172Xy205AK - Loamy Flood Plains, Wet
Low willow/water sedge scrub

Part A: Description of Site

1.c. Landscape Narrative: This site consists of level to, on rare occasions, strongly sloping flood plains formed in stratified sandy and silty alluvium over very gravelly and cobbly alluvium along clear water rivers and streams. Terrace height above mean summer channel level is typically 3 feet (0.9 m) or less and the site is frequently to occasionally flooded. Throughout most of the growing season, the water table remains at or near the surface; ponded areas are common. Elevation is generally from 2400 to 2900 feet (732 to 884 m).

In the Gulkana River area, this site occurs primarily along the upper Middle Fork and in scattered locations along the Main Stem between Paxson Lake and the Middle Fork confluence and along the upper North Branch. This site likely occurs along low to moderate gradient reaches of other non-glacial streams and rivers elsewhere in the Copper River basin.

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

Ecological Unit (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 have a mantle of stratified sandy and silty alluvium less than 10 to as much as 37 inches (25 to 94 cm) thick over very gravelly and cobbly alluvium. The surface organic mat ranges from 0 to occasionally as much as 13 inches (0 to 33 cm). Depth to seasonal high water table ranges from 0 to 18 inches (0 to 46 cm) and the soils are poorly to very poorly drained. During most years, the water table is at or near the surface during much of the growing season and ponded areas are common. Aquic conditions including redox depletions and/or a reduced matrix are present within 10 inches (25 cm) of the mineral surface.

4.e. Vegetation Narrative: Low willow/water sedge scrub is the correlated Potential Natural Plant Community on this site. This PNC is best characterized as a riparian association that develops and persists under a regime of nearly continuous fluvial disturbance. Microsites on slightly higher terrace positions and/or with better soil drainage support Low willow/herb scrub.

5.b. Wildlife Narrative: (BLM)

Beaver activity is extensive on this site. In many places, the shallow water table and ponded conditions appear to be partly if not entirely attributed to dam building. Often, the beaver dams themselves form the escarpment breaks between different terrace levels. Channels between ponds appear to maintained and possibly created by beavers.

At certain times of the year, this site undoubtedly provides excellent feeding habitat for moose. Willow in most stands is moderately hedged, primarily from winter browsing. Sedges and other herbaceous vegetation are likely used to some extent in spring and

early summer. Ducks, swans, and a variety of other birds use this site for feeding, nesting, hunting, and other activities.

6. Community Dynamics (Fire, etc.): This site occurs in areas on the flood plains that are consistently wet because of flooding, infiltration of ground water, shallow water table, and ponding associated with dam building by beavers. Soils include both those that are very shallow to gravel and cobble (Tangoe soils) as well as those with a moderately thick to thick surface layer of stratified sandy and silty alluvium (Swedna soils). The key factor appears to be the nearly continuous occurrence of the shallow water table. On slightly elevated or otherwise better drained microsites, *Carex aquatilis* decreases in abundance and is replaced by *Calamagrostis canadensis*, *Arctagrostis latifolia*, and other herbs common to the flood plains. Immediately adjacent to the river channel, beaver ponds, and other areas of ponded water, the willow shrub layer becomes more open and patchy and the vegetation is totally dominated by *Carex aquatilis* and other tall, bright green sedges.

This site probably is rarely burned by wild fire because of wet conditions. Even during the dry summer of 1994, a shallow water table and ponded conditions were found throughout this site. If the vegetation were burned, the willow and herbaceous cover would be expected to rapidly regeneration from sprouting by root crowns and other underground plant parts.

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

a. Upland:

b. Riparian or Wetland:

172Xy200AK - Gravelly Flood Plains, Moderately Wet

172Xy201AK - Loamy Flood Plains, Moderately Wet

172Xy500AK - Loamy Riverbanks

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

172Xy200AK - Gravelly Flood Plains, Moderately Wet: similar flood plain position but usually along moderate to steep gradient reaches of the stream; soils somewhat poorly drained and with a water table at 20 to 36 inches (51 91 cm); Low willow/herb scrub vegetative potential.

172Xy201AK - Loamy Flood Plains, Moderately Wet: similar flood plain position; soils poorly to moderately well drained and with a water table at 14 to 24 inches (36 to 61 cm); Low willow/herb scrub vegetative potential.

172Xy500AK - Loamy Riverbanks: similar flood plain position but typically immediately adjacent to the stream channel or shoreline of beaver ponds; soils frequently flooded, very poorly drained; and with a water table at less than 12 inches (30 cm); Sedge-grass riparian meadow vegetative potential.

172Xy205AK - Loamy Flood Plains, Wet

Low willow/water sedge scrub

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 Progressions:

(1) Aggradation: Based on observations and data collected in the Gulkana River area, this site is an early stage of site progression and vegetation succession on flood plains along low to moderate gradient stream channels. Channel migration and down-cutting, continued deposition of alluvium, or changes in subsurface drainage regimes will raise the effective height of the flood plain and reduce site wetness. Site progression would be expected to lead to 172Xy200AK - Gravelly Flood Plains, Moderately Wet or 172Xy201AK - Loamy Flood Plains, Moderately Wet and Low willow/herb scrub vegetation. Continued elevation of the terrace surface, reduced flooding, lowering of the water table, site stability, and vegetation succession would eventually lead to White spruce/willow open forest vegetation characteristic of ecological site 172Xy101AK - Loamy High Flood Plains and White spruce/willow open forest vegetation.

172Xy205AK - Loamy Flood Plains, Wet is closely related both geographically and ecologically with 172Xy500 - Loamy Riverbanks. As was described in *Part A.6 Community Dynamics*, these two sites usually occur adjacent to one another on the landscape. Site and vegetative characteristics between the two are gradational and to a degree somewhat arbitrary.

1.e. Insects and Disease Pests and Animal Damage: As described in *Part A.5.b Wildlife Narrative*, this site appears in places to develop or at least be maintained as a result of beaver activity and associated impacts on ponding and soil moisture. Reduced beaver activity to the extent that dams and water levels could not be maintained could lead to progression of this toward 172Xy200AK - Gravelly Flood Plains, Moderately Wet or 172Xy201AK - Loamy Flood Plains, Moderately Wet. Conversely, increased beaver activity that increases the degree or extent of ponding and soil moisture, could lead to additional areas of 172Xy500AK - Loamy Riverbanks.

1.g. Recreation and Natural Beauty: This site provides excellent opportunities for viewing wildlife during almost any season. In addition, the bright green vegetation in complex with the clear, blue water in beaver ponds and the river channel, provide outstanding scenic beauty during the summer. The scenic beauty would be equally appealing in fall when the willow and sedges have turned yellow and golden brown. Wetness during these seasons would restrict general access to areas of this site.

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

Ecological Site: 172Xy205AK - Loamy Flood Plains, Wet
Cover type: Low willow/water sedge scrub
Seral status: PNC
Number of stands: 11
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.

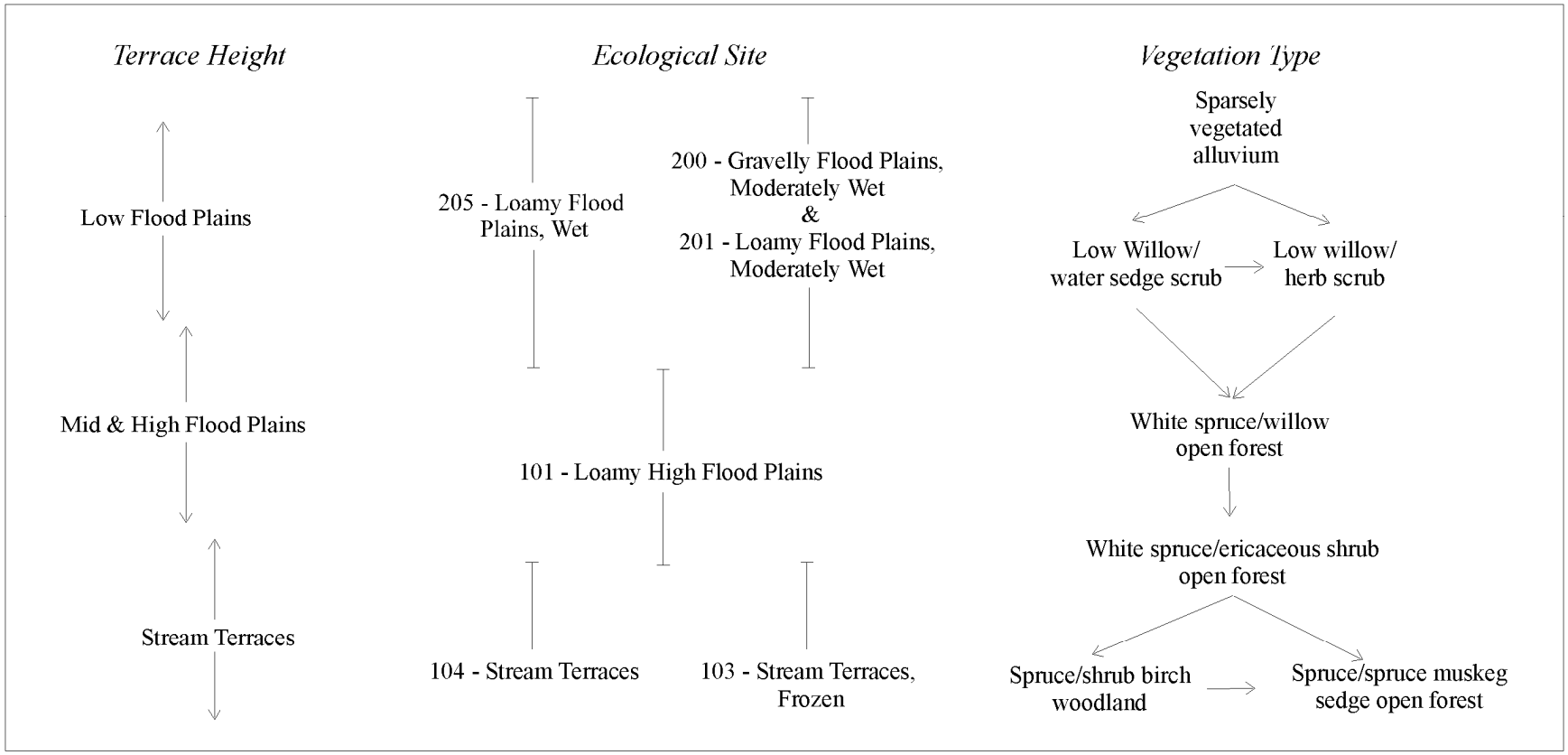
Common_name	Stratum	Con	Avg	Min	Max	Imp
white spruce	T2	27	3	1	7	9
white spruce	T3	27	6	1	15	12
blueberry willow	SS	18	1	1	1	4
bog blueberry	SS	64	8	1	20	23
net vein willow	SS	82	20	3	60	40
shrub birch	SS	18	4	1	7	8
shrubby cinquefoil	SS	91	7	1	15	25
willow	SS	100	69	25	85	83
anemone	F	27	1	1	1	4
arctic dock	F	45	4	1	8	14
arctic sweet coltsfoot	F	18	2	1	3	6
common fireweed	F	18	2	1	2	5
felwort	F	73	2	1	7	11
marsh cinquefoil	F	36	11	5	25	20
marsh grass-of-parnassus	F	64	1	1	1	6
northern blackberry	F	82	3	1	15	15
stonecrop	F	18	1	1	1	4
tall Jacob`s-ladder	F	73	1	1	2	8
valerian	F	27	1	1	2	5
blue grass	G	45	1	1	2	6
bluejoint reedgrass	G	64	5	1	15	19
polar grass	G	36	1	1	2	7
rush	G	18	1	1	1	3
sedge	G	36	19	1	60	26
water sedge	G	82	37	7	80	55
Moss layer	M	100	48	10	90	69
Lichen layer	L	91	4	1	10	18
Bare soil	B	36	2	1	5	9
Litter and mulch	B	100	29	1	70	54
Rock fragments	B	18	1	1	1	3
Surface water	B	82	9	1	35	27
Woody litter (>1" dia.)	B	36	3	1	7	10

Salix spp. includes: SABA3 SALIX SAPL2

Ecological Site: 172Xy205AK - Loamy Flood Plains, Wet
Cover type: Low willow/herb scrub
Seral status: PNC on drier microsites
Number of stands: 6
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	T2	83	3	1	10	15
white spruce	T3	17	1	1	1	3
black crowberry	SS	33	1	1	1	5
blueberry willow	SS	17	2	2	2	6
bog blueberry	SS	83	8	1	15	26
feltleaf willow	SS	17	5	5	5	9
net vein willow	SS	83	8	2	15	25
red bearberry	SS	17	5	5	5	9
shrub birch	SS	50	2	1	3	9
shrubby cinquefoil	SS	100	10	7	15	32
willow	SS	100	82	75	91	91
Bodin's milkvetch	F	17	1	1	1	3
Canadian bunchberry	F	33	4	2	5	11
Sitka burnet	F	17	1	1	1	3
alpine sweet-vetch	F	33	5	2	7	12
anemone	F	50	3	1	7	12
common fireweed	F	33	1	1	1	5
cuckoo flower	F	17	1	1	1	3
felwort	F	83	3	1	5	14
horsetail	F	50	1	1	1	6
larkspur-leaf monkshood	F	33	1	1	1	4
marsh cinquefoil	F	17	2	2	2	6
marsh grass-of-parnassus	F	83	1	1	1	6
milk-vetch	F	33	3	2	4	10
northern bedstraw	F	17	2	2	2	6
northern blackberry	F	100	2	1	5	14
ragwort	F	17	1	1	1	4
serpent-grass	F	17	1	1	1	3
tall Jacob`s-ladder	F	100	1	1	1	8
tall bluebells	F	17	2	2	2	6
tall scouring-rush	F	17	1	1	1	3
valerian	F	17	3	3	3	7
violet	F	33	1	1	1	4
blue grass	G	17	1	1	1	3
bluejoint reedgrass	G	67	5	1	10	18
polar grass	G	17	10	10	10	13
sedge	G	50	2	2	2	10
water sedge	G	67	6	1	10	21
Moss layer	M	100	36	15	75	60
Lichen layer	L	83	7	1	15	24
Bare soil	B	33	1	1	1	4
Litter and mulch	B	100	28	5	50	52
Surface water	B	17	1	1	1	3
Woody litter (>1" dia.)	B	83	2	1	5	14

Salix spp. includes: SABA3 SALIX SANO2 SAPL2

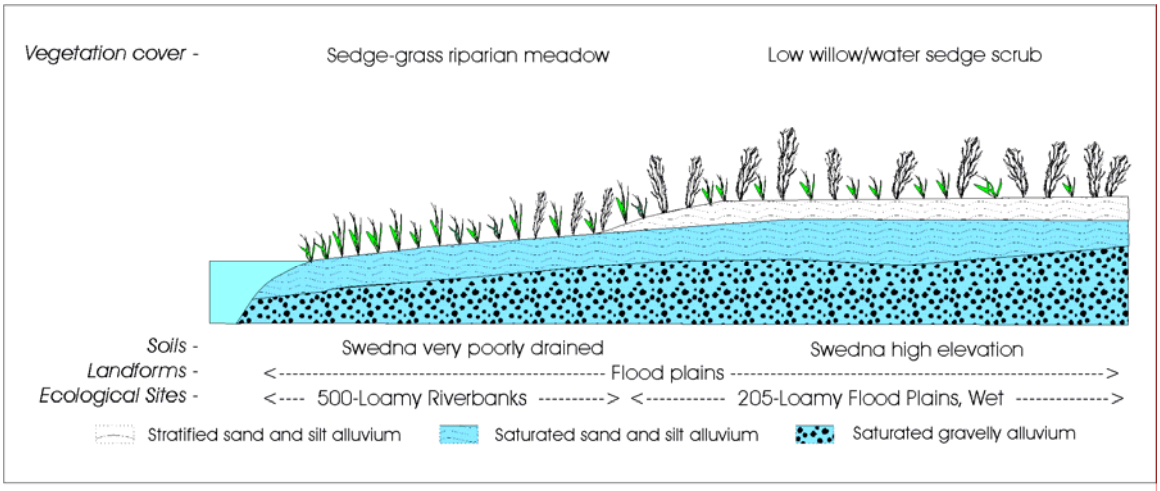


General relationships between terrace height, ecological sites, and vegetation types in the willow zone, Gulkana River Area, Alaska.

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		Depth to Permafrost	
						Pedons w/ <60″	Depth when <60″ avg(rge)	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 upper Middle Fork.

Representative setting of ecological site 172Xy205AK - Loamy Flood Plains, Wet on low flood plains. The Swedna High Elevation soils on this site support Low willow/water sedge scrub vegetation. Immediately adjacent to the slough in the foreground is ecological site 172Xy500 - Loamy Riverbanks and Sedge-grass riparian meadow vegetation.