

Ecological site F227XY104AK

Stream Terraces

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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 plant species

Tree	(1) <i>Picea glauca</i> (2) <i>Picea mariana</i>
Shrub	(1) <i>Betula glandulosa</i>
Herbaceous	Not specified

Physiographic features

This site consists of level to gently sloping stream terraces and nearly level to moderately steep dissected stream terraces formed in a thin to moderately thick layer of stratified sandy and silty alluvium over very gravelly alluvium. Permafrost is generally absent on this site. Elevation is from about 1950 to 2600 feet (594 to 792 m).

This site occurs along all reaches of the Gulkana River and is probably widespread on stream terraces elsewhere in the Copper River basin.

Table 2. Representative physiographic features

Landforms	(1) Terrace
Flooding frequency	None to rare
Elevation	590 – 790 m
Slope	0 – 20 %
Water table depth	180 cm

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 19 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)	2,030 mm

Influencing water features

Soil features

The moderately well developed soils on this site typically have a mantle of stratified sandy and silty alluvium 2 to 31 inches (5 to 79 cm) thick over very gravelly alluvium. The surface organic mat ranges from 1 to 6 inches (2.5 to 15 cm) thick. Depth to seasonal high water table is more than 6 feet (1.8 m) and the soils are well drained.

Table 4. Representative soil features

Surface texture	(1) Silt loam (2) Loam (3) Fine sandy loam
Family particle size	(1) Loamy
Soil depth	150 cm
Available water capacity (0-101.6cm)	0.33 – 0.51 cm

Ecological dynamics

Wild fire impacts on the vegetation on this site are complex. In most instances, fire would kill the spruce trees and destroy much if not all of the woodland overstory. Following fires of moderate severity, sprouting from root crowns and other underground organs should initially produce Low shrub birch scrub and Low shrub birch/lichen scrub vegetation similar to the understory of the potential natural plant community. A severe burn, one in which the moss-organic layer was consumed to mineral soil, would allow for the establishment of pioneering lichens, mosses, and herbs on the soil surface. Site productivity would likely improve somewhat following a burn, but not the extent that it might on a site with shallow permafrost. Eventual stand replacement will depend to a large degree on nearby seed sources, the severity of burn, and the suitability of the seed bed. In the boreal forest zone, repeated fires generally favors the establishment of *Picea mariana* over *Picea glauca*. Observations and data collected in the Gulkana River area suggest that in many places this site represents a retrogressive stage of site 172Xy103AK - Loamy Stream Terraces, Frozen, in which wild fire has indirectly caused the permafrost to thaw and retreat deep into the soil or possibly disappear completely.

Elsewhere, particularly on dissected terrace remnants with only a thin surface layer of finer textured alluvium, the potential for permafrost probably is limited and this site appears to represent the end point of site progression on flood plains and stream terraces. This portion of the site is also where Spruce/lichen woodland is usually found.

State and transition model

Figure 3. Frozen floodplain and terraces

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Hydrological functions

Observations and data collected in the Gulkana River area suggest that in many places this site represents a retrogressive stage of site 172Xy103AK - Loamy Stream Terraces, Frozen, in which wild fire has indirectly caused the permafrost to thaw and retreat deep into the soil or possibly disappear completely. Elsewhere, particularly on dissected terrace remnants with only a thin surface layer of finer textured alluvium, the potential for permafrost probably is limited and this site appears to represents the end point of site progression on flood plains and stream terraces. This portion of the site is also where Spruce/lichen woodland is usually found.

Recreational uses

Deteriorating stands of *Picea glauca* in the transitional zone between high flood plains and stream terraces often contain abundant downfall suitable for firewood. Standing dead trees will provide a future source of firewo

Other information

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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:

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 annual-production):

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:
