

# Loamy Frozen Flood Plains (131B\_102)

## 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* 228 *Range* 164 to 592

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

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

**Landform:** flood plains

**Flooding:** *Frequency* Occasional *Duration* Brief *Beginning Month* May *Ending Month* Sep

**Ponding:** None

## Climatic Features

**Annual Precipitation (millimeters):** *RV* 421 *Range* 336 to 651

**Annual Air Temperature (°C):** -2.7 -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 sandy and silty alluvium  
sandy and silty alluvium over sandy and gravelly alluvium derived from schist

**Rooting Depth (cm):** *RV:* 35 *Range:* 7 to 78

## 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)
8 to 9	slightly decomposed plant material	moderately rapid	.34	3.9 to 4.0	30	
13 to 21	silt loam	moderate	.26 to .40	3.9 to 4.3	12 to 20	
5 to 14	stratified silt to fine sand to muck	moderate to moderately rapid	.16 to .18	5.7 to 5.8		12 to 25

**Restrictive Features:** permafrost at 78 cm

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

**Drainage Class:** well drained

## Vegetation Features

### Common Vegetation Types:

#### Vegetation Type

Mixed paper birch-spruce/prickly rose forest  
Paper birch/prickly rose/bluejoint forest  
Paper birch/lingonberry forest

#### Ecological Status

Climax plant community  
Late stage of primary succession on flood plains  
Mid stage of fire induced secondary succession

### Ecological Status-Transition Description:

Three plant communities are identified on this flooding and fire influenced site including a potential community with mixed paper birch-spruce/prickly rose forest, a late-seral flood plain community with paper birch/prickly rose/bluejoint forest on slightly lower flood plain positions, and a mid-seral fire influenced community with paper birch/lingonberry forest where the potential community has been influenced by fire. Flooding and fire are considered transitional pathways 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.	
Mixed paper birch-spruce/prickly rose forest	98	11	27	59	9
Paper birch/prickly rose/bluejoint forest	36	16	18	21	5
Paper birch/lingonberry forest	32	11	17	27	3

### Notable Plants:

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

Vegetation Type	Symbol	Scientific Name
Mixed paper birch-spruce/prickly rose forest	CYMO3	Cystopteris montana
	GOREO2	Goodyera repens var. ophioides
	LYTH2	Lysimachia thysiflora
Paper birch/prickly rose/bluejoint forest	RAPE2	Ranunculus pennsylvanicus
Paper birch/lingonberry forest	CAPA	Calla palustris
	LEMI3	Lemna minor
	LETR	Lemna trisulca
	RINA99	Ricciocarpus natans
	UTMI	Utricularia minor

### Characteristics of Mixed paper birch-spruce/prickly rose forest

**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.

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
TT	BENE4	Betula neoalaskana	0.1	36	65	62	47
TT	PIGL	Picea glauca	4.0	21	50	62	36
TT	PIMA	Picea mariana	2.0	6	10	23	12
TM	PIMA	Picea mariana	30.0	35	40	15	23
TM	BENE4	Betula neoalaskana	0.1	22	40	23	22
TR	PIGL	Picea glauca	0.1	5	10	15	9
SM-ST	ALTE2	Alnus tenuifolia	0.1	22	70	46	32
SM-ST	ALVIC	Alnus viridis ssp. crispa	0.1	18	60	54	31
ST	SABE2	Salix bebbiana	0.1	8	30	38	17
SM-ST	BEGL	Betula glandulosa	0.1	5	15	23	11
SL-SM	ROAC	Rosa acicularis	0.1	19	55	92	42
SL	LEGR	Ledum groenlandicum	0.1	9	30	54	22
SL	CHCA2	Chamaedaphne calyculata	0.1	9	40	38	18
SL	VAUL	Vaccinium uliginosum	2.0	8	20	31	16
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	0.1	12	25	92	33
SD	ARRU6	Arctous rubra	0.1	5	10	15	9
GT	CACA4	Calamagrostis canadensis	0.1	26	60	69	42
GM-GT	ZZGRASS	unknown-grasses	0.1	5	10	23	11
FM	EQPR	Equisetum pratense	15.0	49	65	31	39
FM	EQSY	Equisetum sylvaticum	0.1	17	25	23	20
FD-FM	RUCH	Rubus chamaemorus	1.0	8	15	15	11
FM	VACA3	Valeriana capitata	0.1	5	10	15	9
FD	COCA13	Cornus canadensis	0.1	6	25	92	23
FD	RUAR	Rubus arcticus	0.1	8	30	31	16

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
L	LICHEN	total lichens	0.0	2	10	100	14
M	MOSS	total bryophytes-mosses and liverworts	5.0	57	85	100	75
M1	HYSP70	Hylocomium splendens	5.0	34	80	69	48
M1	ZZMOSS	unknown-mosses	5.0	12	25	69	29
M1	RHTR70	Rhytidiadelphus triquetrus	0.1	21	30	31	26
M1	PLSC70	Pleurozium schreberi	5.0	11	20	31	18
M1	POCO38	Polytrichum commune	5.0	8	10	15	11
M1	SPHAG2	Sphagnum	0.1	5	10	15	9
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	15.0	45	95	100	67
B	LITTER2	litter-woody debris >2.5 cm	0.0	6	10	100	24
B	SOIL	mineral-bare soil	0.0	1	7	100	10
B	ROCK	mineral-surface rock fragments	0.0	0	0	100	0
B	WATER	water	0.0	0	5	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	4.5	13.8	28.0	m	21
Tree regeneration	TR	4.0	4.0	4.0	m	3
Tall shrubs	ST	3.5	4.9	6.5	m	8
Medium shrubs	SM	1.0	1.7	2.5	m	16
Low shrubs	SL	30.0	45.0	70.0	cm	14
Dwarf shrubs	SD	4.0	10.8	20.0	cm	10
Tall and medium grasses and grass-likes	GT, GM	70.0	128.6	180.0	cm	7
Tall and medium forbs	FT, FM	12.0	33.8	100.0	cm	15
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	2.0	5.9	10.0	cm	22

### 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 glauca	61	22.1	16.2	8	B
	168	30.0	19.5		
	267	39.4	23.2		
Picea mariana	60	13.5	11.9	4	B
	80	19.6	15.0		
	97	26.4	18.0		

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

Min.	Avg.	Max.	Number of Stands
12.6	19.6	32.2	5

### Characteristics of Paper birch/prickly rose/bluejoint forest

**Ecological Status:** Late stage of primary succession on flood plains

### 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	50.0	70	80	71	70
TT	LALA	Larix laricina	5.0	8	10	29	15
TM	BENE4	Betula neoalaskana	75.0	88	100	29	51
ST	ALVIC	Alnus viridis ssp. crispa	0.1	19	35	71	37
SL-SM	ROAC	Rosa acicularis	5.0	27	55	86	48
SL-SM	VIED	Viburnum edule	0.1	11	25	57	25

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	0.1	14	35	43	25
SD	LIBO3	Linnaea borealis	5.0	5	5	29	12
GM-GT	CACA4	Calamagrostis canadensis	5.0	21	40	100	46
FM-FT	EQSY	Equisetum sylvaticum	10.0	25	40	29	27
FM	EQAR	Equisetum arvense	0.1	18	60	86	39
FD	COCA13	Cornus canadensis	0.1	13	30	71	30
L	LICHEN	total lichens	0.0	0	0	100	0
M	MOSS	total bryophytes-mosses and liverworts	5.0	24	40	100	49
M1	HYSP70	Hylocomium splendens	7.0	15	25	71	33
M1	ZZMOSS	unknown-mosses	3.0	10	15	71	27
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	65.0	74	95	100	86
B	LITTER2	litter-woody debris >2.5 cm	7.0	13	20	100	36
B	SOIL	mineral-bare soil	0.0	2	5	100	14
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	5.0	12.1	20.0	m	10
Tree regeneration	TR	1.5	2.2	3.0	m	2
Tall shrubs	ST	4.5	6.3	10.0	m	5
Medium shrubs	SM	1.2	1.5	2.0	m	6
Low shrubs	SL	100.0	100.0	100.0	cm	2
Dwarf shrubs	SD	2.0	11.0	20.0	cm	2
Tall and medium grasses and grass-likes	GT, GM	100.0	134.0	170.0	cm	5
Tall and medium forbs	FT, FM	20.0	60.9	200.0	cm	11
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	2.0	4.3	8.0	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
	83	11.9	10.4		
	83	11.9	10.4		
Larix laricina	94	34.5	19.8	1	B
	94	34.5	19.8		
	94	34.5	19.8		

### Characteristics of Paper birch/lingonberry forest

**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 = 3. 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	70.0	78	85	100	88
ST	SABE2	Salix bebbiana	5.0	5	5	33	13
SM	ROAC	Rosa acicularis	7.0	31	55	67	46
SM	SPST3	Spiraea stevenii	5.0	7	10	100	26
SM	RIHU	Ribes hudsonianum	10.0	10	10	33	18
SM	RITR	Ribes triste	5.0	5	5	33	13
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	5.0	40	80	100	63
GT	CACA4	Calamagrostis canadensis	5.0	42	65	100	65

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
FT	EPAN2	Epilobium angustifolium	1.0	6	10	67	20
FM	EQSY	Equisetum sylvaticum	35.0	38	40	67	50
FD	COCA13	Cornus canadensis	30.0	30	30	33	31
FD	MOLA6	Moehringia lateriflora	0.1	8	15	67	23
L	LICHEN	total lichens	0.1	0	0	100	0
M	MOSS	total bryophytes-mosses and liverworts	10.0	20	30	100	45
M1	HYSP70	Hylocomium splendens	10.0	15	20	67	32
M1	ZZMOSS	unknown-mosses	10.0	10	10	100	32
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	75.0	83	90	100	91
B	LITTER2	litter-woody debris >2.5 cm	5.0	12	15	100	35
B	WATER	water	0.0	1	3	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

### 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	14.0	22.0	m	5
Tree regeneration	TR	2.5	3.0	3.5	m	2
Tall shrubs	ST	3.5	3.5	3.5	m	1
Medium shrubs	SM	1.4	1.5	1.8	m	3
Dwarf shrubs	SD	10.0	14.0	20.0	cm	3
Tall and medium grasses and grass-likes	GT, GM	150.0	166.7	180.0	cm	3
Tall and medium forbs	FT, FM	30.0	87.5	200.0	cm	4
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	4.3	10.0	cm	4

### 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
	77	23.0	20.0		
	90	27.9	20.7		

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

Min.	Avg.	Max.	Number of Stands
41.4	41.4	41.4	1

## Mapunit Components

### Common Name (Soils Name):

Boreal-riparian forested loamy flood plains, frozen (Fluventic Haplorthels, coarse-loamy)

Boreal-riparian forested mica rich loamy flood plains, frozen (Fluventic Haplorthels, coarse-loamy)

### 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):

1FP4	Boreal Flood Plains and Terraces with Discontinuous Permafrost, Wet (Fluvaquentic Historthels, coarse-loamy-Fluventic Haplorthels, coarse-loamy-Cryofibrists, euc Complex)
1ST	Boreal Plains with Discontinuous Permafrost (Typic Historthels, coarse-silty-Fluventic Haplorthels, coarse-loamy-Cryofibrists, euc Complex)
3FP3	Boreal Mica-Rich Terraces and Flood Plains with Discontinuous Permafrost (Typic Histoturbels, coarse-silty-Fluventic Haplorthels, coarse-loamy-Typic Historthels, coarse-loamy Association)

### ***Geographically Associated Landtypes***

#### ***131B\_100—Loamy Flood Plains:***

This site occurs on slightly lower positions. The climax plant community is "White spruce-poplar/alder forest."

#### ***131B\_104—Loamy Frozen Terraces:***

This site occurs in uplands with wetter soils that have permafrost at moderate depths. The climax plant community is "Black spruce-tamarack/Labrador tea woodland."

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

This site occurs on wetter soils that have permafrost at moderate depths. The climax plant community is "White spruce-tamarack/thinleaf alder forest."

#### ***131B\_501—Organic Depressions, Fens:***

This site occurs on cutoff meanders with wetter soils. The climax plant community is "Sedge wet meadow."

#### ***131B\_505—Loamy Channels:***

This site occurs on channels with wetter soils that are moderately deep over permafrost. The climax plant community is "Tamarack-black spruce/leatherleaf woodland."

### ***Similar Landtypes***

#### ***131B\_101—Loamy High Flood Plains:***

This site occurs on very deep well drained soils. The climax plant community is "White spruce/alder forest."