

**172Xy105AK - Terraces, Wet**

**Black spruce/closed sheath cottongrass woodland**

**Part A: Description of Site**

*1.c. Landscape Narrative:* This site occurs on nearly level and broadly concave stream terraces and lacustrine terraces and on toeslopes on lacustrine terrace escarpments. The surface is mantled in moderately thick to thick organic deposits. Surface microtopography is strongly hummocky. Most areas of this site appear to receive a surplus of water as surface runoff and ground water discharge from the adjacent uplands. Ponding or wet conditions near the surface during much of the summer appear to be the most important characteristic of this site.

In the Gulkana River area, this site is of moderate extent. It occurs along the entire length of the West Fork and along the lower reaches of the Main Stem. This site probably occurs elsewhere in the Copper River basin also.

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

Ecological Unit (Nowacki and Brock 1995): 135A - Copper River Basin Subsection

*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 soils on this site are formed in moderately thick to thick organic materials over loamy alluvium and lacustrine deposits. The surface organic mat typically ranges from about 7 to 34 inches (18 to 86 cm) thick in the inter-hummock depressions and from 16 to over 40 inches (41 to 102 cm) within the hummocks. The seasonal high water table ranges from as much as 10 inches (25 cm) of ponding to a depth of 10 inches (25 cm) below the surface and the soils are very poorly drained. Depth to permafrost ranges from within the organic material to 38 inches (97 cm) below the mineral surface. Aquic conditions including reduced matrices and saturation are present within 10 inches (25 cm) of the surface.

*4.e. Vegetation Narrative:* Black spruce/closed sheath cottongrass woodland is the correlated PNC on this site.

*5.b. Wildlife Narrative:* (BLM)

*6. Community Dynamics (Fire, etc.):* Wild fire impacts and post-fire succession on this site are complex and difficult to predict. Because of the landscape position and moisture status of the site, the vegetation probably would be susceptible to burning only during extended dry periods. Because this site receives a surplus of water as surface runoff and ground water discharge from the adjacent uplands, it should always be considerably wetter than surrounding areas. Although an increase in the depth to permafrost could occur following a fire, soil drainage probably would be poor because of topography and permafrost and the site would remain wet.

Cottongrass tussocks would be expected to be most impacted by fire. The degree to which *Eriophorum brachyantherum* can survive severe burning is not known. Soil and site characteristics in areas with the best tussock development suggest that their

development requires a degree of site stability. A best guess is that burning would favor an increase in sedges and dwarf shrubs and a decrease in cottongrass tussocks for an indeterminate period of time. Following light to moderate burning, Low shrub birch/closed sheath cottongrass scrub would develop on this site. Tree regeneration, primarily *Picea mariana*, would be expected to occur slowly.

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

a. Upland:

172Xy103AK - Stream Terraces, Frozen

172Xy104AK - Stream Terraces

172Xy106AK - Glaciolacustrine Uplands

172Xy107AK - Glaciolacustrine Uplands, Frozen

172Xy110AK - Glaciolacustrine Uplands, Ruptic

b. Riparian or Wetland:

172Xy111AK - Peat Mounds

172Xy202AK - Shallow Drainages

172Xy501AK - Wet Depressions

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

172Xy103AK - Stream Terraces, Frozen: similar position on stream terraces but usually greater slope or plane to slightly convex shape; hummocky microtopography weakly developed to lacking; less than 16 inches (41 cm) of surface organic material; water table from 0 to 18 inches (0 to 46 cm) below the mineral surface; Spruce/spruce muskeg sedge open forest vegetative potential.

172Xy107AK - Glaciolacustrine Uplands, Frozen: similar position on lacustrine but usually greater slope or plane to slightly convex shape; hummocky microtopography weakly developed to lacking; less than 16 inches (41 cm) of surface organic material; water table from 0 to 18 inches (0 to 46 cm) below the mineral surface; Spruce/spruce muskeg sedge open forest 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*: This site is not known to represent a progressive stage of similar or adjoining sites, in particular ecological sites 172Xy103AK - Stream Terraces, Frozen and 172Xy107AK - Glaciolacustrine Uplands, Frozen. Transitional area between these sites and ecological site 172Xy105AK - Terraces, Wet are common, however, throughout the Gulkana River Area.

(2) *Degradation*: Given that the soil surface is mantled with a moderately thick to thick layer of organic material throughout this site, dramatic changes in the characteristics of this site might be expected following severe wild fire during extremely dry years. The surface organic material could become highly susceptible to burning if there was a significant drop in the level of the water table during prolonged dry conditions. Ground fires under such conditions could burn into the organic mat to a considerable degree and conceivably result in a lowering of the base elevation of the surface. Later, when the water table once again rose to more normal levels, conditions may be suitable for the development of sedge wet meadow vegetation and site characteristics more typical of ecological site 172Xy501AK - Wet Depressions. Whether changes of this magnitude as a result of wild fire have in fact ever occurred is not known.

1.g. *Recreation and Natural Beauty*: The hummocky microtopography and wet characteristics of this site makes for extremely difficult walking when crossing areas of this site. Soil conditions result in severe limitations for trails.

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

Ecological Site: 172Xy105AK - Terraces, Wet  
 Cover type: Black spruce/closed sheath cottongrass woodland  
 Seral status: PNC  
 Number of stands: 29  
 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	52	20	10	45	32
black spruce	TX	34	18	10	30	25
black spruce	T3	45	8	1	15	19
Labrador-tea	SS	100	17	5	40	42
black crowberry	SS	76	4	1	8	16
blueberry willow	SS	31	2	1	5	9
bog blueberry	SS	100	14	3	55	38
bog rosemary	SS	21	1	1	5	5
grayleaf willow	SS	14	7	1	15	10
lowbush cranberry	SS	100	6	2	20	25
red bearberry	SS	28	4	1	10	11
shrub birch	SS	97	15	2	45	38
small cranberry	SS	48	1	1	1	5
willow	SS	69	4	1	10	17
Labrador lousewort	F	17	1	1	1	3
arctic sweet coltsfoot	F	66	3	1	10	14
cloudberry	F	72	7	1	20	23
closed-sheath cottongrass	G	100	40	15	70	64
polar grass	G	52	3	1	6	12
sedge	G	21	2	1	8	7
spruce-muskeg sedge	G	38	11	2	55	20
water sedge	G	24	9	5	15	15
Moss layer	M	100	52	25	75	72
Lichen layer	L	100	11	1	25	33
Bare soil	B	21	2	1	5	6
Litter and mulch	B	100	18	2	50	42
Surface water	B	79	3	1	10	16
Woody litter (>1" dia.)	B	93	1	1	5	10

Salix spp. includes: SABA3 SAPL2

Ecological Site: 172Xy105AK - Terraces, Wet  
 Cover type: Spruce/spruce muskeg sedge open forest  
 Seral status: similar-to-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.

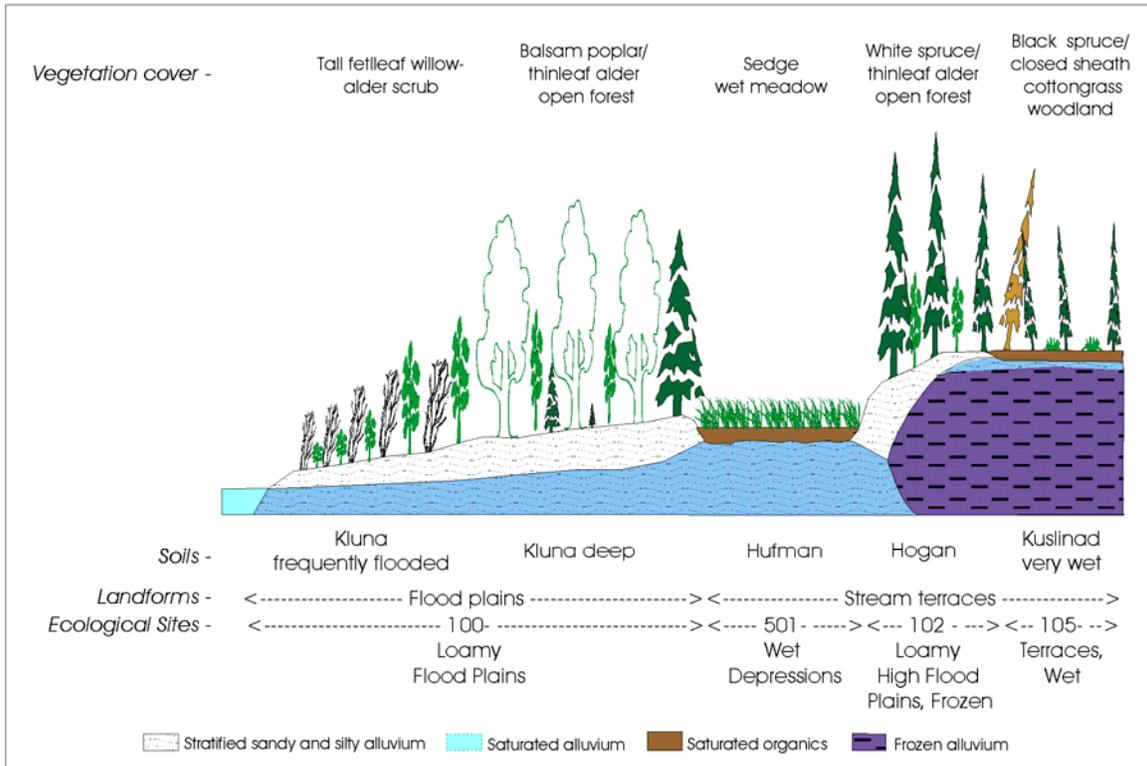
Common_name	Stratum	Con	Avg	Min	Max	Imp
black spruce	TX	100	40	40	40	63
Labrador-tea	SS	100	30	30	30	55
black crowberry	SS	100	4	4	4	20
blueberry willow	SS	100	6	6	6	24
bog blueberry	SS	100	30	30	30	55
red bearberry	SS	100	10	10	10	32
shrub birch	SS	100	15	15	15	39
shrubby cinquefoil	SS	100	5	5	5	22
willow	SS	100	5	5	5	22
arctic sweet coltsfoot	F	100	1	1	1	10
cloudberry	F	100	2	2	2	14
horsetail	F	100	1	1	1	7
closed-sheath cottongrass	G	100	15	15	15	39
polar grass	G	100	1	1	1	7
spruce-muskeg sedge	G	100	55	55	55	74
Moss layer	M	100	60	60	60	77
Lichen layer	L	100	5	5	5	22
Litter and mulch	B	100	10	10	10	32
Woody litter (>1" dia.)	B	100	5	5	5	22

Salix spp. includes: SABA3

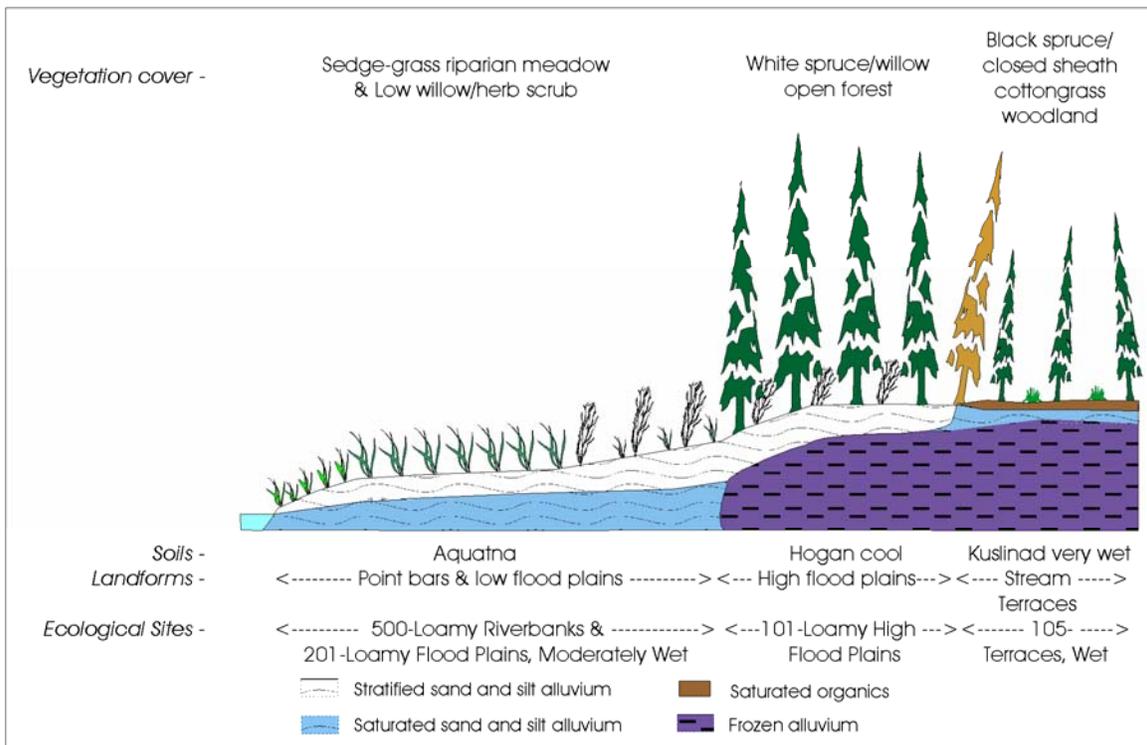
Ecological Site: 172Xy105AK - Terraces, Wet  
 Cover type: Low shrub birch/closed sheath cottongrass scrub  
 Seral status: early-mid  
 Number of stands: 21  
 Source of data: Gulkana River Area  
 Key: Con = % constancy; Avg = average % canopy cover;  
 Min = minimum % canopy cover; Max = maximum %  
 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	33	4	1	7	12
white spruce	T2	19	2	2	3	7
black spruce	T3	52	13	1	30	26
white spruce	T3	24	6	3	15	12
Labrador-tea	SS	95	15	4	45	38
black crowberry	SS	38	3	1	7	11
blueberry willow	SS	24	3	1	8	9
bog blueberry	SS	100	10	1	30	31
bog rosemary	SS	38	9	1	35	19
leatherleaf	SS	33	6	1	15	14
lowbush cranberry	SS	81	8	1	65	25
red bearberry	SS	33	4	1	7	11
shrub birch	SS	100	24	2	90	49
shrubby cinquefoil	SS	24	2	1	5	7
small cranberry	SS	38	1	1	1	5
willow	SS	67	3	1	6	15
arctic sweet coltsfoot	F	33	4	1	8	11
cloudberry	F	76	3	1	7	15
closed-sheath cottongrass	G	86	59	20	85	71
cottongrass	G	14	43	25	75	25
polar grass	G	43	5	1	10	14
sedge	G	29	8	1	20	16
spruce-muskeg sedge	G	14	3	1	5	7
water sedge	G	33	16	1	40	23
Moss layer	M	100	27	5	55	52
Lichen layer	L	90	9	1	35	28
Bare soil	B	29	6	1	35	13
Litter and mulch	B	100	25	1	60	50
Surface water	B	62	7	1	35	21
Woody litter (>1" dia.)	B	71	1	1	2	7

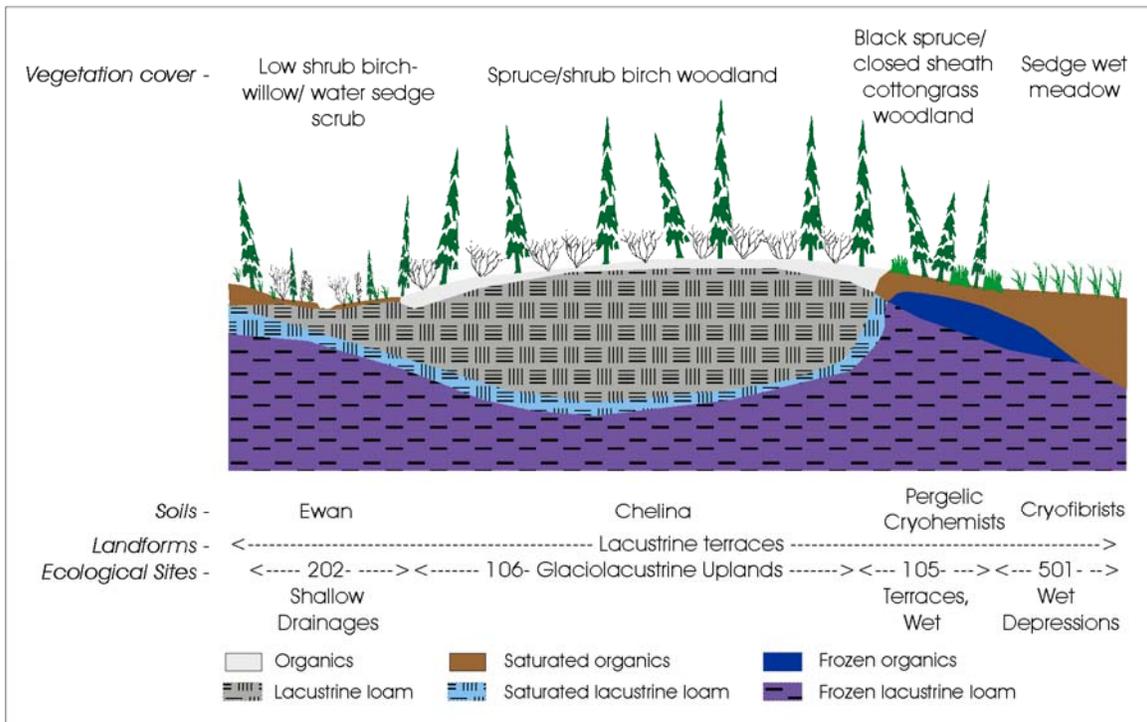
Salix spp. includes: SABA3 SALIX SAPL2



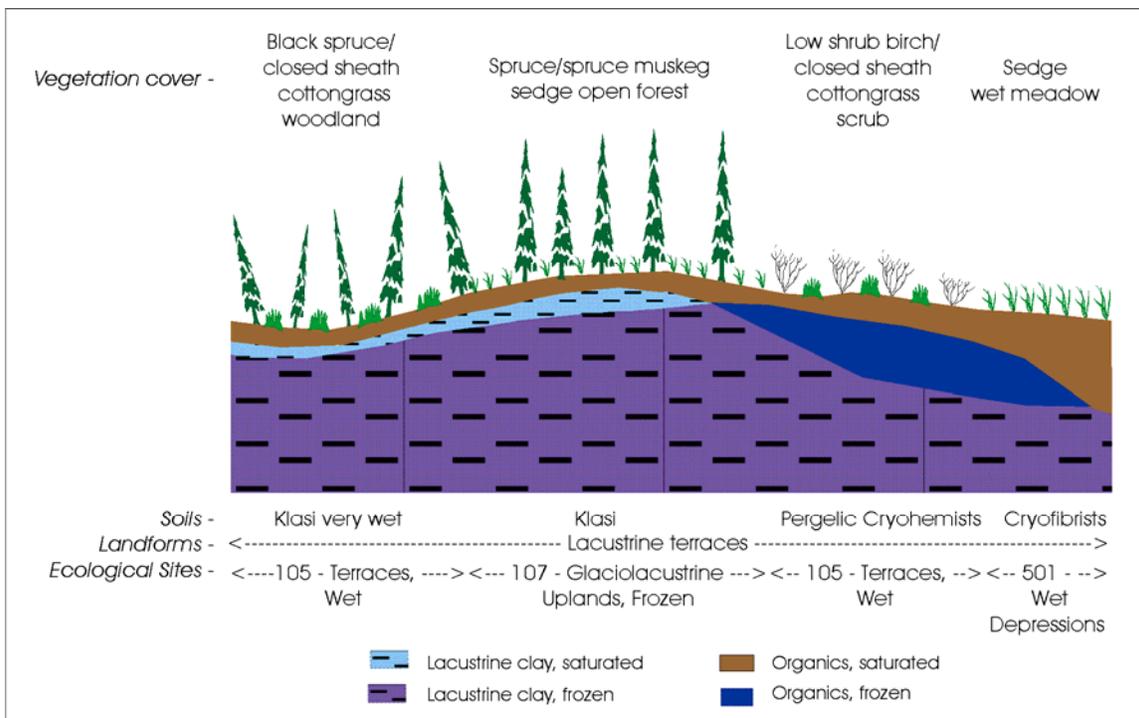
Representative cross section in the alder zone along the middle West Fork.



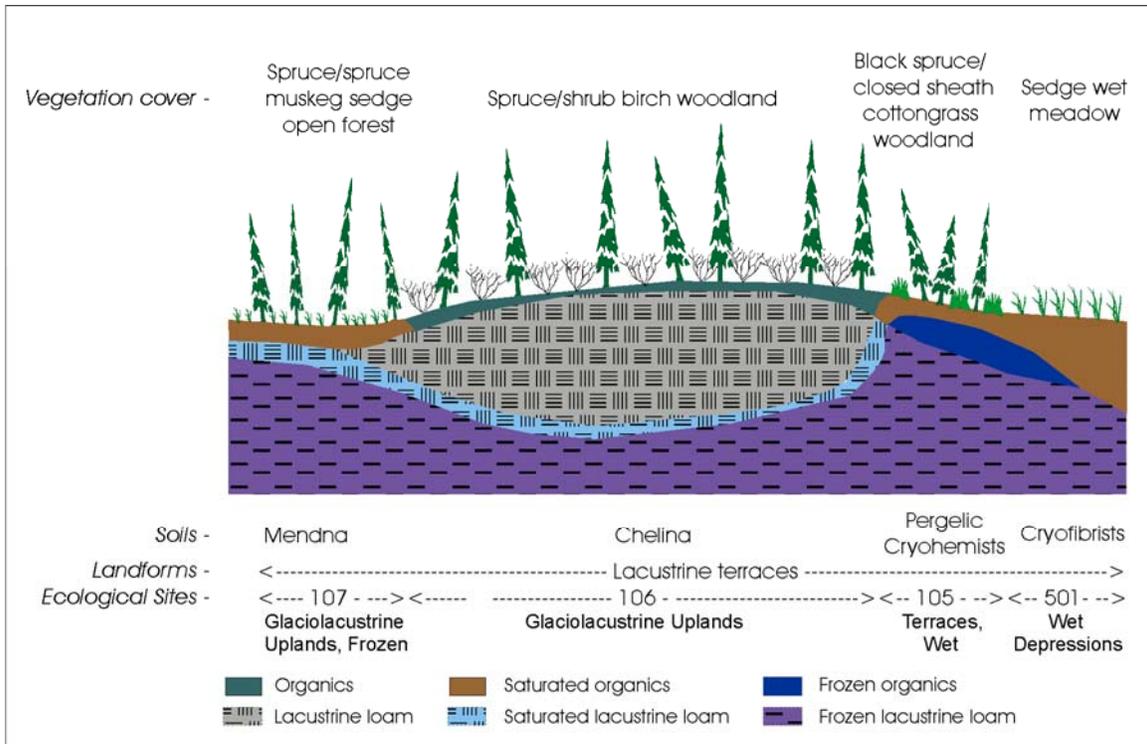
Representative cross section in the willow zone along the upper South Branch.



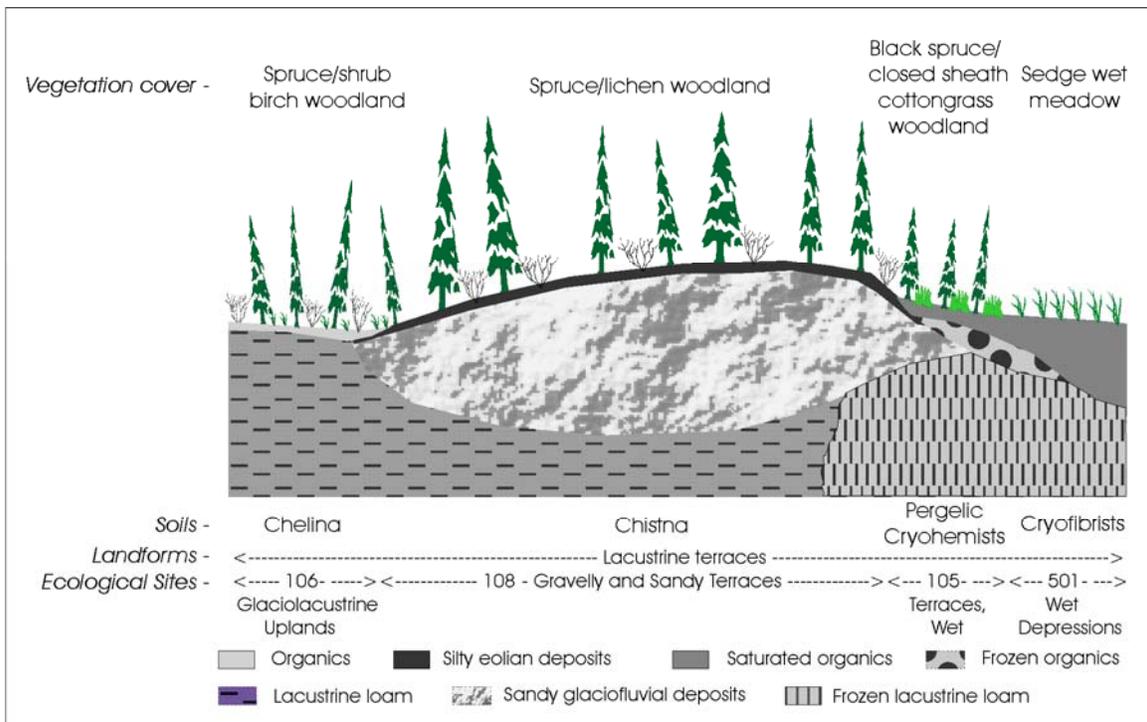
Representative cross section in the glaciolacustrine uplands above the Main Stem.



Representative cross section in the glaciolacustrine uplands above the lower Main Stem.



Representative cross section in the glaciolacustrine uplands above the Main Stem.



Representative cross section in the glaciolacustrine uplands above the West Fork.



Representative stand of Black spruce/closed sheath cottongrass woodland, the correlated potential natural plant community on ecological site 172Xy105AK - Terraces, Wet.