

172Xy200AK - Gravelly Flood Plains, Moderately Wet

Low willow/herb scrub

Part A: Description of Site

1.c. Landscape Narrative: This site consists of level to gently sloping flood plains formed in a very thin mantle of stratified alluvium over gravelly and cobbly alluvium along clear water rivers and streams. Terrace height above the mean summer channel level is typically 3 feet (0.6 m) or less and the site is frequently to occasionally flooded. In some places, the site is cut with shallow, narrow ephemeral and perennial channels. Elevation is generally from 2500 to 2850 feet (762 to 869 m).

In the Gulkana River area, this site occurs primarily along the Middle Fork, along the Main Stem from the outlet of Paxson Lake to the Middle Fork confluence, and along Keg Creek on the North Branch. It also occurs in small, isolated areas throughout the remainder of the River corridor. This site undoubtedly occurs along moderate to steep gradient reaches of the other non-glacial streams and rivers elsewhere in the Copper River basin.

MLRA (USDA 1981): 172X - Copper River Plateau

Ecological Units (Nowacki and Brock 1995): 135A - Copper River Basin Section

1.d.(3). Associated Water Features Narrative: (BLM)

2.j. Climate Narrative: The subarctic continental climate of this site is characterized by long cold winters and short warm summers. Mean January temperature is 1 °F.; mean July temperature is 54 °F. Mean annual precipitation ranges from 18 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.

3.s. Soils Narrative: The weakly developed soils on this site typically have a mantle of stratified sandy and silty alluvium less than 8 inches (20 cm) thick over very gravelly and cobbly alluvium. The surface organic mat ranges from 0 to 1 inch (0 to 2.5 cm) thick. Depth to seasonal high water table ranges from 12 to 40 inches (30 to 102 cm) and the soils are somewhat poorly drained. During periods of peak snowmelt and runoff, the water table is at or near the soil surface. On the lowest flood plain positions, the water table may remain near the surface most of the growing season.

4.e. Vegetation Narrative: Low willow/herb scrub is the correlated Potential Natural Plant Community on this site. In most places, this PNC is best characterized as a riparian association, which develops and persists under a regime of intermittent fluvial disturbance. In the Gulkana River Area, the upper elevational limit of this site, which corresponds with the upper elevational limit of the survey area within the river corridor, may be above the limit of tree growth. In this situation, the PNC probably represents the long term vegetative potential.

5.b. Wildlife Narrative: This site provides excellent winter habitat for moose. Willow browse is dense and most stands exhibit moderate to severe hedging. Beaver use of the willow is evident in many stands. Uses include forage and dam building materials.

6. Community Dynamics (Fire, etc.): 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 usually restricted to gravelly bars within and along the margins of the river channel. Otherwise, Low willow/herb scrub is the predominant vegetation type found on this site. On slightly higher terrace positions, white spruce seedlings and small saplings are

frequently found within the Low willow/herb scrub. In a few places, small stands of White spruce/willow open forest occur also.

This site is probably only moderately susceptible to wild fire. Wet soil conditions should limit the severity of burning, allowing the willow scrub to regenerate quickly from root sprouts.

7. List of Commonly Associated Sites (number and names):

a. Upland:

172Xy103AK - Stream Terraces, Frozen

b. Riparian or Wetland:

172Xy101AK - Loamy High Flood Plains

172Xy205AK - Loamy Flood Plains, Wet

172Xy500AK - Loamy Riverbanks

8. List of Competing Sites (number and names):

172Xy201AK - Loamy Flood Plains, Moderately Wet: similar to slightly higher flood plain positions; soils with 10 to 37 inches (25 to 94 cm) of stratified sandy and silty alluvium over very gravelly and cobbly alluvium; similar vegetative potential.

172Xy205AK - Loamy Flood Plains, Wet: similar to slightly lower flood plain positions; soils usually with 10 to 37 inches (25 to 94 cm) of stratified sandy and silty alluvium over very gravelly and cobbly alluvium; water table 0 to 18 inches (0 to 46 cm) and poorly to very poorly drained soils; Low willow/water sedge scrub vegetative potential.

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Part B: Interpretations for Use and Management of the Site

1.a. Plant Community Characteristics: see attached summary tables and diagrams for seral stages and stand characteristics.

1.b. Riparian or Wetland Site Progression:

(1) Aggradation: Based on observations and data collected in the Gulkana River area, this site is best described as an early stage of site progression and vegetation succession on flood plains along moderate to steep gradient stream channels. Down-cutting by the channel and continued surface deposition of alluvium will over time raise the terrace height, increase the thickness of the fine textured alluvium on the soil surface, and cause other changes in site and soil properties. Site progression appears to lead to 172Xy101AK - Loamy High Flood Plains and White spruce/willow open forest vegetation. Near the upper elevational limit of 172Xy200AK - Gravelly Flood Plains, Moderately Wet the potential for trees is probably limited to occasional scattered trees and clumps of trees on favorable microsites. In these areas, site progression appears to lead to 172Xy201AK - Loamy Flood Plains, Moderately Wet and continued Low willow/herb scrub vegetative potential.

1.e. Insects and Disease Pests and Animal Damage: In many places, insect gall are common on willows. The insect(s) associated with these galls is not known. Most stands experience seasonally heavy browsing by moose and the willow is usually moderately to occasionally severely hedged. Beaver cut willow stems are common throughout many stands.

1.k. Applicable Field Offices: BLM, Glennallen District Office

NOTES:

As currently defined, site 200 is generally below treeline; site progression from low flood plains toward high flood plains is accompanied by vegetation succession toward White spruce/willow woodland. Treeline, however, appears to occur at about 2500 feet elevation, just below the elevation of Dickey Lake on the upper Middle Fork.

During initial field work in the Tangle Lakes portion of the Delta River Area, gravelly flood plains with Low willow/herb scrub were found in number of places. These site/stands are probably entirely above the elevation of tree growth and woodland potential. These sites/stands also are similar to ones found immediately below Dickey Lake in the Gulkana River Area.

In conjunction with the Delta River Area project, a new site will have to be defined to include gravelly flood plains above treeline. On this new site, Low willow/herb scrub would still be the potential during site progression toward higher flood plains. Dickey Lake area sites/stands currently included in site 200 would be correlated to the new site.

Ecological Site:172Xy200AK - Gravelly Flood Plains, Moderately Wet
 Cover type: Low willow/herb scrub

Seral status: PNC

Number of stands: 4

Source of data: Gulkana River Area

Key: Con = % constancy; Avg = average % canopy cover;

Min = minimum % canopy cover; Max = maximum %

canopy cover; Imp = importance value

Note: Avg, Min, and Max based only on stands in which a
 taxon occurred; Imp = sq root of (Con * Avg)

: Only taxa with >10% constancy included.

Common_name	Stratum	Con	Avg	Min	Max	Imp
white spruce	T1	25	1	1	1	4
white spruce	T2	50	5	2	7	15
white spruce	T3	75	3	1	5	14
Labrador-tea	SS	25	1	1	1	4
black crowberry	SS	25	2	2	2	7
blueberry willow	SS	50	4	3	5	14
bog blueberry	SS	100	11	2	15	32
feltleaf willow	SS	25	5	5	5	11
net vein willow	SS	25	1	1	1	5
red bearberry	SS	50	10	10	10	22
shrub birch	SS	25	5	5	5	11
shrubby cinquefoil	SS	75	12	1	20	30
willow	SS	100	70	60	75	84
Canadian bunchberry	F	25	1	1	1	4
Sitka burnet	F	25	5	5	5	11
anemone	F	25	1	1	1	4
arctic sweet coltsfoot	F	25	7	7	7	13
buttercup	F	25	1	1	1	4
cloudberry	F	50	1	1	1	7
common fireweed	F	25	1	1	1	4
dwarf scouring-rush	F	25	1	1	1	4
felwort	F	100	1	1	3	11
fleabane	F	25	1	1	1	4
horsetail	F	25	10	10	10	16
marsh cinquefoil	F	50	1	1	1	6
marsh grass-of-parnassus	F	50	2	1	2	9
milk-vetch	F	25	1	1	1	5
northern blackberry	F	50	15	5	25	27
serpent-grass	F	25	1	1	1	4
single delight	F	50	2	1	2	9
tall Jacob`s-ladder	F	75	2	1	4	13
violet	F	50	1	1	1	6
bluejoint reedgrass	G	50	10	5	15	22
polar grass	G	75	1	1	2	9
rough bent	G	25	1	1	1	4
sedge	G	75	3	2	5	16
water sedge	G	25	20	20	20	22
Moss layer	M	100	26	15	35	51
Lichen layer	L	50	10	5	15	22
Bare soil	B	100	1	1	2	11
Litter and mulch	B	100	22	1	70	47
Rock fragments	B	50	1	1	1	6
Woody litter (>1" dia.)	B	50	7	3	10	18

Salix spp. includes: SALIX SAMO2 SAPL2

Ecological Site:172Xy200AK - Gravelly Flood Plains, Moderately Wet

Cover type: Tall feltleaf willow scrub

Seral status: early

Number of stands: 1

Source of data: Gulkana River Area

Key: Con = % constancy; Avg = average % canopy cover;

Min = minimum % canopy cover; Max = maximum %

canopy cover; Imp = importance value

Note: Avg, Min, and Max based only on stands in which a

taxon occurred; Imp = sq root of (Con * Avg)

: Only taxa with >10% constancy included.

Common_name	Stratum	Con	Avg	Min	Max	Imp
balsam poplar	T3	100	15	15	15	39
white spruce	T3	100	2	2	2	14
bog blueberry	SS	100	1	1	1	7
feltleaf willow	SS	100	25	25	25	50
russet buffalo-berry	SS	100	3	3	3	17
shrub birch	SS	100	1	1	1	7
willow	SS	100	10	10	10	32
American milk-vetch	F	100	1	1	1	10
Tilesius' wormwood	F	100	1	1	1	7
Unknown forb	F	100	1	1	1	7
alpine sweet-vetch	F	100	1	1	1	10
arctic aster	F	100	1	1	1	10
common fireweed	F	100	1	1	1	10
dwarf fireweed	F	100	5	5	5	22
fleabane	F	100	1	1	1	7
marsh grass-of-parnassus	F	100	1	1	1	7
milk-vetch	F	100	7	7	7	26
northern blackberry	F	100	1	1	1	7
ragwort	F	100	1	1	1	7
rosy pussytoes	F	100	1	1	1	7
single delight	F	100	1	1	1	7
tall scouring-rush	F	100	1	1	1	7
blue grass	G	100	2	2	2	14
fescue	G	100	4	4	4	20
wheatgrass	G	100	1	1	1	7
Moss layer	M	100	10	10	10	32
Lichen layer	L	100	40	40	40	63
Bare soil	B	100	1	1	1	7
Litter and mulch	B	100	15	15	15	39
Rock fragments	B	100	60	60	60	77
Woody litter (>1" dia.)	B	100	1	1	1	7

Salix spp. includes: SABA3

Ecological Site:172Xy200AK - Gravelly Flood Plains, Moderately Wet

Cover type: White spruce/willow open forest

Seral status: post-PNC

Number of stands: 1

Source of data: Gulkana River Area

Key: Con = % constancy; Avg = average % canopy cover;

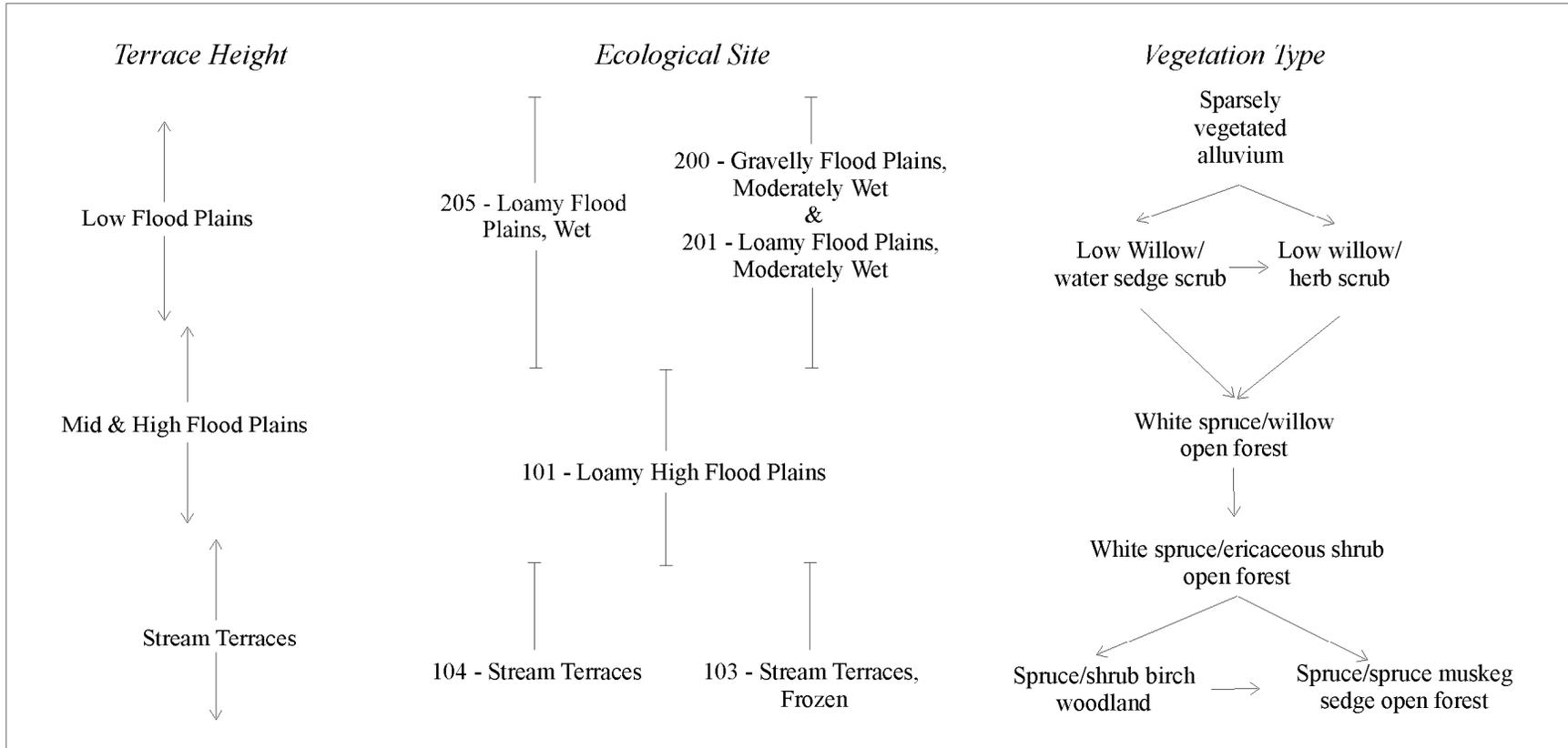
Min = minimum % canopy cover; Max = maximum %
canopy cover; Imp = importance value

Note: Avg, Min, and Max based only on stands in which a
taxon occurred; Imp = sq root of (Con * Avg)

: Only taxa with >10% constancy included.

Common_name	Stratum	Con	Avg	Min	Max	Imp
white spruce	T1	100	10	10	10	32
white spruce	T2	100	35	35	35	59
white spruce	T3	100	15	15	15	39
Labrador-tea	SS	100	10	10	10	32
black crowberry	SS	100	5	5	5	22
bog blueberry	SS	100	35	35	35	59
feltleaf willow	SS	100	10	10	10	32
lowbush cranberry	SS	100	2	2	2	14
red bearberry	SS	100	2	2	2	14
shrubby cinquefoil	SS	100	15	15	15	39
willow	SS	100	55	55	55	74
common fireweed	F	100	1	1	1	7
dwarf scouring-rush	F	100	1	1	1	7
horsetail	F	100	1	1	1	7
marsh grass-of-parnassus	F	100	1	1	1	7
milk-vetch	F	100	10	10	10	32
northern blackberry	F	100	1	1	1	7
wintergreen	F	100	1	1	1	7
polar grass	G	100	1	1	1	10
water sedge	G	100	1	1	1	7
Moss layer	M	100	30	30	30	55
Lichen layer	L	100	2	2	2	14
Bare soil	B	100	1	1	1	7
Litter and mulch	B	100	60	60	60	77
Woody litter (>1" dia.)	B	100	15	15	15	39

Salix spp. includes: SALIX



General relationships between terrace height, ecological sites, and vegetation types in the willow zone, Gulkana River Area, Alaska.

172Xy200AK - Gravelly Flood Plains, Moderately Wet (200tech.doc)

Selected physical properties for typical stages of site progression on flood plains and stream terraces in the willow zone, Gulkana River Area, Alaska.

Ecological Site (stage)	Cover Type(s)	Terrace Height avg(rge)	Flooding Frequency	Depth to SSK avg(rge)	Thickness of OM avg(rge)	Depth to Water Table Pedons w/ <60"	Depth when <60" avg(rge)	Depth to Permafrost Pedons w/ <60"	Depth when <60" avg(rge)
		-- ft --		-- in --	-- in --	-- % --	-- in --	-- % --	-- in --
205 - Loamy Flood Plains, Wet	SALIX/CAAQ	2 (1-5)	freq-occas	17 (0-42)	4 (1-10)	100	13 (0-30)	0	-
200 - Gravelly Flood Plains, Moderately Wet	SALIX/herb	3 (2-4)	occas-freq	28 (3-60)	1 (0-3)	100	28 (12-44)	0	-
201 - Loamy Flood Plains, Moderately Wet	SALIX/herb	3 (1-8)	occas-freq	25 (9-50)	1 (0-6)	79	36 (32-45)	0	-
	SALIX/herb2	7 (4-12)	occas	60 (58-60)	1 (0-1)	12	46 (46-60)	0	-
101 - Loamy High Flood Plains (PNC)	PIGL/SALIX	6 (3-15)	occas-rare	27 (3-60)	2 (0-7)	39	40 (31-58)	24	33 (17-49)
101 - Loamy High Flood Plains (post-PNC)	PIGL/erica	9 (4-25)	rare-none	30 (12-60)	4 (0-10)	21	35 (8-50)	54	29 (6-52)
104 - Stream Terraces (mid to late seral)	PICEA/BEGL	11(6-25)	rare-none	30 (18-60)	4 (1-9)	9	31 (16-40)	27	36 (18-55)
103 - Stream Terraces, Frozen (PNC)	PICEA/CALU2	9 (4-20)	rare-none	30 (18-60)	7 (2-12)	100	8 (0-23)	100	15 (0-25)

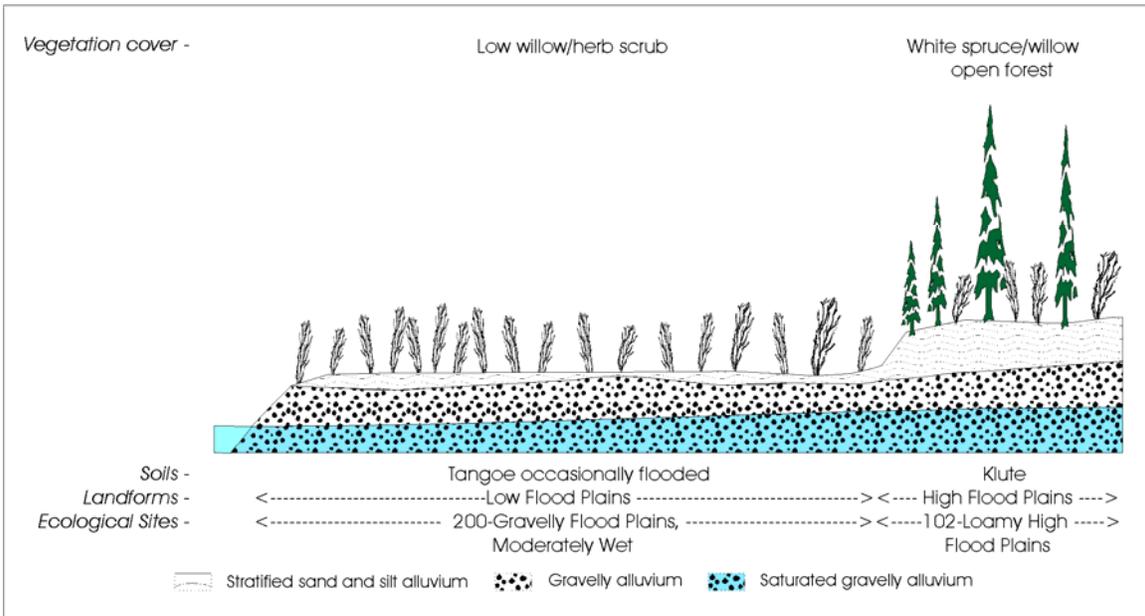
Notes:

Terrace height - estimated height of flood plain or stream terrace surface above the mid summer channel level.

Depth to SSK - depth to sandy skeletal alluvium below the mineral soil surface in pedons without permafrost or in which the permafrost level was below the SSK contact; measured in the soil pit.

Thickness of OM - thickness of the surface organic mat; measured in the soil pit.

Depth to Water Table and Permafrost - Pedons w/ <60": pedons in which a water table or permafrost was present within 60 inches below the mineral surface. Depth when <60": depth below the mineral surface when present; measured in the soil pit.



Representative cross section in the willow zone along the Main Stem below Paxson Lake.