

**172Xy107AK - Glaciolacustrine Uplands, Frozen  
Spruce/spruce muskeg sedge open forest**

**Part A: Description of Site**

*1.c. Landscape Narrative:* This site occurs on lacustrine terraces, till plains, and hills formed in loamy and clayey lacustrine deposits and gravelly and loamy glacial till. The soil surface has a moderately thick organic mat and permafrost is generally present within 60 inches (152 cm) of the mineral surface. Slope ranges from 0 to 25 percent but are generally less than 10 percent. Elevation is from 1900 to 2800 feet (579 to 853 m).

This site is found throughout the uplands in the Gulkana River Area. It occurs intermittently on the same landscapes with sites without permafrost. This site is extensive at low to mid elevations throughout 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 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 poorly developed soils on this site are formed in gravelly glacial till and fine-grained lacustrine deposits. Some soils have mantles of silty eolian material up to 2 inches thick. In the absence of wild fire, an organic mat about 8 to 16 inches (20 to 41 cm) thick develops on the soil surface and in most places permafrost is present above 60 inches (152 cm). A water table is usually perched on the permafrost and the soils are poorly to very poorly drained.

*4.e. Vegetation Narrative:* Spruce/spruce muskeg sedge open forest is the correlated PNC on this site.

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

*6. Community Dynamics (Fire, etc.):* Following wild fire, post-fire succession would likely begin with a short lived herb stage in which *Betula glandulosa* and ericaceous shrubs from the original forest vegetation would sprout and regenerate. Within about 5 to 10 years, Low shrub birch scrub, often with common to abundant tall willows and spruce seedlings and saplings, would dominate the site. Depending on pre-fire overstory composition and available fire seed sources, tree regeneration may also include *Populus tremuloides*. Vegetation succession would lead to Spruce/shrub birch woodland and eventually to the Spruce/spruce muskeg sedge open forest.

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

a. Upland:

172Xy106AK - Glaciolacustrine Uplands

172Xy108AK - Sandy and Gravelly Terraces

172Xy109AK - Mountain Slopes, Shallow

172Xy110AK - Glaciolacustrine Uplands, Ruptic

b. Riparian or Wetland:

172Xy105AK - Terraces, Wet

172Xy202AK - Shallow Drainages

172Xy501AK - Wet Depressions

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

172Xy106AK - Glaciolacustrine Uplands: similar landforms and landscape position; soils formed in similar materials but with only a thin organic mat, no permafrost, and well drained; Spruce/shrub birch woodland vegetative potential.

107Xy108AK - Sandy and Gravelly Terraces: isolated strandline and outwash deposits and high stream terraces; soils formed in sandy and gravelly materials; Spruce/lichen woodland vegetative potential.

172Xy109AK - Mountain Slopes, Shallow: gently sloping to steep mountain slopes and crests; soils shallow to bedrock; Spruce/shrub birch woodland vegetative potential.

172Xy110AK - Glaciolacustrine Uplands, Ruptic: similar landforms and landscape position; soils formed in clayey and fine loamy lacustrine materials; microtopography a complex of low frost boils and intervening swales and troughs; Spruce/shrub birch woodland 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 Progressions:*

*(2) Degradation:* Wild fire on this site could be expected to impact both the structure and composition of the vegetation and the characteristics of the site. Moderate to severe burns in which the moss-organic layer on the soil surface is blackened and partially to completely destroyed would favor a rapid and long-term warming of the soil profile. Over a relative short period of time, the permafrost level would drop and soil drainage should improve. In this situation, the site would be expected to retrogress to 172Xy106AK - Glaciolacustrine Uplands and Spruce/shrub birch woodland vegetative potential.

Absence of fire for an extended period of time and development of the moss-organic layer, would allow for permafrost development and site progression back to the original 172Xy107AK - Glaciolacustrine Uplands, Frozen and Spruce/spruce muskeg sedge open forest. The length of time necessary for this progressive change in site conditions is not known.

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

Ecological Site: 172Xy107AK - Glaciolacustrine Uplands, Frozen

Cover type: Spruce/spruce muskeg sedge open forest

Seral status: PNC

Number of stands: 36

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	44	21	10	45	30
spruce	T2	11	19	10	25	14
white spruce	T2	11	14	10	20	12
black spruce	TX	25	28	20	35	26
black spruce	T3	47	8	1	20	19
white spruce	T3	11	11	3	30	11
Labrador-tea	SS	100	18	4	40	43
black crowberry	SS	94	6	1	15	23
blueberry willow	SS	61	5	1	10	17
bog blueberry	SS	100	14	5	35	37
bog rosemary	SS	11	2	1	4	4
grayleaf willow	SS	53	9	3	25	22
lowbush cranberry	SS	94	5	1	10	21
net vein willow	SS	31	3	1	7	10
prickly rose	SS	14	1	1	1	3
red bearberry	SS	83	5	1	15	20
shrub birch	SS	92	13	3	55	35
shrubby cinquefoil	SS	22	1	1	3	6
small cranberry	SS	31	1	1	1	4
willow	SS	86	8	1	35	26
Labrador lousewort	F	36	1	1	2	5
arctic sweet coltsfoot	F	92	4	1	25	18
cloudberry	F	50	4	1	30	15
dwarf scouring-rush	F	19	1	1	1	3
felwort	F	11	1	1	1	2
horsetail	F	42	5	1	20	14
ragwort	F	22	1	1	1	3
bluejoint reedgrass	G	11	2	1	3	4
closed-sheath cottongrass	G	31	6	1	15	13
cottongrass	G	17	3	1	7	7
polar grass	G	72	3	1	7	15
spruce-muskeg sedge	G	100	45	15	80	67
Moss layer	M	100	60	20	90	78
Lichen layer	L	100	21	3	55	45
Bare soil	B	39	1	1	2	6
Litter and mulch	B	100	16	2	50	40
Surface water	B	44	3	1	10	11
Woody litter (>1" dia.)	B	97	3	1	15	16

Salix spp. includes: SABA3 SALIX SAPL2 SARI4

Ecological Site: 172Xy107AK - Glaciolacustrine Uplands, Frozen

Cover type: Spruce/shrub birch woodland

Seral status: mid-late

Number of stands: 35

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	46	19	7	45	29
spruce	T2	11	21	15	35	16
white spruce	T2	29	18	10	35	23
black spruce	T3	43	11	3	30	22
white spruce	T3	17	4	1	5	9
Labrador-tea	SS	100	17	1	55	42
black crowberry	SS	86	4	1	35	19
blueberry willow	SS	37	4	1	15	12
bog blueberry	SS	100	13	4	30	36
grayleaf willow	SS	37	14	2	65	23
leatherleaf	SS	14	2	1	5	5
lowbush cranberry	SS	94	5	1	15	21
net vein willow	SS	14	2	1	5	6
prickly rose	SS	23	3	1	10	8
red bearberry	SS	51	5	1	15	16
shrub birch	SS	86	17	1	55	39
shrubby cinquefoil	SS	29	2	1	5	7
small cranberry	SS	31	1	1	1	4
willow	SS	89	8	1	20	26
Labrador lousewort	F	23	1	1	2	4
arctic sweet coltsfoot	F	97	3	1	10	17
cloudberry	F	57	2	1	5	10
common fireweed	F	20	1	1	2	4
felwort	F	14	1	1	1	3
horsetail	F	74	18	1	65	37
narrow-leaf saw-wort	F	14	1	1	1	3
northern commandra	F	11	1	1	2	4
bluejoint reedgrass	G	11	3	1	5	5
cottongrass	G	29	2	1	5	7
polar grass	G	86	3	1	20	17
sedge	G	60	4	1	10	16
spruce-muskeg sedge	G	29	8	1	15	15
Moss layer	M	100	54	15	95	73
Lichen layer	L	97	15	1	40	39
Bare soil	B	37	1	1	5	6
Litter and mulch	B	94	9	1	35	29
Surface water	B	46	1	1	3	6
Woody litter (>1" dia.)	B	49	2	1	7	10

Salix spp. includes: SABA3 SALIX SAMO2 SAPL2

172Xy107AK - Glaciolacustrine Uplands, Frozen (107tech.doc)

Ecological Site: 172Xy107AK - Glaciolacustrine Uplands, Frozen

Cover type: Low shrub birch scrub

Seral status: early

Number of stands: 9

Source of data: Gulkana River Area

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

Min = minimum % canopy cover; Max = maximum %

canopy cover; Imp = importance value

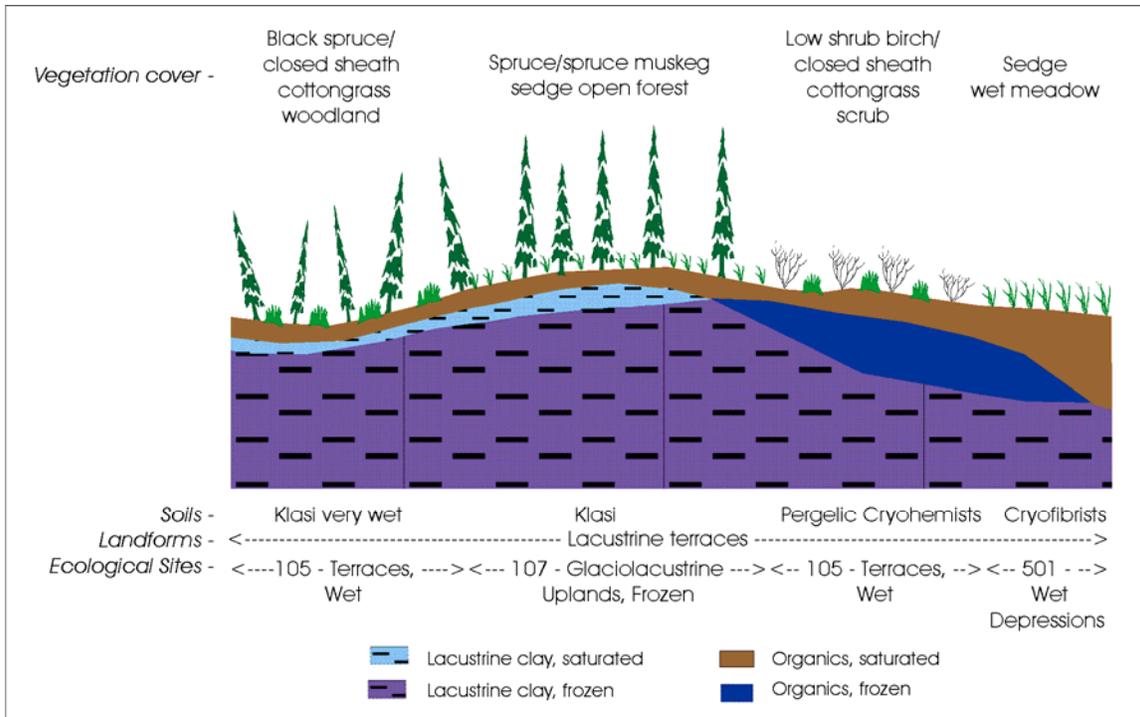
Note: Avg, Min, and Max based only on stands in which a

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

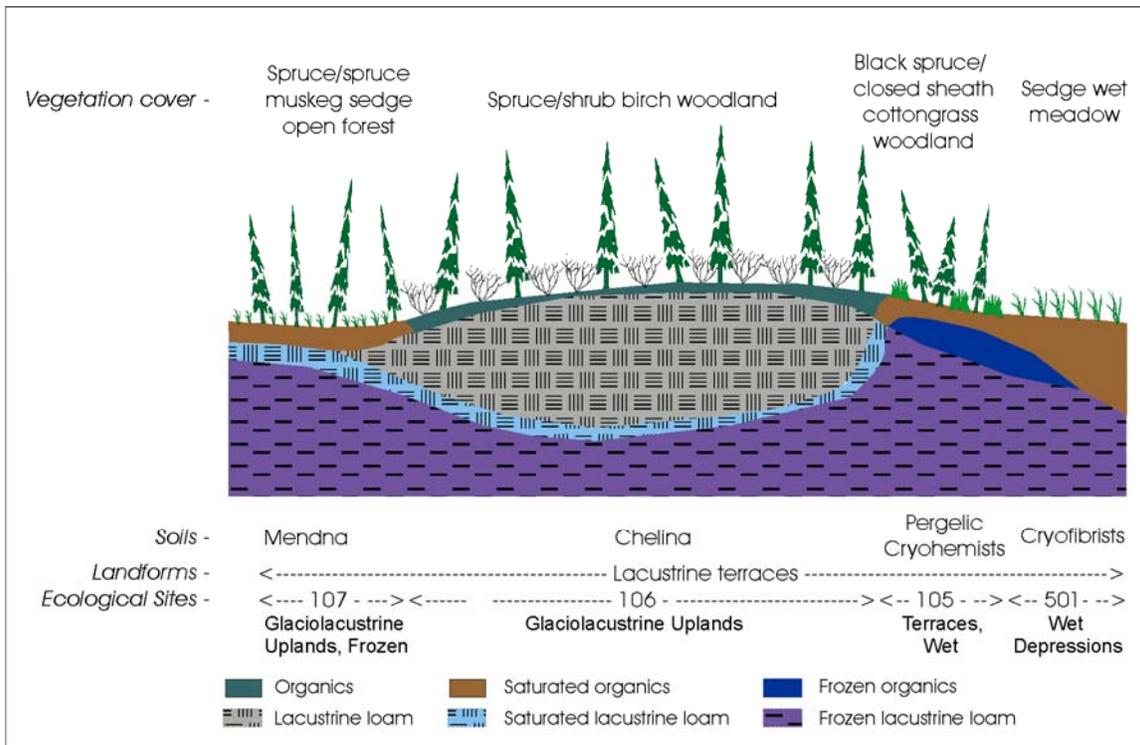
: Only taxa with >10% constancy included.

Common_name	Stratum	Con	Avg	Min	Max	Imp
black spruce	T1	22	5	2	7	10
spruce	T1	11	5	5	5	7
black spruce	T2	22	3	2	4	8
spruce	T2	11	5	5	5	7
white spruce	T2	33	5	4	5	12
black spruce	T3	33	5	2	10	13
spruce	T3	22	13	5	20	17
white spruce	T3	67	6	1	15	20
Labrador-tea	SS	100	17	5	35	41
black crowberry	SS	78	3	1	4	14
blueberry willow	SS	67	3	1	10	15
bog blueberry	SS	100	14	5	25	37
feltleaf willow	SS	11	2	2	2	5
grayleaf willow	SS	33	4	1	7	11
lowbush cranberry	SS	100	4	1	7	19
net vein willow	SS	22	1	1	2	5
prickly rose	SS	11	1	1	1	2
red bearberry	SS	56	5	3	8	16
russet buffalo-berry	SS	22	1	1	2	5
shrub birch	SS	100	26	3	65	51
shrubby cinquefoil	SS	44	2	1	3	8
small cranberry	SS	56	1	1	1	6
thinleaf alder	SS	11	3	3	3	6
willow	SS	78	6	2	10	21
Canadian bunchberry	F	11	1	1	1	2
Labrador lousewort	F	33	1	1	1	4
alpine sweet-vetch	F	11	2	2	2	5
arctic aster	F	11	1	1	1	2
arctic sweet coltsfoot	F	100	4	1	8	20
cloudberry	F	44	1	1	2	7
common fireweed	F	44	1	1	1	5
horsetail	F	33	22	1	65	27
marsh grass-of-parnassus	F	11	1	1	1	2
ragwort	F	22	1	1	1	3
single delight	F	22	1	1	1	3
tall Jacob`s-ladder	F	11	1	1	1	2
valerian	F	11	1	1	1	2
violet	F	11	1	1	1	2
closed-sheath cottongrass	G	22	2	2	2	7
cottongrass	G	11	1	1	1	2
polar grass	G	89	5	2	15	22
rough fescue	G	22	3	2	3	7
sedge	G	22	2	1	3	6
spruce-muskeg sedge	G	78	33	4	75	51
water sedge	G	11	4	4	4	7
Moss layer	M	100	39	25	55	63
Lichen layer	L	100	14	1	45	38
Bare soil	B	100	3	1	15	16
Litter and mulch	B	100	9	1	30	30
Rock fragments	B	11	1	1	1	2
Surface water	B	78	1	1	2	8
Woody litter (>1" dia.)	B	56	2	1	5	12

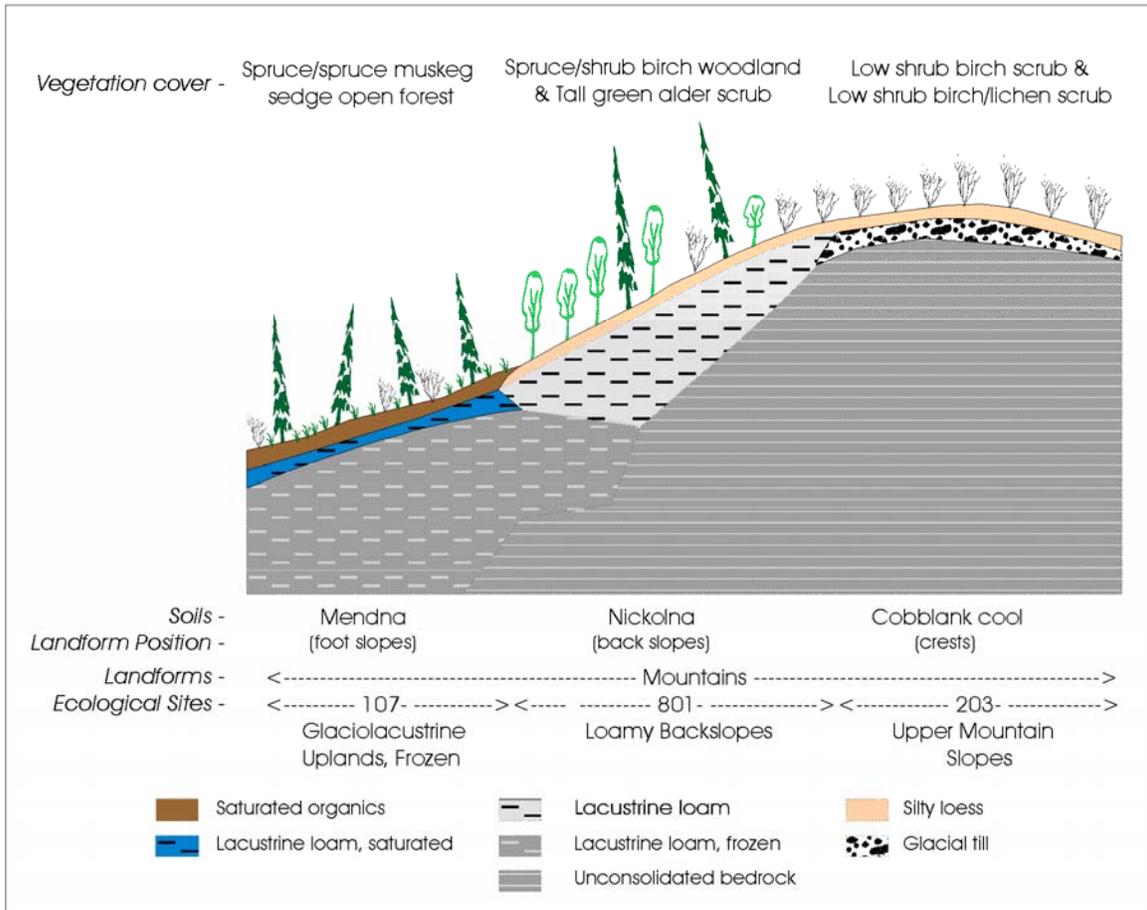
Salix spp. includes: SAMO2 SAPL2



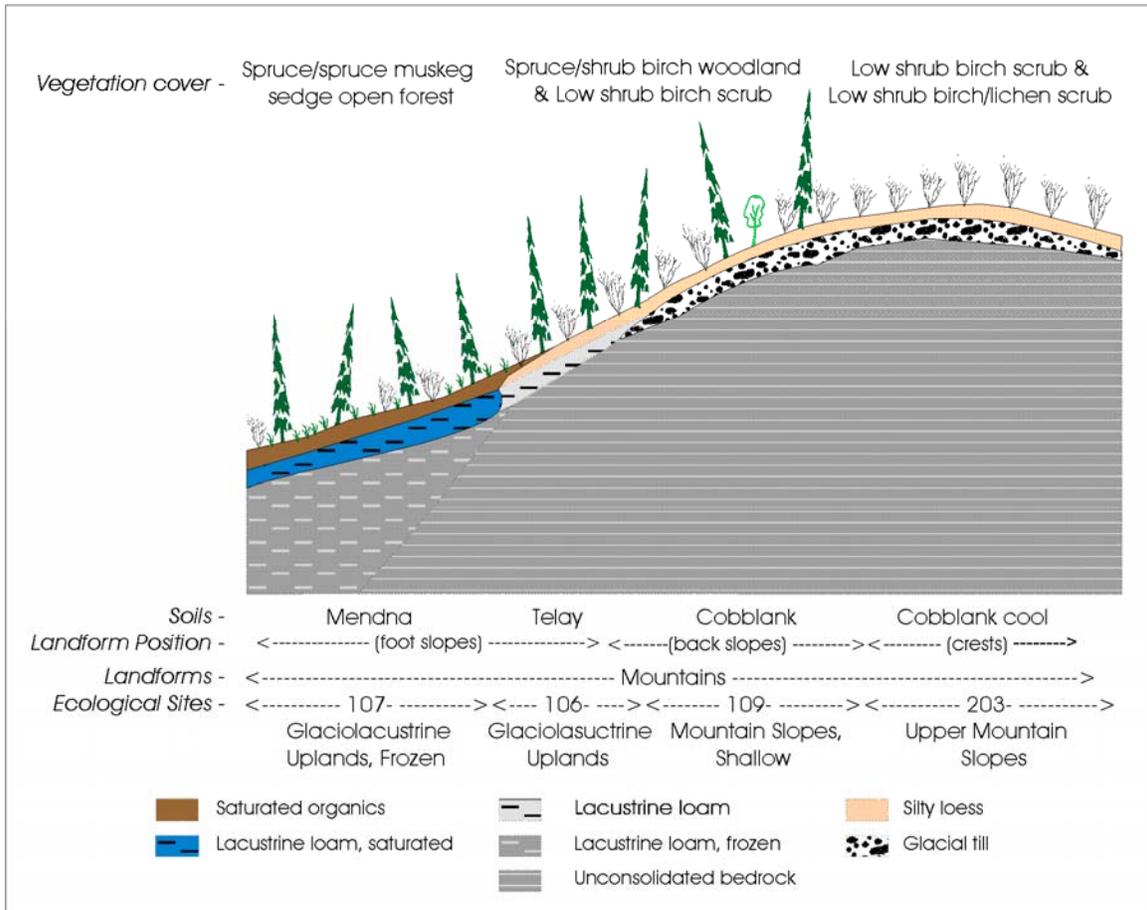
Representative cross section in the glaciolacustrine uplands above the lower Main Stem.



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



Representative cross section of mountains slopes above the upper Main Stem.



Representative cross section of mountains slopes above the upper Main Stem.



Representative stand of Spruce/spruce muskeg sedge open forest, the correlated potential natural plant community on ecological site 172Xy107AK Glaciolacustrine Uplands, Frozen.