

Appendix 1. Element Occurrence Records (EORs)
from the Headwaters Site

Element Name and Occ. #: <u>Arethusa bulbosa</u> (Dragon's-mouth) #105		EO ID #: 32925
Observed Area: Extent Known?: N - Confident full extent of EO is NOT known	Last Observed Date: 2005-07-14	MN Status: Tracked, but no legal status
Ownership Type: MN DNR Forestry (State Forest and Consv Land)	First Observed Date: 2005-07-14	Federal Status:
Location Description: Lake County, MN T59N R11W S14	Last Survey Date: 2005-07-14	State Rank: S4
Site Name:		Global Rank: G4
Survey Site #/Name:	Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA	EO Rank: Not ranked
Vegetation Plot:	Survey Type: Qualitative ground survey	
General Description: Graminoid poor fen. 3 plants past flowering within a water track & snowmobile trail.	Surveyor(s): Carlson, B.W.	
EO Data: Graminoid poor fen. 3 plants past flowering within a water track & snowmobile trail. Associated with Eleocharis elliptica, Sarracenia purpurea, Carex lasiocarpa, Equisetum fluviatile, Betula pumila & Typha latifolia.		
Element Name and Occ. #: <u>Botrychium matricariifolium</u> (Matricary Grapefern) #321		EO ID #: 33820
Observed Area: Extent Known?:	Last Observed Date: 1995-09-14	MN Status: Tracked, but no legal status
Ownership Type: US Forest Service	First Observed Date: 1995-09-14	Federal Status:
Location Description: St. Louis County, MN T59N R12W S36	Last Survey Date: 1995-09-14	State Rank: SNA
Site Name:		Global Rank: G5
Survey Site #/Name:	Managed Area(s): Superior National Forest	EO Rank: E - Verified extant (viability not assessed)
Vegetation Plot:	Survey Type: Qualitative ground survey	
General Description: Growing in a shallow depression in a young Sugar maple forest.	Surveyor(s): Puchalski, L. S.	
EO Data: One plant located growing in a shallow depression in a young Sugar maple forest in organic soil in a thick leaf litter. With Aster macrophyllus, Athyrium filix-femina, Maianthemum canadense, and Smilacina trifolia. The canopy is mostly closed and the topography mostly flat.		
Element Name and Occ. #: <u>Carex michauxiana</u> (Michaux's Sedge) #14		EO ID #: 27691
Observed Area: Extent Known?:	Last Observed Date: 1999-08-03	MN Status: Special Concern
Ownership Type: Unknown	First Observed Date: 1999-08-03	Federal Status:
Location Description: Lake County, MN T58N R11W S17, T58N R11W S20	Last Survey Date:	State Rank: S3
Site Name: RIDGEPOLE 20		Global Rank: G5
Survey Site #/Name:	Managed Area(s): Superior National Forest	EO Rank: Not ranked
Vegetation Plot:	Survey Type:	
General Description: LOCALLY COMMON IN MUDDY WINTER LOGGING TRAIL THROUGH CONIFER SWAMP (BLACK SPRUCE TAMARACK, CEDAR). GROWING WITH MYRICA GALE, LEDUM GROENLANDICUM, CHAMAEDAPHNE CALYCOLATA, CAREX ANGSTUJTOR.	Surveyor(s): Jones, J.	
EO Data:		

Element Name and Occ. #: <u>Carex michauxiana</u> (Michaux's Sedge) #31		EO ID #: 33107
Observed Area: Extent Known?: Y - Confident full extent of EO is known	Last Observed Date: 2005-08-11	MN Status: Special Concern
Ownership Type: US Forest Service	First Observed Date: 2005-08-11	Federal Status:
Location Description: Lake, St. Louis County, MN T58N R11W S18, T58N R12W S12, T58N R11W S7, T58N R12W S13	Last Survey Date: 2005-08-11	State Rank: S3
Site Name:		Global Rank: G5
Survey Site #/Name:		EO Rank: A - Excellent estimated viability
Vegetation Plot:	Managed Area(s): Superior National Forest, Finland State Forest	
General Description: Scattered patches in rich fen along roughly 2km of the North River, including some large patches. A major component of the fen on west bank of river in NESE and SENE of Sec12.	Survey Type: Qualitative ground survey	
EO Data: A large population of healthy, reproducing plants observed on both sides of county line. Scattered patches in rich fen along roughly 2km of the North River, including some large patches. A major component of the fen on west bank of river in NESE and SENE of Sec12. With <u>Dulichium arundinaceum</u> , <u>Equisetum fluviatile</u> , <u>Potentilla palustris</u> , <u>Myrica gale</u> . Coll #2005027 made, housed at MIN.	Surveyor(s): Perry, E.F.	
Element Name and Occ. #: <u>Drosera anglica</u> (English Sundew) #45		EO ID #: 32922
Observed Area: Extent Known?: N - Confident full extent of EO is NOT known	Last Observed Date: 2005-07-14	MN Status: Special Concern
Ownership Type: MN DNR Forestry (State Forest and Cons Consv Land)	First Observed Date: 2005-07-14	Federal Status:
Location Description: Lake County, MN T59N R11W S15	Last Survey Date: 2005-07-14	State Rank: S3
Site Name:		Global Rank: G5
Survey Site #/Name:	Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA	EO Rank: E - Verified extant (viability not assessed)
Vegetation Plot:	Survey Type: Qualitative ground survey	
General Description: Species found 2-8m NE of the northern edge of an unnamed bog lake. Locally common in a graminoid poor fen with a continuous carpet of Sphagnum spp.	Surveyor(s): Carlson, B.W.	
EO Data: Species found 2-8m NE of the northern edge of an unnamed bog lake. Locally common in a graminoid poor fen with a continuous carpet of Sphagnum spp. Associates: <u>Juncus stygius</u> , <u>Rhynchospora alba</u> , <u>Carex lasiocarpa</u> , <u>Carex leptalea</u> & <u>Ledum groenlandicum</u> . Specimen collected, housed at MIN.		
Element Name and Occ. #: <u>Eleocharis nitida</u> (Neat Spike-rush) #52		EO ID #: 33093
Observed Area: Extent Known?: N - Confident full extent of EO is NOT known	Last Observed Date: 2005-07-13	MN Status: Threatened
Ownership Type: State of Minnesota (Other Lands)	First Observed Date: 2005-07-13	Federal Status:
Location Description: St. Louis County, MN T59N R12W S10	Last Survey Date: 2005-07-13	State Rank: S2
Site Name:		Global Rank: G3G4
Survey Site #/Name:	Managed Area(s): Superior National Forest	EO Rank: C - Fair estimated viability
Vegetation Plot:	Survey Type: Qualitative ground survey	
General Description: Growing along several meters of damp roadside gravel at edge of flooded wetland.	Surveyor(s): Perry, E.F.	
EO Data: Healthy, reproducing plants observed growing along several meters of damp roadside gravel at edge of flooded wetland. Coll #2005018 made, housed at MIN.		

Element Name and Occ. #: <u>Arethusa bulbosa</u> (Dragon's-mouth) #105		EO ID #: 32925
Observed Area: Extent Known?: N - Confident full extent of EO is NOT known	Last Observed Date: 2005-07-14	MN Status: Tracked, but no legal status
Ownership Type: MN DNR Forestry (State Forest and Cons Conserv Land)	First Observed Date: 2005-07-14	Federal Status:
Location Description: Lake County, MN T59N R11W S14	Last Survey Date: 2005-07-14	State Rank: S4
Site Name:		Global Rank: G4
Survey Site #/Name:	Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA	EO Rank: Not ranked
Vegetation Plot:	Survey Type: Qualitative ground survey	
General Description: Graminoid poor fen. 3 plants past flowering within a water track & snowmobile trail.	Surveyor(s): Carlson, B.W.	
EO Data: Graminoid poor fen. 3 plants past flowering within a water track & snowmobile trail. Associated with Eleocharis elliptica, Sarracenia purpurea, Carex lasiocarpa, Equisetum fluviatile, Betula pumila & Typha latifolia.		
Element Name and Occ. #: <u>Botrychium matricarifolium</u> (Matricary Grapefern) #321		EO ID #: 33820
Observed Area: Extent Known?:	Last Observed Date: 1995-09-14	MN Status: Tracked, but no legal status
Ownership Type: US Forest Service	First Observed Date: 1995-09-14	Federal Status:
Location Description: St. Louis County, MN T59N R12W S36	Last Survey Date: 1995-09-14	State Rank: SNA
Site Name:		Global Rank: G5
Survey Site #/Name:	Managed Area(s): Superior National Forest	EO Rank: E - Verified extant (viability not assessed)
Vegetation Plot:	Survey Type: Qualitative ground survey	
General Description: Growing in a shallow depression in a young Sugar maple forest.	Surveyor(s): Puchalski, L. S.	
EO Data: One plant located growing in a shallow depression in a young Sugar maple forest in a thick leaf litter. With Aster macrophyllus, Athyrium filix-femina, Maianthemum canadense, and Smilacina trifolia. The canopy is mostly closed and the topography mostly flat.		
Element Name and Occ. #: <u>Carex michauxiana</u> (Michaux's Sedge) #14		EO ID #: 27691
Observed Area: Extent Known?:	Last Observed Date: 1999-08-03	MN Status: Special Concern
Ownership Type: Unknown	First Observed Date: 1999-08-03	Federal Status:
Location Description: Lake County, MN T58N R11W S17, T58N R11W S20	Last Survey Date:	State Rank: S3
Site Name: RIDGEPOLE 20		Global Rank: G5
Survey Site #/Name:	Managed Area(s): Superior National Forest	EO Rank: Not ranked
Vegetation Plot:	Survey Type:	
General Description: LOCALLY COMMON IN MUDDY WINTER LOGGING TRAIL THROUGH CONIFER SWAMP (BLACK SPRUCE TAMARACK, CEDAR). GROWING WITH MYRICA GALE, LEDUM GROENLANDICUM, CHAMAEDAPHNE CALYCVLATA, CAREX ANGSTUOR.	Surveyor(s): Jones, J.	

**Known Rare Plant Species in the
Headwaters Site**

Element Name and Occ. #:	EO ID #:
Element Name and Occ. #: <u>Carex michauxiana</u> (Michaux's Sedge) #31	EO ID #: 33107
<p>Observed Area: Extent Known?: Y - Confident full extent of EO is known Ownership Type: US Forest Service Location Description: Lake, St. Louis County, MN T58N R11W S18, T58N R12W S12, T58N R11W S7, T58N R12W S13 Site Name: Survey Site #/Name: Vegetation Plot: General Description: Scattered patches in rich fen along roughly 2km of the North River, including some large patches. A major component of the fen on west bank of river in NESE and SENE of Sec12. EO Data: A large population of healthy, reproducing plants observed on both sides of county line. Scattered patches in rich fen along roughly 2km of the North River, including some large patches. A major component of the fen on west bank of river in NESE and SENE of Sec12. With <i>Dulichium arundinaceum</i>, <i>Equisetum fluviatile</i>, <i>Potentilla palustris</i>, <i>Myrica gale</i>. Coll #2005027 made, housed at MIN.</p>	<p>Last Observed Date: 2005-08-11 First Observed Date: 2005-08-11 Last Survey Date: 2005-08-11 Managed Area(s): Superior National Forest, Finland State Forest Survey Type: Qualitative ground survey Surveyor(s): Perry, E.F. MN Status: Special Concern Federal Status: State Rank: S3 Global Rank: G5 EO Rank: A - Excellent estimated viability</p>
Element Name and Occ. #: <u>Drosera anglica</u> (English Sundew) #45	EO ID #: 32922
<p>Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: MN DNR Forestry (State Forest and Cons Consv Land) Location Description: Lake County, MN T59N R11W S15 Site Name: Survey Site #/Name: Vegetation Plot: General Description: Species found 2-8m NE of the northern edge of an unnamed bog lake. Locally common in a graminoid poor fen with a continuous carpet of <i>Sphagnum</i> spp. EO Data: Species found 2-8m NE of the northern edge of an unnamed bog lake. Locally common in a graminoid poor fen with a continuous carpet of <i>Sphagnum</i> spp. Associates: <i>Juncus stygius</i>, <i>Rhynchospora alba</i>, <i>Carex lasiocarpa</i>, <i>Carex leptalea</i> & <i>Ledum groenlandicum</i>. Specimen collected, housed at MIN.</p>	<p>Last Observed Date: 2005-07-14 First Observed Date: 2005-07-14 Last Survey Date: 2005-07-14 Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA Survey Type: Qualitative ground survey Surveyor(s): Carlson, B.W. MN Status: Special Concern Federal Status: State Rank: S3 Global Rank: G5 EO Rank: E - Verified extant (viability not assessed)</p>
Element Name and Occ. #: <u>Eleocharis nitida</u> (Neat Spike-rush) #52	EO ID #: 33093
<p>Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: State of Minnesota (Other Lands) Location Description: St. Louis County, MN T59N R12W S10 Site Name: Survey Site #/Name: Vegetation Plot: General Description: Growing along several meters of damp roadside gravel at edge of flooded wetland. EO Data: Healthy, reproducing plants observed growing along several meters of damp roadside gravel at edge of flooded wetland. Coll #2005018 made, housed at MIN.</p>	<p>Last Observed Date: 2005-07-13 First Observed Date: 2005-07-13 Last Survey Date: 2005-07-13 Managed Area(s): Superior National Forest Survey Type: Qualitative ground survey Surveyor(s): Perry, E.F. MN Status: Threatened Federal Status: State Rank: S2 Global Rank: G3G4 EO Rank: C - Fair estimated viability</p>

**Known Rare Plant Species in the
Headwaters Site**

Element Name and Occ. #:	Geocaulon lividum (Northern Comandra) #22	EO ID #:
Observed Area:		
Extent Known?:		
Ownership Type:	US Forest Service	MN Status: Tracked, but no legal status
Location Description:	Lake County, MN T59N R11W S1	Federal Status:
Site Name:	FINLAND 1	State Rank: S4
Survey Site #/Name:		Global Rank: G5
Vegetation Plot:		EO Rank: Not ranked
General Description:	15 MILES W OF ISABELLA AND .5 MILE NNE OF FOOLS LAKE. ABOUT 20 INDIVIDUALS GROWING ATOP A LICHEN/MOSS COVERED BOULDER IN A BLACK SPRUCE LOWLAND BOG. ADJA- CENT TO CONIFER/HARDWOOD UPLAND. SHRUBS INCLUDE LAB TEA, ALDER, BLUEBERRY. GROUND COVER: LICHEN, MOSS, GAULTHERIA HISPIDULA. LOWLAND BORDERS THE HONEY MUSHROOM TIMBER SALE.	Managed Area(s): Superior National Forest, Finland State Forest
EO Data:		Survey Type:
		Surveyor(s): Gerdes, L. B.
Element Name and Occ. #:	Juncus stygius var. americanus (Bog Rush) #8	EO ID #: 4873
Observed Area:		
Extent Known?:	N - Confident full extent of EO is NOT known	MN Status: Special Concern
Ownership Type:	MN DNR Ecol. Services (Scientific & Natural Areas)	Federal Status:
Location Description:	Lake County, MN T59N R11W S22, T59N R11W S15, T59N R11W S23	State Rank: S3
Site Name:	SAND LAKE PEATLAND, SAND LAKE PEATLAND SNA	Global Rank: G5T5
Survey Site #/Name:	MCBS Site Number 4	EO Rank: A - Excellent estimated viability
Vegetation Plot:		Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA
General Description:	Specimen collected on 8 August in wet mud bottomed pools. 2005: Flowering plants observed on 14 July uncommon in a featureless water track within a graminoid poor fen. Species found on the edge of a 0.3m wide rivulet that flows into Lobo Lake.	Survey Type: Qualitative ground survey
EO Data:	Specimen collected by Glaser on 8 August in wet mud bottomed pools. 2005: Flowering plants observed by Carlson on 14 July uncommon in a featureless water track within a graminoid poor fen. Species found on the edge of a 0.3m wide rivulet that flows into Lobo Lake. Also observed by Perry, Gerdes' & Anderson on same day scattered, but common in open poor fen patterned water track and locally common in sparsely vegetated wet lawns in shallow depressions. Specimens collected.	Surveyor(s): Glaser, P. H., Carlson, B. W., Perry, E. F., Gerdes, L. B., Gerdes, D. L., Anderson, C. E.

Element Name and Occ. #: <i>Juncus stygius</i> var. <i>americanus</i> (Bog Rush) #9		EO ID #: 4874
<p>Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: MN DNR Ecol. Services (Scientific & Natural Areas) Location Description: Lake County, MN T59N R11W S15</p>	<p>Last Observed Date: 2005-07-14 First Observed Date: 1980-08-08 Last Survey Date: 2005-07-14</p>	<p>MN Status: Special Concern Federal Status: State Rank: S3 Global Rank: G5T5 EO Rank: Not ranked</p>
<p>Site Name: SAND LAKE PEATLAND, SAND LAKE PEATLAND SNA Survey Site #/Name: MCBS Site Number 4 Vegetation Plot: General Description: 1980: In mud bottomed pools interrupted by Sphagnum. 2005: Rare in a graminoid poor fen on the edge of a small open water flowage 0.75m wide within an otherwise continuous carpet of Sphagnum spp. EO Data: 1980: In mud bottomed pools interrupted by Sphagnum. Collection made by Glaser on 8 August, housed at MIN. 2005: Rare in a graminoid poor fen on the edge of a small open water flowage 0.75m wide within an otherwise continuous carpet of Sphagnum spp. Associates: <i>Drosera anglica</i>, <i>Rhynchospora alba</i>, <i>Andromeda glauca</i>, <i>Carex echinata</i> & <i>Eriophorum virginicum</i>. Collection made by Carlson on 14 July.</p>	<p>Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA Survey Type: Qualitative ground survey Surveyor(s): Glaser, P. H., Carlson, B.W.</p>	
Element Name and Occ. #: <i>Juncus stygius</i> var. <i>americanus</i> (Bog Rush) #24		EO ID #: 33174
<p>Observed Area: Extent Known?: Ownership Type: MN DNR Forestry (State Forest and Consv Land) Location Description: Lake County, MN T59N R11W S18, T59N R11W S7 Site Name: Survey Site #/Name: Vegetation Plot:</p>	<p>Last Observed Date: 2005-09-01 First Observed Date: 2005-09-01 Last Survey Date: 2005-09-01</p>	<p>MN Status: Special Concern Federal Status: State Rank: S3 Global Rank: G5T5 EO Rank: A - Excellent estimated viability</p>
<p>General Description: Found at 2 sites in graminoid rich fen of featureless water track that is part of large Sand Lake peatland complex. At first site plants were locally common in wet, peat-bottom moose trails among Sphagnum hummocks. Second site with many plants in fruit common along 250 meters of route of winter road. Documented from undisturbed portion of water track as well. EO Data: Populations of plants found at 2 sites in graminoid rich fen of featureless water track that is part of large Sand Lake peatland complex. First site plants were locally common in wet, peat-bottom moose trails among Sphagnum hummocks. Second site with many plants in fruit common along 250 meters of route of winter road. Documented from undisturbed portion of water track as well. Assoc. include <i>Carex chondrorhiza</i>, <i>C. lasiocarpa</i>, <i>C. leptalea</i>, <i>C. limosa</i>, <i>Equisetum fluviatile</i>, <i>Menyanthes trifoliata</i>, <i>Scheuchzeria palustris</i>, <i>Utricularia intermedia</i>, <i>Sarracenia purpurea</i>, <i>Muhlenbergia glomerata</i>, <i>Rhynchospora alba</i>. Hummocks w/stunted <i>Larix laricina</i>, occasional <i>Picea mariana</i>, <i>Chamaedaphne calyculata</i>, <i>Andromeda glaucophylla</i>, <i>Betula pumila</i>, <i>Thelypteris palustris</i>, <i>Solidago uliginosa</i>, <i>Triglochin maritima</i>. Two collections made, housed at MIN.</p>	<p>Managed Area(s): Superior National Forest, Finland State Forest Survey Type: Qualitative ground survey Surveyor(s): Anderson, C.E.</p>	

**Known Rare Plant Species in the
Headwaters Site**

Element Name and Occ. #:	EO ID #:
Element Name and Occ. #: <u>Platanthera clavellata</u> (Club-spur Orchid) #53	EO ID #: 32924
Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: MN DNR Forestry (State Forest and Cons Consv Land) Location Description: Lake County, MN T59N R11W S15	Last Observed Date: 2005-07-14 First Observed Date: 2005-07-14 Last Survey Date: 2005-07-14
Site Name: Survey Site #/Name: Vegetation Plot: General Description: 50+ flowering plants found within a 100m ² area quickly searched. Northern black spruce bog. pH = 4.0. Associated with Rhynchospora alba, Menyanthes trifolia, Carex oligosperma, Chamaedaphne calyculata & Betula pumila. 0.5-3m tall Picea mariana & Larix laricina common. EO Data: 50+ flowering plants found within a 100 square meter area quickly searched. Northern black spruce bog. pH = 4.0. Associated with Rhynchospora alba, Menyanthes trifolia, Carex oligosperma, Chamaedaphne calyculata & Betula pumila. 0.5-3mtall Picea mariana & Larix laricina common. Specimen collected, housed at MIN.	MN Status: Special Concern Federal Status: State Rank: S3 Global Rank: G5 EO Rank: E - Verified extant (viability not assessed)
Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA Survey Type: Qualitative ground survey Surveyor(s): Carlson, B.W.	Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA Survey Type: Qualitative ground survey Surveyor(s): Carlson, B.W., Gerdes, D.L., Perry, E.
Element Name and Occ. #: <u>Platanthera clavellata</u> (Club-spur Orchid) #54	EO ID #: 32928
Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: US Forest Service Location Description: Lake County, MN T59N R11W S23	Last Observed Date: 2005-07-14 First Observed Date: 2005-07-14 Last Survey Date: 2005-07-14
Site Name: Survey Site #/Name: Vegetation Plot: General Description: One flowering plant on the east side of an old winter trail within a poor black spruce swamp. Also, a dozen or so flowering plants observed at western edge of old winter trail through a poor black spruce swamp with scattered Larix laricina, Chamaedaphne calyculata, Betula pumila, Maianthemum trifolium, Carex lasiocarpa, C. limosa, Sphagnum, etc. EO Data: One flowering plant observed by Carlson on the east side of an old winter trail within a poor black spruce swamp on 14 July. Associated with Pogonia ophioglossoides, Carex lasiocarpa, Menyanthes trifolia, Epilobium leptophyllum, & Platanthera dilatata. Dozen or so flowering plants observed by Gerdes & Perry on same day at western edge of old winter trail through a poor black spruce swamp with scattered Larix laricina, Chamaedaphne calyculata, Betula pumila, Maianthemum trifolium, Carex lasiocarpa, C. limosa, Sphagnum, etc.	MN Status: Special Concern Federal Status: State Rank: S3 Global Rank: G5 EO Rank: E - Verified extant (viability not assessed)
Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA Survey Type: Qualitative ground survey Surveyor(s): Carlson, B.W., Gerdes, L.B., Gerdes, D.L., Perry, E.	Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA Survey Type: Qualitative ground survey Surveyor(s): Carlson, B.W., Gerdes, L.B., Gerdes, D.L., Perry, E.

**Known Rare Plant Species in the
Headwaters Site**

EO ID #: 33155

Element Name and Occ. #: Platanthera clavellata (Club-spur Orchid) #61

Observed Area:
Extent Known?: N - Confident full extent of EO is NOT known
Ownership Type: MN DNR Forestry (State Forest and Consv Land)
Location Description: Lake County, MN
 T59N R11W S22, T59N R11W S23

Site Name:

Survey Site #/Name:

Vegetation Plot:

General Description: Plants observed at 3 sites. First site had several flowering individuals scattered throughout graminoid poor fen with water tracks (APn91c2). Flarks pooled. In low Sphagnum hummocks (pH- 5.0) Second site had several scattered plants along NW shore of lake. Adjacent native plant community, Black spruce bog (APn80). Third site emerging from Sphagnum hummocks and wet hollows in open poor fen.

EO Data: Plants observed at 3 sites by D.L. Gerdes & C.E. Anderson on 14 July. First site had several flowering individuals scattered throughout graminoid poor fen with water tracks (APn91c2). Flarks pooled. In low Sphagnum hummocks (pH- 5.0) Second site had several scattered plants along NW shore of lake. Adjacent native plant community, Black spruce bog (APn80). Third site with 9 plants, all in flower, within 1-meter square area, emerging from Sphagnum hummocks and wet hollows in open poor fen. Associates include Carex lasiocarpa, C. limosa, Equisetum fluviatile, Menyanthes trifoliata, Drosera rotundifolia, Betula pumila, Chamaedaphne calyculata, Kalmia polifolia, Oxycoccus quadripetalus, Andromeda glaucophylla, Drosera intermedia, Iris versicolor, Campanula parinoides, Lysimachia terrestris, Calamagrostis canadensis, Carex oligosperma, C. leptalea & Potentilla palustris. Collections made at all sites.

EO ID #: 33169

Element Name and Occ. #: Platanthera clavellata (Club-spur Orchid) #62

Observed Area:
Extent Known?: Y - Confident full extent of EO is known
Ownership Type:

Location Description: Lake County, MN
 T59N R11W S7

Site Name:

Survey Site #/Name:

Vegetation Plot:

General Description: In 100 square meter area of graminoid rich fen margin of small pond at edge of large peatland complex. Emerging from saturated Sphagnum carpet, most in fruit. Associates include Carex limosa, Chamaedaphne groenlandicum, Andromeda glaucophylla, Rhynchospora alba, Sarracenia purpurea, Oxycoccus quadripetalus, Menyanthes trifoliata, Carex echinata, Eriophorum virginicum, Potentilla palustris, Epilobium leptophyllum, stunted Larix laricina. Collection #2073 made, housed at MIN.

**Known Rare Plant Species in the
Headwaters Site**

Element Name and Occ. #:	<i>Ranunculus lapponicus</i> (Lapland Buttercup) #63	EO ID #:
Observed Area:		MN Status: Special Concern
Extent Known?: N - Confident full extent of EO is NOT known		Federal Status:
Ownership Type: US Forest Service		State Rank: S3
Location Description: Lake County, MN T58N R11W S6		Global Rank: G5
Site Name:		EO Rank: E - Verified extant (viability not assessed)
Survey Site #/Name:		
Vegetation Plot:		
General Description: Several stems observed over 5 X 5 meter area in a rich <i>Picea mariana</i> swamp.		
EO Data: Several stems observed over 5 X 5 meter area in a rich <i>Picea mariana</i> swamp. In <i>Sphagnum</i> under <i>Alnus incana</i> and <i>Salix</i> with <i>Cornus canadensis</i> , <i>Maianthemum trifolium</i> , <i>Carex stricta</i> , <i>Vaccinium vitis-idaea</i> .		
Managed Area(s): Superior National Forest, Finland State Forest		
Survey Type: Qualitative ground survey		
Surveyor(s): Perry, E.F.		
Element Name and Occ. #:	<i>Rhynchospora fusca</i> (Sooty-colored Beak-rush) #47	EO ID #: 32923
Observed Area:		MN Status: Special Concern
Extent Known?: N - Confident full extent of EO is NOT known		Federal Status:
Ownership Type: MN DNR Forestry (State Forest and Consv Land)		State Rank: S3
Location Description: Lake County, MN T59N R11W S15		Global Rank: G4G5
Site Name:		EO Rank: E - Verified extant (viability not assessed)
Survey Site #/Name:		
Vegetation Plot:		
General Description: 100+ plants observed abundant within a 400 sq meter area. Graminoid poor fen on the eastern edge of a prominent water track. Continuous <i>Rhynchospora alba</i> w/ <i>Chamaedaphne calyculata</i> , <i>Drosera intermedia</i> , <i>Betula pumila</i> , & <i>Chamaedaphne calyculata</i> .		
EO Data: 100+ plants observed abundant within a 400 sq meter area. Graminoid poor fen on the eastern edge of a prominent water track. Continuous <i>Rhynchospora alba</i> with <i>Chamaedaphne calyculata</i> , <i>Drosera intermedia</i> , <i>Betula pumila</i> , & <i>Chamaedaphne calyculata</i> . Specimen collected, housed at MIN.		
Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA		
Survey Type: Qualitative ground survey		
Surveyor(s): Carlson, B.W.		
Element Name and Occ. #:	<i>Rhynchospora fusca</i> (Sooty-colored Beak-rush) #51	EO ID #: 33101
Observed Area:		MN Status: Special Concern
Extent Known?: N - Confident full extent of EO is NOT known		Federal Status:
Ownership Type: MN DNR Forestry (State Forest and Consv Land)		State Rank: S3
Location Description: Lake County, MN T59N R11W S22		Global Rank: G4G5
Site Name:		EO Rank: B - Good estimated viability
Survey Site #/Name:		
Vegetation Plot:		
General Description: On floating <i>Sphagnum</i> lawn at edge of small peatland pond. Also scattered in graminoid poor fen lawn.		
EO Data: Populations of plants observed at 2 sites. First site of about 100 stems in 2 patches on floating <i>Sphagnum</i> lawn at edge of small peatland pond. Second site Hundreds of flowering plants scattered in graminoid poor fen lawn along west and south shore of small pond. Associated species: <i>Lycopodiella inundata</i> , <i>Rhynchospora alba</i> , <i>Scheuchzeria palustris</i> , <i>Carex oligosperma</i> , <i>Sarracenia purpurea</i> , <i>Drosera intermedia</i> , and <i>Carex chordeorrhiza</i> . Collections made at both sites.		
Managed Area(s): Superior National Forest, Finland State Forest, Sand Lake Peatland SNA		
Survey Type: Qualitative ground survey		
Surveyor(s): Perry, E.F., Gerdes, D.L., Gerdes, L.B.		

**Known Rare Plant Species in the
Headwaters Site**

Element Name and Occ. #: <u>Scirpus pedicellatus</u> (Woolgrass) #37	EO ID #: 33088
<p>Observed Area: Extent Known?: Y - Confident full extent of EO is known Ownership Type: US Forest Service Location Description: St. Louis County, MN T58N R12W S2 Site Name: Survey Site #/Name: Vegetation Plot: General Description: A few clumps growing in an open area within a poor Picea mariana swamp opened by dwarf mistletoe mortality. EO Data: A few clumps growing in an open area within a poor Picea mariana swamp opened by dwarf mistletoe mortality. Vegetation dominated by Alnus incana, with Rubus idaeus, Ledum groenlandicum, Calamagrostis canadensis, Sphagnum carpet. Coll #2005006 made, housed at MIN.</p>	<p>Last Observed Date: 2005-09-14 First Observed Date: 2005-09-14 Last Survey Date: 2005-09-14 Managed Area(s): Superior National Forest Survey Type: Qualitative ground survey Surveyor(s): Perry, E.F. MN Status: Tracked, but no legal status Federal Status: State Rank: SNA Global Rank: G4 EO Rank: C - Fair estimated viability</p>
Element Name and Occ. #: <u>Scirpus pedicellatus</u> (Woolgrass) #39	EO ID #: 33090
<p>Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: State of Minnesota (Other Lands) Location Description: St. Louis County, MN T59N R12W S36 Site Name: Survey Site #/Name: Vegetation Plot: General Description: Single clump observed in tamarack swamp. EO Data: Single clump observed in tamarack swamp with Alnus incana, Ledum groenlandicum, Gaultheria hispidula, Carex stricta.</p>	<p>Last Observed Date: 2005-08-11 First Observed Date: 2005-08-11 Last Survey Date: 2005-08-11 Managed Area(s): Superior National Forest Survey Type: Qualitative ground survey Surveyor(s): Perry, E.F. MN Status: Tracked, but no legal status Federal Status: State Rank: SNA Global Rank: G4 EO Rank: E - Verified extant (viability not assessed)</p>
Element Name and Occ. #: <u>Scirpus pedicellatus</u> (Woolgrass) #41	EO ID #: 33106
<p>Observed Area: Extent Known?: N - Confident full extent of EO is NOT known Ownership Type: US Forest Service Location Description: St. Louis County, MN T58N R12W S13 Site Name: Survey Site #/Name: Vegetation Plot: General Description: About 200 stems mixed half-and-half with Scirpus cyperinus in a patch about 50m by 10m on western shore of North River. EO Data: About 200 stems mixed half-and-half with Scirpus cyperinus in a patch about 50m by 10m on western shore of North River. With Calamagrostis canadensis, Carex utriculata, Dulichium arundinaceum, and Cicuta bulbifera. Coll #2005013 made, housed at MIN.</p>	<p>Last Observed Date: 2005-08-11 First Observed Date: 2005-08-11 Last Survey Date: 2005-08-11 Managed Area(s): Superior National Forest, Finland State Forest Survey Type: Qualitative ground survey Surveyor(s): Perry, E.F. MN Status: Tracked, but no legal status Federal Status: State Rank: SNA Global Rank: G4 EO Rank: A - Excellent estimated viability</p>

**Known Rare Plant Species in the
Headwaters Site**

Element Name and Occ. #: Torreyochloa pallida var. fernaldii () #25 **EO ID #:** 33108

Observed Area: N - Confident full extent of EO is NOT known
Extent Known?: N - Confident full extent of EO is NOT known
Ownership Type: US Forest Service
Location Description: Lake, St. Louis County, MN
 T58N R11W S7, T58N R12W S12, T58N R11W S6
Site Name:
Survey Site #/Name:
Vegetation Plot:
General Description: Observed in scattered small patches along at least 1.5 km of both shores of the North River.
EO Data: Healthy, reproducing plants observed in scattered small patches along at least 1.5 km of both shores of the North River. Coll #2005021 made, housed at MIN.

Last Observed Date: 2005-08-11
First Observed Date: 2005-08-11
Last Survey Date: 2005-08-11
Managed Area(s): Superior National Forest, Finland State Forest
Survey Type: Qualitative ground survey
Surveyor(s): Perry, E.F.

MN Status: Tracked, but no legal status
Federal Status:
State Rank: SNR
Global Rank: G5T4Q
EO Rank: A - Excellent estimated viability

Appendix 2. Relevés from the Headwaters Site

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: **EFP05-02** EO Rec #: 0
*Surveyor's ID Code: **EFP (Ethan Perry)**
Date: **30** Month: **JUN** Year: **2005** (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: **Headwaters**
DNR Ownership Code: **02 (U.s. Forest Service (National Forest))**
*NC Code: **TSXXXX (Tamarack Swamp)**
Commun. Ranking in Relève: **B** Stand typical of Commun. Type: _ Relève typical of Stand: _

LOCATIONAL INFORMATION

State Code: **MN** *County Code: **69 (St. Louis)**
Quad Codes DNR: **H22D** Universal: **47091E7 (Babbitt Se)**
Township: **058N** (e.g. 143N) Range: **12W** (e.g. 32W)
QURT: **NW** QRT: **NW** of Section **4**
Latitude: **47 degrees, 32 minutes, 29 seconds** LL/GPS registration:
Longitude: **91 degrees, 52 minutes, 23 seconds** *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): **400** Elev. (ft.): **1680** Slope: Slope Position: _
*ECS Subsection: **0**
Minnesota Soil Atlas Mapping Unit:
*Geomorphic Unit:

Remarks: **Tamarack swamp between railroad, aspen forest, and rich cedar swamp.
Pools of water cover ~10%. pH ~6.2. 1 large rock. Average dbh is
15-20cm.**

OTHER DATA COLLECTED

Soils: Forestry: o=old growth Water Chemistry: Publication:
y=forestry
* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Needleleaf Evergreen, Height: 2-10m, Cover interrupted

- 4. *Larix laricina* (Tamarack, American larch)
- R. *Picea mariana* (Black spruce)
- R. *Thuja occidentalis* (White cedar, arbor vitae)

Woody Needleleaf Evergreen, Height: .0-2m, Cover almost absent

- +. *Abies balsamea* (Balsam fir)
- +. *Picea mariana* cf. (Black spruce)
- +. *Thuja occidentalis* (White cedar, arbor vitae)
- R. *Larix laricina* (Tamarack, American larch)

Woody Broadleaf Deciduous, Height: 2-5m, Cover barely present

- +. *Acer rubrum* (Red maple)
- +. *Alnus incana* (Speckled alder)
- +. *Ilex verticillata* (Winterberry, black alder)
- +. *Salix discolor* (Pussy willow)
- +. *Salix lucida* (Shining willow)
- +. *Sorbus americana* (Mountain-ash)
- R. *Acer spicatum* (Mountain maple)
- R. *Amelanchier* cf. *sanguinea* (Round-leaved juneberry)
- R. *Betula papyrifera* (Paper birch)

Woody Broadleaf Deciduous, Height: .0-2m, Cover interrupted

- 3. *Alnus incana* (Speckled alder)
- 2. *Cornus stolonifera* (Red-osier dogwood)
- 2. *Vaccinium myrtilloides* (Velvet-leaf blueberry)
- 1. *Lonicera oblongifolia* (Swamp fly-honeysuckle)
- 1. *Salix pedicellaris* (Bog willow)
- +. *Acer rubrum* (Red maple)
- +. *Ilex verticillata* (Winterberry, black alder)
- +. *Prunus virginiana* (Chokecherry)
- +. *Rhamnus alnifolia* (Alder-leaved buckthorn)
- +. *Ribes glandulosum* (Skunk currant)

Woody Broadleaf Deciduous, Height: .0-2m, Cover interrupted (continued)

- + . Ribes cf. hirtellum (Swamp gooseberry)
- + . Ribes triste (Swamp red currant)
- + . Rosa acicularis (Prickly rose)
- + . Rubus strigosus (Red raspberry)
- + . Salix petiolaris
- + . Salix pyrifolia (Balsam willow)
- + . Sorbus americana (Mountain-ash)
- R. Acer spicatum (Mountain maple)
- R. Amelanchier cf. laevis (Smooth juneberry)

Woody Broadleaf Evergreen, Height: .0-2m, Cover rare

- 2. Ledum groenlandicum (Labrador tea)
- 1. Gaultheria hispidula (Creeping snowberry)
- + . Linnaea borealis (Twin-flower)
- + . Vaccinium oxycoccus (Small cranberry)

Graminoid, Height: .0-.5m, Cover rare

- 1. Carex canescens
- 1. Carex disperma
- 1. Carex leptalea
- 1. Carex tenuiflora
- 1. Carex trisperma
- 1. Glyceria striata (Fowl manna grass)
- + . Calamagrostis canadensis (Blue-joint)
- + . Carex gracillima
- + . Carex paupercula

Forb, Height: .0-2m, Cover patchy

- 2. Rubus pubescens (Dwarf blackberry)
- 1. Coptis groenlandica (Goldthread)
- 1. Cornus canadensis (Bunchberry)
- 1. Smilacina trifolia (Three-leaved false Solomon's-s)
- 1. Viola (Violet)
- + . Aster puniceus (Red-stemmed aster)
- + . Athyrium angustum (Lady fern)
- + . Clintonia borealis (Blue-bead lily)
- + . Dryopteris carthusiana (Spinulose shield fern)
- + . Dryopteris cristata (Crested fern)
- + . Equisetum arvense (Field horsetail)
- + . Equisetum sylvaticum (Wood horsetail)
- + . Galium asprellum (Rough bedstraw)
- + . Gymnocarpium dryopteris (Oak fern)
- + . Iris versicolor (Blue Flag)
- + . Linnaea borealis (Twin-flower)
- + . Lycopodium annotinum (Bristly clubmoss)
- + . Maianthemum canadense (Canada mayflower)
- + . Petasites frigidus (Sweet coltsfoot)
- + . Pyrola secunda (One-sided pyrola)
- + . Thalictrum dasycarpum (Tall meadow rue)
- + . Trientalis borealis (Starflower)

Lichen/Moss, Height: .0-.1m, Cover interrupted

- 4. Sphagnum (moss)
- + . Unknown or Indeterminable Plant

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: **EFP05-06** EO Rec #: 0
*Surveyor's ID Code: **EFP (Ethan Perry)**
Date: **13** Month: **JUL** Year: **2005** (e.g. 04 JUL 1993)
CBS Site #: **0** or Site Name: **Headwaters**
DNR Ownership Code: **02 (U.s. Forest Service (National Forest))**
*NC Code: **BAXXXX (Black Ash Swamp)**
Commun. Ranking in Releve: **BC** Stand typical of Commun. Type: **_** Releve typical of Stand: **_**

LOCATIONAL INFORMATION

State Code: **MN** *County Code: **69 (St. Louis)**
Quad Codes DNR: **H22D** Universal: **47091E7 (Babbitt Se)**
Township: **059N** (e.g. 143N) Range: **12W** (e.g. 32W)
QORT: **SE** QRT: **SE** of Section **10**
Latitude: **47 degrees, 36 minutes, 10 seconds** LL/GPS registration:
Longitude: **91 degrees, 50 minutes, 18 seconds** *Accuracy: **_** Marker: **_**

RELEVE INFORMATION

Releve Size (sq. m.): **400** Elev. (ft.): **1630** Slope: Slope Position: **_**
*ECS Subsection: **0**
Minnesota Soil Atlas Mapping Unit:
*Geomorphic Unit:

Remarks: **Black ash swamp. Flooded near road, but here it appears undisturbed.**
Avg dbh 10". Pools cover ~40% of area, but do not have standing water
now. Upland near by is young aspen Fdn43b.

OTHER DATA COLLECTED

Soils: Forestry: o=old growth Water Chemistry: Publication:
y=forestry
* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Needleleaf Evergreen, Height: 10-35m, Cover barely present

R. Larix laricina (Tamarack, American larch)

Woody Broadleaf Deciduous, Height: 5-20m, Cover continuous

5. Fraxinus nigra (Black ash)

Woody Broadleaf Deciduous, Height: 2-5m, Cover interrupted

2. Acer spicatum (Mountain maple)
2. Fraxinus nigra (Black ash)
+. Acer rubrum (Red maple)
+. Alnus incana (Speckled alder)
+. Betula papyrifera dd (Paper birch)

Woody Broadleaf Deciduous, Height: .0-2m, Cover rare

2. Acer spicatum (Mountain maple)
2. Fraxinus nigra (Black ash)
+. Alnus incana (Speckled alder)
+. Betula papyrifera (Paper birch)
+. Cornus rugosa (Round-leaved dogwood)
+. Corylus cornuta (Beaked hazelnut)
+. Rhamnus alnifolia (Alder-leaved buckthorn)
+. Ribes triste (Swamp red currant)
+. Rubus idaeus
R. Amelanchier cf. laevis (Smooth juneberry)

Graminoid, Height: .0-2m, Cover patchy

2. Carex gracillima
2. Glyceria striata (Fowl manna grass)
+. Brachyelytrum erectum (Bearded short-husk)
+. Calamagrostis canadensis (Blue-joint)
+. Carex brunnescens
+. Carex interior
+. Carex intumescens

Graminoid, Height: .0-2m, Cover patchy (continued)

- + . Carex leptalea
- + . Carex cf. projecta
- + . Carex (Sedge)
- + . Cinna latifolia (Wood reedgrass)
- + . Scirpus cyperinus (Wool-grass)

Forb, Height: .0-2m, Cover patchy

- 1. Athyrium angustum (Lady fern)
- 1. Caltha palustris (Marsh marigold)
- 1. Circaea alpina (Small enchanter's nightshade)
- 1. Coptis groenlandica (Goldthread)
- 1. Fragaria virginiana (Common strawberry)
- 1. Galium asprellum (Rough bedstraw)
- 1. Gymnocarpium dryopteris (Oak fern)
- 1. Lycopus uniflorus (Northern bugleweed)
- 1. Mitella nuda (Miterwort, naked bishop's-cap)
- 1. Onoclea sensibilis (Sensitive fern)
- 1. Rubus pubescens (Dwarf blackberry)
- 1. Viola (Violet)
- + . Aster puniceus (Red-stemmed aster)
- + . Aster umbellatus (Flat-topped aster)
- + . Botrychium virginianum (Rattlesnake-fern)
- + . Chelone glabra (Turtlehead)
- + . Clintonia borealis (Blue-bead lily)
- + . Dryopteris carthusiana (Spinulose shield fern)
- + . Dryopteris cristata (Crested fern)
- + . Eupatorium maculatum (Spotted Joe-pye weed)
- + . Impatiens capensis (Spotted touch-me-not, jewel-we)
- + . Lysimachia thyrsiflora (Tufted loosestrife)
- + . Platanthera hyperborea (Tall northern orchid)
- + . Scutellaria lateriflora (Mad-dog skullcap)
- + . Smilacina trifolia (Three-leaved false Solomon's-s)
- + . Thelypteris phegopteris (Long beech-fern)
- + . Trientalis borealis (Starflower)
- R. Cirsium muticum 90 (Swamp thistle)
- R. Galium triflorum (Three-flowered bedstraw)
- R. Lactuca canadensis (Canada wild lettuce)
- R. Osmunda cinnamomea (Cinnamon fern)
- R. Trillium cernuum op

Lichen/Moss, Height: .0-.1m, Cover rare

- 1. Pleurozium (moss)
- 1. Unknown or Indeterminable Plant
- + . Sphagnum (moss)

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: **EFP05-19** EO Rec #: 0
*Surveyor's ID Code: **EFP (Ethan Perry)**
Date: **14** Month: **SEP** Year: **2005** (e.g. 04 JUL 1993)
CBS Site #: **0** or Site Name: **Headwaters**
DNR Ownership Code: **02 (U.s. Forest Service (National Forest))**
*NC Code: **BSXXXX (Black Spruce Swamp)**
Commun. Ranking in Releve: **A** Stand typical of Commun. Type: **_** Releve typical of Stand: **_**

LOCATIONAL INFORMATION

State Code: **MN** *County Code: **69 (St. Louis)**
Quad Codes DNR: **H22D** Universal: **47091E7 (Babbitt Se)**
Township: **058N** (e.g. 143N) Range: **12W** (e.g. 32W)
QORT: **SE** QRT: **SW** of Section **2**
Latitude: **47 degrees, 32 minutes, 2 seconds** LL/GPS registration:
Longitude: **91 degrees, 49 minutes, 32 seconds** *Accuracy: **_** Marker: **_**

RELEVE INFORMATION

Releve Size (sq. m.): **400** Elev. (ft.): **1720** Slope: Slope Position: **_**
*ECS Subsection: **0**
Minnesota Soil Atlas Mapping Unit:
*Geomorphic Unit:

Remarks: **Poor black spruce swamp (APn81) in narrow band running SW-NE between fire-dependent upland forests. Average dbh 12-15cm.**

OTHER DATA COLLECTED

Soils: Forestry: o=old growth Water Chemistry: Publication:
y=forestry
* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Needleleaf Evergreen, Height: 5-20m, Cover interrupted

- 4. *Picea mariana* (Black spruce)

Woody Needleleaf Evergreen, Height: .0-2m, Cover almost absent

- +. *Picea mariana* (Black spruce)

Woody Broadleaf Deciduous, Height: .0-.5m, Cover barely present

- 1. *Vaccinium angustifolium* (Blueberry)

Woody Broadleaf Evergreen, Height: .0-2m, Cover patchy

- 2. *Gaultheria hispidula* (Creeping snowberry)
- 2. *Ledum groenlandicum* (Labrador tea)
- 1. *Chamaedaphne calyculata* (Leather-leaf)
- +. *Kalmia polifolia* (Bog laurel)
- +. *Vaccinium oxycoccus* (Small cranberry)
- +. *Vaccinium vitis-idaea* (Mountain cranberry, lingonberry)

Graminoid, Height: .0-.5m, Cover rare

- 2. *Carex trisperma*

Forb, Height: .0-.1m, Cover barely present

- 1. *Lycopodium annotinum* (Bristly clubmoss)
- 1. *Smilacina trifolia* (Three-leaved false Solomon's-s)
- +. *Equisetum sylvaticum* op (Wood horsetail)

Lichen/Moss, Height: .0-.1m, Cover continuous

- 4. *Sphagnum* (moss)
- 2. Unknown or Indeterminable Plant
- 1. *Pleurozium* (moss)

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: 70 EO Rec #: 0
*Surveyor's ID Code: PHG (Paul H. Glaser)
Date: 8 Month: AUG Year: 1980 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: SAND LAKE PEATLAND
DNR Ownership Code: (Owner Unknown)
*NC Code: OBXXRA (Open Sphagnum Bog Raised Subtype)
Commun. Ranking in Relève: Stand typical of Commun. Type: _ Relève typical of Stand: _

LOCATIONAL INFORMATION

State Code: MN *County Code: 38 (Lake)
Quad Codes DNR: H23C Universal: 47091E6 (Greenwood Lake West)
Township: 059N (e.g. 143N) Range: 11W (e.g. 32W)
QURT: SW QRT: NE of Section 15
Latitude: 47 degrees, 35 minutes, 52 seconds LL/GPS registration:
Longitude: 91 degrees, 42 minutes, 29 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 100 Elev. (ft.): 1705 Slope: 00LV Slope Position: _
*ECS Subsection: 8 (Nashwauk Uplands)
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 15 (Toimi Drumlin Area)

Remarks: CA 1 MI W OF BONGA LAKE. NON-FORESTED SPHAG LAWN ON W SIDE H2O TRACK
SEPARATING 2 LINEAR, CRESTED BOGS; CONTINUOUS MAT SPHAG W/SCATT'D CLUMPS
P MARIANA. PH=4.2, CA=1.8 MG/L, COND=26 uS/CM, ABS=0.7 NM.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: Y Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Needleleaf Evergreen, Height: .0-5m, Cover almost absent

- +1 Larix laricina (Tamarack, American larch)
- +2 Picea mariana (Black spruce)

Graminoid, Height: .0-.5m, Cover interrupted

- 4.4 Carex oligosperma
- 1.2 Carex pauciflora
- +2 Eriophorum spissum (Cotton-grass)

Forb, Height: .0-.5m, Cover almost absent

- +2 Sarracenia purpurea (Pitcher-plant)
- R.1 Scheuchzeria palustris OP (Scheuchzeria)

Woody Broadleaf Evergreen, Height: .0-.5m, Cover barely present

- 1.2 Chamaedaphne calyculata (Leather-leaf)
- +2 Kalmia polifolia (Bog laurel)
- +2 Vaccinium oxycoccus (Small cranberry)

Lichen/Moss, Height: .0-.1m, Cover continuous

- 5.5 Sphagnum (moss)

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: 71 EO Rec #: 0
*Surveyor's ID Code: PHG (Paul H. Glaser)
Date: 8 Month: AUG Year: 1980 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: SAND LAKE PEATLAND
DNR Ownership Code: 00 (Private Ownership)
*NC Code: PFXSD (Poor Fen Sedge Subtype)
Commun. Ranking in Releve: Stand typical of Commun. Type:_ Releve typical of Stand:_

LOCATIONAL INFORMATION

State Code: MN *County Code: 38 (Lake)
Quad Codes DNR: H23C Universal: 47091E6 (Greenwood Lake West)
Township: 059N (e.g. 143N) Range: 11W (e.g. 32W)
QORT: SW QRT: NE of Section 15
Latitude: 47 degrees, 35 minutes, 52 seconds LL/GPS registration:
Longitude: 91 degrees, 42 minutes, 26 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Releve Size (sq. m.): 100 Elev. (ft.): 1705 Slope: 00LV Slope Position: _
*ECS Subsection: 8 (Nashwauk Uplands)
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 15 (Toimi Drumlin Area)

Remarks: CA 1/2 MI NE OF LOBO LAKE & 6 MI NW OF PUBLIC ACCESS TO GREENWOOD LAKE
ON CO RD 2. MARGIN OF H2O TRACK FLOWING BETWEEN 2 LINEAR CRESTED BOGS;
RELEVE CONTAINS MUD-BOTT POOLS & SINUOUS HUMMS CVRD W/SPHAG.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: Y Publication: N
y=forestry
* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Needleleaf Evergreen, Height: .0-2m, Cover barely present
+1.1 Larix laricina (Tamarack, American larch)

Woody Broadleaf Deciduous, Height: .0-2m, Cover barely present
1.2 Betula glandulifera (Bog birch)

Graminoid, Height: .0-.5m, Cover patchy
2.2 Carex limosa
+2 Carex lasiocarpa
SPC +2 Juncus stygius (Bog rush)
+2 Rhynchospora alba (Beaked-sedge)

Forb, Height: .0-.5m, Cover barely present
+2 Drosera intermedia (Spatulate-leaved sundew)
+2 Menyanthes trifoliata (Buck-bean)
+1 Sarracenia purpurea (Pitcher-plant)
+1 Smilacina trifolia (Three-leaved false Solomon's-s)
+2 Utricularia intermedia (Flat-leaved bladderwort)

Woody Broadleaf Evergreen, Height: .0-.5m, Cover barely present
1.2 Andromeda glaucophylla (Bog-rosemary)
+2 Chamaedaphne calyculata (Leather-leaf)
+2 Kalmia polifolia (Bog laurel)

Lichen/Moss, Height: .0-.1m, Cover patchy
3. Sphagnum ? (moss)

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: 72 EO Rec #: 0
*Surveyor's ID Code: PHG (Paul H. Glaser)
Date: 8 Month: AUG Year: 1980 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: SAND LAKE PEATLAND
DNR Ownership Code: 00 (Private Ownership)
*NC Code: PFXSD (Poor Fen Sedge Subtype)
Commun. Ranking in Releve: Stand typical of Commun. Type:_ Releve typical of Stand:_

LOCATIONAL INFORMATION

State Code: MN *County Code: 38 (Lake)
Quad Codes DNR: H23C Universal: 47091E6 (Greenwood Lake West)
Township: 059N (e.g. 143N) Range: 11W (e.g. 32W)
QORT: NW QRT: SE of Section 15
Latitude: 47 degrees, 35 minutes, 42 seconds LL/GPS registration:
Longitude: 91 degrees, 42 minutes, 19 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Releve Size (sq. m.): 100 Elev. (ft.): 1700 Slope: 00LV Slope Position: _
*ECS Subsection: 8 (Nashwauk Uplands)
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 15 (Toimi Drumlin Area)

Remarks: CA 1 MI W OF BONGA LAKE & 7 MI NW OF PUBLIC ACCESS TO GREENWOOD LAKE.
N MARGIN OF SMALL POND. CONTINUOUS SPHAG CARPET CONSISTING OF SINUOUS
ELONGATE HOLLOWES & HIGHER HUMMOCKS W/STUNTED TREES. PH=5.4.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: Y Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Needleleaf Evergreen, Height: .0-2m, Cover barely present

+2 Larix laricina (Tamarack, American larch)
+2 Picea mariana (Black spruce)

Woody Broadleaf Deciduous, Height: .0-.5m, Cover rare

2.1 Betula glandulifera (Bog birch)

Graminoid, Height: .0-.5m, Cover interrupted

3.3 Rhynchospora alba (Beaked-sedge)
1.2 Carex limosa
+2 Carex canescens
+2 Carex chordorrhiza
+2 Carex lasiocarpa
+1 Eriophorum tenellum (Cotton-grass)
SPC +1 Juncus stygius (Bog rush)

Forb, Height: .0-.5m, Cover barely present

+2 Drosera intermedia (Spatulate-leaved sundew)
+2 Menyanthes trifoliata (Buck-bean)
+1 Sarracenia purpurea (Pitcher-plant)
+2 Scheuchzeria palustris (Scheuchzeria)

Woody Broadleaf Evergreen, Height: .0-.5m, Cover barely present

+1 Andromeda glaucophylla (Bog-rosemary)
+1 Chamaedaphne calyculata (Leather-leaf)
+1 Kalmia polifolia (Bog laurel)
+1 Ledum groenlandicum (Labrador tea)
+1 Vaccinium oxycoccus (Small cranberry)

Lichen/Moss, Height: .0-.1m, Cover continuous

5. Sphagnum (moss)

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: 73 EO Rec #: 0
*Surveyor's ID Code: PHG (Paul H. Glaser)
Date: 8 Month: AUG Year: 1980 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: SAND LAKE PEATLAND
DNR Ownership Code: 00 (Private Ownership)
*NC Code: PFXSD (Poor Fen Sedge Subtype)
Commun. Ranking in Releve: Stand typical of Commun. Type: _ Releve typical of Stand: _

LOCATIONAL INFORMATION

State Code: MN *County Code: 38 (Lake)
Quad Codes DNR: H23C Universal: 47091E6 (Greenwood Lake West)
Township: 059N (e.g. 143N) Range: 11W (e.g. 32W)
QRT: NE QRT: NE of Section 21
Latitude: 47 degrees, 35 minutes, 15 seconds LL/GPS registration:
Longitude: 91 degrees, 43 minutes, 16 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Releve Size (sq. m.): 400 Elev. (ft.): 1700 Slope: 00LV Slope Position: _
*ECS Subsection: 8 (Nashwauk Uplands)
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 15 (Toimi Drumlin Area)

Remarks: 3/4 MI W OF LOBO LAKE. INTERNAL H2O TRACK ARISING DOWNSLOPE FROM
MINERAL ISLAND. OPEN PICEA-LARIX STAND W/DISCONTINUOUS SPHAGNUM CARPET
OF HIGH HUMMOCKS & WET HOLLOWES. FALLEN TREES COMMON. PH=5.5.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: Y Publication: N
y=forestry
* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Needleleaf Evergreen, Height: .0-10m, Cover rare

2.2 Picea mariana (Black spruce)
1.2 Larix laricina (Tamarack, American larch)

Woody Broadleaf Deciduous, Height: .0-2m, Cover rare

2.2 Betula glandulifera (Bog birch)
+.1 Salix pedicellaris (Bog Willow)

Graminoid, Height: .0-.5m, Cover interrupted

2.2 Carex chordorrhiza
2.2 Carex lasiocarpa
2.2 Carex limosa
1.2 Carex paupercula
+.2 Carex canescens
+.2 Carex tenuiflora

Forb, Height: .0-.5m, Cover rare

2.2 Equisetum fluviatile (Water horsetail)
1.2 Menyanthes trifoliata (Buck-bean)
+.1 Drosera rotundifolia (Round-leaved sundew)
+.2 Potentilla palustris (Marsh cinquefoil)
+.2 Smilacina trifolia (Three-leaved false Solomon's-s)
+.1 Utricularia intermedia (Flat-leaved bladderwort)

Woody Broadleaf Evergreen, Height: .0-.5m, Cover rare

1.2 Andromeda glaucophylla (Bog-rosemary)
1.2 Chamaedaphne calyculata (Leather-leaf)
1.2 Vaccinium oxycoccus (Small cranberry)
+.2 Gaultheria hispidula (Creeping snowberry)
+.2 Kalmia polifolia (Bog laurel)
+.2 Ledum groenlandicum (Labrador tea)

DNR RELEVE #: 4249 continued, Page 2

Lichen/Moss, Height: .0-.1m, Cover interrupted
4.4 Sphagnum (moss)

11:48 Friday, DECEMBER 22, 2006

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: 97-7 EO Rec #: 0
*Surveyor's ID Code: CEA (Chel E. Anderson)
Date: 30 Month: JUL Year: 1997 (e.g. 04 JUL 1993)
CBS Site #: 2 or Site Name: Dunka
DNR Ownership Code: 02 (U.S. Forest Service (National Forest))
*NC Code: WFNEXX (White Pine Forest (Northeast))
Commun. Ranking in Releve: AB Stand typical of Commun. Type: _ Releve typical of Stand: _

LOCATIONAL INFORMATION

State Code: MN *County Code: 69 (St. Louis)
Quad Codes DNR: H22D Universal: 47091E7 (Babbitt Se)
Township: 059N (e.g. 143N) Range: 12W (e.g. 32W)
QRT: SE QRT: SE of Section 14
Latitude: 47 degrees, 35 minutes, 19 seconds LL/GPS registration:
Longitude: 91 degrees, 48 minutes, 45 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Releve Size (sq. m.): 400 Elev. (ft.): 1730 Slope: 00LV Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: LLWL
*Geomorphic Unit: 27 (Allen Moraine)

Remarks: Natural origin conifer forest dom by Pinus strobus >90yrs. Subcan Betu
papy, Picea mar. & Abies. Tall shrub layer generally dense Corylus
corn in patches. Herbs dom by Aster mac. No evid. distrub.

OTHER DATA COLLECTED

Soils: Forestry: o=old growth Water Chemistry: Publication:
y=forestry

* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Needleleaf Evergreen, Height: 20-35m, Cover continuous
5.1 Pinus strobus (White pine)

Woody Needleleaf Evergreen, Height: 5-20m, Cover rare
1.1 Abies balsamea (Balsam fir)
1.1 Picea mariana (Black spruce)
+.1 Pinus strobus (White pine)

Woody Needleleaf Evergreen, Height: .0-5m, Cover barely present
+.1 Abies balsamea (Balsam fir)
+.1 Picea mariana (Black spruce)
+.1 Pinus strobus (White pine)

Woody Needleleaf Evergreen, Height: .0-.1m, Cover almost absent
+.4 Pinus strobus GE (White pine)

Woody Broadleaf Deciduous, Height: 10-20m, Cover almost absent
+.1 Betula papyrifera (Paper birch)

Woody Broadleaf Deciduous, Height: 2-10m, Cover interrupted
5.3 Corylus cornuta (Beaked hazelnut)
+.1 Sorbus (Mountain-Ash)

Woody Broadleaf Deciduous, Height: .0-2m, Cover rare
2.1 Corylus cornuta (Beaked hazelnut)
+.1 Lonicera canadensis (Fly honeysuckle)
+.1 Prunus virginiana (Chokecherry)
+.2 Sorbus (Mountain-Ash)

Graminoid, Height: .0-2m, Cover almost absent
+.1 Oryzopsis asperifolia (Mountain rice-grass)

Forb, Height: .0-2m, Cover patchy

- 3.4 Aster macrophyllus (Large-leaved aster)
- 1.1 Aralia nudicaulis (Wild sarsaparilla)
- 1.4 Diervilla lonicera (Bush honeysuckle)
- 1.1 Pteridium aquilinum (Bracken)
- +2 Apocynum androsaemifolium (Spreading dogbane)
- +2 Chimaphila umbellata (Pipsissewa)
- +1 Clintonia borealis (Blue-bead lily)
- +4 Coptis groenlandica (Goldthread)
- +4 Cornus canadensis (Bunchberry)
- +1 Dryopteris (Shield-Fern; Wood-Fern)
- +1 Fragaria virginiana (Common strawberry)
- +1 Galium triflorum (Three-flowered bedstraw)
- +2 Linnaea borealis (Twin-flower)
- +4 Lycopodium obscurum (Groundpine)
- +1 Maianthemum canadense (Canada mayflower)
- +2 Monotropa uniflora (Indian pipe)
- +1 Platanthera hookeri (Hooker's orchid)
- +2 Polypodium virginianum (Common polypody)
- +2 Pyrola cf. secunda (One-sided pyrola)
- +2 Rosa (Rose)
- +1 Streptopus roseus (Rose twisted-stalk)
- +1 Trientalis borealis (Starflower)
- +2 Vaccinium myrtilloides (Velvet-leaf blueberry)
- +2 Viola (Violet)