Gravelly Flood Plains (M135A_204)

Ecoregion Classification

Section: Alaska Mountains (M135A)

Subsection(s): Lowland Flood Plains & Terraces & Fans (M135A.V1L)
Boreal Mountains (M135A.M2L)

Physiographic Features

	RV	*Range*
Elevation (meters):	510	333 to 960
Slope Gradient (percent):	1	0 to 2

Aspect (clockwise direction): non-influencing

Landform: channels on flood plains; flood plains; flood plains on alluvial fans on mountains

Landform Positions: backslopes

	Frequency	*Duration*	*Beginning Month*	*Ending Month*
Flooding:	Frequent	Long	May	Sep
Ponding:	None			

Climatic Features

	RV	*Range*
Annual Precipitation (millimeters):	589	344 to 923
Annual Air Temperature (°C):	-3.1	-6.0 to -2.1
Frost Free Days:	70	60 to 80

Soil Features

Parent Materials: gravelly alluvium
sandy and silty alluvium over sandy and gravelly alluvium

Rooting Depth (cm): *RV:* 28 *Range:* 9 to 68

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)
2 to 8	slightly decomposed plant material	moderately rapid	.34	5.2 to 7.2	30	80
8 to 20	stratified sand to silt; stratified fine sand to silt	moderate	.08 to .17	5.8 to 7.8		6 to 20
16 to 18	extremely cobbly coarse sand	rapid	.06	7.6 to 8.3		2

Restrictive Features: strongly contrasting textural stratification at 10 to 12 cm in some components

Water Table (May to September): 50 to 70 cm

Drainage Class: excessively drained to somewhat poorly drained

Vegetation Features

Common Vegetation Types:

Vegetation Type	Ecological Status
White spruce-poplar/soapberry forest	Climax plant community
Beaver dam water horsetail-beaked sedge wet meadow	Beaver impacted site and vegetation
Forb meadow	Mid stage of primary succession on flood plains
Poplar/soapberry woodland	Late stage of primary succession on flood plains

Ecological Status-Transition Description:

Four plant communities are identified on this flood prone site including a potential community with white spruce-poplar/soapberry forest, late-seral community with poplar/soapberry woodland, and mid-seral community with forb meadow on successively lower and more flood prone positions. A community associated with beaver activity with water horsetail-beaked sedge wet meadow, beaver dam in which the site conditions have been significantly altered and are now wetter due to beaver dam construction. Flooding and beaver activity are considered transitional pathways between community types.

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
White spruce-poplar/soapberry forest	93	27	34	46	5
Beaver dam water horsetail-beaked sedge wet meadow	46	46	46	46	1
Forb meadow	42	42	42	42	1
Poplar/soapberry woodland	86	22	34	51	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
White spruce-poplar/soapberry forest	ASRO	Astragalus robbinsii
	ASSE13	Astragalus sealei
	CASTS	Calamagrostis stricta ssp. stricta
	CAEB2	Carex eburnea
	ELCO	Elaeagnus commutata
	ERGLP	Erigeron glabellus ssp. pubescens
Beaver dam water horsetail-beaked sedge wet meadow	BOMI	Botrychium minganense
	CAEB2	Carex eburnea
	GOREO2	Goodyera repens var. ophioides
Forb meadow	ASRO	Astragalus robbinsii
	ELCO	Elaeagnus commutata
Poplar/soapberry woodland	ELCO	Elaeagnus commutata

Characteristics of White spruce-poplar/soapberry 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 = 14. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

			Percent Canopy Cover			Percent Constancy	Importance Value
Stratum	Symbol	Scientific Name	*Min.*	*Avg.*	*Max.*		
TT	POBA2	Populus balsamifera	10.0	33	75	21	26
TM	POBA2	Populus balsamifera	5.0	25	65	29	27
TM	PIGL	Picea glauca	5.0	20	45	21	20
TR	POBA2	Populus balsamifera	0.1	9	35	43	20
TR	PIGL	Picea glauca	0.1	5	20	64	18
SL-ST	SAAL	Salix alaxensis	0.1	15	75	57	29
SL-SM	SHCA	Shepherdia canadensis	0.1	16	70	86	37
SL-SM	SALIX	Salix	0.1	36	75	29	32
SL-SM	PEFL15	Pentaphylloides floribunda	0.1	9	35	64	24
SL-SM	SAPU15	Salix pulchra	1.0	6	15	29	13
SL-SM	SAPS	Salix pseudomonticola	2.0	6	10	21	11
SD	ARRU6	Arctous rubra	0.1	6	20	43	16
GT	CACA4	Calamagrostis canadensis	0.1	10	30	29	17
GM-GT	ZZGRASS	unknown-grasses	0.1	7	20	36	16
FD-FT	HEAL	Hedysarum alpinum	0.1	7	25	86	25
FD-FM	MEPA	Mertensia paniculata	0.1	5	10	29	12
L	LICHEN	total lichens	0.0	7	35	100	26

Stratum	Symbol	Scientific Name	Percent Canopy Cover Min.	Avg.	Max.	Percent Constancy	Importance Value
L1	STERE2	Stereocaulon	0.1	9	25	36	18
L1	CLADO3	Cladonia	0.1	7	20	29	14
M	MOSS	total bryophytes-mosses and liverworts	0.1	33	90	100	57
M1	HYSP70	Hylocomium splendens	3.0	45	85	36	40
M1	ZZMOSS	unknown-mosses	5.0	12	20	36	21
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	5.0	24	75	100	49
B	SOIL	mineral-bare soil	0.0	14	80	100	37
B	ROCK	mineral-surface rock fragments	0.0	13	65	100	36
B	LITTER2	litter-woody debris >2.5 cm	0.1	6	20	100	24
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 Min.	Avg.	Max.	Units	Number of Records
Trees	TT, TM, TS	2.0	9.2	18.0	m	9
Tree regeneration	TR	0.1	1.8	5.0	m	12
Tall shrubs	ST	4.0	4.0	4.0	m	1
Medium shrubs	SM	1.0	1.8	3.0	m	16
Low shrubs	SL	30.0	73.5	100.0	cm	17
Dwarf shrubs	SD	2.0	11.0	20.0	cm	7
Tall and medium grasses and grass-likes	GT, GM	70.0	80.0	100.0	cm	3
Tall and medium forbs	FT, FM	10.0	33.1	100.0	cm	16
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	6.5	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	49	16.3	9.4	*Min.*	4	B
	124	20.0	12.0	*Avg*		
	266	25.4	14.3	*Max.*		

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

Min.	Avg.	Max.	Number of Stands
------	*m2 / ha*	------	
20.7	20.7	20.7	2

Characteristics of Beaver dam water horsetail-beaked sedge wet meadow

Ecological Status: Beaver impacted site and vegetation

Plant Species Cover, Constancy, and Importance:

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 1. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

Stratum	Symbol	Scientific Name	Percent Canopy Cover Min.	Avg.	Max.	Percent Constancy	Importance Value
TT	POBA2	Populus balsamifera	25.0	25	25	100	50
TR	POBA2	Populus balsamifera	5.0	5	5	100	22
ST	ALTE2	Alnus tenuifolia	45.0	45	45	100	67
SM	VIED	Viburnum edule	35.0	35	35	100	59
SM	ROAC	Rosa acicularis	15.0	15	15	100	39
SD	LIBO3	Linnaea borealis	15.0	15	15	100	39
GT	CACA4	Calamagrostis canadensis	25.0	25	25	100	50
GT	ARLA2	Arctagrostis latifolia	5.0	5	5	100	22
GM	CACO10	Carex concinna	6.0	6	6	100	24
FT	EPAN2	Epilobium angustifolium	15.0	15	15	100	39
FT	MEPA	Mertensia paniculata	5.0	5	5	100	22
FD	LYAN2	Lycopodium annotinum	15.0	15	15	100	39

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	*Avg.*	*Max.*		
FD	PYAS	Pyrola asarifolia	15.0	15	15	100	39
FD	COCA13	Cornus canadensis	10.0	10	10	100	32
FD	GELI2	Geocaulon lividum	5.0	5	5	100	22
L	LICHEN	total lichens	0.1	0	0	100	0
M	MOSS	total bryophytes-mosses and liverworts	20.0	20	20	100	45
M1	ZZMOSS	unknown-mosses	10.0	10	10	100	32
M1	HYSP70	Hylocomium splendens	5.0	5	5	100	22
M1	PLSC70	Pleurozium schreberi	5.0	5	5	100	22
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	70.0	70	70	100	84
B	LITTER2	litter-woody debris >2.5 cm	30.0	30	30	100	55
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	0.0	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				Number of Records
		Min.	*Avg.*	*Max.*	*Units*	
Trees	TT, TM, TS	17.0	17.0	17.0	m	2
Tree regeneration	TR	2.5	2.8	3.0	m	2
Tall shrubs	ST	4.0	4.0	4.0	m	1
Medium shrubs	SM	1.3	1.3	1.3	m	1
Dwarf shrubs	SD	1.0	1.0	1.0	cm	1
Tall and medium grasses and grass-likes	GT, GM	10.0	65.0	120.0	cm	2
Tall and medium forbs	FT, FM	90.0	90.0	90.0	cm	1
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	3.7	8.0	cm	3

Characteristics of Forb meadow

Ecological Status: Mid 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 = 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.*		
SL-SM	SAGL	Salix glauca	0.1	7	15	60	20
SM	SAAL	Salix alaxensis	5.0	5	5	40	14
SM	SALIX	Salix	5.0	5	5	20	10
SL	SHCA	Shepherdia canadensis	0.1	12	30	60	27
SL	ELCO	Elaeagnus commutata	10.0	10	10	20	14
SD	DRDR	Dryas drummondii	0.1	5	10	40	14
SD	ARUV	Arctostaphylos uva-ursi	5.0	5	5	20	10
GM	ZZGRASS	unknown-grasses	0.1	5	10	40	14
GM	ZZGRAM	unknown-graminoids	5.0	5	5	20	10
FM	EPLA	Epilobium latifolium	2.0	14	30	60	29
FM	ARTI	Artemisia tilesii	0.1	8	15	40	18
FM	HEAL	Hedysarum alpinum	5.0	8	10	40	18
FM	OXCA4	Oxytropis campestris	5.0	8	10	40	18
FM	EQVA	Equisetum variegatum	5.0	5	5	20	10
FM	HEMA	Hedysarum mackenziei	5.0	5	5	20	10
L	LICHEN	total lichens	0.0	8	40	100	28
L1	STERE2	Stereocaulon	40.0	40	40	20	28
M	MOSS	total bryophytes-mosses and liverworts	0.0	4	20	100	20
B	ROCK	mineral-surface rock fragments	10.0	49	80	100	70
B	SOIL	mineral-bare soil	5.0	22	40	100	47
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	0.0	7	15	100	26
B	LITTER2	litter-woody debris >2.5 cm	0.0	2	10	100	14
B	WATER	water	0.0	1	5	100	10

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	1.0	1.2	1.5	m	3
Tree regeneration	TR	1.3	1.3	1.3	m	1
Medium shrubs	SM	1.2	2.3	3.0	m	6
Low shrubs	SL	60.0	83.3	100.0	cm	6
Dwarf shrubs	SD	10.0	10.0	10.0	cm	1
Tall and medium grasses and grass-likes	GT, GM	30.0	30.0	30.0	cm	1
Tall and medium forbs	FT, FM	20.0	28.0	30.0	cm	10
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	0.5	0.5	0.5	cm	1

Characteristics of Poplar/soapberry woodland

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 = 6. 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	POBA2	Populus balsamifera	15.0	15	15	17	16
TM	POBA2	Populus balsamifera	20.0	20	20	17	18
TR	POBA2	Populus balsamifera	0.1	15	40	83	35
SM-ST	SAAL	Salix alaxensis	5.0	8	15	67	23
SL-SM	SHCA	Shepherdia canadensis	3.0	22	60	100	47
SM	SAGL	Salix glauca	20.0	20	20	17	18
SM	SABA3	Salix barclayi	15.0	15	15	17	16
SM	SARI4	Salix richardsonii	15.0	15	15	17	16
SM	ELCO	Elaeagnus commutata	7.0	7	7	17	11
SM	SANI10	Salix niphoclada	5.0	5	5	17	9
SL	SAPU15	Salix pulchra	6.0	8	10	33	16
SL	VIED	Viburnum edule	10.0	10	10	17	13
SL	PEFL15	Pentaphylloides floribunda	5.0	5	5	17	9
SL	SABA4	Salix barrattiana	5.0	5	5	17	9
SD	DRDR	Dryas drummondii	0.1	30	60	33	31
SD	DRIN4	Dryas integrifolia	5.0	5	5	17	9
SD	LIBO3	Linnaea borealis	5.0	5	5	17	9
SD	SARE2	Salix reticulata	5.0	5	5	17	9
GT	FEAL	Festuca altaica	15.0	15	15	17	16
GT	CACA4	Calamagrostis canadensis	10.0	10	10	17	13
GM	ZZGRAM	unknown-graminoids	10.0	12	15	33	20
GM	ZZGRASS	unknown-grasses	5.0	5	5	17	9
FT	EPAN2	Epilobium angustifolium	5.0	5	5	17	9
FD-FM	OXCA4	Oxytropis campestris	0.1	5	15	67	18
FM	MEPA	Mertensia paniculata	7.0	7	7	17	11
FM	GABO2	Galium boreale	5.0	5	5	17	9
FM	GEER2	Geranium erianthum	5.0	5	5	17	9
FM	HEDYS	Hedysarum	5.0	5	5	17	9
FM	SAST11	Sanguisorba stipulata	5.0	5	5	17	9
FD	PYAS	Pyrola asarifolia	40.0	40	40	17	26
FD	EQAR	Equisetum arvense	5.0	5	5	17	9
L	LICHEN	total lichens	0.0	7	15	100	26
L1	STERE2	Stereocaulon	10.0	10	10	33	18
L1	ZZLICHEN	unknown-foliose and fruticose lichens	5.0	5	5	17	9
M	MOSS	total bryophytes-mosses and liverworts	5.0	22	50	100	47
M1	RACOM	Racomitrium	15.0	15	15	17	16
M1	PTCR70	Ptilium crista-castrensis	10.0	10	10	17	13
M1	THRE7	Thuidium recognitum	10.0	10	10	17	13

Stratum	Symbol	Scientific Name	Percent Canopy Cover			Percent Constancy	Importance Value
			Min.	*Avg.*	*Max.*		
M1	ZZMOSS	unknown-mosses	5.0	5	5	17	9
B	LITTER	litter-herbaceous, mulch, and woody debris <2.5 cm	5.0	49	80	100	70
B	ROCK	mineral-surface rock fragments	0.0	18	75	100	42
B	LITTER2	litter-woody debris >2.5 cm	0.0	3	5	100	17
B	SOIL	mineral-bare soil	0.0	2	5	100	14
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				Number of Records
		Min.	*Avg.*	*Max.*	*Units*	
Trees	TT, TM, TS	4.0	9.3	18.0	m	3
Tree regeneration	TR	0.3	1.6	3.5	m	7
Medium shrubs	SM	1.5	1.6	2.0	m	5
Low shrubs	SL	100.0	102.0	110.0	cm	5
Dwarf shrubs	SD	8.0	11.5	15.0	cm	2
Tall and medium forbs	FT, FM	20.0	44.0	100.0	cm	5
Dwarf herbs, lichens, and bryophytes	GD, FD, L, M	1.0	7.8	15.0	cm	13

Mapunit Components

Common Name (Soils Name):

Boreal-riparian forested gravelly fans (Typic Cryorthents, loamy-skeletal)

Boreal-riparian scrub gravelly flood plains (Typic Cryorthents, sandy-skeletal)

Boreal-riparian scrub gravelly flood plains, moderately wet (Oxyaquic Cryorthents, 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):*
10V2	Boreal Terraces and Plateau Toeslopes with Continuous Permafrost (Typic Histoturbels, coarse-silty-Typic Historthels, coarse-loamy Association, 0 to 2 percent slopes)
11FP	Boreal Flood Plains, High Elevation (Typic Cryofluvents, coarse-loamy over sandy-skeletal-Oxyaquic Cryorthents, sandy-skeletal-Typic Cryorthents, sandy-skeletal Association, 0 to 3 percent slopes)
7FP1	Boreal Flood Plains and Terraces (Typic Cryofluvents, coarse-loamy over sandy-skeletal-Oxyaquic Cryorthents, sandy-skeletal Complex)

Geographically Associated Landtypes

M135A_156—Loamy Wet High Flood Plains:

This site occurs on higher positions with less frequent flooding and have wetter soils with a thick loamy surface mantle. The climax plant community is "White spruce/Richardson willow/horsetail woodland."

M135A_203—Gravelly Low Flood Plains, Wet:

This site occurs on wetter soils. The climax plant community is "Entire mountain avens/sedge wet dwarf scrub."

Riverwash—Alluvium, Nonvegetated:

This site occurs on barren alluvium. The climax plant community is "Sparsely vegetated alluvium."

Similar Landtypes

M135A_100—Loamy Flood Plains:

This site occurs on well drained soils with loam surface mantles. The climax plant community is "Poplar-feltleaf willow scrub."

M135A_405—Swales:

This site occurs in upland swales and is not flooded. The climax plant community is "Green alder scrub mosaic."