Ecological site R227XY201AK
Loamy Flood Plains, Moderately Wet Dackey Cool; Swedna; Sankluna;Ogtna

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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.

Table 1. Dominant plant species

Tree	(1) *Populus balsamifera*
Shrub	(1) *Salix alaxensis*
Herbaceous	Not specified

Physiographic features

This site consists of level to occasionally strongly sloping flood plains formed in stratified silty alluvium over very gravelly and cobbly alluvium along clear water rivers and streams. The site is found on point bars and outer margins of meanders. Terrace height above mean summer channel level is typically from 2 to 8 feet (0.6 to 2.4 m) and the site is frequently to occasionally flooded. Elevation is generally from 2350 to 2900 feet (716 to 884 m).

In the Gulkana River area, this site occurs along the Middle Fork, the upper North and South Branches, and the Main Stem from the confluence of the Middle Fork to canyon rapids. It also occurs in small, scattered locations along the other reaches of the Gulkana. This site undoubtedly occurs along low to moderate gradient reaches of other non-glacial streams and rivers elsewhere in the Gulkana River basin.

Table 2. Representative physiographic features

Landforms	(1) Flood plain
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Occasional
Elevation	2,350–2,900 ft
Slope	0–10%
Water table depth	12–48 in
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)	21 in

Influencing water features

Soil features

The weakly developed soils on this site typically have a mantle of stratified sandy and silty alluvium 10 to 37 inches (25 to 94 cm) thick over very gravelly and cobbly alluvium. Depth to seasonal high water table ranges from 14 to 48 inches (36 to 122 cm) and the soils are poorly to moderately well drained. During most years, the water table is at or near the surface during periods of snowmelt and peak runoff. Aquic conditions including redox depletions and/or a reduced matrix are present within 20 inches (51 cm) of the soil surface.

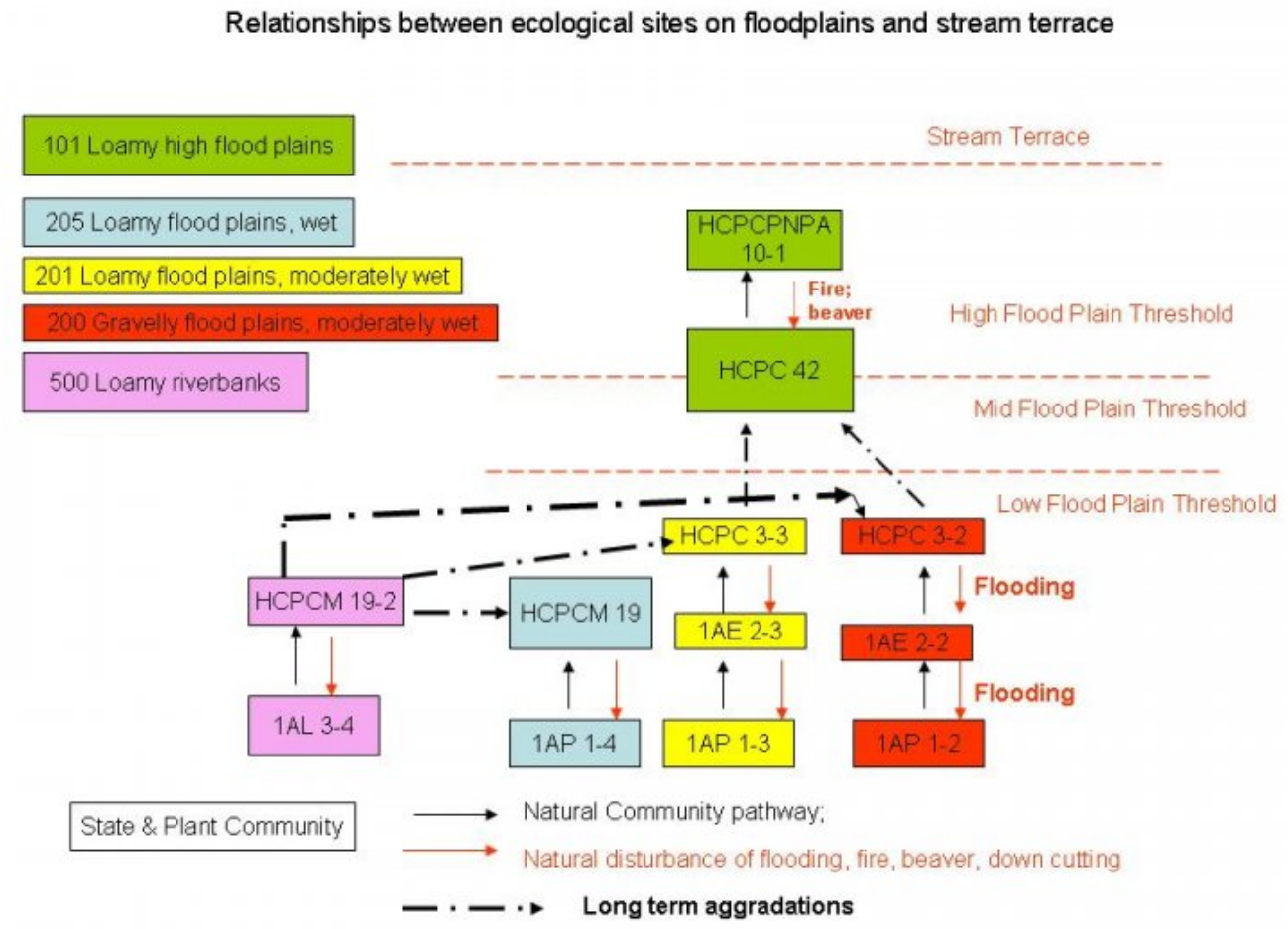
Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Sandy loam
Family particle size	(1) Sandy
Drainage class	Moderately well drained
Soil depth	60 in
Surface fragment cover >3"	35–50%
Available water capacity (0-40in)	0.1–0.3 in

Ecological dynamics

The correlated Potential Natural Plant Community on the site is Low willow scrub. Within the Gulkana River Area, two vegetation type are included in the PNC — Low willow/herb scrub and Low willow/herb2 scrub (on Sankluna soils). These vegetation types are best characterized as riparian associations, which persist under a regime of intermittent fluvial disturbance. The upper elevational limit of this site in the Gulkana River Area may be above tree line. In this situation, Low willow/herb scrub probably represents the long term vegetative potential.

State and transition model



State 1
Low willow/herb scrub

Community 1.1
Low willow/herb scrub

Tall feltleaf willow scrub is an early and apparently short lived seral stage on this site. Most stands of this type are of small extent and generally restricted to bars within and along the margins of the channel. On higher terrace positions, *Picea glauca* seedlings and small saplings are common within the willow scrub along the edges with adjacent forest vegetation. In a few places, small stands of White spruce/willow open forest occur also. This site is susceptible to wild fire, however, fire impacts are likely not severe or long lived. Salix spp. and many herbs will sprout following burning, allowing the vegetation to recover to a pre-burn conditions within a relatively short number of years. Riparian-Wetland Status Classification: mostly Palustrine scrub-shrub, seasonally flooded, mineral (Cowardin et al. 1979); riparian

Forest understory. Low willow/herb scrub consists of moderately open to closed willow 2 to 7 feet (0.6 to 2.1 m) in height with a moderately closed to closed herb layer. Low shrub canopy cover ranges from 40 to 95 percent. Dominant shrubs include Salix planifolia, S. barclayi, and often S. monticola. S. alaxensis forms an open tall shrub layer in some stands. Other low shrubs are relatively unimportant except for Potentilla fruticosa and Vaccinium uliginosum. In most stands, the herb layer is composed of a rich variety of species. Herb and dwarf shrub canopy cover is typically greater than 80 percent. Occasionally the herb layer is only sparse to open. Important herbs include Calamagrostis canadensis, Epilobium angustifolium, Equisetum spp., Mertensia paniculata, Polemonium acutiflorum, Swertia perennis, and often Carex aquatilis. Rubus arcticus and Salix reticulata are common dwarf shrubs in many stands. The ground surface is covered with feathermoss patches and herbaceous and woody litter.

Table 5. Ground cover

Tree foliar cover	1-15%
Shrub/vine/liana foliar cover	1-95%
Grass/grasslike foliar cover	1-30%
Forb foliar cover	1-75%
Non-vascular plants	1-85%
Biological crusts	0%
Litter	1-85%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	1-3%
Bedrock	0%
Water	0%
Bare ground	1-70%

State 2
Tall feltleaf willow scrub

Community 2.1
Tall feltleaf willow scrub

Tall feltleaf willow scrub consists of open to moderately closed willow 7 to 15 feet (2.1 to 4.6 m) in height. Lower layers include a sparse to moderately closed low willow layer and an open to moderately closed herb layer. The tall willow is composed entirely of *Salix alaxensis*—canopy cover ranges from 25 to 70 percent. The low shrub layer ranges from 10 to 70 percent canopy cover and is composed primarily of *S. barclayi* and *S. planifolia*. Potentilla fruticosa and *Vaccinium uliginosum* are present in most stands, but other shrubs are generally of minor importance. The composition and abundance of the herb layer is variable, depending on stand location relative to the river channel and the frequency and duration of flooding. Herb cover ranges from 30 to 60 percent in most stands. Important herbs include *Calamagrostis canadensis*, Equisetum spp., Epilobium angustifolium, *Hedysarum alpinum*, *Parnassia palustris*, and *Rubus arcticus*. Leaf litter, woody debris, and small patches of moss cover most of the soil surface. *Picea glauca* and *Populus balsamifera* seedlings are occasional to common in many stands.

Table 6. Ground cover

Tree foliar cover	1-2%
Shrub/vine/liana foliar cover	1-70%
Grass/grasslike foliar cover	1-40%
Forb foliar cover	1-15%
Non-vascular plants	1-80%
Biological crusts	0%
Litter	1-80%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	1%

State 3

Sparsely vegetated alluvium

Community 3.1
Sparsely vegetated alluvium

Additional community tables

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):**

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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:**
