

172Xy104AK - Stream Terraces
Spruce/shrub birch woodland

Part A: Description of Site

1.c. Landscape Narrative: 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.

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 -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.

3.s. Soils Narrative: 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.

4.e. Vegetation Narrative: Spruce/shrub birch woodland is the correlated Potential Natural Plant Community on this site. In some places this site supports Spruce/lichen woodland, which may be a persistent and relatively stable plant community on soils that are shallow to sandy and gravelly alluvium and on drier microsites such as shoulders and crests of low ridges and other convex slopes.

5.b. Wildlife Narrative: (BLM)

6. Community Dynamics (Fire, etc.): 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*.

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

a. Upland:

172Xy102AK - Loamy High Flood Plains, Frozen

172Xy103AK - Stream Terraces, Frozen

b. Riparian or Wetland:

172Xy101AK - Loamy High Flood Plains

172Xy105AK - Terraces, Wet

172Xy501AK - Wet Depressions

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

172X103AK - Loamy Stream Terraces, Frozen: similar stream terraces positions, usually not on low ridges or other convex slopes; soil with permafrost within 4 to 32 inches below mineral surface; Spruce/spruce muskeg sedge open forest vegetative potential but in most places Spruce/shrub birch woodland is present; usually with somewhat shorter trees and with lower abundance of lichens on the ground surface.

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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

(2) Degradation: 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.

1.g. Recreation and Natural Beauty: 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 firewood.

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

Ecological Site: 172Xy104AK - Stream Terraces

Cover type: Spruce/shrub birch woodland

Seral status: PNC

Number of stands: 10

Source of data: Gulkana River Area

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

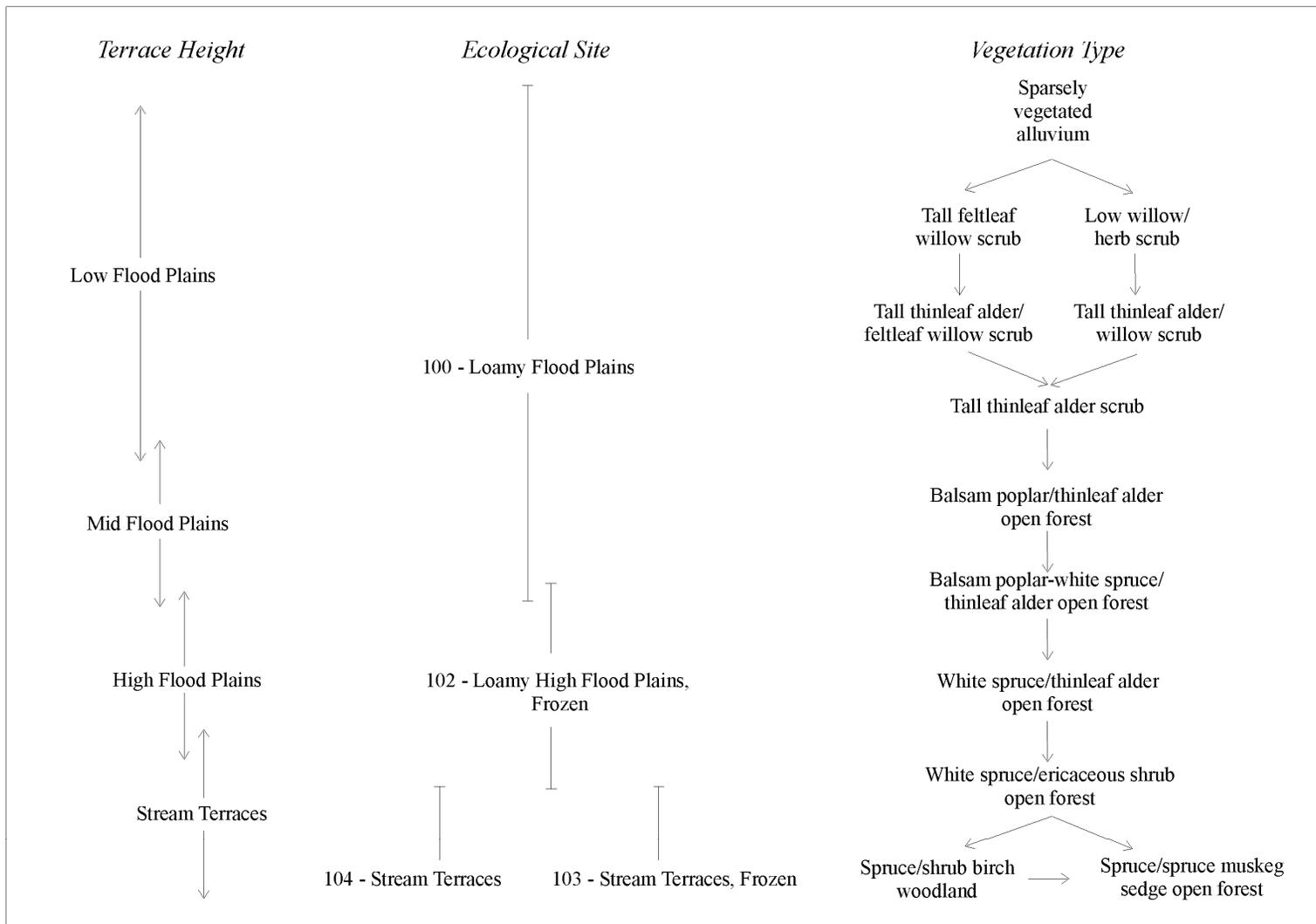
Min = minimum % canopy cover; Max = maximum %
canopy cover; Imp = importance value

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

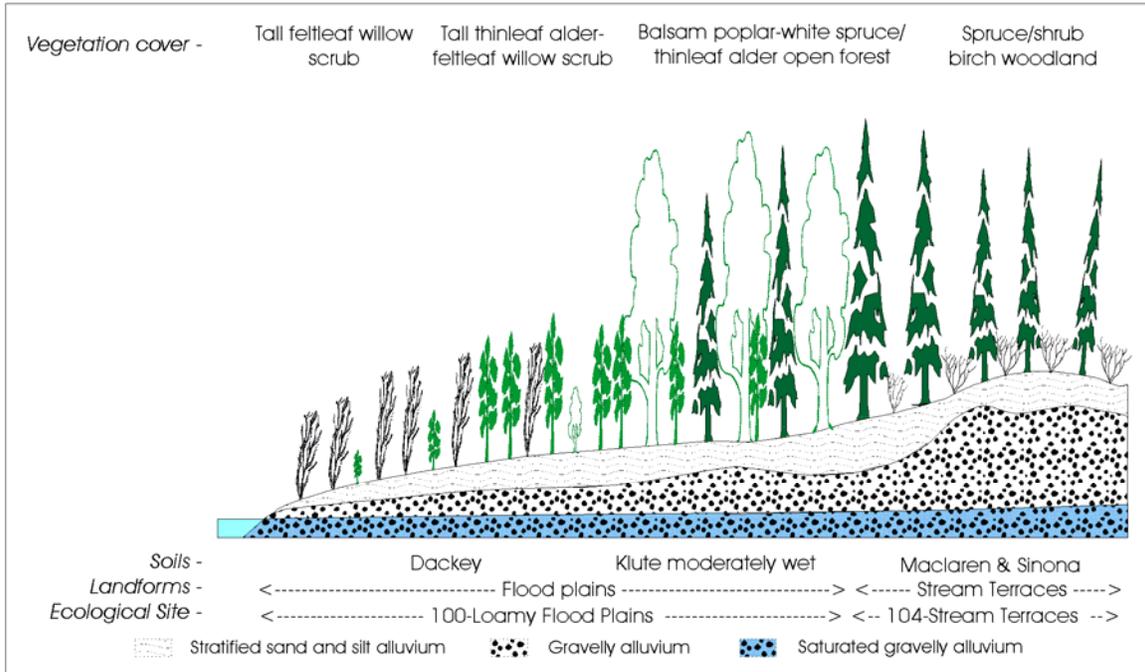
: Only taxa with >10% constancy included.

Common_name	Stratum	Con	Avg	Min	Max	Imp
black spruce	T2	40	28	15	45	33
white spruce	T2	20	25	15	35	22
white spruce	TX	20	23	20	25	21
black spruce	T3	40	8	5	15	17
Beauverd spiraea	SS	40	2	1	5	9
Labrador-tea	SS	100	18	5	35	42
black crowberry	SS	60	4	1	10	16
blueberry willow	SS	30	4	3	5	10
bog blueberry	SS	100	16	5	40	39
lowbush cranberry	SS	100	11	1	25	33
prickly rose	SS	30	3	1	5	9
shrub birch	SS	80	32	7	65	51
shrubby cinquefoil	SS	30	1	1	1	4
willow	SS	100	9	2	15	31
Canadian bunchberry	F	20	3	2	4	8
Labrador lousewort	F	20	1	1	1	3
arctic sweet coltsfoot	F	80	5	1	15	19
cloudberry	F	50	7	1	15	19
common fireweed	F	20	2	1	3	6
horsetail	F	70	23	1	60	40
northern commandra	F	20	3	2	3	7
tall bluebells	F	20	1	1	2	5
bluejoint reedgrass	G	60	3	1	10	14
polar grass	G	60	5	1	10	18
sedge	G	60	6	1	15	18
Moss layer	M	100	66	40	90	81
Lichen layer	L	100	14	5	25	37
Bare soil	B	20	1	1	1	3
Litter and mulch	B	90	12	1	40	33
Surface water	B	30	1	1	2	6
Woody litter (>1" dia.)	B	60	2	1	5	11

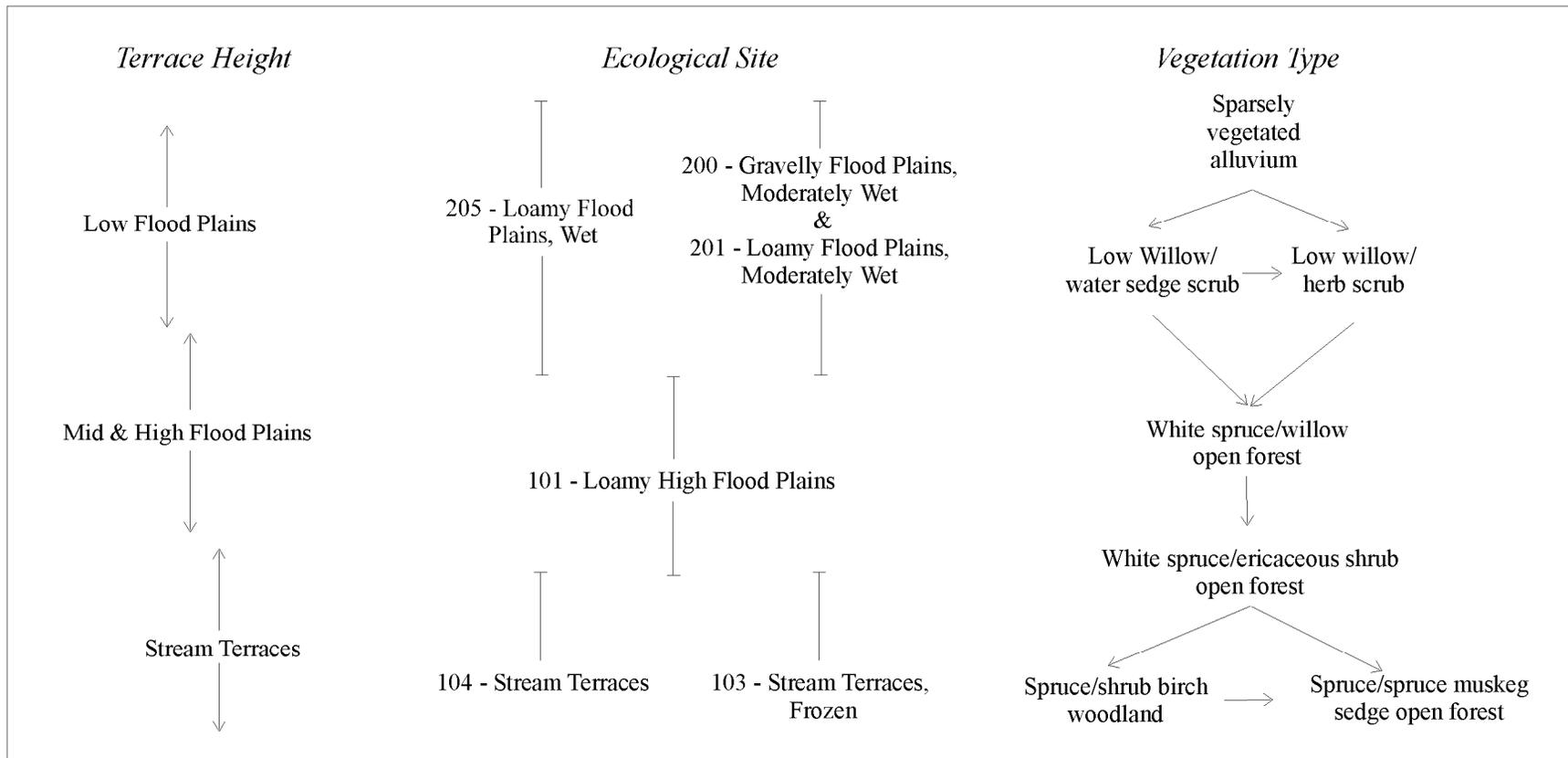
Salix spp. includes: SALIX SAPL2



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



Representative cross section in the alder zone along the Main Stem below Canyon Rapids, in the alder zone along the lower North Branch of the Gulkana River. On flood plains and point bars immediately adjacent to the river channel is ecological site 172Xy100 - Loamy Flood Plains with Tall thinleaf alder-feltleaf willow scrub and Balsam poplar/thinleaf alder open forest and ecological site 172Xy102AK - Loamy High Flood Plains, Frozen with tall White spruce/thinleaf alder open forest.



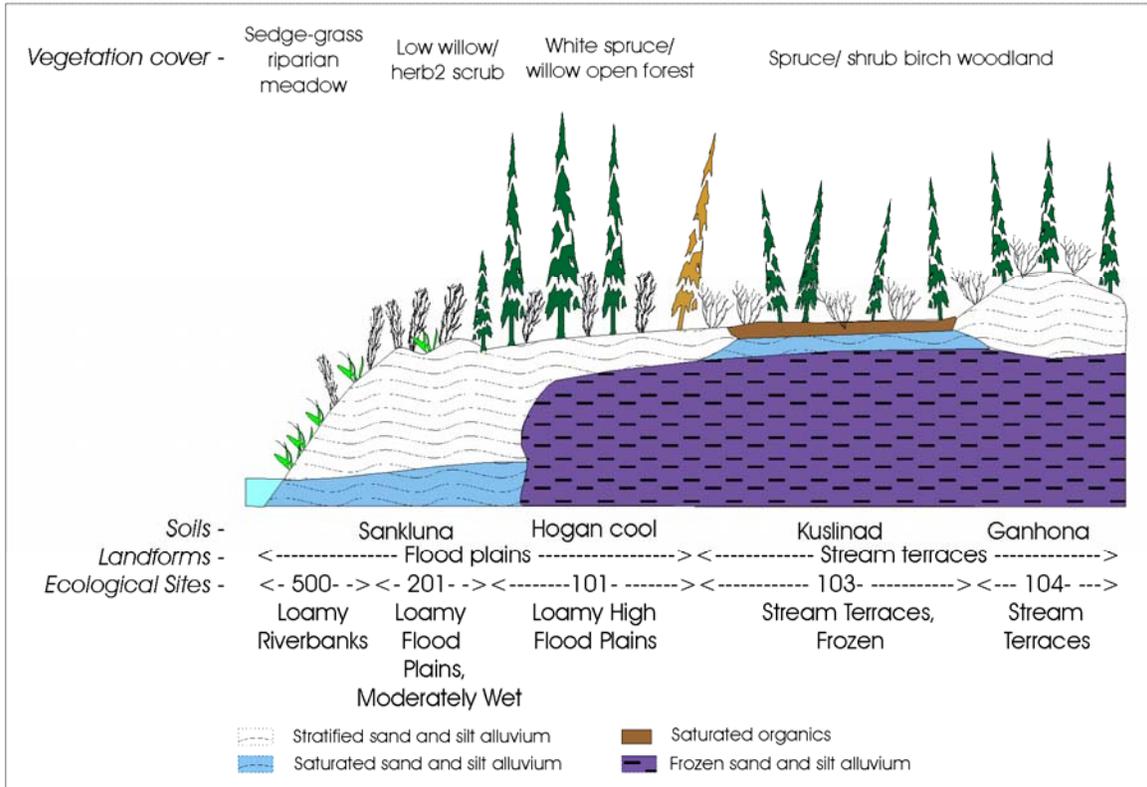
General relationships between terrace height, ecological sites, and vegetation types in the willow zone, Gulkana River Area, Alaska.

172Xy104AK - Stream Terraces (104tech.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 lower Middle Fork.