

Gravelly and Sandy Terraces (131B_108)

Ecoregion Classification

Section: Yukon-Kuskokwim Bottomlands (131B)

Subsection(s): Lowland Flood Plains & Terraces (131B.V1)

Physiographic Features

Elevation (meters): *RV* 366 *Range* 195 to 630

Slope Gradient (percent): 1 0 to 2

Aspect (clockwise direction): non-influencing

Landform: stream terraces

Frequency

Flooding: None

Ponding: None

Climatic Features

Annual Precipitation (millimeters): *RV* 482 *Range* 380 to 602

Annual Air Temperature (°C): -2.6 -2.9 to -2.4

Frost Free Days: 100 80 to 110

Soil Features

Parent Materials: silty eolian deposits over sandy and gravelly alluvium

Rooting Depth (cm): *RV:* 31 *Range:* 8 to 213

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)
10	slightly decomposed plant material	moderately rapid	.34	6.1	30	
10	silt loam	moderate	.18	5.2	12	
2 to 9	very gravelly loamy sand; very gravelly coarse sand	rapid	.03	5.7 to 6.4		2

Restrictive Features: strongly contrasting textural stratification at 8 cm

Water Table (May to September): none

Drainage Class: somewhat excessively drained

Vegetation Features

Common Vegetation Types:

Vegetation Type

Spruce/ericaceous woodland
Black spruce/lichen woodland
Aspen/bluejoint/kinnikinnik forest
Aspen-spruce/lingonberry forest

Ecological Status

Climax plant community
Climax plant community on drier microsites
Early stage of fire induced secondary succession
Mid stage of fire induced secondary succession

Ecological Status-Transition Description:

Four plant communities are identified within this fire influenced site including a potential community with spruce/ericaceous woodland, a mid-seral community with aspen-spruce/lingonberry forest, and an early-seral community with aspen/bluejoint/kinnikinnik forest. Additionally, a drier potential community is identified where depth to sandy and gravelly material is somewhat shallower with black spruce/lichen 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.

Vegetation Type	Total	Per Stand			Number of Stands
		Min.	Avg.	Max.	
Spruce/ericaceous woodland	76	9	21	35	9
Black spruce/lichen woodland	42	10	18	25	5
Aspen/bluejoint/kinnikinnick forest	48	18	22	28	3
Aspen-spruce/lingonberry forest	59	12	24	48	5

Alien Plants:

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

Vegetation Type	Symbol	Scientific Name
Aspen/bluejoint/kinnikinnick forest	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
Spruce/ericaceous woodland	GOREO2	Goodyera repens var. ophioides
Aspen/bluejoint/kinnikinnick forest	GEDEY	Gentianopsis detonsa ssp. yukonensis
Aspen-spruce/lingonberry forest	GOREO2	Goodyera repens var. ophioides

Characteristics of Spruce/ericaceous 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 = 9. 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.		
TT	PIGL	Picea glauca	10.0	19	30	44	29
TM	PIMA	Picea mariana	7.0	22	35	33	27
TM	PIGL	Picea glauca	15.0	18	20	22	20
SM	BEGL	Betula glandulosa	0.1	12	45	78	31
SD-SL	VAUL	Vaccinium uliginosum	10.0	18	30	100	42
SD-SL	LEPAD	Ledum palustre ssp. decumbens	5.0	14	40	56	28
SL	LEGR	Ledum groenlandicum	0.1	8	15	44	19
SD	EMNI	Empetrum nigrum	5.0	18	50	100	42
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	5.0	16	35	100	40
SD	DRIN4	Dryas integrifolia	5.0	6	7	22	11
L	LICHEN	total lichens	1.0	15	35	100	39
L1	STERE2	Stereocaulon	1.0	10	20	44	21
M	MOSS	total bryophytes-mosses and liverworts	35.0	80	95	100	89
M1	HYSPL70	Hylocomium splendens	5.0	41	65	89	60
M1	PLSC70	Pleurozium schreberi	10.0	34	65	67	48
M1	ZZMOSS	unknown-mosses	0.1	7	15	100	26
M1	PTCR70	Ptilium crista-castrensis	4.0	11	20	56	25
M1	SPHAG2	Sphagnum	0.1	8	20	44	19
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	0.0	12	30	100	35
B	LITTER2	litter-woody debris >2.5 cm	0.0	2	5	100	14
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	12.1	18.0	m	9
Tree regeneration	TR	4.0	4.0	4.0	m	1
Tall shrubs	ST	4.5	4.5	4.5	m	1
Medium shrubs	SM	1.4	1.9	2.4	m	10

Stratum Name	Included Strata	Min.	Avg.	Max.	Units	Number of Records
Low shrubs	SL	40.0	70.0	100.0	cm	7
Dwarf shrubs	SD	8.0	11.6	18.0	cm	7
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	2.0	4.1	10.0	cm	17

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	53	16.0	8.5	Min.	B
	133	22.0	12.8	Avg.	
	178	30.5	17.1	Max.	

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

Min.	Avg.	Max.	Number of Stands
13.8	17.0	20.7	5

Characteristics of Black spruce/lichen woodland

Ecological Status: Climax plant community on drier microsites

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	10.0	10	10	40	20
TT	PIGL	Picea glauca	5.0	5	5	20	10
TT	POTR5	Populus tremuloides	5.0	5	5	20	10
TM	PIMA	Picea mariana	7.0	12	20	60	27
TR	PIMA	Picea mariana	10.0	10	10	40	20
SM	BEGL	Betula glandulosa	0.1	12	50	100	35
SL	VAUL	Vaccinium uliginosum	10.0	16	30	100	40
SL	LEPAD	Ledum palustre ssp. decumbens	40.0	40	40	20	28
SL	LEGR	Ledum groenlandicum	5.0	8	10	80	25
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	0.1	13	25	100	36
SD	EMNI	Empetrum nigrum	5.0	8	15	100	28
L	LICHEN	total lichens	60.0	72	85	100	85
L1	CLRA61	Cladina rangiferina group	15.0	24	40	100	49
L1	CLMI61	Cladina mitis group	15.0	22	30	60	36
L1	NEAR60	Nephroma arcticum	0.1	7	15	100	26
L1	CLST60	Cladina stellaris	3.0	6	10	100	24
L1	CLADI3	Cladina	5.0	8	10	60	22
L1	CLADO3	Cladonia	0.1	10	20	40	20
L1	CLMU60	Cladonia multiformis	0.1	5	10	60	17
L1	CLUN61	Cladonia uncialis group	5.0	5	5	40	14
L1	STERE2	Stereocaulon	0.1	5	10	40	14
M	MOSS	total bryophytes-mosses and liverworts	30.0	38	40	100	62
M1	PLSC70	Pleurozium schreberi	5.0	15	25	100	39
M1	HYSP70	Hylocomium splendens	2.0	11	20	100	33
M1	ZZMOSS	unknown-mosses	5.0	5	5	100	22
M1	POCO38	Polytrichum commune	5.0	5	5	40	14
M1	DICRA8	Dicranum	5.0	5	5	20	10
M1	RHTR70	Rhytidiadelphus triquetrus	5.0	5	5	20	10
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	0.1	12	30	100	35
B	LITTER2	litter-woody debris >2.5 cm	0.1	2	2	100	14
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	10.0	15.0	m	5
Tree regeneration	TR	1.3	2.2	3.0	m	2
Medium shrubs	SM	1.3	1.6	2.0	m	5
Low shrubs	SL	20.0	36.0	50.0	cm	5
Dwarf shrubs	SD	8.0	8.5	9.0	cm	2
Tall and medium grasses and grass-likes	GT, GM	20.0	20.0	20.0	cm	1
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	3.0	3.3	4.0	cm	10

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	76	17.3	10.4	2	B
	76	18.0	10.7		
	77	18.8	11.0		
Picea mariana	44	15.2	8.2	2	B
	54	15.7	8.5		
	64	16.3	8.8		

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

Min.	Avg.	Max.	Number of Stands
m ² / ha			
11.5	12.6	13.8	2

Characteristics of Aspen/bluejoint/kinnikinnick forest

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 = 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	PIMA	Picea mariana	7.0	7	7	33	15
TT	PIGL	Picea glauca	5.0	5	5	33	13
TM	POTR5	Populus tremuloides	35.0	38	40	67	50
TR	POTR5	Populus tremuloides	75.0	75	75	33	50
SM	SAPS	Salix pseudomonticola	5.0	5	5	33	13
SL	LEGR	Ledum groenlandicum	7.0	8	10	67	23
SL	ROAC	Rosa acicularis	15.0	15	15	33	22
SL	SHCA	Shepherdia canadensis	10.0	10	10	33	18
SD	ARUV	Arctostaphylos uva-ursi	2.0	9	20	100	30
SD	LIBO3	Linnaea borealis	15.0	15	15	33	22
GT	LEIN6	Leymus innovatus	35.0	35	35	33	34
GT	CACA4	Calamagrostis canadensis	5.0	10	15	67	26
FD	COCA13	Cornus canadensis	10.0	10	10	33	18
FD	EQAR	Equisetum arvense	5.0	5	5	33	13
L	LICHEN	total lichens	0.1	10	25	100	32
L1	CLADO3	Cladonia	20.0	20	20	33	26
L1	CLCO19	Cladonia cornuta	5.0	5	5	33	13
M	MOSS	total bryophytes-mosses and liverworts	20.0	28	40	100	53
M1	ZZMOSS	unknown-mosses	10.0	15	20	100	39
M1	POCO38	Polytrichum commune	5.0	13	25	100	36
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	50.0	60	70	100	77
B	LITTER2	litter-woody debris >2.5 cm	1.0	12	20	100	35

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	Avg.	Max.		
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	5.0	10.6	18.0	m	5
Tree regeneration	TR	0.5	0.5	0.5	m	1
Medium shrubs	SM	1.5	2.0	2.5	m	3
Low shrubs	SL	70.0	70.0	70.0	cm	1
Tall and medium grasses and grass-likes	GT, GM	130.0	130.0	130.0	cm	1
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	0.5	1.9	5.0	cm	4

Characteristics of Aspen-spruce/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 = 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	PIGL	Picea glauca	20.0	20	20	20	20
TT	POTR5	Populus tremuloides	2.0	6	10	40	15
TM	POTR5	Populus tremuloides	5.0	13	25	60	28
TM	PIMA	Picea mariana	2.0	11	20	40	21
TR	PIMA	Picea mariana	0.1	6	10	80	22
SM-ST	SABE2	Salix bebbiana	3.0	22	40	40	30
SM	B EGL	Betula glandulosa	0.1	12	40	100	35
SL	LEGR	Ledum groenlandicum	0.1	20	50	60	35
SL	VAUL	Vaccinium uliginosum	7.0	12	20	100	35
SL	LEPAD	Ledum palustre ssp. decumbens	0.1	11	25	80	30
SD	VAVIM99	Vaccinium vitis-idaea spp. Minus	7.0	30	50	100	55
SD	LIBO3	Linnaea borealis	5.0	12	20	40	22
FD	COCA13	Cornus canadensis	0.1	7	15	100	26
L	LICHEN	total lichens	5.0	14	20	100	37
L1	CLCO19	Cladonia cornuta	3.0	6	10	80	22
M	MOSS	total bryophytes-mosses and liverworts	40.0	58	70	100	76
M1	HYSP70	Hylocomium splendens	0.1	19	60	100	44
M1	ZZMOSS	unknown-mosses	5.0	16	40	100	40
M1	POCO38	Polytrichum commune	5.0	18	35	80	38
M1	POPI10	Polytrichum piliferum	40.0	40	40	20	28
M1	PLSC70	Pleurozium schreberi	5.0	5	5	40	14
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	30.0	46	60	100	68
B	LITTER2	litter-woody debris >2.5 cm	0.0	4	10	100	20
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	5.0	10.7	18.0	m	6
Tree regeneration	TR	0.4	2.2	4.0	m	4
Tall shrubs	ST	3.5	3.5	3.5	m	1
Medium shrubs	SM	2.0	2.2	2.5	m	4

Stratum Name	Included Strata	Min.	Avg.	Max.	Units	Number of Records
Low shrubs	SL	20.0	47.5	90.0	cm	4
Dwarf shrubs	SD	7.0	11.0	20.0	cm	4
Tall and medium grasses and grass-likes	GT, GM	140.0	140.0	140.0	cm	1
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	0.7	3.2	10.0	cm	9

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	24	5.8	3.4	Min.	1
	24	5.8	3.4	Avg.	G
	24	5.8	3.4	Max.	

Mapunit Components

Common Name (Soils Name):

Boreal-forested gravelly terraces (Typic Eutrocryepts, 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):

2ST Boreal Terraces with Discontinuous Permafrost
(Typic Eutrocryepts, sandy-skeletal-Typic Historthels, coarse-loamy over sandy-skeletal Complex)

Geographically Associated Landtypes

131B_104—Loamy Frozen Terraces:

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

131B_255—Gravelly Flood Plains:

This site occurs on flood plains. The climax plant community is "White spruce-poplar woodland."

Similar Landtypes

131B_104—Loamy Frozen Terraces:

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

131B_113—Loamy Frozen Slopes, Ice Cored:

This site occurs on soils that are moderately deep over permafrost. The climax plant community is "Black spruce/green alder/Labrador tea woodland."

131B_400—Loamy Frozen Slopes:

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

131B_505—Loamy Channels:

This site occurs on soils that are wetter and have permafrost at moderate depths. The climax plant community is "Tamarack-black spruce/leatherleaf woodland."