

**172Xy800AK - Escarpments
(variable)**

Part A: Description of Site

1.c. Landscape Narrative: This site consists of moderately steep to very steep escarpments and bluffs formed by mass wasting and accelerated erosion during downcutting by rivers through thick glacial and glaciolacustrine deposits. Thermokarst features are evident on these sites where the river has undercut slopes and exposed permafrost. Slopes range from 20 to 80 percent. Slope aspect and gradient are the most influential characteristics on soils formation and present vegetation. Permafrost is often found within 60 inches of the surface on more northerly exposures and is generally absent on other aspects. Areas of mass wasting and accelerated erosion are extensive on the steepest slopes. Elevation is from 1850 to 2900 feet (564 to 884 m).

In the Gulkana River area, this site is found along all reaches of the River. The best development occurs within the Canyon on the Main Stem, along the mid portions of the West Fork, and near the West Fork-Main Stem confluence. This site is common along other major rivers and streams 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 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 soils on this site are formed in coarse grained alluvium, gravelly glacial till, and fine-grained glaciolacustrine deposits. Some soils have a mantle of silty eolian material up to 2 inches (5 cm) thick. Other characteristics range from poorly to moderately well developed, shallow to very deep over permafrost, and well to somewhat excessively drained.

4.e. Vegetation Narrative: Vegetation on escarpments varies widely. Very steep, unstable slopes subject to on-going mass wasting and accelerated soil erosion are barren to occasionally sparsely vegetated with scattered shrubs and herbs (Cover type - Sparsely vegetated escarpments). In a few locations along the West Fork, dense herbaceous vegetation has developed and apparently stabilized the slope. On more stable slopes, escarpments support open to closed forest and scrub. Depending on such factors as aspect, slope, soil materials, and fire history, vegetation cover includes Quaking aspen forest, Quaking aspen-white spruce forest, White spruce forest, Spruce/alder woodland, Spruce/shrub birch woodland, and Low shrub birch scrub.

Moderately closed White spruce forest apparently is the most successional advanced and stable vegetation type found on warm aspects and moderately steep and steep slopes. Spruce/shrub birch woodland is the latest successional stage on cooler, northerly aspects.

5.b. Wildlife Narrative: (BLM)

6. Community Dynamics (Fire, etc.): Given the wide variation in site characteristics and vegetation found on escarpments, wild fire impacts are likely to equally variable and

difficult to predict. Any disturbance factors that damages or destroys the protective vegetative cover could lead to mass wasting and accelerated soil erosion.

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

a. Upland:

b. Riparian or Wetland:

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

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Part B: Interpretations for Use and Management of the Site

1.a. Plant Community Characteristics: see the attached summary tables for stand characteristics for the common vegetation cover types found on this site.

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

172Xy800AK - Escarpments (800tech.doc)

Ecological Site: 172Xy800AK - Escarpments
 Cover type: White spruce forest
 Seral status: late (warm aspects; moderately steep and steep slopes)
 Number of stands: 4
 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
balsam poplar	T1	75	2	1	3	12
paper birch	T1	25	1	1	1	4
white spruce	T1	100	40	15	65	63
white spruce	T2	25	15	15	15	19
balsam poplar	T3	25	4	4	4	10
black spruce	T3	25	5	5	5	11
white spruce	T3	50	5	1	10	16
Labrador-tea	SS	50	9	3	15	21
black crowberry	SS	100	10	2	25	31
blueberry willow	SS	75	4	2	5	17
bog blueberry	SS	100	8	2	15	28
currant	SS	25	1	1	1	4
grayleaf willow	SS	25	5	5	5	11
green alder	SS	25	4	4	4	10
little tree willow	SS	25	1	1	1	4
lowbush cranberry	SS	100	9	2	20	30
prickly rose	SS	100	1	1	1	9
red bearberry	SS	50	3	3	3	12
russet buffalo-berry	SS	100	7	2	15	25
shrubby cinquefoil	SS	25	5	5	5	11
swamp red currant	SS	25	1	1	1	4
willow	SS	75	8	4	10	24
American twinflower	F	50	4	2	5	13
Bodin's milkvetch	F	25	1	1	1	5
Canadian bunchberry	F	25	1	1	1	5
alpine sweet-vetch	F	50	3	1	6	13
arctic aster	F	25	1	1	1	4
arctic lupine	F	25	3	3	3	9
common fireweed	F	75	1	1	1	7
coral root	F	25	1	1	1	4
dwarf scouring-rush	F	25	4	4	4	10
horsetail	F	50	2	1	3	9
marsh grass-of-parnassus	F	25	1	1	1	4
northern commandra	F	75	5	1	15	20
northern groundcone	F	25	1	1	1	4
ragwort	F	75	1	1	2	8
single delight	F	25	1	1	1	4
tall Jacob`s-ladder	F	25	1	1	1	4
tall bluebells	F	50	1	1	1	6
wintergreen	F	50	1	1	1	5
bluejoint reedgrass	G	50	1	1	1	6
polar grass	G	25	4	4	4	10
Moss layer	M	100	76	55	90	87
Lichen layer	L	100	7	1	15	27
Bare soil	B	50	2	1	3	9
Litter and mulch	B	100	7	3	10	25
Rock fragments	B	25	1	1	1	4
Woody litter (>1" dia.)	B	50	7	7	7	19

Salix spp. includes: SABA3 SAPL2

Ecological Site: 172Xy800AK - Escarpments
 Cover type: Spruce/alder woodland
 Seral status: late (warm aspects; moderately steep and steep slopes)
 Number of stands: 3
 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
balsam poplar	T1	33	3	3	3	10
black spruce	T1	33	2	2	2	8
spruce	T1	33	20	20	20	26
white spruce	T1	67	18	5	30	34
white spruce	T2	33	5	5	5	13
balsam poplar	T3	33	2	2	2	8
black spruce	T3	33	1	1	1	6
paper birch	T3	33	1	1	1	4
Labrador-tea	SS	100	22	15	30	47
black crowberry	SS	67	11	2	20	27
bog blueberry	SS	100	13	8	15	36
grayleaf willow	SS	67	15	15	15	32
green alder	SS	67	35	20	50	48
lowbush cranberry	SS	100	8	4	15	28
prickly rose	SS	100	2	1	3	14
red bearberry	SS	100	2	1	3	13
russet buffalo-berry	SS	33	1	1	1	6
shrub birch	SS	67	5	5	5	18
thinleaf alder	SS	33	25	25	25	29
willow	SS	33	4	4	4	12
Labrador lousewort	F	33	1	1	1	4
arctic sweet coltsfoot	F	67	2	1	2	10
cloudberry	F	33	1	1	1	6
common fireweed	F	33	1	1	1	4
dwarf scouring-rush	F	33	1	1	1	4
gentian	F	33	1	1	1	4
horsetail	F	67	4	1	7	16
northern commandra	F	67	1	1	1	7
northern false asphodel	F	33	1	1	1	4
ragwort	F	33	1	1	1	6
wintergreen	F	33	1	1	1	4
polar grass	G	67	2	1	2	10
purple reedgrass	G	33	5	5	5	13
sedge	G	33	1	1	1	4
spruce-muskeg sedge	G	33	4	4	4	12
Moss layer	M	100	53	40	60	73
Lichen layer	L	100	15	10	20	39
Bare soil	B	67	1	1	1	6
Litter and mulch	B	100	22	1	50	47
Rock fragments	B	33	1	1	1	4
Woody litter (>1" dia.)	B	67	1	1	1	7

 Salix spp. includes: SAPL2

Ecological Site: 172Xy800AK - Escarpments
 Cover type: Quaking aspen-white spruce forest
 Seral status: mid-late (warm aspects; moderately steep
 and steep, convex upper slopes)
 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
quaking aspen	T1	100	38	15	70	62
white spruce	T1	100	22	1	35	47
white spruce	T2	60	9	1	15	23
quaking aspen	T3	60	6	2	10	18
white spruce	T3	60	3	1	5	12
Labrador-tea	SS	60	2	1	5	11
black crowberry	SS	60	3	2	5	14
blueberry willow	SS	20	1	1	1	3
bog blueberry	SS	20	10	10	10	14
gray willow	SS	20	1	1	1	4
grayleaf willow	SS	20	1	1	1	4
highbush cranberry	SS	40	5	2	7	13
kinnikinnick	SS	60	17	15	20	32
lowbush cranberry	SS	80	18	15	20	37
prickly rose	SS	100	4	1	5	19
red bearberry	SS	20	1	1	1	4
russet buffalo-berry	SS	100	19	1	60	44
swamp red currant	SS	20	25	25	25	22
American twinflower	F	80	3	1	5	16
Canadian bunchberry	F	20	10	10	10	14
Unknown forb	F	20	1	1	1	3
alpine sweet-vetch	F	20	1	1	1	4
arctic aster	F	40	4	3	4	12
arctic lupine	F	40	2	1	3	8
common fireweed	F	100	1	1	2	11
gentian	F	40	1	1	1	4
horsetail	F	20	2	2	2	6
larkspur-leaf monkshood	F	20	1	1	1	3
northern commandra	F	100	6	3	10	24
ragwort	F	20	1	1	1	4
tall bluebells	F	20	2	2	2	6
wintergreen	F	40	1	1	1	5
blue grass	G	20	1	1	1	3
bluejoint reedgrass	G	20	1	1	1	3
polar grass	G	20	1	1	1	3
rough fescue	G	40	5	1	10	14
Moss layer	M	100	13	1	30	36
Lichen layer	L	100	8	1	15	28
Bare soil	B	100	4	1	10	19
Litter and mulch	B	100	61	35	80	78
Rock fragments	B	60	1	1	2	8
Woody litter (>1" dia.)	B	100	14	4	20	37

 Salix spp. includes:

Ecological Site: 172Xy800AK - Escarpments
 Cover type: Quaking apsen forest
 Seral status: mid-late (warm aspects; moderately steep
 and steep, convex upper slopes)
 Number of stands: 2
 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	50	10	10	10	22
quaking aspen	T1	100	55	45	65	74
white spruce	T1	50	5	5	5	16
quaking aspen	T3	100	2	1	3	13
Labrador-tea	SS	50	2	2	2	10
black crowberry	SS	50	1	1	1	5
bog blueberry	SS	50	4	4	4	14
grayleaf willow	SS	50	3	3	3	12
kinnikinnick	SS	50	1	1	1	7
lowbush cranberry	SS	50	2	2	2	10
prickly rose	SS	100	8	1	15	28
russet buffalo-berry	SS	50	5	5	5	16
willow	SS	50	3	3	3	12
American twinflower	F	50	1	1	1	7
Canadian bunchberry	F	50	7	7	7	19
Labrador lousewort	F	50	1	1	1	5
arctic lupine	F	50	1	1	1	5
clubmoss	F	50	1	1	1	5
common fireweed	F	100	3	1	5	17
gentian	F	50	1	1	1	5
horsetail	F	50	4	4	4	14
northern commandra	F	50	7	7	7	19
tall bluebells	F	50	1	1	1	5
blue grass	G	50	1	1	1	5
rough fescue	G	50	1	1	1	7
sedge	G	50	1	1	1	7
wild rye	G	50	5	5	5	16
Moss layer	M	100	1	1	2	11
Lichen layer	L	100	1	1	2	11
Bare soil	B	50	10	10	10	22
Litter and mulch	B	100	33	5	60	57
Woody litter (>1" dia.)	B	50	5	5	5	16

 Salix spp. includes: SAPL2

Ecological Site: 172Xy800AK - Escarpments
 Cover type: Spruce/shrub birch woodland
 Seral status: late (cooler, northerly exposures)
 Number of stands: 13
 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
balsam poplar	T1	15	3	1	5	7
quaking aspen	T1	46	4	1	5	13
white spruce	T1	38	24	5	45	30
spruce	T2	31	33	30	35	32
white spruce	T2	38	25	10	45	31
white spruce	T3	23	7	5	10	12
Labrador-tea	SS	92	27	5	40	50
black crowberry	SS	77	5	2	10	19
blueberry willow	SS	46	5	1	15	15
bog blueberry	SS	92	20	5	40	43
gray willow	SS	15	13	5	20	14
grayleaf willow	SS	77	12	2	25	30
lowbush cranberry	SS	100	8	1	20	28
prickly rose	SS	85	2	1	4	14
red bearberry	SS	62	6	1	25	19
russet buffalo-berry	SS	46	5	1	10	15
shrub birch	SS	85	16	3	40	37
shrubby cinquefoil	SS	46	4	1	12	14
willow	SS	46	4	2	7	13
American twinflower	F	15	2	1	3	5
Canadian bunchberry	F	31	3	1	8	9
Labrador lousewort	F	15	1	1	1	3
arctic aster	F	15	2	1	4	6
arctic lupine	F	23	4	1	8	9
arctic sweet coltsfoot	F	38	2	1	5	8
common fireweed	F	77	1	1	7	10
horsetail	F	54	8	1	25	20
northern commandra	F	38	3	1	6	10
ragwort	F	23	1	1	1	4
tall bluebells	F	31	1	1	1	4
polar grass	G	54	2	1	3	9
sedge	G	23	1	1	2	5
spruce-muskeg sedge	G	31	1	1	1	6
Moss layer	M	100	53	25	80	73
Lichen layer	L	100	14	1	30	38
Bare soil	B	38	5	1	15	14
Litter and mulch	B	100	21	5	40	46
Rock fragments	B	31	3	1	9	9
Woody litter (>1" dia.)	B	77	4	1	5	17

 Salix spp. includes: SABA3 SAPL2

Ecological Site: 172Xy800AK - Escarpments
 Cover type: Low shrub birch scrub
 Seral status: early-mid (cooler, northerly exposures)
 Number of stands: 2
 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	50	5	5	5	16
white spruce	T3	100	5	5	5	22
Labrador-tea	SS	100	33	20	45	57
black crowberry	SS	50	6	6	6	17
bog blueberry	SS	100	23	20	25	47
currant	SS	50	2	2	2	10
grayleaf willow	SS	100	23	20	25	47
green alder	SS	50	15	15	15	27
lowbush cranberry	SS	100	6	4	8	24
red bearberry	SS	100	2	1	4	15
russet buffalo-berry	SS	50	2	2	2	10
shrub birch	SS	50	15	15	15	27
arctic lupine	F	50	3	3	3	12
arctic sweet coltsfoot	F	50	5	5	5	16
clubmoss	F	50	7	7	7	19
horsetail	F	50	1	1	1	5
wintergreen	F	50	1	1	1	5
bluejoint reedgrass	G	50	2	2	2	10
polar grass	G	50	2	2	2	10
sedge	G	50	1	1	1	5
spruce-muskeg sedge	G	50	6	6	6	17
Moss layer	M	100	55	55	55	74
Lichen layer	L	100	20	15	25	45
Litter and mulch	B	100	13	5	20	35
Woody litter (>1" dia.)	B	50	1	1	1	5

 Salix spp. includes:

Ecological Site: 172Xy800AK - Escarpments
Cover type: Sparsely vegetated escarpments
Serai status: early (very steep, unstable slopes)
Source of data: Gulkana River Area

Description:

Sparsely vegetated escarpments consists of sparse, discontinuous stands of small trees and tree regeneration, shrubs, and herbs on steep and very steep escarpments. Mass wasting and accerlerated erosion is evident in most stands. The vegetation cover includes recently established plants as well as clumps of vegetation on soil materials that have broken off and moved down from higher up on the slope. In places where the slope has stabilized, fairly dense vegetation cover often develops.

Frequently occurring woody species include *Populus balsamifera* and *P. tremuloides*, *Shepherdia canadensis*, *Alnus crispa*, *Betula glandulosa*, *Ledum* spp., and various *Salix* spp. Frequent herbs include *Achillea millifolium*, *Agropyron trachycaulum*, *Agrostis scabra*, *Aster sibericus*, *Calamagrostis canadensis*, *Epilobium angustifolium* and *E. latifolium*, *Equisetum* spp., *Hedysarum alpinum*, and other pioneering species found on flood plains and uplands.