

# Loamy Frozen Terraces (131B\_104)

## Ecoregion Classification

**Section:** Yukon-Kuskokwim Bottomlands (131B)

**Subsection(s):** Minchumina Basin Lowlands (131B.V2)

Lowland Flood Plains & Terraces (131B.V1)

Eolian Lowlands (131B.L1)

## Physiographic Features

**Elevation (meters):** *RV* 265 *Range* 149 to 630

**Slope Gradient (percent):** 1 0 to 2

**Aspect (clockwise direction):** non-influencing

**Landform:** outwash plains; stream terraces

*Frequency*

**Flooding:** None

**Ponding:** None

## Climatic Features

**Annual Precipitation (millimeters):** *RV* 437 *Range* 336 to 651

**Annual Air Temperature (°C):** -2.6 -3.0 to -2.4

**Frost Free Days:** 100 80 to 110

## Soil Features

**Parent Materials:** mossy organic material and/or woody organic material over silty alluvium  
mossy organic material and/or woody organic material over silty eolian deposits over sandy and silty alluvium  
mossy organic material and/or woody organic material over silty eolian deposits over sandy and silty alluvium over sandy and gravelly alluvium  
organic material over silty eolian deposits over sandy and silty alluvium over sandy and gravelly

**Rooting Depth (cm):** *RV:* 30 *Range:* 6 to 53

## 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)
22 to 30	peat	moderately rapid	.34	3.8 to 5.0	30	
2 to 8	silt loam	moderate to moderately rapid	.14 to .40	4.5 to 5.3	6 to 15	

**Restrictive Features:** permafrost at 42 to 53 cm  
strongly contrasting textural stratification at 90 cm in some components

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

**Drainage Class:** poorly drained

## Vegetation Features

### Common Vegetation Types:

#### Vegetation Type

Black spruce-tamarack/Labrador tea woodland  
Willow/bluejoint/haircap moss scrub  
Labrador tea scrub

#### Ecological Status

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

### Ecological Status-Transition Description:

Three plant community are identified on this fire influenced site including a potential community with black spruce-tamarack/Labrador tea woodland, a mid-seral community with Labrador tea scrub and an early-seral community with willow/bluejoint/haircap moss scrub. 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.

Vegetation Type	Total	Per Stand			Number of Stands
		Min.	Avg.	Max.	
Black spruce-tamarack/Labrador tea woodland	108	10	21	40	36
Willow/bluejoint/haircap moss scrub	55	19	23	31	5
Labrador tea scrub	73	13	27	35	7

### Alien Plants:

Alien plants include plants on Alaska Exotic Plant Information Clearinghouse Weed List, 2002.

Vegetation Type	Symbol	Scientific Name
Labrador tea scrub	POPR	Poa pratensis

### Notable Plants:

Notable plants include rare plants, range extensions, and plants little known from Denali National Park and Preserve.

Vegetation Type	Symbol	Scientific Name
Labrador tea scrub	CAEB2	Carex eburnea

### Characteristics of Black spruce-tamarack/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 = 41. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

Stratum	Symbol	Scientific Name	Percent			Importance Value	
			Canopy Cover	Constancy			
			Min.	Avg.	Max.		
TM	PIMA	Picea mariana	5.0	22	60	63	37
TS	PIMA	Picea mariana	5.0	19	35	22	20
SL-SM	LEGR	Ledum groenlandicum	0.1	16	55	68	33
SL-SM	B EGL	Betula glandulosa	0.1	6	20	93	24
SD-SL	LEPAD	Ledum palustre ssp. decumbens	0.1	19	55	73	37
SD-SL	VAUL	Vaccinium uliginosum	0.1	12	40	100	35
SD-SL	CHCA2	Chamaedaphne calyculata	0.1	8	20	59	22
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	0.1	12	30	98	34
SD	EMNI	Empetrum nigrum	0.1	9	20	78	26
GM	ERBR6	Eriophorum brachyantherum	0.1	8	60	44	19
FD-FM	EQSY	Equisetum sylvaticum	0.1	8	20	32	16
FD	RUCH	Rubus chamaemorus	0.1	9	30	73	26
L	LICHEN	total lichens	0.0	17	85	100	41
L1	CLRA61	Cladina rangiferina group	0.1	6	25	61	19
L1	CLADI3	Cladina	0.1	5	20	59	17
L1	CLST60	Cladina stellaris	0.1	9	50	32	17
M	MOSS	total bryophytes-mosses and liverworts	30.0	78	95	100	88
M1	SPHAG2	Sphagnum	0.1	27	75	83	47
M1	PLSC70	Pleurozium schreberi	2.0	23	50	80	43
M1	HYSP70	Hylocomium splendens	0.1	25	50	68	41
M1	ZZMOSS	unknown-mosses	5.0	11	40	88	31
M1	TONI70	Tomentypnum nitens	0.1	5	10	20	10
M1	POCO38	Polytrichum commune	0.1	5	15	15	9
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	0.0	10	60	100	32
B	LITTER2	litter-woody debris >2.5 cm	0.0	2	6	100	14
B	SOIL	mineral-bare soil	0.0	0	7	100	0
B	ROCK	mineral-surface rock fragments	0.0	0	0	100	0
B	WATER	water	0.0	0	2	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	1.5	8.0	21.0	m	52
Tree regeneration	TR	0.2	1.3	3.0	m	33
Tall shrubs	ST	3.0	3.5	4.0	m	2
Medium shrubs	SM	1.0	1.7	2.5	m	22
Low shrubs	SL	20.0	60.5	100.0	cm	59
Dwarf shrubs	SD	3.0	9.4	20.0	cm	39
Tall and medium grasses and grass-likes	GT, GM	20.0	56.0	120.0	cm	20
Tall and medium forbs	FT, FM	10.0	24.3	50.0	cm	15
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	2.0	4.5	10.0	cm	92

### 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
Picea mariana	57	5.8	4.6	6	G
	124	9.2	6.6		
	222	12.2	8.8		

### Tree Basal Area (all trees >1.5 m tall):

Min.	Avg.	Max.	Number of Stands
0.2	0.2	0.2	1

### Characteristics of Willow/bluejoint/haircap moss scrub

**Ecological Status:** Early 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 with average cover >=5% and constancy >=15% are listed.

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
TT	PIMA	Picea mariana	5.0	5	5	20	10
TM	PIMA	Picea mariana	7.0	7	7	20	12
SM	SAGL	Salix glauca	0.1	7	15	100	26
SM	BEGL	Betula glandulosa	0.1	6	20	80	22
SL-SM	ROAC	Rosa acicularis	0.1	5	15	100	22
SM	SABE2	Salix bebbiana	5.0	5	5	20	10
SL	LEGR	Ledum groenlandicum	5.0	6	10	80	22
SL	VAUL	Vaccinium uliginosum	0.1	6	15	80	22
SL	RUID	Rubus idaeus	10.0	10	10	20	14
SL	PEFL15	Pentaphylloides floribunda	5.0	5	5	20	10
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	2.0	5	10	80	20
GT	CACA4	Calamagrostis canadensis	5.0	31	70	100	56
FM-FT	EPAN2	Epilobium angustifolium	0.1	5	10	100	22
FD-FT	EQSY	Equisetum sylvaticum	2.0	8	15	40	18
FD	EQPR	Equisetum pratense	0.1	5	10	40	14
L	LICHEN	total lichens	0.1	10	25	100	32
L1	CLCO19	Cladonia cornuta	10.0	10	10	20	14
L1	PELT12	Peltigera	5.0	5	5	20	10
M	MOSS	total bryophytes-mosses and liverworts	0.1	29	65	100	54
M1	POCO38	Polytrichum commune	0.1	15	20	80	35
M1	ZZMOSS	unknown-mosses	0.1	8	20	100	28
M1	POLYT5	Polytrichum	20.0	20	20	20	20
M1	HYSP70	Hylocomium splendens	15.0	15	15	20	17
M1	PLSC70	Pleurozium schreberi	10.0	10	10	20	14
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	10.0	54	70	100	73

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
B	LITTER2	litter-woody debris >2.5 cm	0.0	10	20	100	32
B	SOIL	mineral-bare soil	0.0	1	5	100	10
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	16.0	30.0	m	3
Tree regeneration	TR	0.5	1.8	4.0	m	11
Medium shrubs	SM	1.3	2.1	3.0	m	6
Low shrubs	SL	70.0	72.5	80.0	cm	4
Dwarf shrubs	SD	3.0	3.0	3.0	cm	1
Tall and medium grasses and grass-likes	GT, GM	130.0	146.7	160.0	cm	3
Tall and medium forbs	FT, FM	90.0	138.0	220.0	cm	5
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	1.8	3.0	cm	6

### Characteristics of Labrador tea scrub

**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.		
TM	BENE4	Betula neoalaskana	0.1	8	20	43	19
TR	PIGL	Picea glauca	0.1	5	15	57	17
TR	PIMA	Picea mariana	0.1	5	15	57	17
SL-ST	SAGL	Salix glauca	0.1	5	15	86	21
SL	LEGR	Ledum groenlandicum	20.0	27	40	86	48
SL	LEPAD	Ledum palustre ssp. decumbens	15.0	32	45	43	37
SD-SL	VAUL	Vaccinium uliginosum	5.0	11	20	100	33
SL	CHCA2	Chamaedaphne calyculata	0.1	13	25	29	19
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	5.0	16	40	100	40
SD	EMNI	Empetrum nigrum	0.1	7	10	43	17
SD	LIBO3	Linnaea borealis	5.0	10	15	29	17
GM	CAVA2	Carex vaginata	0.1	7	15	43	17
GM	ERBR6	Eriophorum brachyantherum	0.1	7	15	43	17
FD-FM	EQPR	Equisetum pratense	0.1	13	40	43	24
FD-FM	EQSY	Equisetum sylvaticum	4.0	5	7	43	15
FD	EQSC	Equisetum scirpoides	0.1	10	15	43	21
FD	RUCH	Rubus chamaemorus	0.1	6	20	57	18
L	LICHEN	total lichens	0.0	6	20	100	24
L1	CLADO3	Cladonia	1.0	6	15	43	16
M	MOSS	total bryophytes-mosses and liverworts	30.0	58	85	100	76
M1	ZZMOSS	unknown-mosses	10.0	19	30	100	44
M1	POCO38	Polytrichum commune	10.0	25	50	71	42
M1	HYSF70	Hylocomium splendens	0.1	23	50	43	31
M1	SPHAG2	Sphagnum	5.0	13	20	43	24
M1	PLSC70	Pleurozium schreberi	5.0	10	15	29	17
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	20.0	39	60	100	62
B	LITTER2	litter-woody debris >2.5 cm	1.0	11	25	100	33
B	SOIL	mineral-bare soil	0.0	4	30	100	20
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	7.0	13.8	25.0	m	10
Tree regeneration	TR	0.4	1.3	2.6	m	11
Tall shrubs	ST	3.5	3.8	4.0	m	2
Medium shrubs	SM	1.8	2.3	3.0	m	5
Low shrubs	SL	40.0	75.0	90.0	cm	6
Dwarf shrubs	SD	3.0	6.3	9.0	cm	6
Tall and medium grasses and grass-likes	GT, GM	30.0	76.0	130.0	cm	5
Tall and medium forbs	FT, FM	30.0	82.5	130.0	cm	4
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	2.2	5.0	cm	13

### Mapunit Components

#### Common Name (Soils Name):

- Boreal-taiga deep loamy terraces, frozen (Typic Historthels, coarse-loamy)
- Boreal-taiga loamy terraces, frozen (Typic Historthels, coarse-loamy over sandy-skeletal)
- Boreal-taiga mica rich loamy terraces, frozen (Typic Historthels, coarse-loamy)
- Boreal-taiga silty outwash plains, frozen (Typic Historthels, 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):

1FP2	Boreal Terraces and Flood Plains with Discontinuous Permafrost (Typic Historthels, coarse-loamy-Typic Cryofluvents, coarse-loamy over sandy skeletal Complex)
1FW1	Boreal Terraces with Continuous Permafrost (Typic Historthels, coarse-loamy-Typic Histoturbels, coarse-silty Complex)
1ST1	Boreal Terraces with Discontinuous Permafrost, Minchumina Basin (Typic Historthels, coarse-loamy-Typic Histoturbels, coarse-silty-Cryofibrists, euic Association)
1STW	Boreal Terraces with Continuous Permafrost, Wet (Typic Histoturbels, coarse-silty-Typic Historthels, coarse-loamy Association)
2FW2	Boreal Terraces and High Flood Plains with Continuous Permafrost (Typic Historthels, coarse-loamy Complex)
2P	Boreal Plains with Continuous Permafrost (Typic Historthels, coarse-silty)
2ST	Boreal Terraces with Discontinuous Permafrost (Typic Eutrocryepts, sandy-skeletal-Typic Historthels, coarse-loamy over sandy-skeletal Complex)
3FP1	Boreal Flood Plains and Terraces with Discontinuous Permafrost (Typic Cryofluvents, coarse-loamy over sandy-skeletal-Typic Historthels, coarse-loamy over sandy-skeletal-Aquic Cryofluvents, coarse-loamy over sandy-skeletal Complex)

### Geographically Associated Landtypes

#### 131B\_100—Loamy Flood Plains:

This site occurs on flood plains with very deep, well drained soils. The climax plant community is "White spruce-poplar/alder forest."

#### 131B\_102—Loamy Frozen Flood Plains:

This site occurs on high flood plains with soils that are well drained and moderately deep over permafrost. The climax plant community is "Mixed paper birch-spruce/prickly rose forest."

#### 131B\_156—Loamy Wet Flood Plains, Frozen:

This site occurs on flood plains. The climax plant community is "White spruce-tamarack/thinleaf alder forest."

### ***Similar Landtypes***

***131B\_105—Loamy Frozen Terraces, Wet:***

This site occurs on soils that are wetter and moderately deep over permafrost. The climax plant community is "Black spruce-tamarack/tussock cottongrass woodland."

***131B\_108—Gravelly and Sandy Terraces:***

This site occurs on very deep soils that are very shallow to sand and gravel.. The climax plant community is "Spruce/ericaceous woodland."

***131B\_113—Loamy Frozen Slopes, Ice Cored:***

This site occurs on steeper slopes and is well drained. The climax plant community is "Black spruce/green alder/Labrador tea woodland."

***131B\_400—Loamy Frozen Slopes:***

This site occurs on loess plains and hills and lacks subsurface gravel at depth. The climax plant community is "Black spruce/Labrador tea woodland."

***M135A\_505—Loamy Drainages, High Elevation:***

This site occurs in flooded channels. The climax plant community is "Diamondleaf willow-green alder scrub."