

Loamy High Flood Plains (131B_101)

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* 259 *Range* 149 to 624

Slope Gradient (percent): 1 0 to 3

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* 445 *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: sandy and silty alluvium

sandy and silty alluvium over sandy and gravelly alluvium

sandy and silty alluvium over sandy and gravelly alluvium derived from schist

Rooting Depth (cm): *RV:* 35 *Range:* 12 to 98

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)
5	slightly decomposed plant material	moderately rapid	.34	3.9 to 5.4	30	
6 to 20	stratified fine sand to silt	moderate	.15 to .40	3.9 to 6.8	12	10 to 20
10 to 24	stratified fine sand to silt; stratified sand to silt	moderate	.15 to .18	5.8 to 6.8		10 to 20

Restrictive Features: strongly contrasting textural stratification at 73 to over 150 cm

permafrost at 78 to over 150 cm

Water Table (May to September): none

Drainage Class: well drained

Vegetation Features

Common Vegetation Types:

Vegetation Type

White spruce/alder forest

White spruce-paper birch/alder forest

Ecological Status

Climax plant community

Late stage of primary succession on flood plains

Ecological Status-Transition Description:

Two plant communities are identified on this flood prone site including a potential community with white spruce/alder forest, and a late-seral community with white spruce-paper birch/alder forest on slightly lower flood plain positions. Flooding is considered a transitional pathway between seral communities within this site as well as between this site and other geographically associated sites.

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.	
White spruce/alder forest	93	17	26	38	13
White spruce-paper birch/alder forest	76	12	26	33	9

Notable Plants:

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

Vegetation Type	Symbol	Scientific Name
White spruce/alder forest	CABU	Calypso bulbosa
	COCO9	Conocephalum conicum
	GOREO2	Goodyera repens var. ophioides
White spruce-paper birch/alder forest	CABU	Calypso bulbosa
	CIAL	Circaea alpina
	GOREO2	Goodyera repens var. ophioides

Characteristics of White spruce/alder 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	PIGL	Picea glauca	10.0	24	40	100	49
ST	ALVIC	Alnus viridis ssp. crispa	0.1	28	60	69	44
ST	ALTE2	Alnus tenuifolia	1.0	23	60	62	38
SL-SM	ROAC	Rosa acicularis	0.1	13	35	92	35
SM	SAPU15	Salix pulchra	0.1	7	20	31	15
SL	VAUL	Vaccinium uliginosum	0.1	11	25	46	22
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	0.1	15	55	77	34
SD	LIBO3	Linnaea borealis	0.1	5	15	85	21
SD	EMNI	Empetrum nigrum	0.1	5	15	54	16
GT	CACA4	Calamagrostis canadensis	0.1	13	60	85	33
FD-FM	EQAR	Equisetum arvense	0.1	19	50	54	32
FD-FM	EQPR	Equisetum pratense	0.1	10	30	46	21
FD	COCA13	Cornus canadensis	0.1	7	20	77	23
L	LICHEN	total lichens	0.1	3	10	100	17
M	MOSS	total bryophytes-mosses and liverworts	45.0	75	95	100	87
M1	HYS70	Hylocomium splendens	10.0	35	75	100	59
M1	RHTR70	Rhytidiadelphus triquetrus	5.0	33	60	69	48
M1	ZZMOSS	unknown-mosses	5.0	10	20	100	32
M1	PLSC70	Pleurozium schreberi	5.0	11	15	38	20
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	10.0	27	55	100	52
B	LITTER2	litter-woody debris >2.5 cm	0.1	7	15	100	26
B	SOIL	mineral-bare soil	0.0	2	10	100	14
B	ROCK	mineral-surface rock fragments	0.0	0	1	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	8.5	23.7	32.0	m	12
Tree regeneration	TR	2.0	2.0	2.0	m	1
Tall shrubs	ST	3.5	5.0	7.0	m	14
Medium shrubs	SM	1.2	1.8	2.2	m	6
Low shrubs	SL	40.0	77.8	110.0	cm	9
Dwarf shrubs	SD	1.0	8.5	20.0	cm	10
Tall and medium grasses and grass-likes	GT, GM	5.0	77.0	130.0	cm	5
Tall and medium forbs	FT, FM	20.0	41.1	70.0	cm	9
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	5.0	10.0	cm	25

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	92	23.4	17.1	23	B
	145	35.3	23.4		
	228	52.1	29.0		

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

Min.	Avg.	Max.	Number of Stands
19.6	34.0	43.7	12

Characteristics of White spruce-paper birch/alder 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 = 12. 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	PIGL	Picea glauca	15.0	30	50	100	55
TT	BENE4	Betula neoalaskana	5.0	17	45	75	36
TM	BENE4	Betula neoalaskana	5.0	10	20	25	16
ST	ALVIC	Alnus viridis ssp. crispa	10.0	34	65	75	50
ST	ALTE2	Alnus tenuifolia	0.1	16	50	42	26
SM-ST	SARI4	Salix richardsonii	0.1	8	15	17	12
SL-SM	ROAC	Rosa acicularis	5.0	19	60	100	44
SL-SM	VIED	Viburnum edule	0.1	5	15	83	20
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	0.1	18	60	58	32
SD	LIBO3	Linnaea borealis	0.1	9	30	67	25
GT	CACA4	Calamagrostis canadensis	0.1	12	45	75	30
GM-GT	ZZGRASS	unknown-grasses	5.0	10	15	17	13
FD-FM	EQPR	Equisetum pratense	1.0	23	70	33	28
FD-FM	EQAR	Equisetum arvense	0.1	9	25	75	26
FD-FM	PYAS	Pyrola asarifolia	0.1	5	35	58	17
FD	COCA13	Cornus canadensis	0.1	15	50	83	35
L	LICHEN	total lichens	0.0	1	5	100	10
M	MOSS	total bryophytes-mosses and liverworts	20.0	66	95	100	81
M1	HYSP70	Hylocomium splendens	0.1	33	85	92	55
M1	RHTR70	Rhytidiadelphus triquetrus	10.0	23	40	67	39
M1	ZZMOSS	unknown-mosses	3.0	10	15	75	27
M1	PTCR70	Ptilium crista-castrensis	0.1	5	15	58	17
M1	PLSC70	Pleurozium schreberi	1.0	8	10	33	16
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	5.0	33	60	100	57
B	LITTER2	litter-woody debris >2.5 cm	2.0	9	25	100	30

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
B	SOIL	mineral-bare soil	0.0	2	15	100	14
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	10.0	22.3	36.0	m	15
Tree regeneration	TR	1.0	2.5	4.0	m	2
Tall shrubs	ST	3.0	4.8	7.0	m	13
Medium shrubs	SM	1.2	1.6	1.8	m	9
Low shrubs	SL	20.0	82.5	100.0	cm	12
Dwarf shrubs	SD	0.7	10.2	20.0	cm	8
Tall and medium grasses and grass-likes	GT, GM	50.0	104.4	130.0	cm	9
Tall and medium forbs	FT, FM	15.0	36.4	90.0	cm	14
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	2.0	8.4	40.0	cm	24

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	59	20.1	16.2	Min.	19	B
	128	36.1	23.6	Avg.		
	203	60.5	32.9	Max.		
Picea mariana	216	37.6	23.5	Min.	2	B
	238	38.4	24.5	Avg.		
	260	39.1	25.6	Max.		

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

Min.	Avg.	Max.	Number of Stands
m ² / ha			
17.2	32.7	48.3	9

Mapunit Components

Common Name (Soils Name):

- Boreal-riparian forested loamy flood plains, Kuskokwim Plains (Typic Cryofluvents, coarse-loamy over sandy-skeletal)
- Boreal-riparian forested loamy flood plains, frozen, thick surface (Fluventic Haplorthels, coarse-loamy)
- Boreal-riparian forested loamy schist flood plains (Typic Cryofluvents, coarse-loamy over sandy-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):

- 1FP Boreal Flood Plains with Discontinuous Permafrost, Minchumina Basin
(Fluvaquentic Historthels, coarse-loamy-Aquic Cryofluvents, coarse-loamy over sandy-skeletal-Typic Cryofluvents, coarse-loamy over sandy-skeletal Complex)
- 1FP2 Boreal Terraces and Flood Plains with Discontinuous Permafrost
(Typic Historthels, coarse-loamy-Typic Cryofluvents, coarse-loamy over sandy skeletal Complex)
- 2FP2 Boreal Schist Flood Plains with Discontinuous Permafrost
(Typic Cryofluvents, coarse-loamy over sandy-skeletal-Typic Cryorthents, sandy-skeletal Complex)
- 2FP3 Boreal Flood Plains with Discontinuous Permafrost
(Typic Cryofluvents, coarse-loamy over sandy-skeletal-Aquic Cryofluvents, coarse-loamy over sandy-skeletal-Typic Cryorthents, 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 slightly lower positions. The climax plant community is "White spruce-poplar/alder forest."

131B_104—Loamy Frozen Terraces:

This site occurs on terraces 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 slightly lower positions soils that are poorly drained and 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 in channels with wetter soils that are moderately deep over permafrost. The climax plant community is "Tamarack-black spruce/leatherleaf woodland."

Similar Landtypes

131B_100—Loamy Flood Plains:

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

131B_102—Loamy Frozen Flood Plains:

This site occurs on soils that are 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 slightly lower positions soils that are poorly drained and have permafrost at moderate depths. The climax plant community is "White spruce-tamarack/thinleaf alder forest."

131B_255—Gravelly Flood Plains:

This site occurs on soils that are very shallow to sand and gravel. The climax plant community is "White spruce-poplar woodland."