Loamy Frozen Slopes (M131B_400)

Ecoregion Classification

Section: Kuskokwim Mountains (M131B)

Subsection(s): Boreal Low Mountains (M131B.M1)

Physiographic Features

	RV	Range
Elevation (meters):	282	177 to 611
Slope Gradient (percent):	9	2 to 25

Aspect (clockwise direction): non-influencing

Landform: mountains

Landform Positions: toeslopes

	Frequency
Flooding:	None
Ponding:	None

Climatic Features

	RV	Range
Annual Precipitation (millimeters):	423	345 to 549
Annual Air Temperature (°C):	-2.5	-2.9 to -1.2
Frost Free Days:	80	60 to 100

Soil Features

Parent Materials: mossy organic material and/or woody organic material over silty colluvium derived from schist

mossy organic material and/or woody organic material over silty eolian deposits over gravelly colluvium derived from schist

Rooting Depth (cm): *RV:* 37 *Range:* 21 to 80

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 to 25	peat	moderately rapid	.34	3.7 to 4.8	30	
2 to 14	silt loam	moderate	.22 to .26	5.2 to 6.2	15	16
2 to 12	silt loam	moderate	.22 to .26	5.5 to 6.2	15	16

Restrictive Features: bedrock (paralithic) at 84 to 150 cm or more

permafrost at 35 to 58 cm

strongly contrasting textural stratification at 35 cm

Water Table (May to September): 0 to 50 cm

Drainage Class: poorly drained

Vegetation Features

Common Vegetation Types:

Vegetation Type	Ecological Status
Black spruce/Labrador tea woodland	Climax plant community
Black spruce/shrub birch woodland	Late stage of fire induced secondary succession

Ecological Status-Transition Description:

Two plant communities are identified within this fire influenced site including a potential community with black

spruce/Labrador tea woodland and a late-seral community with black spruce/shrub birch woodland. Fire is considered a transitional pathway between seral communities within this site.

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.

		Per Stand			Number of
Vegetation Type	**Total**	*Min.*	*Avg.*	*Max.*	**Stands**
Black spruce/Labrador tea woodland	43	12	17	23	13
Black spruce/shrub birch woodland	17	15	16	16	2

Characteristics of Black spruce/Labrador tea 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 = 13. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

			Percent Canopy Cover			Percent	Importance
Stratum	**Symbol**	**Scientific Name**	*Min.*	*Avg.*	*Max.*	**Constancy**	**Value**
TM	PIMA	Picea mariana	15.0	23	40	69	40
TS	PIMA	Picea mariana	7.0	23	55	31	27
TS	LALA	Larix laricina	0.1	5	10	23	11
SD-SM	LEPAD	Ledum palustre ssp. decumbens	10.0	24	55	85	45
SL-SM	BEGL	Betula glandulosa	0.1	8	15	92	27
SD-SL	VAUL	Vaccinium uliginosum	2.0	13	50	92	35
SL	LEGR	Ledum groenlandicum	0.1	12	45	38	21
SL	CHCA2	Chamaedaphne calyculata	0.1	5	20	46	15
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	5.0	12	20	100	35
SD	EMNI	Empetrum nigrum	2.0	11	35	46	22
GM	ERBR6	Eriophorum brachyantherum	0.1	5	20	54	16
FD-FM	EQSY	Equisetum sylvaticum	0.1	14	45	69	31
FD	RUCH	Rubus chamaemorus	0.1	15	40	100	39
L	LICHEN	total lichens	0.1	17	40	100	41
L1	CLRA61	Cladina rangiferina group	0.1	6	15	77	21
L1	CLADI3	Cladina	0.1	5	10	77	20
L1	CLMI61	Cladina mitis group	5.0	5	5	15	9
M	MOSS	total bryophytes-mosses and liverworts	60.0	79	95	100	89
M1	SPHAG2	Sphagnum	0.1	31	55	100	56
M1	PLSC70	Pleurozium schreberi	1.0	26	55	92	49
M1	HYSP70	Hylocomium splendens	5.0	24	50	62	39
M1	ZZMOSS	unknown-mosses	0.1	8	15	100	28
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	5.0	12	45	100	35
B	LITTER2	litter-woody debris >2.5 cm	0.0	3	7	100	17
B	SOIL	mineral-bare soil	0.0	0	3	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.

		Height				Number
Stratum Name	**Included Strata**	*Min.*	*Avg.*	*Max.*	*Units*	**of Records**
Trees	TT, TM, TS	3.0	5.6	9.0	m	17
Tree regeneration	TR	0.8	1.0	1.1	m	5
Tall shrubs	ST	3.0	3.0	3.0	m	1
Medium shrubs	SM	1.1	1.6	2.0	m	11
Low shrubs	SL	20.0	51.7	90.0	cm	12
Dwarf shrubs	SD	5.0	11.0	20.0	cm	8
Tall and medium grasses and grass-likes	GT, GM	30.0	53.3	100.0	cm	6
Tall and medium forbs	FT, FM	20.0	40.0	60.0	cm	9
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	2.0	3.9	9.0	cm	31

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
Larix laricina	23	7.9	5.5	*Min.*	1	G
	23	7.9	5.5	*Avg*		
	23	7.9	5.5	*Max.*		
Picea mariana	68	8.9	4.9	*Min.*	3	G
	98	10.0	7.1	*Avg*		
	134	11.9	9.1	*Max.*		

Characteristics of Black spruce/shrub birch woodland

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 = 2. 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	15.0	18	20	100	42
TM	LALA	Larix laricina	0.1	5	10	100	22
SM	BEGL	Betula glandulosa	15.0	18	20	100	42
SM	ALVIC	Alnus viridis ssp. crispa	1.0	10	20	100	32
SM	SAPU15	Salix pulchra	0.1	5	10	100	22
SL	LEPAD	Ledum palustre ssp. decumbens	20.0	20	20	100	45
SL	VAUL	Vaccinium uliginosum	10.0	20	30	100	45
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	10.0	12	15	100	35
SD	EMNI	Empetrum nigrum	2.0	6	10	100	24
FD	RUCH	Rubus chamaemorus	10.0	15	20	100	39
L	LICHEN	total lichens	0.1	10	20	100	32
L1	CLMI61	Cladina mitis group	7.0	7	7	50	19
L1	CLMU60	Cladonia multiformis	5.0	5	5	50	16
M	MOSS	total bryophytes-mosses and liverworts	75.0	85	95	100	92
M1	SPHAG2	Sphagnum	35.0	42	50	100	65
M1	HYSP70	Hylocomium splendens	10.0	15	20	100	39
M1	PLSC70	Pleurozium schreberi	10.0	12	15	100	35
M1	ZZMOSS	unknown-mosses	5.0	10	15	100	32
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	10.0	12	15	100	35
B	LITTER2	litter-woody debris >2.5 cm	0.1	3	5	100	17
B	SOIL	mineral-bare soil	0.1	0	0	100	0
B	ROCK	mineral-surface rock fragments	0.0	0	0	100	0
B	WATER	water	0.1	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				Number of Records
		Min.	*Avg.*	*Max.*	*Units*	
Trees	TT, TM, TS	6.5	7.0	7.5	m	2
Tree regeneration	TR	0.5	0.5	0.5	m	1
Medium shrubs	SM	1.3	2.0	2.5	m	4
Low shrubs	SL	30.0	30.0	30.0	cm	1
Tall and medium forbs	FT, FM	30.0	30.0	30.0	cm	1
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	3.0	6.7	12.0	cm	3

Mapunit Components

Common Name (Soils Name):

Boreal-taiga mica-rich silty frozen colluvial slopes, Kuskokwim Mountains (Typic Historthels, coarse-silty)

Boreal-taiga silty schist slopes, frozen (Typic Historthels, loamy-skeletal)

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):***

4BS Boreal Schist Mountain Backslopes with Discontinuous Permafrost
(Typic Dystrocryepts, loamy-skeletal-Typic Historthels, loamy-skeletal Association, 8 to 25 percent slopes)

4FS Boreal Mica-Rich Low Mountain Footslopes with Continuous Permafrost
(Typic Historthels, coarse-silty, 2 to 10 percent slopes)

4TS Boreal Mica-Rich Mountain Toeslopes with Continuous Permafrost
(Typic Histoturbels, coarse-silty-Typic Historthels, coarse-silty Association, 0 to 5 percent slopes)

Geographically Associated Landtypes

M131B_355 — Silty Slopes, Cool:

This site occurs on higher slopes with soils that are well drained and moderately deep over bedrock. The climax plant community is "Black spruce/mixed ericaceous shrub woodland."

M131B_403 — Loamy Frozen Slopes, Very Wet:

This site occurs on lower toeslope positions with wetter soils that are moderately deep over permafrost. The climax plant community is "Tussock cottongrass/mixed ericaceous shrub meadow3."

M131B_504 — Silty Drainages, Frozen:

This site occurs on narrow drainages with wetter, flooded soils. The climax plant community is "Diamondleaf willow-green alder-leatherleaf scrub."

Similar Landtypes

M131B_355 — Silty Slopes, Cool:

This site occurs on soils that are moderately deep over bedrock and well drained. The climax plant community is "Black spruce/mixed ericaceous shrub woodland."