

Ecological site F227XY100AK

Loamy Flood Plains subarctic continental Dackey, Klute moderately wet, Kluna frequently flooded, Kluna deep

Accessed: 09/20/2024

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.

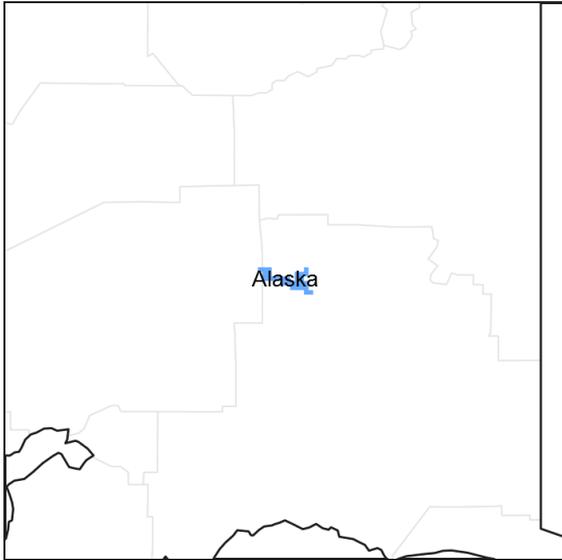


Figure 1. Mapped extent

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) <i>Populus balsamifera</i> (2) <i>Picea glauca</i>
Shrub	(1) <i>Alnus tenuifolia</i>
Herbaceous	Not specified

Physiographic features

This site consists of level to gently sloping flood plains formed in stratified sandy and silty alluvium over very gravelly and cobbly alluvium. Terrace height above the mean summer channel level is typically 2 to 8 feet (0.6 to 1.2m) and the site is occasionally to frequently flooded. Elevation is generally below about 2400 feet (732m).

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Terrace
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Occasional to frequent

Elevation	1,850–2,400 ft
Slope	0–2%
Water table depth	24–60 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 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)	80 in

Influencing water features

This site is an intermediate stage of site progression and vegetative succession on flood plains. Site progression on flood plains begins when channel migration or down cutting exposes fresh alluvium. Over time as flooding continues to deposit additional layers of alluvium, terraces height above the channel increases, the depth to water table generally increases, and frequency and duration of flooding decreases. Eventually, the flood plain is elevated above the level of normal periodic flooding, new accretions of alluvium for the most part cease, and the site becomes a stream terrace. Permafrost is frequently found within the soil profile on stream terraces.

Soil features

Soils on this site typically have a mantle of stratified sandy and silty alluvium 10 to 40 inches (25 to 102 cm) thick over very gravelly alluvium. Depth to seasonal high water table ranges from 32 to 60 inches (81 to 152 cm) and the soils are somewhat poorly or moderately well drained. Aquic conditions including redox depletions and/or a reduced matrix are present at depths of 18 to more than 60 inches (46 to more than 152 cm) below the soil surface

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Very fine sandy loam (3) Silt loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Moderate to rapid
Soil depth	60 in
Available water capacity (0-40in)	0.1–0.15 in
Soil reaction (1:1 water) (0-40in)	5.6–8.4

Ecological dynamics

This site is susceptible to wild fires, which are commonly recurring events in the Copper River basin. Both *Picea glauca* and *Populus balsamifera* are readily killed by fire and even burns of moderate intensity would likely be stand replacing. *Populus balsamifera* and most shrubs common in the PNC sprout from root crowns following fires. Post-

fire vegetative succession would be expected to pass through a short lived herb-shrub sprout stage, a tall alder-willow-balsam poplar scrub stage, and a balsam poplar forest stage before returning to the Balsam poplar-white spruce/thinleaf alder open forest characteristic of the PNC. The early stages often will have abundant woody debris on the ground surface as fire killed trees and shrubs fall. Larger diameter debris will persist into later stages. The length of time between burning and a return to the PNC is not known. Once established, *Picea glauca* grow to 45 to 60 feet tall within about 50 to 70 years.

Community dynamics also are impacted by beavers. Most stands of the PNC have common beaver-felled *Populus balsamifera* throughout the forest understory. In some stands, stumps and damaged trees indicate that most trees are cut down or killed by beavers before the PNC stage is reached and that *Populus balsamifera* composition is significantly less than it would be otherwise.

Based on observations and data collected in the Gulkana River area, this site is an intermediate stage of site progression and vegetative succession on flood plains. Site progression on flood plains begins when channel migration or down-cutting exposes fresh alluvium. Over time as flooding continues to deposit additional layers of alluvium, terraces height above the channel increases, the depth to water table generally increases, and frequency and duration of flooding decreases. Eventually, the flood plain is elevated above the level of normal periodic flooding, new accretions of alluvium for the most part cease, and the site becomes a stream terrace. Permafrost is frequently found within the soil profile on stream terraces.

Typical vegetation succession associated with the progression of site characteristics includes the following sequence of cover types on this site: Sparsely vegetated alluvium, Tall feltleaf willow/alder scrub, Tall thinleaf alder-feltleaf willow scrub, Tall thinleaf alder scrub, Balsam poplar/thinleaf alder open forest, and Balsam poplar-white spruce/thinleaf alder open forest. Continued site and vegetation progression leads to White spruce/thinleaf alder open forest on site 172Xy102AK - Loamy High Flood Plains, Frozen and Spruce/spruce muskeg sedge open forest on site 172Xy103AK - Stream Terraces, Frozen

State and transition model

Relationships between ecological sites on floodplains and stream terrace

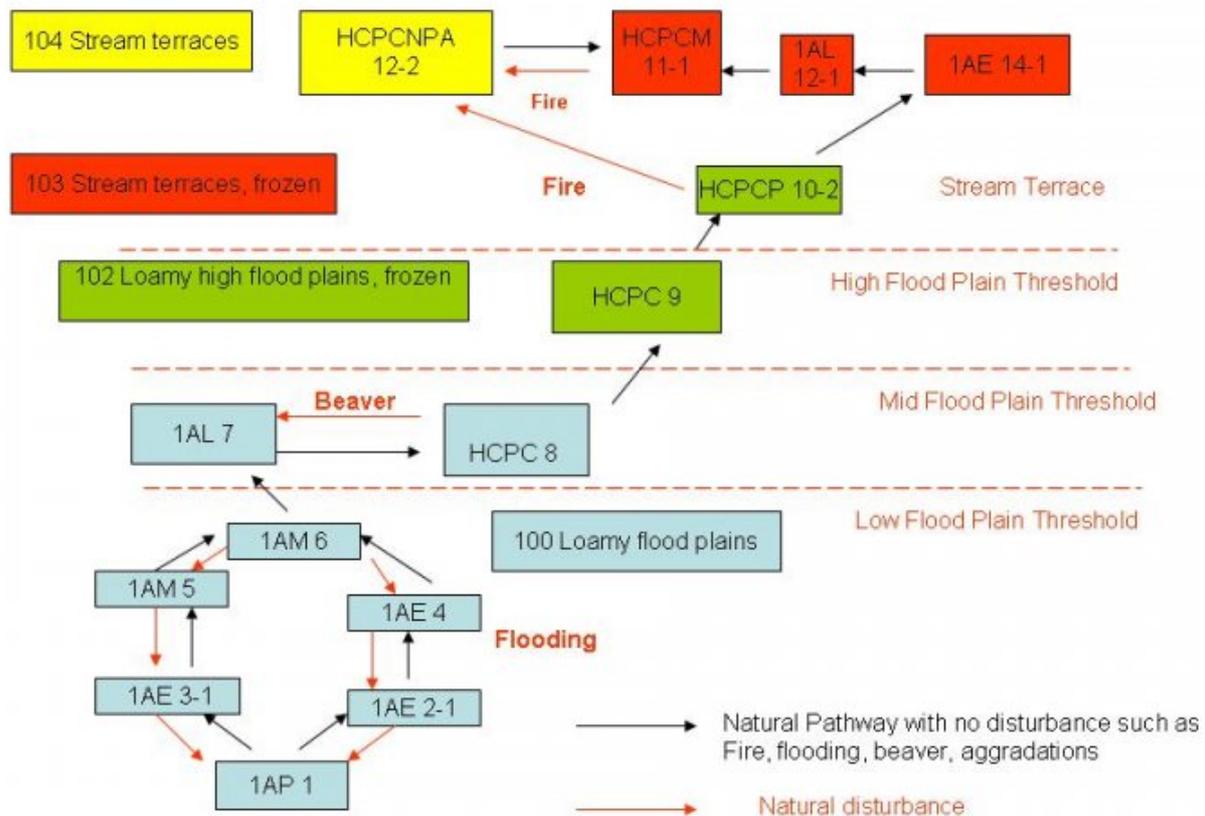


Figure 3. Frozen floodplain and terraces

State 1

Balsam poplar-white spruce/thinleaf alder open forest

Community 1.1

Balsam poplar-white spruce/thinleaf alder open forest

This plant community is the historic, potential natural community for this ecological site. Balsam poplar-white spruce/thinleaf alder open forest consists of open to moderately open stands of mixed *Populus balsamifera* and *Picea glauca*. Tree canopy cover generally ranges from around 30 to 60 percent. Occasional woodland stands (10-25 percent forest canopy cover) also occur. Tree heights and diameters vary widely in Balsam poplar-white spruce/thinleaf alder forest. Included are stands dominated by tall, medium diameter *Populus balsamifera* in which *Picea glauca* form a somewhat lower, secondary layer. At the other extreme are stands dominated by *Picea glauca* 45 to 65 feet (13.7 to 19.8 m) in height and 8 to 14 inches (20 to 36 cm) in diameter at breast height, in which the shorter, subdominant *Populus balsamifera* are beginning to die off in the stand. In all stands, *Populus balsamifera* trees tend to be poorly formed with broken, irregular, partially dead crowns. Tree basal area in two sample stands was 210 and 275 feet²/acre (48.2 and 63.1 m²/ha). The forest understory is characterized by a sparse to closed layer of *Alnus tenuifolia* 7 to 20 feet (2.1 to 6.1 m) in height. Alder canopy cover ranges from 15 to 85 percent. In general, alder canopy cover decreases as the forest canopy cover increases. *Salix alaxensis*, a tall shrub remnant from earlier successional stages, is common in some stands. Most stands have a sparse to moderately open low shrub layer. Important low shrubs include *Rosa acicularis*, *Viburnum edule*, *Ribes* spp., and *Salix* spp. The herb layer is highly variable in Balsam poplar-white spruce/thinleaf alder open forest. Herb canopy cover ranges from sparse to closed and includes a wide variety of low to tall grasses and forbs. Important herbs include *Calamagrostis canadensis*, *Arctagrostis latifolia*, *Equisetum* spp. *Artemisia tilesii*, *Epilobium angustifolium*, *Aster sibiricus*, and *Hedysarum alpinum*. Leaf litter and mulch cover most of the soil surface in most stands. Woody litter from beaver felled *Populus balsamifera* and decadent willows are well-represented to abundant in many stands.

Forest overstory. Balsam poplar/thinleaf alder open forest consists of woodland to moderately open stands of *Populus balsamifera*. *Picea glauca* is common in the overstory in many stands and is often well-represented as a secondary tree layer. Tree canopy cover generally ranges from 15 to 60 percent. Balsam poplar/thinleaf alder open forest includes mature stands with trees 35 to 65 feet (10.7 to 19.8 m) in height and 7 to 11 inches (18 to 28 cm) in diameter at breast height. Larger diameter trees are in many stands. Younger stands of shorter, smaller trees and advanced regeneration also are included. Tree basal area in mature stands ranges from 160 to 275 feet²/acre (36.7 to 63.1 m²/ha). In all stands, regardless of age, *Populus balsamifera* trees tend to be poorly formed with broken, irregular, partially dead crowns. Most trees show evidence of heart rot and decay.

Forest understory. The forest understory is characterized by a sparse to closed layer of *Alnus tenuifolia* 6 to 20 feet (1.8 to 6.1 m) in height. Alder canopy cover ranges from 15 to 85 percent. In general, alder canopy cover decreases as the forest canopy cover increases. *Salix alaxensis*, a tall shrub remnant from earlier successional stages, is common in some stands. Most stands have a sparse to moderately open low shrub layer. Important low shrubs include *Rosa acicularis*, *Viburnum edule*, *Ribes* spp., and *Salix* spp.

The herb layer is highly variable in Balsam poplar/thinleaf alder open forest. Herb canopy cover ranges from sparse to closed and includes a wide variety of low to tall grasses and forbs. Important herbs include *Arctagrostis latifolia*, *Equisetum* spp. *Artemisia tilesii*, *Epilobium angustifolium*, *Aster sibiricus*, and *Hedysarum alpinum*. Leaf litter and mulch cover most of the soil surface in most stands. Woody litter from beaver felled *Populus balsamifera* and decadent willows is well-represented to abundant in many stands.

Table 5. Ground cover

Tree foliar cover	2-45%
Shrub/vine/liana foliar cover	1-85%
Grass/grasslike foliar cover	1-60%
Forb foliar cover	1-40%
Non-vascular plants	3-65%
Biological crusts	0%
Litter	3-90%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	1-5%

Table 6. Canopy structure (% cover)

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	—	—	—	—
>0.5 <= 1	—	—	—	—
>1 <= 2	—	—	—	—
>2 <= 4.5	—	—	0-10%	0-10%
>4.5 <= 13	—	—	—	—
>13 <= 40	—	40-60%	—	—
>40 <= 80	30-60%	—	—	—
>80 <= 120	—	—	—	—
>120	—	—	—	—

Figure 4. Plant community growth curve (percent production by month).

AK0001, MLRA 172 Balsam poplar-whitespruce/thinleaf alder. Mixed forest shrub on floodplains..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	15	30	45	10	0	0	0	0

State 2

Balsam poplar/thinleaf alder open forest

Community 2.1

Balsam poplar/thinleaf alder open forest

Balsam poplar/thinleaf alder open forest consists of woodland to moderately open stands of *Populus balsamifera*. *Picea glauca* is common in the overstory in many stands and is often well-represented as a secondary tree layer.

Forest overstory. Tree canopy cover generally ranges from 15 to 60 percent. Balsam poplar/thinleaf alder open forest includes mature stands with trees 35 to 65 feet (10.7 to 19.8 m) in height and 7 to 11 inches (18 to 28 cm) in diameter at breast height. Larger diameter trees are in many stands. Younger stands of shorter, smaller trees and advanced regeneration also are included. Tree basal area in mature stands ranges from 160 to 275 feet²/acre (36.7 to 63.1 m²/ha). In all stands, regardless of age, *Populus balsamifera* trees tend to be poorly formed with broken, irregular, partially dead crowns. Most trees show evidence of heart rot and decay.

The forest understory is characterized by a sparse to closed layer of *Alnus tenuifolia* 6 to 20 feet (1.8 to 6.1 m) in height. Alder canopy cover ranges from 15 to 85 percent. In general, alder canopy cover decreases as the forest canopy cover increases. *Salix alaxensis*, a tall shrub remnant from earlier successional stages, is common in some stands. Most stands have a sparse to moderately open low shrub layer. Important low shrubs include *Rosa acicularis*, *Viburnum edule*, *Ribes* spp., and *Salix* spp. The herb layer is highly variable in Balsam poplar/thinleaf alder open forest.

Forest understory. Herb canopy cover ranges from sparse to closed and includes a wide variety of low to tall grasses and forbs. Important herbs include *Arctagrostis latifolia*, *equisetum* spp. *Artemisia tilesii*, *Epilobium angustifolium*, *Aster sibiricus*, and *Hedysarum alpinum*. Leaf litter and mulch cover most of the soil surface in most stands. Woody litter from beaver felled *Populus balsamifera* and decadent willows is well-represented to abundant in many stands.

Table 7. Ground cover

Tree foliar cover	1-70%
Shrub/vine/liana foliar cover	1-85%
Grass/grasslike foliar cover	1-85%
Forb foliar cover	1-70%
Non-vascular plants	1-15%
Biological crusts	0%
Litter	1-95%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	1-10%

State 3

Tall thinleaf alder scrub

Community 3.1 Tall thinleaf alder scrub

Tall thinleaf alder scrub consists of occasionally open to closed alder 10 to 20 feet (3.0 to 6.1 m) in height. Lower layers include an open to moderately open low shrub layer in most stands and a moderately open to closed herb layer.

Forest understory. Canopy cover of the tall alder layer typically ranges from 55 to 90 percent, although more open stands are frequently encountered. This layer is dominated by *Alnus tenuifolia*, and *Salix alaxensis* is common in many stands. Canopy cover of the low shrub layer generally ranges from 20 to 50 percent. Important species include *Salix barclayi*, *S. monticola*, and *Rosa acicularis*. *Potentilla fruticosa* is common in some stands. *Calamagrostis canadensis* and *Arctagrostis latifolia*, which dominate the herb layer, are generally about as tall as and intermixed with the low shrub layer. Other important tall herbs include *Epilobium latifolium* and *Artemisia tilesii*. *Equisetum* spp. are abundant medium herbs in most stands. Herb canopy cover generally ranges from around 40 to more than 90 percent. Seedlings of *Picea glauca* and *Populus balsamifera* are common to well-represented in the herb layer in most stands. The ground surface is covered with leaf litter and grass mulch.

Table 8. Ground cover

Tree foliar cover	1-5%
Shrub/vine/liana foliar cover	1-95%
Grass/grasslike foliar cover	1-85%
Forb foliar cover	1-40%
Non-vascular plants	1-25%
Biological crusts	0%
Litter	1-95%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	1-45%

Figure 5. Plant community growth curve (percent production by month). AK0001, MLRA 172 Balsam poplar-whitespruce/thinleaf alder. Mixed forest shrub on floodplains..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	15	30	45	10	0	0	0	0

State 4 Tall thinleaf alder/ willow scrub

Community 4.1 Tall thinleaf alder/ willow scrub

Tall thinleaf alder-feltleaf willow scrub consists of moderately open to closed stands of mixed *Alnus tenuifolia* and *Salix alaxensis* 10 to 20 feet (3.0 to 6.1 m) in height. Lower layers include a sparse to occasionally open low shrub layer and a sparse to moderately open herb layer. Canopy cover of the *Alnus tenuifolia*-*Salix alaxensis* layer ranges from 25 to more than 90 percent. Low shrub canopy cover is usually fairly sparse, ranging from around 10 percent to occasionally as much as 25 percent. Important low shrubs include *Salix barclayi*, *S. monticola*, *Potentilla fruticosa*, and *Rosa acicularis*. The herb layer is dominated by *Calamagrostis canadensis* and *Arctagrostis latifolia*, which are generally as tall or taller than, and intermixed with, the low shrubs. Other important herbs include *Epilobium angustifolium*, *Agropyron trachycaulum*, *Artemisia tilesii*, *Polemonium acutiflorum*, *Equisetum* spp., *Aster sibiricus*, and *Hedysarum alpinum*. Seedling and saplings of *Populus balsamifera* and *Picea glauca* are common in

most stands. Leaf litter and herb mulch cover much of the soil surface. Setting Distribution and extent: river corridor throughout the alder zone; moderate extent Elevation: 1,900 to 2,400 feet (579 to 732 m) Landforms: level to nearly level flood plains; terrace height from 2 to 7 feet (0.6 to 2.1 m) Principal soils: Dackey and Kluna Depth to seasonally high water table: variable; ranges from less than 20 to greater than 60 inches (less than 51 to greater than 152 cm) Flooding frequency: frequent to occasional Successional Status Tall thinleaf alder-feltleaf willow scrub is an early seral stage of flood plain succession in the alder zone. It appears to develop directly from the Tall feltleaf willow and Tall feltleaf willow/alder scrub types. In Tall thinleaf alder-feltleaf willow scrub, *Alnus tenuifolia* and *Salix alaxensis* occupy approximately the same shrub canopy level. Over time, the alder will continue to increase in height and the willow will begin to die out, leading to Tall thinleaf alder scrub. Seedlings and saplings of *Populus balsamifera* and *Picea glauca* are already present in the Tall thinleaf alder-feltleaf willow scrub stage.

Table 9. Ground cover

Tree foliar cover	1-10%
Shrub/vine/liana foliar cover	5-50%
Grass/grasslike foliar cover	1-70%
Forb foliar cover	1-35%
Non-vascular plants	1-25%
Biological crusts	0%
Litter	30-95%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	1-40%

State 5

Tall thinleaf alder-feltleaf willow scrub

Community 5.1

Tall thinleaf alder-feltleaf willow scrub

Tall thinleaf alder/willow scrub consists of open to closed stands of mixed *Alnus tenuifolia* 8 to 15 feet (2.4 to 4.6 m) in height, and somewhat shorter *Salix* spp., with an open to moderately closed herb layer below. Canopy cover of the alder/willow layer ranges from 25 to more than 90 percent. Important willows include *Salix barclayi*, *S. planifolia*, and *S. monticola*. In most stands, *Potentilla fruticosa* and *Rosa acicularis* are common low shrubs, and seedlings and saplings of *Populus balsamifera* and *Picea glauca* are common. *Calamagrostis canadensis*, *Arctagrostis latifolia*, and other tall and medium herbs dominate the herb layer. Other important herbs include *Equisetum* spp., *Epilobium angustifolium*, *Artemisia tilesii*, *Aster sibiricus*, *Hedysarum alpinum*, *Poa* spp., and *Rubus arcticus*. In depressions and other wet microsites, *Carex aquatilis* often is well-represented to abundant. Leaf litter and herb mulch cover much of the soil surface. Setting Distribution and extent: river corridor throughout the alder zone; moderate extent Elevation: 1,900 to 2,400 feet (579 to 732 m) Landforms: level to nearly level point bars on flood plains; range in terrace height—generally from 2 to 4 feet (0.6 to 1.2 m) Principal soils: Dackey Depth to seasonally high water table: variable; ranges from less than 20 to greater than 60 inches (less than 51 to greater than 152 cm) Flooding frequency: occasional to frequent in many places Successional Status Tall thinleaf alder/willow scrub is an early seral stage of flood plain succession in the alder zone. It appears to develop directly from Low willow/herb scrub. Over time, the alder will continue to increase in height and relative canopy cover and the willow will decrease in abundance, leading to Tall thinleaf alder scrub. Seedlings and saplings of *Populus balsamifera* and *Picea glauca* are already present in Tall thinleaf alder-willow scrub.

Table 10. Ground cover

Tree foliar cover	1-20%
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Shrub/vine/liana foliar cover	1-75%
Grass/grasslike foliar cover	1-85%
Forb foliar cover	1-40%
Non-vascular plants	1-15%
Biological crusts	0%
Litter	1-95%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	1-75%

Figure 6. Plant community growth curve (percent production by month). AK0001, MLRA 172 Balsam poplar-whitespruce/thinleaf alder. Mixed forest shrub on floodplains..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	15	30	45	10	0	0	0	0

State 6

Tall feltleaf willow scrub

Community 6.1

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. Setting

Distribution and extent: river corridor throughout the survey area; minor extent Elevation: 1,900 to 2,900 feet (579 to 884 m) Landforms: level flood plains; frequently immediately adjacent to the river channel; terrace height is usually less than 4 feet (less than 1.2 m) Principal soils: Tangoe and Dackey Depth to seasonally high water table: variable; ranges from 10 to 60 inches (25 to 152 cm) Flooding frequency: frequent to occasional Successional Status *Salix alaxensis* is a rapidly growing pioneering species on flood plains, and well adapted to frequent flooding and siltation. This species also appears to be relatively short lived and intolerant of canopy competition. Tall feltleaf willow scrub is an early seral stage of flood plain succession in both the alder and willow zones. Within the willow zone, this cover type typically occurs as stands of small extent on gravelly and silty bars immediately adjacent to the channel. Within the alder zone, Tall feltleaf willow scrub along with Tall feltleaf willow/alder scrub occur spatially and successionally between Sparsely vegetated alluvium and the Thinleaf alder scrub cover types.

Table 11. Ground cover

Tree foliar cover	1-30%
Shrub/vine/liana foliar cover	1-90%
Grass/grasslike foliar cover	1-40%
Forb foliar cover	1-20%

Non-vascular plants	1-80%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	45-80%

State 7

Low willow/hrb scrub

Community 7.1

Low willow/hrb scrub

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. Setting Distribution and extent: river corridor throughout the survey area; primarily the Middle Fork, Main Stem north of Canyon Rapids, and the upper reaches of the North and South Branches; moderate extent Elevation: 1,950 to 2,900 feet (594 to 884 m) Landforms: level to occasionally moderately sloping flood plains and low stream terraces; terrace height usually less than about 4 feet (less than about 1.2 m) Principal soils: Dackey, cool; Tangoe; Swedna, high elevation; Swedna; and Ogtna Depth to seasonally high water table: variable; mostly 10 to 40 inches (25 to 102 cm) Flooding frequency: frequent to occasional Successional Status Low willow/herb scrub occurs from above treeline down into the forest zone, and successional status varies from potential to early seral vegetation depending on the site. Within the forest zone, most stands have uncommon to common *Picea glauca* and often *Populus balsamifera* seedlings, saplings, and small trees. With forest development, terrace height usually increases from channel migration and down-cutting. Flooding frequency decreases and the soils become better drained. Along the Middle Fork immediately below Dickey Lake, Low willow/herb scrub is potential vegetation or possibly seral to Low shrub birch scrub, which replaces the willow on stream terraces as terrace height increases and periodic flooding ceases. In many places, Low willow/herb scrub occurs in close proximity with, and is transitional to, Low willow/water sedge scrub. Flooding is less frequent and of shorter duration in Low willow/herb scrub compared with Low willow/water sedge scrub. Also, surface ponding is less prevalent in Low willow/herb scrub.

Table 12. Ground cover

Tree foliar cover	5%
Shrub/vine/liana foliar cover	1-85%
Grass/grasslike foliar cover	15%
Forb foliar cover	1-5%
Non-vascular plants	1-2%
Biological crusts	0%
Litter	85%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%

Bedrock	0%
Water	0%
Bare ground	1%

State 8

Sparsely vegetated alluvium

Community 8.1

Sparsely vegetated alluvium

Sparsely vegetated alluvium consists of sparse stands of pioneering species on areas of recently deposited or exposed alluvium. Vegetative cover in these stands is generally low, ranging from less than 20 percent to 45 percent, or occasionally more. A wide variety of plant species in various combinations are in these stands. Common species on areas of Sparsely vegetated alluvium are listed in the Species Summary List. Sparsely vegetated alluvium is a pioneering stage of flood plain succession in both the willow and alder zones. All species in the Sparsely vegetated alluvium type appear to share several key adaptive traits—the ability to rapidly invade disturbed sites and exposed alluvium, and the ability to tolerate annual flooding and repeated siltation. Many of these pioneering species are dominants in later stages of vegetative progression. Examples include *Salix alaxensis*, *Alnus tenuifolia*, *Populus balsamifera*, and *Picea glauca*. Others are apparently intolerant of competition and soon become rare or absent as vegetation development progresses. Examples include *Epilobium latifolium*, *Achillea millefolium*, *Fragaria virginiana*, and *Erigeron* spp. Wetland Status Classification: Palustrine vegetated unconsolidated shore, Palustrine persistent emergent, Palustrine broad-leaved deciduous scrub-shrub (Cowardin et al. 1979); water regime ranges from temporarily to intermittently flooded; soils are mineral; usually riparian

Additional community tables

Animal community

This site is utilized by a wide variety of wildlife. Migrating caribou frequently pass through areas of this site. Limited observations suggest that caribou generally pass through areas closely adjacent to both the river channel and the lacustrine uplands, apparently avoiding extensive dense tall shrub and forest vegetation. Moose find quality browse from the *Salix alaxensis* and other willows that are common to abundant in early and mid successional stages; light to moderate hedging is observed in most stands. *Hedysarum alpinum* roots in these same stages are excellent bear forage; shallow pits and other evidence of grubbing are common in open areas. This site also provides a staging area for bears fishing for salmon in summer and fall. Bald Eagles use tall *Populus balsamifera* and occasionally *Picea glauca* for nest trees; both trees are utilized for perches. Beaver activity is common throughout this site. Most stands of the PNC have common beaver-felled *Populus balsamifera* throughout the forest understory. In some stands, stumps and damaged trees indicate that most trees are cut down or killed by beavers before the PNC stage is reached and that *Populus balsamifera* composition is significantly less than it would be otherwise.

Hydrological functions

Based on observations and data collected in the Gulkana River area, this site is an intermediate stage of site progression and vegetative succession on flood plains. Site progression on flood plains begins when channel migration or down-cutting exposes fresh alluvium. Over time as flooding continues to deposit additional layers of alluvium, terraces height above the channel increases, the depth to water table generally increases, and frequency and duration of flooding decreases. Eventually, the flood plain is elevated above the level of normal periodic flooding, new accretions of alluvium for the most part cease, and the site becomes a stream terrace. Permafrost is frequently found within the soil profile on stream terraces.

Recreational uses

Sparsely vegetated point bars and low flood plains provide good primitive camp sites; marginal quality firewood

often available in later successional stages.

Wood products

Balsam poplar/thinleaf alder open forest consists of woodland to moderately open stands of *Populus balsamifera*. *Picea glauca* is common in the overstory in many stands and is often well-represented as a secondary tree layer. Tree canopy cover generally ranges from 15 to 60 percent. Balsam poplar/thinleaf alder open forest includes mature stands with trees 35 to 65 feet (10.7 to 19.8 m) in height and 7 to 11 inches (18 to 28 cm) in diameter at breast height. Larger diameter trees are in many stands. Younger stands of shorter, smaller trees and advanced regeneration also are included. Tree basal area in mature stands ranges from 160 to 275 feet²/acre (36.7 to 63.1 m²/ha). In all stands, regardless of age, *Populus balsamifera* trees tend to be poorly formed with broken, irregular, partially dead crowns. Most trees show evidence of heart rot and decay.

Other information

Insects and Disease Pests and Animal Damage: All *Populus balsamifera* trees have discoloration and heart rot from unknown pathogen. Evidence visible even in smallest trees and saplings. Crowns of larger trees usually with dead tops and other dead areas

Table 13. Representative site productivity

Common Name	Symbol	Site Index Low	Site Index High	CMAI Low	CMAI High	Age Of CMAI	Site Index Curve Code	Site Index Curve Basis	Citation
white spruce	PIGL	50	67	11	25	–	–	–	

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:**
