172Xy110AK - Glaciolacustrine Uplands, Ruptic
Spruce/shrub birch woodland

Part A: Description of Site

1.c. Landscape Narrative: This site occurs on glaciolacustrine terraces formed in clayey lacustrine deposits. This site is characterized by surface microtopography consisting of a complex sparsely vegetated ice-cored frost boils and intervening swales and troughs. In most places the frost boils are about 24 inches (61 cm) high and 9 feet (3 m) across. Bare soil material is common on the mounds while the intermound troughs between boils have moderately thick to thick organic mats. The landscape is underlain by permafrost, including ice-rich soil material, ice lenses, vein ice, and probably occasional ice wedges. Slopes generally range from 0 to 8 percent. Elevation is 2300 to 2500 feet (701 to 762 m).

Within the Gulkana River area, this site is of limited extent and found only on lacustrine terraces above the upper South Branch. The occurrence of this site elsewhere in the Copper River basin is not known.

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: Soils on this site are formed in clayey lacustrine deposits. On frost boils, the soil is sparsely vegetated; the organic mat ranges from 0 to 4 inches (0 to 10 cm), and bare mineral soil is exposed across much of the surface. Soils on frost boils are moderately deep to permafrost and somewhat poorly drained. In intermound swales and troughs, the soils have an organic mat 8 to 14 inches (20 to 36 cm) thick. Permafrost is shallow to moderately deep and the soils are very poorly drained. Soil horizons are mixed by cryoturbation; buried, distorted, and fractured horizons are present in most places. Redoximorphic features indicative of wetness are evident in troughs but less evident in boils.

4.e. Vegetation Narrative: Spruce/shrub birch woodland is the correlated PNC on this site, although dramatic differences in understory composition is evident on the frost boils versus the intermound swales and troughs. On frost boils, the understory in mature stands is characterized by sparse shrubs, herbs, and patches of moss with extensive bare soil. In the swales and troughs, the understory generally has common to abundant low shrubs and a luxuriant moss layer. In many places, the vegetation is similar to the understory of Black spruce/closed sheath cottongrass woodland.

5.b. Wildlife Narrative: (BLM)

6. Community Dynamics (Fire, etc.): Wild fire on this site would be expected to potentially 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. Melting vein ice and ice wedges could lead to thermokarsting, liquifaction, and debris flows, especially on steeper slopes. Post-fire vegetative succession would probably begin with a herb-shrub sprout stage, followed by a Low shrub birch scrub stage. The rate and degree of tree regeneration would depend in part on the availability of seed sources following burning.

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

a. Upland:

172Xy106AK - Glaciolacustrine Uplands

172Xy107AK - Glaciolacustrine Uplands, Frozen

b. Riparian or Wetland:

172Xy202AK - Shallow Drainages

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

172Xy105AK - Terraces, Wet: similar lacustrine terrace landscape position; frost boil microrelief absent, may have irregularly hummocky microrelief; soils with continuous, thick organic mat and uniform shallow permafrost, very poor drainage, and occasional ponding; Black spruce/closed sheath cottongrass woodland vegetative potential with relatively uniform understory aspect and lacking the frost boil-trough variability.

172Xy106AK - Glaciolacustrine Uplands: similar lacustrine terrace landscape position; frost boil microrelief absent; well drained soils without permafrost; Spruce/shrub birch woodland vegetation potential with relatively uniform understory aspect and lacking frost boil-trough variability.

172Xy107AK - Glaciolacustrine Uplands, Frozen: similar lacustrine terrace landscape position; frost boil microrelief absent, may have irregularly hummocky microrelief; soils with continuous, thick organic mat and uniform shallow permafrost and very poor drainage; Spruce/spruce muskeg sedge open forest vegetative potential with nearly continuous, moderately open to closed low shrub layer and continuous, luxuriant graminoid and moss layers below.

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Spruce/shrub birch woodland

Part B: Interpretations for Use and Management of the Site

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

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

Ecological Site: 172Xy110AK - Glaciolacustrine Uplands, Ruptic
Cover type: Spruce/shrub birch woodland
Seral status: PNC
Number of stands: 5
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
spruce	T2	20	20	20	20	20
white spruce	T2	80	15	10	20	35
spruce	T3	20	7	7	7	12
white spruce	T3	60	5	1	10	18
Labrador-tea	SS	100	29	25	35	54
black crowberry	SS	80	5	3	5	19
blueberry willow	SS	80	6	1	10	21
bog blueberry	SS	100	19	15	20	44
grayleaf willow	SS	80	5	1	10	21
lowbush cranberry	SS	100	5	2	7	22
prickly rose	SS	40	1	1	2	7
red bearberry	SS	80	2	1	4	13
russet buffalo-berry	SS	80	3	1	5	15
shrub birch	SS	100	29	15	45	54
shrubby cinquefoil	SS	20	1	1	1	3
small cranberry	SS	40	1	1	1	4
willow	SS	80	5	4	5	19
Labrador lousewort	F	20	1	1	1	3
arctic dock	F	20	1	1	1	3
arctic sweet coltsfoot	F	100	4	1	6	19
cloudberry	F	20	1	1	1	3
common fireweed	F	80	1	1	2	8
horsetail	F	60	10	4	15	24
ragwort	F	40	1	1	2	7
wintergreen	F	20	1	1	1	3
bluejoint reedgrass	G	20	1	1	1	3
closed-sheath cottongrass	G	80	6	1	10	23
polar grass	G	100	4	1	10	20
rough fescue	G	20	5	5	5	10
sedge	G	20	1	1	1	4
spruce-muskeg sedge	G	60	2	1	3	10
Moss layer	M	100	41	30	60	64
Lichen layer	L	100	22	15	35	47
Bare soil	B	100	8	2	15	28
Litter and mulch	B	100	21	5	30	46
Surface water	B	40	4	2	5	12
Woody litter (>1" dia.)	B	100	3	1	10	17

Salix spp. includes: SALIX SAPL2

Ecological Site: 172Xy110AK - Glaciolacustrine Uplands, Ruptic
Cover type: Black spruce/closed sheath cottongrass woodland
Seral status: PNC (moist_microsites)
Number of stands: 5
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.

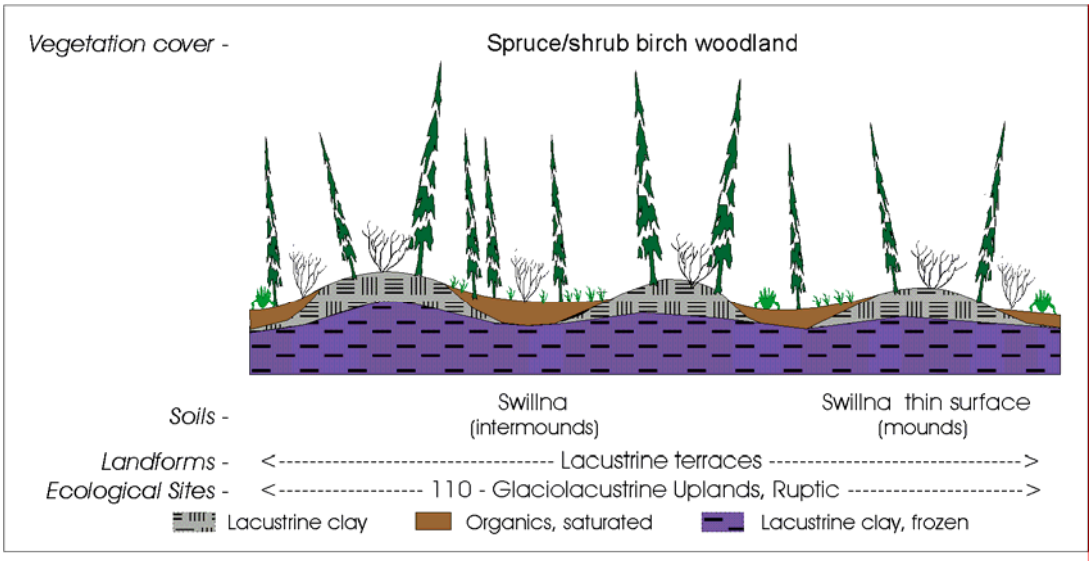
Common_name	Stratum	Con	Avg	Min	Max	Imp
black spruce	T2	60	12	10	15	26
spruce	T2	40	23	20	25	30
black spruce	T3	60	8	5	10	22
spruce	T3	20	10	10	10	14
Labrador-tea	SS	100	15	10	20	39
black crowberry	SS	80	2	1	3	13
blueberry willow	SS	80	5	3	7	20
bog blueberry	SS	100	10	7	15	32
bog rosemary	SS	20	1	1	1	3
leatherleaf	SS	20	1	1	1	3
little tree willow	SS	80	2	1	4	14
lowbush cranberry	SS	100	5	4	8	23
red bearberry	SS	60	1	1	2	8
russet buffalo-berry	SS	20	2	2	2	6
shrub birch	SS	100	17	10	25	41
shrubby cinquefoil	SS	20	1	1	1	4
small cranberry	SS	60	1	1	1	5
willow	SS	100	7	5	10	26
Labrador lousewort	F	20	1	1	1	3
arctic dock	F	20	1	1	1	3
arctic sweet coltsfoot	F	100	9	1	35	30
cloudberry	F	60	2	1	3	10
common fireweed	F	60	1	1	1	5
dwarf scouring-rush	F	20	1	1	1	3
ragwort	F	20	1	1	1	3
closed-sheath cottongrass	G	100	42	15	60	65
polar grass	G	100	4	1	5	19
spruce-muskeg sedge	G	60	13	4	25	28
Moss layer	M	100	42	30	60	65
Lichen layer	L	100	19	15	25	44
Bare soil	B	100	3	1	7	16
Litter and mulch	B	100	29	20	40	54
Surface water	B	80	1	1	2	10
Woody litter (>1" dia.)	B	100	1	1	3	11

Salix spp. includes: SAPL2

Ecological Site: 172Xy110AK - Glaciolacustrine Uplands, Ruptic
Cover type: Low shrub birch scrub
Seral status: early-mid
Number of stands: 8
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	4	3	5	10
white spruce	T2	75	3	1	5	14
spruce	T3	13	10	10	10	11
white spruce	T3	88	14	7	25	35
Labrador-tea	SS	100	14	4	35	37
black crowberry	SS	75	3	1	8	15
blueberry willow	SS	50	5	2	10	16
bog blueberry	SS	100	12	5	25	35
grayleaf willow	SS	38	9	6	15	19
lowbush cranberry	SS	100	4	2	10	20
net vein willow	SS	38	1	1	2	7
prickly rose	SS	50	1	1	1	6
red bearberry	SS	25	3	1	6	9
russet buffalo-berry	SS	38	9	4	20	19
shrub birch	SS	100	31	10	65	56
shrubby cinquefoil	SS	50	1	1	2	8
willow	SS	88	5	3	10	21
Labrador lousewort	F	13	1	1	1	3
alpine sweet-vetch	F	13	1	1	1	3
arctic aster	F	50	1	1	1	6
arctic dock	F	25	1	1	1	4
arctic sweet coltsfoot	F	100	2	1	7	14
cloudberry	F	50	1	1	1	6
common fireweed	F	38	1	1	2	7
horsetail	F	13	1	1	1	4
Unknown grass	G	13	3	3	3	6
closed-sheath cottongrass	G	13	4	4	4	7
polar grass	G	88	3	1	5	16
rough bent	G	13	1	1	1	3
sedge	G	13	1	1	1	4
spruce-muskeg sedge	G	88	41	7	65	60
Moss layer	M	100	31	15	40	55
Lichen layer	L	100	20	2	40	44
Bare soil	B	88	3	1	5	17
Litter and mulch	B	100	10	3	30	31
Surface water	B	13	1	1	1	3
Woody litter (>1" dia.)	B	63	1	1	4	9

Salix spp. includes: SABA3 SAPL2



Representative cross section in the glaciolacustrine uplands above the South Branch..

Potential natural vegetation on ecological site 172Xy110AK - Glaciolacustrine Uplands, Ruptic. Whitish areas in the understory are frost-heaved mounds characterized by bare soil, pioneering lichens, and sparse herbs and dwarf shrubs. Swales and depressions between the mounds are characterized by shrub birch, low and dwarf ericaceous shrubs and other plant species common in spruce woodlands throughout the Gulkana River area.