

## Ecological site R227XY501AK Wet Depressions

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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.

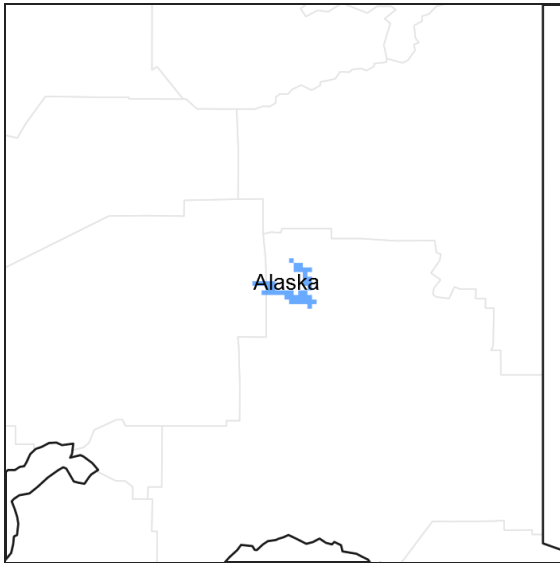


Figure 1. Mapped extent

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.

### Associated sites

F227XY102AK	Laomy High Flood Plains, Frozen Hogan
F227XY103AK	Stream Terraces Frozen Kuslinad
F227XY104AK	Stream Terraces Ganhona, Kusdry, Maclaren, Sinona
F227XY106AK	Glaciolacustrine Uplands Telay, Gadona, Chelina
F227XY107AK	Glaciolacustrine Uplands, Frozen Kuslined
F227XY110AK	Mountain Slopes, Shallow Cobblank
F227XY111AK	Peat Mounds Pergelic Cryohemists, Dry
R227XY105AK	Terraces, Wet Klasi, very wet
R227XY202AK	Shallow Drainages Dackey cool, swedna, sankluna, ostna

### Similar sites

R227XY500AK	Loamy Riverbanks Swedna, very poorly drained;Aquatna
R227XY202AK	Shallow Drainages Dackey cool, swedna, sankluna, ostna

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

## Physiographic features

This site occurs on moderately thick to very thick accumulations of peat in shallow depressions, along the shore of ponds and lakes, and in abandoned channels and sloughs on lacustrine terraces, till plains, and stream terraces.

**Table 2. Representative physiographic features**

Landforms	(1) Lake terrace
Flooding frequency	None
Ponding duration	Long (7 to 30 days)
Ponding frequency	Occasional
Elevation	579–792 m
Slope	0–2%
Ponding depth	15–0 cm
Water table depth	0–30 cm
Aspect	Aspect is not a significant factor

## Climatic features

The subarctic continental climate of this site is characterized by long cold winters and short warm summers. Mean January temperature is -2 °F.; mean July temperature is 54 °F. Mean annual precipitation ranges from 15 to 21 inches. Annual snowfall ranges from 54 to 102 inches. The frost-free season is about 60 to 80 days (28 °F. base temperature). The growing season varies greatly from year to year and frosts can occur during any summer month.

**Table 3. Representative climatic features**

Frost-free period (average)	80 days
Freeze-free period (average)	0 days
Precipitation total (average)	533 mm

## Influencing water features

### Soil features

The organic soils on this site consist of fibrous or partially decomposed organic matter 16 to more than 60 inches (41 to more than 162 cm) thick over stratified sandy and silty alluvium and loamy and clayey lacustrine deposits. Depth to seasonal high water table ranges from 4 inches (10 cm) or more above to 12 inches (30 cm) below the soil surface and the soils are typically very poorly drained. Aquic conditions include a histic epipedon, saturated conditions to the surface and a reduced matrix where mineral layers are present.

**Table 4. Representative soil features**

Surface texture	(1) Loam
Soil depth	152 cm

Available water capacity (0-101.6cm)	0.76–0.89 cm
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## Ecological dynamics

Except during extreme dry years, the vegetation on this site is only slightly susceptible to wild fire. Ponding probably limits wild fire to the margins of the meadows and also protects the root system and ground level buds. If burned, this site would be expected to quickly re-vegetate to Sedge wet meadow vegetation similar to the pre-burn stand.

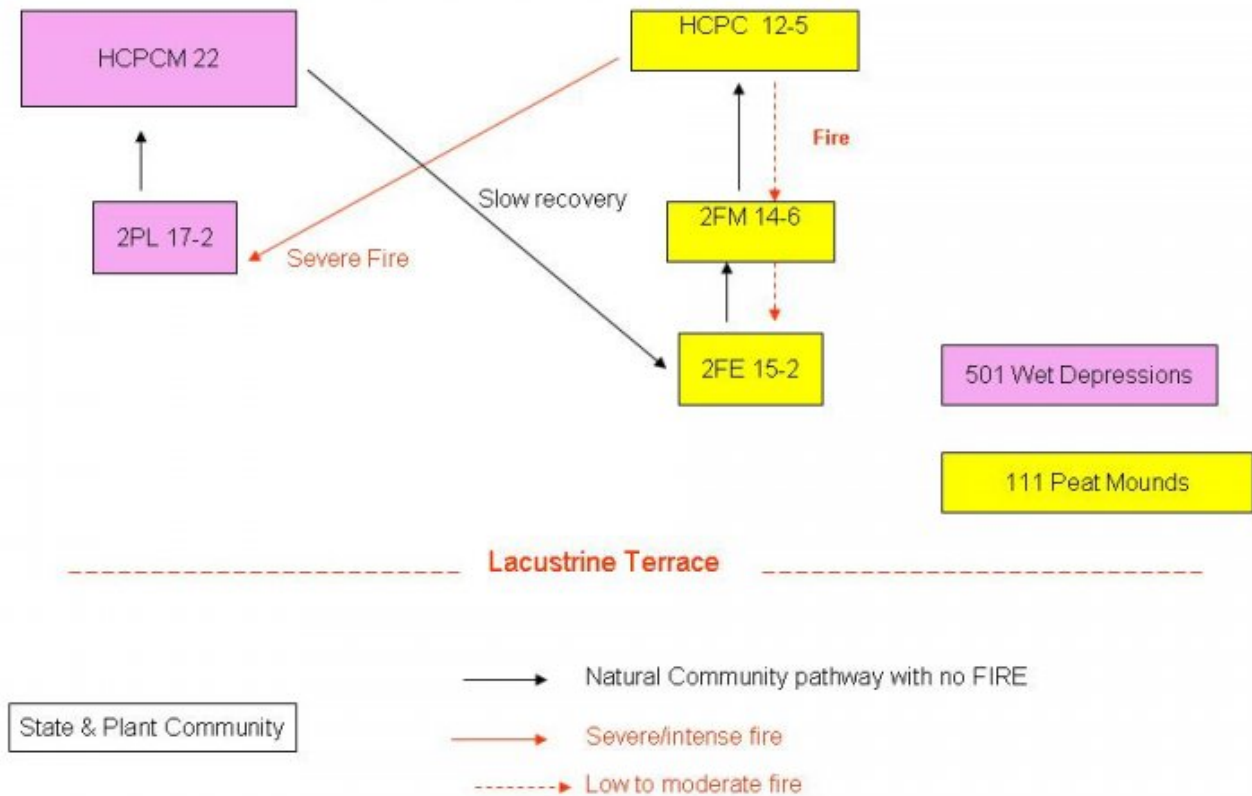
In many places, the vegetation on this site exhibits zonal patterns with sedge-moss bog meadow occupying the wetter, central portions, sedge wet meadow occurring on somewhat higher positions, and mixed sedge-grass and grass meadows, often with scattered willows and shrub birch, along the upper margins and higher microsites.

: In many upland areas this site occurs in complex with ecological site 172Xy111AK - Peat Mounds, with the ice-cored peat mounds and ridges protruding from about 2 to 30 (0.6 to 9.1 m) above the surrounding saturated, permafrost-free sedge wet meadows. In many situations, the peat mounds are believed to have developed from the wet meadows. Initial stages of peat mound development is probably due to an unusually thin cover of snow (Williams and Smith 1989), which allows deep frost penetration and frost heaving in winter. Heaving ground often forms discrete, irregularly spaced bumps several inches in height. The drier peat near the surface of these slightly elevated areas increases the overall insulating qualities of the overlying organic material, maintaining frozen soil conditions throughout the summer months and promoting the formation of ice crystals and masses. The developing ice core of the mound is fed by abundant water from the adjoining wet meadows and ponds.

As the surface is gradually elevated changes in the plant community also occur on the peat mounds. Williams and Smith (1989) noted that *Carex* sp. and *Eriophorum* sp. died and *Sphagnum* moss began to do so during the first season. These were eventually replaced by shrubs, primarily *Betula glandulosa*, and lichens. Peat mounds in the Gulkana River Area support Low shrub birch scrub and Spruce/shrub birch woodland.

## State and transition model

**Relationship between frozen and unfrozen sites on glaciolacustrine uplands, terraces and associated water bodies.**



**State 1  
Sedge Wet Meadow**

**Community 1.1  
Sedge Wet Meadow**

Sedge wet meadow is the correlated PNC on this site. Low willows and shrub birch are common to well-represented along the margins of depressions where the site is transitional to adjacent scrub and forest communities

**Table 5. Ground cover**

Tree foliar cover	1-3%
Shrub/vine/liana foliar cover	1-10%
Grass/grasslike foliar cover	1-30%
Forb foliar cover	1-40%
Non-vascular plants	1-70%
Biological crusts	0%
Litter	1-30%
Surface fragments >0.25" and <=3"	1-50%
Surface fragments >3"	0%
Bedrock	0%
Water	0%

Bare ground	1-2%
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## State 2

### Low Shrub Birch-willow/water sedge scrub

#### Community 2.1

#### Low Shrub Birch-willow/water sedge scrub

In many places, the vegetation on this site exhibits zonal patterns with sedge-moss bog meadow occupying the wetter, central portions, sedge wet meadow occurring on somewhat higher positions, and mixed sedge-grass and grass meadows, often with scattered willows and shrub birch, along the upper margins and higher microsites.

Table 6. Ground cover

Tree foliar cover	4%
Shrub/vine/liana foliar cover	1-2%
Grass/grasslike foliar cover	1%
Forb foliar cover	1-15%
Non-vascular plants	75%
Biological crusts	0%
Litter	20%
Surface fragments >0.25" and <=3"	1%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

### Additional community tables

#### Animal community

This site provides excellent habitat for a variety of wildlife. Sedge wet meadows with interspersed lakes and ponds are used by a variety of ducks and Tundra Swans for staging areas during spring and fall migrations and for nesting. This site also provides herbaceous forage for moose during spring and summer.

#### Recreational uses

This site, particularly when occurring in complex with ecological site 172Xy111AK - Peat Mounds, provides striking contrast and landscape diversity in extensive areas of otherwise monotonous spruce woodlands characteristic of lacustrine terraces. This site also provides excellent opportunities for viewing wildlife and hunting.

#### Contributors

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#### 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:**

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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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