

## Loamy Frozen Slopes, Ice Cored (M135A\_113)

### Ecoregion Classification

**Section:** Alaska Mountains (M135A)

**Subsection(s):** Teklanika Boreal Mountains & Plateaus (M135A.M6L)

Boreal Outer Range & Kantishna Hills (M135A.M1L)

### Physiographic Features

**Elevation (meters):** *RV* 466 *Range* 211 to 648

**Slope Gradient (percent):** 15 5 to 22

**Aspect (clockwise direction):** southwest to northeast

**Landform:** mountains

**Landform Positions:** summits; toeslopes

**Flooding:** *Frequency* None

**Ponding:** None

### Climatic Features

**Annual Precipitation (millimeters):** *RV* 489 *Range* 358 to 776

**Annual Air Temperature (°C):** -2.6 -4.0 to -2.2

**Frost Free Days:** 70 60 to 80

### Soil Features

**Parent Materials:** mossy organic material and/or woody organic material over silty eolian deposits derived from schist

**Rooting Depth (cm):** *RV:* 33 *Range:* 10 to 48

### Soil Layers and Properties within Representative Rooting Depth:

Layers are described from the surface downward. If more than one texture is listed, the predominant texture is listed first. AWC = available water capacity. CEC = cation exchange capacity.

Thickness (cm)	Texture	Permeability	AWC (cm/cm)	pH	Effective CEC (me/100g)	CEC (me/100g)
23	moderately decomposed plant material	moderately rapid	.34	4.8	30	
10	silt loam	moderate	.26	5.5	15	

**Restrictive Features:** permafrost at 46 cm

**Water Table (May to September):** none

**Drainage Class:** well drained

### Vegetation Features

#### Common Vegetation Types:

##### Vegetation Type

Black spruce/green alder woodland  
Paper birch/green alder forest, frozen  
Mixed paper birch-spruce forest

##### Ecological Status

Climax plant community  
Mid stage of fire induced secondary succession  
Late stage of fire induced secondary succession

#### Ecological Status-Transition Description:

Three plant communities are identified on this fire influenced site including a potential community with black spruce/green alder woodland, a mid-seral community with paper birch/green alder forest, frozen and a late-seral community with mixed paper birch-spruce forest. Fire is considered a transitional pathway between seral communities

### Vascular Plant Species Richness:

Vascular plant species richness is based on 1999-2002 field season data only. Data from 1997 and 1998 were not used in the calculations.

Vegetation Type	Total	Per Stand			Number of Stands
		Min.	Avg.	Max.	
Black spruce/green alder woodland					0
Paper birch/green alder forest, frozen	21	21	21	21	1
Mixed paper birch-spruce forest					0

### Characteristics of Black spruce/green alder woodland

**Ecological Status:** Climax plant community

### Plant Species Cover, Constancy, and Importance:

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 5. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
TM	PIMA	Picea mariana	10.0	19	25	100	44
TM	PIGL	Picea glauca	5.0	5	5	20	10
TR	PIMA	Picea mariana	0.1	6	10	80	22
SM-ST	ALVIC	Alnus viridis ssp. crispa	0.1	28	75	60	41
SM	SABE2	Salix bebbiana	0.1	10	20	40	20
SL	LEGR	Ledum groenlandicum	5.0	20	40	80	40
SL	VAUL	Vaccinium uliginosum	3.0	20	60	80	40
SL	LEPAD	Ledum palustre ssp. decumbens	5.0	10	15	40	20
SL	ROAC	Rosa acicularis	10.0	10	10	20	14
FM	EQSY	Equisetum sylvaticum	0.1	11	25	80	30
L	LICHEN	total lichens	0.0	7	30	100	26
L1	CLADI3	Cladina	5.0	18	30	40	27
M	MOSS	total bryophytes-mosses and liverworts	5.0	66	90	100	81
M1	HYSP70	Hylocomium splendens	0.1	45	90	40	42
M1	PLSC70	Pleurozium schreberi	60.0	60	60	20	35
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	0.0	25	80	100	50
B	LITTER2	litter-woody debris >2.5 cm	0.0	1	5	100	10
B	SOIL	mineral-bare soil	0.0	0	0	100	0
B	ROCK	mineral-surface rock fragments	0.0	0	0	100	0
B	WATER	water	0.0	0	0	100	0

### Stratum Height:

Stratum height is based on 1997-2002 field season data. All plant species and ground layer records from all stands are included in the calculations.

Stratum Name	Included Strata	Height			Units	Number of Records
		Min.	Avg.	Max.		
Trees	TT, TM, TS	2.0	6.4	12.0	m	10
Tree regeneration	TR	0.5	1.5	2.5	m	4
Tall shrubs	ST	3.0	3.0	3.0	m	3
Medium shrubs	SM	1.5	1.7	2.0	m	5
Low shrubs	SL	20.0	46.5	100.0	cm	17
Dwarf shrubs	SD	10.0	10.0	10.0	cm	6
Tall and medium forbs	FT, FM	20.0	46.2	100.0	cm	8
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	10.0	10.0	10.0	cm	8

### Characteristics of Paper birch/green alder forest, frozen

**Ecological Status:** Mid stage of fire induced secondary succession

### Plant Species Cover, Constancy, and Importance:

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 7. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
TT	BENE4	Betula neoalaskana	10.0	35	75	57	45
TT	PIGL	Picea glauca	5.0	12	20	43	23
TM	BENE4	Betula neoalaskana	5.0	58	85	43	50

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
TM	PIGL	Picea glauca	10.0	10	10	29	17
ST	ALVIC	Alnus viridis ssp. crispa	3.0	22	80	86	43
ST	SABE2	Salix bebbiana	5.0	17	40	43	27
SL-SM	ROAC	Rosa acicularis	0.1	11	35	86	31
SL	LEGR	Ledum groenlandicum	5.0	32	60	29	30
GM-GT	CACA4	Calamagrostis canadensis	15.0	32	65	57	43
GM-GT	ARLA2	Arctagrostis latifolia	0.1	20	40	29	24
GM-GT	ZZGRASS	unknown-grasses	5.0	6	7	29	13
FM	EQSY	Equisetum sylvaticum	5.0	21	60	86	42
L	LICHEN	total lichens	0.0	0	3	100	0
M	MOSS	total bryophytes-mosses and liverworts	5.0	22	90	100	47
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	15.0	53	70	100	73
B	LITTER2	litter-woody debris >2.5 cm	5.0	7	15	100	26
B	SOIL	mineral-bare soil	0.0	0	0	100	0
B	ROCK	mineral-surface rock fragments	0.0	0	0	100	0
B	WATER	water	0.0	0	0	100	0

### Stratum Height:

Stratum height is based on 1997-2002 field season data. All plant species and ground layer records from all stands are included in the calculations.

Stratum Name	Included Strata	Height			Units	Number of Records
		Min.	Avg.	Max.		
Trees	TT, TM, TS	6.0	12.9	18.0	m	10
Tree regeneration	TR	0.6	1.2	2.0	m	3
Tall shrubs	ST	3.0	4.1	7.0	m	12
Medium shrubs	SM	1.5	1.6	2.0	m	4
Low shrubs	SL	30.0	70.0	100.0	cm	10
Dwarf shrubs	SD	5.0	7.5	10.0	cm	2
Tall and medium grasses and grass-likes	GT, GM	70.0	85.0	100.0	cm	2
Tall and medium forbs	FT, FM	10.0	57.7	150.0	cm	13
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	7.9	10.0	cm	8

### Site Tree Measurements:

Only dominant, codominant, and open grown trees were measured. Height of Measurements = height above ground at which age and diameter was measured. G = ground level, B = breast height (ca 1.5 m).

Tree Species	Age (years)	Diameter (cm)	Height (m)	Number of Trees	Height of Measurements
	84	40.6	20.1		Avg
	84	40.6	20.1		Max.

### Characteristics of Mixed paper birch-spruce forest

**Ecological Status:** Late stage of fire induced secondary succession

### Plant Species Cover, Constancy, and Importance:

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 5. Only those vascular, lichen, and bryophyte species

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
TT	PIGL	Picea glauca	7.0	14	20	40	24
TT	PIMA	Picea mariana	5.0	5	5	20	10
TM	PIMA	Picea mariana	3.0	13	20	60	28
TM	BENE4	Betula neoalaskana	3.0	9	15	80	27
TM	PIGL	Picea glauca	10.0	10	10	20	14
TR	PIGL	Picea glauca	10.0	10	10	20	14
TR	PIMA	Picea mariana	0.1	5	10	40	14
SM-ST	ALVIC	Alnus viridis ssp. crispa	2.0	34	80	100	58
SM-ST	SAGL	Salix glauca	5.0	12	20	40	22
ST	SAPU15	Salix pulchra	20.0	20	20	20	20
SL	BEGL	Betula glandulosa	35.0	35	35	20	26

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
SL	LEGR	Ledum groenlandicum	3.0	8	15	80	25
SL	VAUL	Vaccinium uliginosum	3.0	9	15	40	19
GM	CACA4	Calamagrostis canadensis	40.0	40	40	20	28
GM	ZZGRAM	unknown-graminoids	10.0	20	30	40	28
GM	ZZGRASS	unknown-grasses	15.0	15	15	20	17
FM	EQSY	Equisetum sylvaticum	5.0	10	20	80	28
L	LICHEN	total lichens	0.0	0	0	100	0
M	MOSS	total bryophytes-mosses and liverworts	5.0	45	80	100	67
M1	HYSP70	Hylocomium splendens	80.0	80	80	20	40
M1	SPHAG2	Sphagnum	50.0	50	50	20	32
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	0.0	26	60	100	51
B	LITTER2	litter-woody debris >2.5 cm	0.0	4	10	100	20
B	SOIL	mineral-bare soil	0.0	1	5	100	10
B	WATER	water	0.0	1	5	100	10
B	ROCK	mineral-surface rock fragments	0.0	0	0	100	0

### Stratum Height:

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Stratum Name	Included Strata	Height			Units	Number of Records
		Min.	Avg.	Max.		
Trees	TT, TM, TS	6.0	10.1	14.0	m	11
Tree regeneration	TR	0.5	2.5	4.0	m	3
Tall shrubs	ST	3.0	3.5	4.0	m	6
Medium shrubs	SM	1.0	1.6	2.5	m	4
Low shrubs	SL	30.0	64.3	100.0	cm	14
Dwarf shrubs	SD	10.0	13.3	20.0	cm	3
Tall and medium forbs	FT, FM	20.0	48.6	100.0	cm	7
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	10.0	10.0	10.0	cm	5

### Mapunit Components

#### Common Name (Soils Name):

Boreal-taiga high elevation silty mica-rich loess hills, frozen (Typic Umbrorthels, coarse-silty)

#### Soil Map Units

Only those map units in which the landtype is a major component are listed. The landtype also may occur as a minor component in other map units.

#### Symbol: Common Name (Soils Name):

10P3	Boreal Dissected Plateaus with Discontinuous Permafrost (Typic Historthels, coarse-silty-Typic Histoturbels, coarse-silty-Typic Umbrorthels, coarse-silty Association, 0 to 20 percent slopes)
8LMF	Boreal Lower Mountain Slopes, Thermokarsted (Typic Umbrorthels, coarse-silty-Typic Histoturbels, coarse-silty Association, 0 to 40 percent slopes)

### Geographically Associated Landtypes

#### M135A\_400—Loamy Frozen Slopes:

This site occurs on adjacent lesser slopes with soils that are wetter. The climax plant community is "Black spruce/bog blueberry-Labrador tea woodland."

#### M135A\_800—Escarpments:

This site occurs on steeper escarpment slopes with very deep, well drained soils. The climax plant community is "White spruce forest."

### Similar Landtypes

#### M135A\_400—Loamy Frozen Slopes:

This site has wetter soils. The climax plant community is "Black spruce/bog blueberry-Labrador tea woodland."