goodnews and Togiak Rivers reach the coast, the nearly level to rolling deltas support numerous small lakes.

This MLRA has two distinct climatic zones: subarctic continental and maritime continental. The high-elevation areas are in the subarctic continental zone. The mean annual precipitation is more than 75 inches, and the mean annual air temperature is below about 27 degrees F (-3 degrees C) in extreme locations. The warmer, drier areas at the lower elevations are in the maritime continental zone. The mean annual precipitation is 20 to 50 inches, and the mean annual air temperature is about 30 to 32 degrees F (-0.2 to 1.2 degrees C) (PRISM). This climatic zone is influenced by both maritime and continental factors. The temperatures in summer are moderated by the open waters of the Bering Sea, and the temperatures in winter are more continental due to the presence of ice in the

sea (Western Regional Climate Center, 2017). The seasonal ice reaches its southernmost extent off the coast of Alaska in Bristol Bay (Alaska Climate Research Center, 2017). The western coast of Alaska is also influenced by high winds from strong storms and airmasses in the Interior Region of Alaska (Hartmann, 2002).

The Ahklun Mountains MLRA is principally undeveloped wilderness. Federally managed lands include the Togiak and Alaska Maritime National Wildlife Refuges. The MLRA is sparsely populated, but it has several communities, including Togiak, Manokotak, Twin Hills, and Goodnews Bay. Togiak is the largest village. It has a population of approximately 855, most of whom are Yup'ik Alaska Natives (U.S. Census Bureau, 2016). Major land uses include subsistence activities (fishing, hunting, and gathering) and wildlife recreation (USDA-NRCS, 2006; Kautz et al., 2004).

## **Ecological site concept**

This proposed ecological site concept is correlated to the STATSGO soil component E37-Maritime tall scrub-silty low flood plains. Site R237XY264AK is the basis for the ecological site group ESG17X2237X00X. This ecological site description (ESD) will be revised when field data are collected that can be used to confirm or update the following information.

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### **Hypothesized Reference Plant Community**

The reference plant community likely is comprised of tall willows in stands that are monotypic or a mix of two or more species. Alder may be present, depending on the site conditions. Forbs and graminoids likely are dominant in the understory.

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Classification Crosswalk (community descriptions of similar landscapes and landforms in other vegetation classification systems)

\*LANDFIRE Biophysical Settings: Alaska Arctic Floodplain (USDA et al., 2007)

\*Alaska Vegetation Classification System: II.B.2.a (Vioreck et al., 1992)

\*Circumboreal Vegetation Mapping (CBVM) Project: South Alaska Floodplain Spruce-Cottonwood Forests and Scrub (not great fit) (Jorgensen and Meidinger, 2015)

\*Alaska Arctic Tundra Vegetation: None (Raynolds et al., 2006)

\*U.S. National Vegetation Classification Database 2.03: G368–North American Arctic Tall Willow Wet Shrub Tundra Group (USNVC, 2019)

## Similar sites

R237XY212AK	<b>Western Alaska Maritime Scrubland Silty Flood Plains</b> Sites R237XY212AK and R237XY264AK are both on flood plains, but site R237XY212AK is along rivers and site R237XY264AK is along the coast. Field data are required to more fully determine the similarities and differences between these ecological sites.
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**Table 1. Dominant plant species**

Tree	Not specified
Shrub	(1) <i>Salix</i>
Herbaceous	(1) <i>Calamagrostis</i>

## Physiographic features

This ecological site is on coastal flood plains. These flood plains may be influenced by riverine systems and coastal flooding.

**Table 2. Representative physiographic features**

Landforms	(1) Coastal plain > Flood plain
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	Frequent
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	Frequent
Elevation	1–130 m
Slope	0–2%
Aspect	W, NW, N, NE, E, SE, S, SW

## Climatic features

## Influencing water features

## Soil features

This proposed ecological site is associated with very poorly drained soils. Flooding and ponding is thought to occur throughout the growing season (May through September). Frequent, long periods of ponding and flooding occur in May and June, and frequent, brief periods occur in July through September.

**Table 3. Representative soil features**

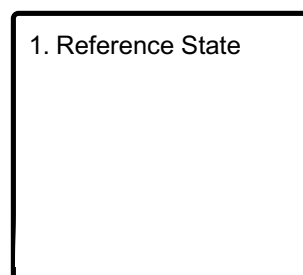
Drainage class	Very poorly drained
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## Ecological dynamics

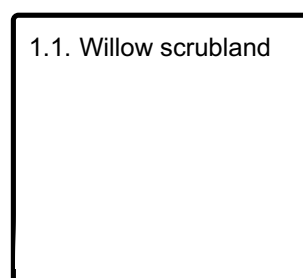
The vegetation is influenced by hydrology. The community likely is comprised of an overstory of one or more willow species and an understory of graminoids and forbs that thrive in wet conditions.

## State and transition model

### Ecosystem states



### State 1 submodel, plant communities



## State 1 Reference State

The reference state supports all the communities that are a result of natural disturbances on this landform.

**Resilience management.** The vegetation on this landform is resilient to the natural disturbances. The disturbances likely do not result in an early sere.

## Community 1.1 Willow scrubland

This community likely is dominantly tall and medium willows (more than 3 feet tall). The stands may be monotypic or composed of two or more willow species. Dense graminoids and forbs likely are in the understory.

### Dominant plant species

- willow (*Salix*), shrub
- Graminoid (grass or grass-like) (*Graminoid (grass or grass-like)*), grass
- Forb (herbaceous, not grass nor grass-like) (*Forb (herbaceous, not grass nor grass-like)*), other herbaceous

## Additional community tables

### Other references

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## Approval

Curtis Talbot, 4/13/2021

## 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	05/20/2025
Approved by	Curtis Talbot
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:**
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