

## **Appendix I**

### **Vegetation, Wetlands and Biodiversity**

***Appendix I1***

***Baseline Methods***

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Appendix I1 describes the methods and information used to characterize the baseline conditions for vegetation resources in the terrestrial local study area (TLSA) and terrestrial regional study area (TRSA).

## **1.0 LAND UNIT MAPPING**

Land units spatially describe the natural vegetation and disturbance features of the study area. These land units include human disturbance features such as roads and developments, and natural vegetation habitat types (forests, shrublands, meadows, barren lands, wetlands and open water). Land units were mapped for the TLSA and the TRSA.

### **1.1 Terrestrial Local Study Area**

#### **1.1.1 Local ELC (Ecosite Phase) Mapping**

The Ecological Land Classification (ELC) mapping was derived from Alberta Vegetation Inventory (AVI) mapping (*Alberta Vegetation Inventory Standards Version 2.1.1*; AENV 2002) of the Project TLSA. Stereo air photo pairs at 1:20,000 scale (colour) were flown in 2006 to 2008 to complete AVI mapping. The baseline ELC mapping was updated in 2011 to include recent surface disturbances up to May 2011. Baseline disturbance information was obtained from various sources including air photographs, and Project exploration program maps.

Based on the AVI, each natural vegetated polygon was assigned an ELC class (i.e., ecosite phase), according to Beckingham and Archibald (1996), with additional codes for shrublands, open water classes and disturbed sites not represented in the ecosite phase classification. Ecosite phases were interpreted based on stand characteristics (tree species, height, density, etc.) for each AVI polygon. This preliminary ELC map was used as the basis for designing field sampling programs.

The baseline area of each ELC type (ecosite phase) and frequency distribution was determined for the TLSA. ELC types covering  $\leq 1\%$  of the TLSA at baseline were considered uncommon. ELC types were also assigned sensitivity rankings based on their susceptibilities to effects from changes in air quality, water quality, water quantity and their relative potential for reclamation success. Sensitive ecosites include bogs (i1 and i2), fens (j1, j2, k1, k2 and k3) and those phases occurring on sandy substrates (e.g., jack pine/lichen forests (a1) and blueberry ecosite phases (b1, b2, b3, and b4)). The area and frequency distribution of uncommon and sensitive ELC classes were assessed in the TLSA.

#### **1.1.2 Local Wetland Mapping**

Wetland types in the TLSA were interpreted to *Alberta Wetland Inventory Standards Version 1.0* (Halsey and Vitt 1997) based on the AVI. The Alberta Wetland Inventory classification was completed by certified interpreters in 2006 and 2011. This map was used as the basis for planning the wetland ground truthing field program. The baseline area and percent distribution of each wetland type was calculated for the TLSA. Uncommon wetland types were defined as those with a total area  $\leq 1\%$  of the TLSA.

Certain wetland types may be more sensitive to disturbance and direct or indirect impacts such as water quantity or quality changes and air emissions. Peatlands (bogs and fens) may be considered to be sensitive, because of long post-disturbance recovery time and specific water flow and quality requirements. Marshes, swamps and shallow open water areas have high water requirements, but are adapted to frequent fluctuations in water levels, and are considered to be less sensitive. The area and percent distribution of uncommon and sensitive wetland classes were assessed in the TLSA.

## **1.2 Terrestrial Regional Study Area**

Baseline vegetation in the TRSA was mapped using *Alberta Ground Cover Classification* (AGCC version 3.0) provided by AENV Resource Data Division (2003) updated with recent (May 2011) surface disturbances and approved projects. The AGCC was developed from LandSat™ Imagery covering the entire northeast boreal region of Alberta. The AGCC is broken down into major vegetation groups, including linear and industrial disturbances, agriculture, clearcuts, burns, coniferous forest, deciduous forest, mixedwood forest, shrublands, grasslands, wetlands (bogs, shrubby and graminoid classes), open water, barren lands, and unclassified lands. These classes were used to develop Landscape Cover Classes by combining similar AGCC classes.

The AGCC was provided in a raster format (25 m pixel resolution). Because of the resolution of the classification, many smaller disturbance features such as trails, cutlines and many wellsites were not identified. These features were added to the classification in the development of a regional baseline landscape cover classification. Additional disturbance data was obtained from a variety of sources including Alberta Base Features, Project exploratory program maps, Al-Pac (cutblocks and trails), approved environmental impact assessments (e.g., True North Fort Hills) and other disclosed sources for seismic lines, wellsites, cutlines and other disturbances. The baseline area of each landscape cover class was determined within the TRSA.

## **2.0 FIELD PROGRAMS**

Two vegetation programs were conducted in the TLSA, including rare plant surveys and detailed vegetation surveys.

### **2.1 Rare Plant Surveys**

A rare plant is defined as any native vascular or non-vascular plant existing in low numbers or in very restricted areas in Alberta (Lancaster 2000, Kershaw *et al.* 2001). The Alberta Conservation Information Management System (ACIMS) is the conservation data centre for Alberta that ranks, maps, tracks and maintains a database of rare plant species and rare communities and their locations in the province. ACIMS maintains two lists for plant species, a 'watch list' and a 'tracking list'. ACIMS defines rare plant communities as natural communities that are unusual, uncommon, of limited extent, encountered infrequently, in decline, or threatened (Allen 2011).

A search of the ACIMS database was conducted (2006 and 2011) to locate records of previously located rare plants in the region. Current provincial rare or endangered plant species and communities and their ranked statuses were obtained from *ACIMS Tracking and Watch Lists – Vascular Plants, Mosses, Liverworts and Hornworts* (ACIMS 2011) and *Preliminary Plant Community Tracking List* (Allen 2011). The *Species at Risk Act* (SARA) Schedule 1 (Environment Canada 2011) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2011) were reviewed to determine any nationally rare plant species that may occur in the area. The Alberta Wild Species General Status Listing (ASRD 2010) and species assessed by Alberta's Endangered Species Conservation Committee (ESSC 2011) were also included.

Field surveys were conducted in the spring, summer and fall of 2006 in accordance with Alberta Native Plant Council protocols (Lancaster 2000) for conducting rare plant surveys. Common vascular and non-vascular plant species were recorded at each sample location. A total of 298 sample sites were visited within the TLSA and surrounding area focusing on natural vegetation habitats. The presence of rare plant communities was also investigated during the rare plant surveys and by examining recorded species distributions in detailed surveys.

Where a rare species was found, a GPS reading was taken, and the phenology, habitat and number of individuals was recorded. Whenever possible, voucher specimens were collected and/or photographs taken. All rare plant species identified were independently confirmed by qualified taxonomic experts.

## **2.2 Detailed Vegetation Surveys**

In 2006, 132 detailed survey sites were sampled. Detailed survey plots were sampled to collect information to confirm the ELC mapping and to characterize the vegetation composition of the TLSA, including species composition, presence of rare plant species or communities, and non-native invasive or weed species.

Detailed survey plots were established in representative vegetation types to characterize site and terrain conditions (moisture and nutrient conditions, slope, aspect, and location), describe the overstorey species and characteristics (composition, cover, height, density), obtain information on forest seral stage, and identify and assign cover values to all vascular plant species. Common non-vascular plants were also recorded at the species or genus taxonomic level. Detailed plots were placed a minimum of 50 m from the stand edge to minimize edge effects. Overstorey data was collected in a 400 m<sup>2</sup> quadrat, shrubs within a 100 m<sup>2</sup> quadrat, and vascular/nonvascular ground cover within five 1 m<sup>2</sup> quadrats, which were averaged for the site. In addition, all species occurring within the 400 m<sup>2</sup> plot, but not within one of the 1 m<sup>2</sup> quadrats were recorded for presence. Each vegetation plot was assigned an ecosite phase based on its characteristics. In addition, each site was surveyed for the presence of rare plants and non-native/weed species.

### 3.0 LITERATURE CITED

- Alberta Conservation Information Management System (ACIMS). 2011. *List of Tracked and Watched Elements – May 2011 Version*. Alberta Tourism Parks and Recreation, Parks Division, Edmonton Alberta.
- Alberta Environment (AENV). 2002. *Alberta Vegetation Inventory Standards Version 2.1.1*. Edmonton, AB.
- Alberta Environment (AENV). 2003. *Alberta Ground Cover Classification*. Version 3.1. Resource Data Division. Edmonton, AB.
- Alberta Sustainable Resource Development (ASRD). 2010. *Alberta Wild Species General Status Listing – 2010*. Edmonton, Alberta. Available at website:  
<http://www.srd.alberta.ca/FishWildlife/SpeciesAtRisk/GeneralStatusOfAlbertaWildSpecies/GeneralStatusOfAlbertaWildSpecies2010/documents/SAR-AlbertaWildSpecies-GeneralStatusList-2010.pdf>
- Allen, L. 2011. *Alberta Conservation Information Management System Ecological Community Tracking List*. Alberta Tourism, Parks and Recreation, Edmonton, Alberta.
- Beckingham, J.D. and J.H. Archibald. 1996. *Field Guide to Ecosites of Northern Alberta*. Special Report 5. Northern Forestry Centre, Canadian Forest Service. Edmonton, AB.
- Endangered Species Conservation Committee (ESCC). 2011. *Species Assessed by Alberta's Endangered Species Conservation Committee*. Available at website:  
<http://www.srd.alberta.ca/FishWildlife/SpeciesAtRisk/LegalDesignationOfSpeciesAtRisk/EndangeredSpeciesConservationCommittee/Default.aspx>
- Environment Canada. 2011. *Species at Risk Act (SARA)*. Available at:  
[www.sararegistry.gc.ca/gen\\_info/default\\_e.cfm](http://www.sararegistry.gc.ca/gen_info/default_e.cfm)
- Government of Canada. 2011. *Committee on the Status of Endangered Wildlife in Canada*. Available at: [http://www.cosewic.gc.ca/eng/sct6/index\\_e.cfm](http://www.cosewic.gc.ca/eng/sct6/index_e.cfm)
- Halsey, L. and D.H. Vitt. 1997. *Alberta Wetland Inventory Standards – Version 1.0*. In: *Alberta Vegetation Inventory Standards Manual*. (R. Nesby, ed.). Resource Data Division, Alberta Environmental Protection. Edmonton, AB.
- Kershaw, L., J. Gould, D. Johnson and J. Lancaster. 2001. *Rare Vascular Plants of Alberta*. University of Alberta Press. Edmonton, AB.
- Lancaster, J. 2000. *ANPC Guidelines for Rare Plant Surveys in Alberta*. Alberta Native Plant Council Information Bulletin. Edmonton AB.

***Appendix I2***

***Baseline Data***



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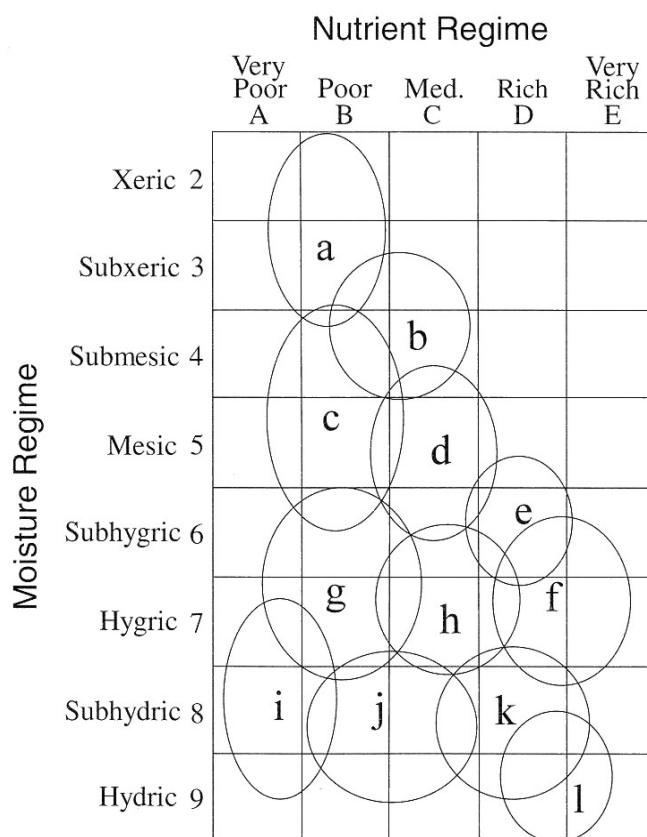
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## 1.0 ELC DESCRIPTION (ECOSITE PHASES AND LAND COVER TYPES)

Vegetation in the Project terrestrial local study area (TLSA) and terrestrial regional study area (TRSA) was classified to the ecosite phase level according to the *Field Guide to Ecosites of Northern Alberta* (Beckingham and Archibald 1996). This field guide is used to identify mappable ecological units that are relatively uniform in terms of biophysical characteristics. Ecosites are functional units that develop under specific environmental conditions reflecting the local climate, moisture regime and nutrient regime. Moisture and nutrient regimes form the edatope, upon which ecosites are 'mapped' (Figure I2-1). Ecosite phases are subdivisions of ecosites, have a strong ecological basis, and are mappable units.



**Figure I2-1: Edatope (Moisture/Nutrient Grid) Showing Location of Ecosites for the Boreal Mixedwood (Beckingham and Archibald 1996)**

Ecosites:

a = **lichen** (subxeric/poor)

b = **blueberry** (submesic/medium)

c = **Labrador tea-mesic** (mesic/poor)

d = **low-bush cranberry** (mesic/medium)

e = **dogwood** (subhygric/rich)

f = **horsetail** (hygric/rich)

g = **Labrador tea-subhygric** (subhygric/poor)

h = **Labrador tea/horsetail** (hygric/medium)

i = **bog** (subhydric/very poor)

j = **poor fen** (subhydric/medium)

k = **rich fen** (subhydric/rich)

l = **marsh** (hydric/rich)

Ecological Land Classification (ELC) Classes are described in terms of terrain, soils, moisture, nutrients, and plant species richness. Measures of species richness include percent cover and frequency of occurrence by species, dominant species ( $\geq 5\%$  cover and occurring in  $\geq 50\%$  of sample plots), and unique species. Dominant species are the typical vegetation species in each ELC type and may be used to help determine the species that should be present following successful reclamation.

Summary data for each ELC type are presented in the following tables that compare the mean regional vegetation characteristics to the characteristics of vegetation observed during the Project baseline surveys. Data comparison summaries include:

- composition and mean percent cover of vascular and non-vascular plant species;
- forest structure (number of snags, downed logs and mean stand ages);
- site characteristics (soils, moisture, nutrients, slope);
- species richness (total and mean richness of vascular and nonvascular plants);
- representative site photo; and
- species accumulation curves for vascular plant species.

In these tables the Project detailed plot data were compared to detailed plot data collected throughout the oil sands region. Regional data were obtained from other baseline studies, and were made available to Cenovus Energy Inc. (Cenovus) for use in the Project based on data sharing agreements with other companies. Data were obtained from the following baseline surveys:

- Birch Mountain Hammerstone Project (57 detailed plots);
- Shell Canada Muskeg River Expansion Project (98 detailed plots);
- Petro-Canada UTS Project (65 detailed plots);
- Husky Canada Sunrise Project (119 detailed plots);
- Syncrude Canada Aurora North and South Projects (124 detailed plots);
- Imperial Oil Ltd. Kearl Lake Project (276 detailed plots); and
- SynEnCo Northern Lights Project (203 detailed plots).

In all tables, the regional summary value is provided following each listed species or site attribute, with the Project baseline value enclosed in brackets.

### Comparison of Regional and Project Vegetation Data

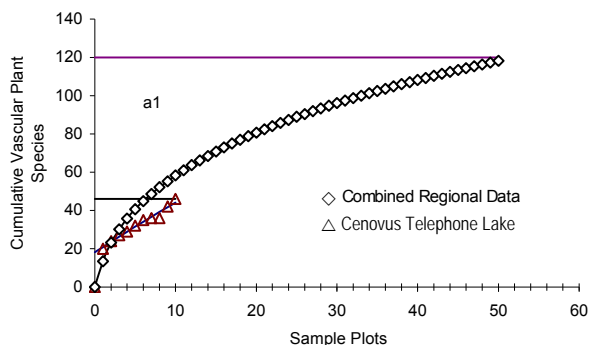
<b>Ecosite Phase</b>	a1- Jack Pine / Lichen
<b>Sample Plots</b>	50 (10)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>13(0)</sup> 1-5 <sup>13(1)</sup> 6-10 <sup>6(1)</sup> 11-20 <sup>4(3)</sup> 21-60 <sup>2(1)</sup>
<b>Moisture</b>	xeric <sup>18(3)</sup> subxeric <sup>12(6)</sup> submesic <sup>5(1)</sup>
<b>Nutrients</b>	very poor <sup>3(1)</sup> poor <sup>25(8)</sup> medium <sup>3(1)</sup>
<b>Arboreal Lichens</b>	nil <sup>4(1)</sup> trace <sup>4(1)</sup> low <sup>11(2)</sup> medium <sup>4(1)</sup> high <sup>3(0)</sup>
<b>Snags (stems/ha)</b>	25 [0-125] *
<b>Down Wood (logs/ha)</b>	100 [0-600] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>30(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>22(8)</sup>
<b>Seral Stage</b>	initial <sup>1(1)</sup> low shrub <sup>1(0)</sup> pole/sapling <sup>2(1)</sup> young <sup>8(3)</sup> midseral <sup>4(1)</sup> mature <sup>26(4)</sup>
<b>Height Class (m)</b>	5-10 <sup>1(1)</sup> 10-15 <sup>15(7)</sup> 15-20 <sup>6(1)</sup> >20 <sup>1(1)</sup>
<b>Canopy Closure</b>	O(0-5) <sup>2(0)</sup> A(6-30) <sup>37(8)</sup> B(31-50) <sup>9(1)</sup> C(51-70) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	49 [20-98] (45 [20-98])

Species Richness Summary <sup>(d)</sup>			
	Vascular	Non-Vascular	Total
<b>Total Species<sup>(e)</sup></b>	81 (30)	31 (20)	112 (50)
<b>Mean Species<sup>(f)</sup></b>	11.1 (10.5)	3.0 (4.7)	14.1 (15.2)
<b>Unique Species<sup>(g)</sup></b>	0 (3)	0 (0)	0 (3)
<b>Dominant Species<sup>(h)</sup></b>	5 (8)	2 (4)	7 (12)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Pinus banksiana</i></b>	<b>jack pine</b>	<b>92 (100)</b>	<b>42.2 (26.1)</b>
	<i>Populus tremuloides</i>	aspen	40 (50)	4.6 (0.7)
	<i>Picea mariana</i>	black spruce	36 (40)	1.9 (0.6)
	<i>Betula papyrifera</i>	white birch	24 (10)	1.8 (0.1)
	<i>Picea glauca</i>	white spruce	16 (0)	0.2 (0)
	<i>Larix laricina</i>	tamarack	2 (0)	+ (0)
	<i>Populus balsamifera</i>	balsam poplar	2 (0)	+ (0)
Shrub	<b><i>Vaccinium myrtilloides</i></b>	<b>common blueberry</b>	<b>78 (100)</b>	<b>12.3 (18.3)</b>
	<b><i>Vaccinium vitis-idaea</i></b>	<b>bog cranberry</b>	<b>70 (70)</b>	<b>7.7 (1.2)</b>
	<b><i>Arctostaphylos uva-ursi</i></b>	<b>common bearberry</b>	<b>60 (80)</b>	<b>6.4 (9.2)</b>
	<i>Linnaea borealis</i>	twinflower	38 (20)	1.1 (0.4)
	<i>Rosa acicularis</i>	prickly rose	32 (30)	0.8 (0.3)
	<i>Ledum groenlandicum</i>	common Labrador tea	26 (30)	3.5 (1.1)
	<i>Alnus viridis ssp crispa</i>	green alder	24 (20)	2.1 (2.3)
	<i>Amelanchier alnifolia</i>	saskatoon	14 (0)	0.1 (0)
	<i>Prunus pensylvanica</i>	pin cherry	12 (10)	0.2 (0.1)
	<i>Hudsonia tomentosa</i>	sand heather	10 (30)	0.7 (3)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	8 (0)	0.4 (0)
	<i>Salix bebbiana</i>	beaked willow	6 (10)	+ (0.1)
	<i>Vaccinium myrtilloides</i>	low bilberry	6 (0)	0.5 (0)
	<i>Salix scouleriana</i>	Scouler's willow	6 (0)	0.1 (0)
	<i>Viburnum edule</i>	low-bush cranberry	6 (0)	+ (0)
	<i>Rubus idaeus</i>	wild red raspberry	4 (10)	0.1 (0.2)
	<i>Arctostaphylos rubra</i>	alpine bearberry	2 (0)	0.7 (0)
	<i>Andromeda polifolia</i>	bog rosemary	2 (0)	0.1 (0)
	<i>Betula pumila</i>	dwarf birch	2 (0)	+ (0)
	<i>Chamaedaphne calyculata</i>	leatherleaf	2 (0)	+ (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	2 (0)	+ (0)
<i>Rubus pubescens</i>	dewberry	2 (0)	+ (0)	
<i>Salix glauca</i>	smooth willow	2 (0)	+ (0)	
Graminoid	<i>Oryzopsis pungens</i>	northern rice grass	48 (40)	0.2 (+)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	22 (60)	0.1 (0.3)
	<i>Leymus innovatus</i>	hairy wild rye	14 (0)	0.1 (0)
	<i>Carex siccata</i>	hay sedge	2 (10)	+ (+)
	<i>Calamagrostis canadensis</i>	bluejoint	2 (0)	+ (0)
	<i>Schizachne purpurascens</i>	purple oat grass	2 (0)	+ (0)
Forb	<i>Maianthemum canadense</i>	wild lily-of-the-valley	58 (80)	2.8 (0.8)
	<i>Cornus canadensis</i>	bunchberry	44 (50)	1.8 (2.7)
	<i>Melampyrum lineare</i>	cow-wheat	30 (20)	0.2 (+)
	<i>Epilobium angustifolium</i>	common fireweed	24 (30)	0.1 (0.4)
	<i>Geocaulon lividum</i>	northern bastard toadflax	18 (0)	0.4 (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	18 (0)	0.2 (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	16 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	16 (0)	+ (0)
	<i>Campanula rotundifolia</i>	harebell	14 (30)	+ (+)
	<i>Apocynum androsaemifolium</i>	spreading dogbane	14 (20)	0.3 (0.2)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	12 (0)	0.4 (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	10 (0)	0.5 (0)
	<i>Galium boreale</i>	northern bedstraw	10 (0)	+ (0)
	<i>Solidago simplex ssp simplex</i>	mountain goldenrod	8 (30)	+ (+)
	<i>Solidago canadensis</i>	Canada goldenrod	4 (20)	+ (+)
	<i>Achillea millefolium</i>	common yarrow	4 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	4 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	4 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	4 (0)	+ (0)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	4 (0)	+ (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	4 (0)	+ (0)
<i>Trientalis borealis</i>	northern starflower	4 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Saxifraga tricuspidata</i>	three-toothed saxifrage	2 (10)	+ (+)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	2 (0)	0.2 (0)
	<i>Anemone multifida</i>	cut-leaved anemone	2 (0)	+ (0)
	<i>Anemone patens</i>	prairie crocus	2 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	2 (0)	+ (0)
	<i>Epilobium anagallidifolium</i>	alpine willowherb	2 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	2 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	2 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	2 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	2 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	2 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	2 (0)	+ (0)
	<i>Potentilla nivea</i>	snow cinquefoil	2 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)
<i>Stellaria longifolia</i>	long-leaved chickweed	2 (0)	+ (0)	
Fern/Allies	<i>Diphasiastrum complanatum</i>	ground-cedar	20 (20)	0.5 (0.1)
	<i>Equisetum sylvaticum</i>	woodland horsetail	4 (10)	+ (0.2)
	<i>Lycopodium annotinum</i>	stiff club-moss	2 (10)	+ (+)
	<i>Equisetum arvense</i>	common horsetail	2 (0)	+ (0)
	<i>Equisetum hyemale</i>	common scouring-rush	2 (0)	+ (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	2 (0)	+ (0)
	<i>Lycopodium obscurum</i>	ground-pine	2 (0)	+ (0)
	<i>Selaginella selaginoides</i>	spiny-edged little club-moss	2 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>58 (30)</b>	<b>15.6 (1.6)</b>
	<i>Hylocomium splendens</i>	stair-step moss	10 (0)	+ (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	8 (0)	0.2 (0)
	<i>Dicranum polysetum</i>	wavy dicranum	6 (0)	0.1 (0)
	<i>Polytrichum strictum</i>	slender hair-cap	4 (20)	+ (0.2)
	<i>Polytrichum piliferum</i>	awned hair-cap	2 (10)	0.1 (0.5)
	<i>Polytrichum commune</i>	common hair-cap	2 (10)	+ (+)
	<i>Dicranum undulatum</i>	wavy dicranum	2 (0)	0.1 (0)
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	2 (0)	+ (0)
	<i>Sanionia uncinata</i>	brown moss	2 (0)	+ (0)
Liverwort	<i>Ptilidium ciliare</i>	liverwort	2 (0)	+ (0)
Lichen	<b><i>Cladina mitis</i></b>	<b>reindeer lichen</b>	<b>64 (90)</b>	<b>30.3 (33.7)</b>
	<i>Cladina stellaris</i>	reindeer lichen	32 (20)	0.3 (0.3)
	<i>Cladonia sulphurina</i>		16 (50)	0.1 (0.4)
	<i>Cladonia borealis</i>	red pyxie cup lichen	14 (60)	0.1 (0.7)
	<i>Cladonia botrytes</i>		12 (50)	0.2 (1)
	<i>Cetraria nivalis</i>		10 (10)	+ (+)
	<i>Cladonia cornuta</i>		8 (20)	+ (+)
	<i>Peltigera aphthosa</i>	studded leather lichen	8 (10)	0.1 (0.2)
	<i>Cladina rangiferina</i>	reindeer lichen	6 (0)	+ (0)
	<i>Cladonia gracilis</i>	graceful pyxie cup	4 (20)	0.2 (0.8)
	<i>Peltigera neopolydactyla</i>		4 (10)	0.1 (0.2)
	<i>Cladonia cariosa</i>		4 (10)	+ (+)
	<i>Peltigera malacea</i>		4 (0)	+ (0)
	<i>Stereocaulon tomentosum</i>		4 (0)	+ (0)
	<i>Trapeliopsis granulosa</i>		2 (10)	0.2 (0.8)
	<i>Cladonia cenotea</i>		2 (10)	+ (+)
	<i>Cladonia crispata</i>		2 (10)	+ (+)
	<i>Cladonia pyxidata</i>		2 (10)	+ (+)
	<i>Tuckermannopsis pinastris</i>		2 (10)	+ (+)
		<i>Peltigera canina</i>	dog lichen	2 (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

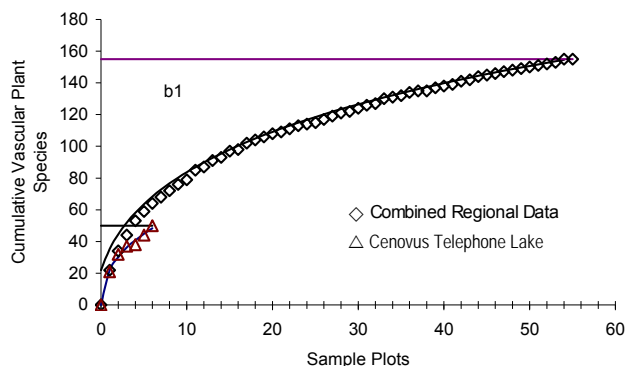
<b>Ecosite Phase</b>	b1- Jack Pine-Aspen / Blueberry
<b>Sample Plots</b>	55 (6)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>17(0)</sup> 1-5 <sup>20(1)</sup> 6-10 <sup>4(2)</sup> 11-20 <sup>3(2)</sup> 21-60 <sup>1(1)</sup>
<b>Moisture</b>	xeric <sup>18(0)</sup> subxeric <sup>12(0)</sup> submesic <sup>5(0)</sup> mesic <sup>5(0)</sup> subhygric <sup>1(1)</sup>
<b>Nutrients</b>	poor <sup>13(3)</sup> medium <sup>17(3)</sup>
<b>Arboreal Lichens</b>	nil <sup>2(0)</sup> trace <sup>7(3)</sup> low <sup>18(0)</sup> medium <sup>3(0)</sup> high <sup>1(0)</sup>
<b>Snags (stems/ha)</b>	12 [0-50] *
<b>Down Wood (logs/ha)</b>	121 [0-900] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>33(2)</sup> 6-10 <sup>2(0)</sup> 10-20 <sup>1(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>21(5)</sup> sandy-clay <sup>1(0)</sup>
<b>Seral Stage</b>	pole/sapling <sup>2(2)</sup> young <sup>7(3)</sup> midseral <sup>6(1)</sup> mature <sup>29(0)</sup>
<b>Height Class (m)</b>	5-10 <sup>1(1)</sup> 10-15 <sup>7(5)</sup> 15-20 <sup>11(0)</sup> >20 <sup>1(0)</sup>
<b>Canopy Closure</b>	O(0-5) <sup>1(1)</sup> A(6-30) <sup>8(1)</sup> B(31-50) <sup>30(3)</sup> C(51-70) <sup>12(0)</sup> D(71-100) <sup>2(0)</sup>
<b>Stand Age - BH (yr)</b>	45 [16-70] (27 [16-66])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	128 (31)	30 (20)	158 (51)
<b>Mean Species<sup>(f)</sup></b>	17.1 (12.7)	3.0 (6.7)	20.2 (19.3)
<b>Unique Species<sup>(g)</sup></b>	4 (0)	0 (0)	4 (0)
<b>Dominant Species<sup>(h)</sup></b>	14 (13)	1 (6)	15 (19)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Pinus banksiana</i></b>	<b>jack pine</b>	<b>85 (100)</b>	<b>29.1 (25.8)</b>
	<b><i>Populus tremuloides</i></b>	<b>aspen</b>	<b>80 (83)</b>	<b>30.8 (28.2)</b>
	<b><i>Betula papyrifera</i></b>	<b>white birch</b>	<b>47 (50)</b>	<b>13.8 (9.8)</b>
	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>44 (17)</b>	<b>7.2 (0.6)</b>
	<i>Picea mariana</i>	black spruce	35 (83)	4.9 (6.3)
	<i>Populus balsamifera</i>	balsam poplar	9 (0)	1.9 (0)
	<i>Larix laricina</i>	tamarack	5 (0)	0.2 (0)
Shrub	<b><i>Vaccinium myrtilloides</i></b>	<b>common blueberry</b>	<b>73 (100)</b>	<b>7.6 (6.5)</b>
	<i>Vaccinium vitis-idaea</i>	bog cranberry	64 (50)	4.4 (2.8)
	<i>Linnaea borealis</i>	twinlineer	58 (50)	2.1 (2.2)
	<i>Rosa acicularis</i>	prickly rose	55 (33)	3.7 (2.2)
	<b><i>Alnus viridis ssp. crispa</i></b>	<b>green alder</b>	<b>47 (17)</b>	<b>9.7 (1.7)</b>
	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>40 (67)</b>	<b>7.5 (0.9)</b>
	<i>Arctostaphylos uva-ursi</i>	common bearberry	40 (17)	3.3 (3.9)
	<i>Amelanchier alnifolia</i>	saskatoon	35 (17)	2.7 (2.9)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	27 (0)	1.4 (0)
	<i>Viburnum edule</i>	low-bush cranberry	25 (17)	0.6 (0.2)
	<i>Prunus pennsylvanica</i>	pin cherry	15 (17)	0.5 (0.5)
	<i>Salix bebbiana</i>	beaked willow	15 (17)	0.2 (+)
	<i>Rubus pubescens</i>	dewberry	13 (0)	0.1 (0)
	<i>Rubus idaeus</i>	wild red raspberry	9 (0)	0.4 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	9 (0)	0.1 (0)
	<i>Symphoricarpos albus</i>	snowberry	7 (0)	0.1 (0)
	<i>Salix scouleriana</i>	Scouler's willow	5 (0)	0.2 (0)
	<i>Hudsonia tomentosa</i>	sand heather	4 (0)	0.3 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	4 (0)	0.2 (0)
	<i>Salix planifolia</i>	flat-leaved willow	2 (17)	0.1 (0.5)
	<i>Andromeda polifolia</i>	bog rosemary	2 (0)	+ (0)
	<i>Betula glandulosa</i>	bog birch	2 (0)	0.3 (0)
	<i>Betula pumila</i>	dwarf birch	2 (0)	0.4 (0)
	<i>Juniperus communis</i>	ground juniper	2 (0)	0.2 (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	2 (0)	0.2 (0)
	<i>Vaccinium myrtillus</i>	low bilberry	2 (0)	0.2 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	2 (0)	0.1 (0)
	<i>Salix glauca</i>	smooth willow	2 (0)	0.1 (0)
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	2 (0)	0.1 (0)
	<i>Juniperus horizontalis</i>	creeping juniper	2 (0)	+ (0)
	<i>Prunus virginiana</i>	choke cherry	2 (0)	+ (0)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	2 (0)	+ (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	2 (0)	+ (0)
<i>Rubus arcticus</i>	dwarf raspberry	2 (0)	+ (0)	
<i>Salix discolor</i>	pussy willow	2 (0)	+ (0)	
<i>Salix pedicellaris</i>	bog willow	2 (0)	+ (0)	
<i>Vaccinium caespitosum</i>	dwarf bilberry	2 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	45 (0)	0.6 (0)
	<i>Oryzopsis pungens</i>	northern rice grass	31 (17)	0.5 (+)
	<i>Calamagrostis canadensis</i>	bluejoint	18 (33)	0.6 (0.1)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	18 (17)	0.1 (0.6)
	<i>Carex siccata</i>	hay sedge	9 (0)	0.1 (0)
	<i>Schizachne purpurascens</i>	purple oat grass	5 (0)	0.3 (0)
	<i>Carex atherodes</i>	awned sedge	4 (0)	0.2 (0)
	<i>Festuca saximontana</i>	Rocky Mountain fescue	4 (0)	0.1 (0)
	<i>Carex concinna</i>	beautiful sedge	2 (17)	0.1 (0.7)
	<i>Carex utriculata</i>	small bottle sedge	2 (0)	0.4 (0)
	<i>Phalaris arundinacea</i>	reed canary grass	2 (0)	0.3 (0)
	<i>Scolochloa festucacea</i>	spangletop	2 (0)	0.1 (0)
	<i>Carex aquatilis</i>	water sedge	2 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	2 (0)	+ (0)
	<i>Juncus balticus</i>	wire rush	2 (0)	+ (0)
	<i>Oryzopsis hymenoides</i>	Indian rice grass	2 (0)	+ (0)



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Epilobium angustifolium</i>	common fireweed	62 (83)	0.8 (1.3)
	<b><i>Cornus canadensis</i></b>	<b>bunchberry</b>	<b>60 (67)</b>	<b>5.2 (12.7)</b>
	<i>Melampyrum lineare</i>	cow-wheat	56 (67)	0.8 (0.3)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	53 (67)	2 (0.7)
	<i>Orthilia secunda</i>	one-sided wintergreen	31 (50)	0.1 (0.1)
	<i>Trientalis borealis</i>	northern starflower	29 (0)	0.5 (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	27 (0)	2.6 (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	27 (0)	+ (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	25 (0)	0.4 (0)
	<i>Galium boreale</i>	northern bedstraw	24 (0)	0.2 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	16 (17)	0.1 (0.7)
	<i>Aster ciliolatus</i>	Lindley's aster	15 (0)	0.1 (0)
	<i>Campanula rotundifolia</i>	harebell	15 (0)	+ (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	13 (0)	0.5 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	9 (17)	0.1 (0.3)
	<i>Fragaria virginiana</i>	wild strawberry	9 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	9 (0)	0.1 (0)
	<i>Solidago simplex ssp simplex</i>	mountain goldenrod	7 (17)	0.1 (+)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	7 (0)	0.3 (0)
	<i>Achillea millefolium</i>	common yarrow	7 (0)	0.1 (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	7 (0)	+ (0)
	<i>Apocynum androsaemifolium</i>	spreading dogbane	5 (0)	0.1 (0)
	<i>Scutellaria galericulata</i>	marsh skullcap	5 (0)	0.1 (0)
	<i>Senecio pauperculus</i>	balsam groundsel	5 (0)	+ (0)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	4 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	4 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	4 (0)	+ (0)
	<i>Spiranthes lacera</i>	northern slender ladies'-tresses	4 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	4 (0)	+ (0)
	<i>Viola adunca</i>	early blue violet	4 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	4 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	2 (0)	0.2 (0)
	<i>Utricularia vulgaris</i>	common bladderwort	2 (0)	0.2 (0)
	<i>Agoseris glauca</i>	yellow false dandelion	2 (0)	+ (0)
	<i>Anemone multifida</i>	cut-leaved anemone	2 (0)	+ (0)
	<i>Astragalus canadensis</i>	Canadian milk vetch	2 (0)	+ (0)
	<i>Chimaphila umbellata</i>	prince's-pine	2 (0)	+ (0)
	<i>Cicuta bulbifera</i>	bulb-bearing water-hemlock	2 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	2 (0)	+ (0)
	<i>Erigeron philadelphicus</i>	Philadelphia fleabane	2 (0)	+ (0)
	<i>Galium labradoricum</i>	Labrador bedstraw	2 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	2 (0)	+ (0)
	<i>Geum aleppicum</i>	yellow avens	2 (0)	+ (0)
	<i>Mentha arvensis</i>	wild mint	2 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	2 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	2 (0)	+ (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	2 (0)	+ (0)
	<i>Polygonum amphibium</i>	water smartweed	2 (0)	+ (0)
	<i>Potamogeton gramineus</i>	various-leaved pondweed	2 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	2 (0)	+ (0)
<i>Ranunculus sceleratus</i>	celery-leaved buttercup	2 (0)	+ (0)	
<i>Rorippa palustris</i>	marsh yellow cress	2 (0)	+ (0)	
<i>Rumex maritimus</i>	golden dock	2 (0)	+ (0)	
<i>Sium suave</i>	water parsnip	2 (0)	+ (0)	
<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	2 (0)	+ (0)	
<i>Solidago canadensis</i>	Canada goldenrod	2 (0)	+ (0)	
<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)	
<i>Stellaria longipes</i>	long-stalked chickweed	2 (0)	+ (0)	
<i>Urtica dioica</i>	common nettle	2 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Fern/Allies	<i>Diphasiastrum complanatum</i>	ground-cedar	35 (17)	0.6 (+)
	<i>Equisetum sylvaticum</i>	woodland horsetail	11 (33)	0.2 (0.4)
	<i>Lycopodium annotinum</i>	stiff club-moss	9 (0)	0.1 (0)
	<i>Equisetum arvense</i>	common horsetail	7 (0)	0.3 (0)
	<i>Lycopodium clavatum</i>	running club-moss	5 (0)	0.1 (0)
	<i>Lycopodium obscurum</i>	ground-pine	5 (0)	0.2 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	4 (0)	+ (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	2 (0)	0.1 (0)
	<i>Equisetum hyemale</i>	common scouring-rush	2 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>67 (67)</b>	<b>15.1 (0.4)</b>
	<i>Hylocomium splendens</i>	stair-step moss	44 (0)	2.3 (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	24 (17)	0.2 (0.1)
	<i>Polytrichum strictum</i>	slender hair-cap	5 (50)	1.9 (17.9)
	<i>Pohlia nutans</i>	copper wire moss	5 (33)	0.1 (0.5)
	<i>Polytrichum juniperinum</i>	juniper hair-cap	4 (33)	0.2 (1.6)
	<i>Polytrichum commune</i>	common hair-cap	4 (0)	+ (0)
	<i>Aulacomnium palustre</i>	tufted moss	2 (17)	+ (0.1)
	<i>Climacium dendroides</i>		2 (17)	+ (+)
	<i>Polytrichum piliferum</i>	awned hair-cap	2 (17)	+ (+)
	<i>Brachythecium campestre</i>		2 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	2 (0)	+ (0)
	<i>Oncophorus wahlenbergii</i>	mountain curved-back moss	2 (0)	+ (0)
	<i>Tomentypnum nitens</i>	golden moss	2 (0)	+ (0)
Lichen	<i>Cladonia mitis</i>	reindeer lichen	47 (50)	4.4 (5.4)
	<i>Cladonia sulphurina</i>		16 (83)	0.1 (0.4)
	<i>Peltigera aphthosa</i>	studded leather lichen	16 (33)	0.2 (1.1)
	<i>Cladonia stellaris</i>	reindeer lichen	11 (0)	+ (0)
	<i>Cladonia borealis</i>	red pyxie cup lichen	9 (50)	+ (0.1)
	<i>Cladonia botrytes</i>		7 (67)	0.2 (2.3)
	<i>Peltigera canina</i>	dog lichen	7 (0)	+ (0)
	<i>Cladonia crispata</i>		4 (33)	0.1 (1)
	<i>Cladonia cornuta</i>		4 (17)	0.1 (1.4)
	<i>Cladonia pyxidata</i>		4 (17)	+ (0.2)
	<i>Peltigera neopolydactyla</i>		4 (17)	+ (+)
	<i>Cladonia gracilis</i>	graceful pyxie cup	2 (17)	0.1 (1.1)
	<i>Cladonia cariosa</i>		2 (17)	+ (0.1)
	<i>Peltigera didactyla</i>		2 (17)	+ (+)
	<i>Cladonia rangiferina</i>	reindeer lichen	2 (0)	0.1 (0)
	<i>Stereocaulon tomentosum</i>		2 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

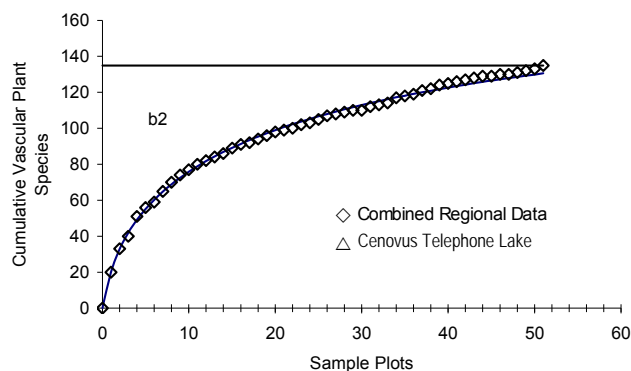
<b>Ecosite Phase</b>	b2- Aspen-Paper Birch / Blueberry
<b>Sample Plots</b>	51 (2)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>11(0)</sup> 1-5 <sup>13(1)</sup> 6-10 <sup>7(0)</sup> 11-20 <sup>3(0)</sup> 21-60 <sup>1(1)</sup>
<b>Moisture</b>	xeric <sup>1(0)</sup> subxeri11B <sup>(0)</sup> submesic11B <sup>0(2)</sup> mesic <sup>12(0)</sup>
<b>Nutrients</b>	poor <sup>8(0)</sup> medium <sup>22(2)</sup>
<b>Arboreal Lichens</b>	nil <sup>10(0)</sup> trace <sup>6(0)</sup> low <sup>8(0)</sup> medium <sup>1(1)</sup>
<b>Snags (stems/ha)</b>	74 [0-700] *
<b>Down Wood (logs/ha)</b>	192 [0-600] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>37(1)</sup> 6-10 <sup>3(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>21(2)</sup> sandy-clay <sup>1(0)</sup>
<b>Seral Stage</b>	tall shrub <sup>1(0)</sup> pole/sapling <sup>2(1)</sup> young <sup>6(0)</sup> midseral <sup>11(0)</sup> mature <sup>22(1)</sup>
<b>Height Class (m)</b>	10-15 <sup>3(1)</sup> 15-20 <sup>11(1)</sup> >20 <sup>9(0)</sup>
<b>Canopy Closure</b>	A(6-30) <sup>5(1)</sup> B(31-50) <sup>11(1)</sup> C(51-70) <sup>33(0)</sup> D(71-100) <sup>2(0)</sup>
<b>Stand Age - BH (yr)</b>	55 [36-77] (50 [50-50])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species <sup>(e)</sup></b>	95 (21)	20 (5)	115 (26)
<b>Mean Species <sup>(f)</sup></b>	17.9 (15.5)	1.8 (2.5)	19.8 (18)
<b>Unique Species <sup>(g)</sup></b>	1 (0)	1 (0)	2 (0)
<b>Dominant Species <sup>(h)</sup></b>	13 (21)	1 (5)	14 (26)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Populus tremuloides</i></b>	<b>aspen</b>	<b>96 (100)</b>	<b>58.6 (22.8)</b>
	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>59 (0)</b>	<b>10.7 (0)</b>
	<b><i>Betula papyrifera</i></b>	<b>white birch</b>	<b>45 (100)</b>	<b>9 (15)</b>
	<i>Pinus banksiana</i>	jack pine	22 (100)	1.3 (7.5)
	<i>Picea mariana</i>	black spruce	20 (50)	2.3 (0.4)
	<i>Populus balsamifera</i>	balsam poplar	12 (50)	0.1 (0.2)
	<i>Abies balsamea</i>	balsam fir	6 (0)	0.3 (0)
Shrub	<b><i>Rosa acicularis</i></b>	<b>prickly rose</b>	<b>90 (100)</b>	<b>8.9 (4.2)</b>
	<b><i>Vaccinium myrtilloides</i></b>	<b>common blueberry</b>	<b>73 (100)</b>	<b>7.9 (29.3)</b>
	<i>Linnaea borealis</i>	twinflower	67 (100)	2.4 (0.9)
	<b><i>Alnus viridis ssp crispa</i></b>	<b>green alder</b>	<b>63 (100)</b>	<b>14 (56.2)</b>
	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>63 (50)</b>	<b>9.7 (19.3)</b>
	<i>Vaccinium vitis-idaea</i>	bog cranberry	63 (50)	2.9 (0.2)
	<i>Viburnum edule</i>	low-bush cranberry	45 (0)	2.5 (0)
	<i>Rubus pubescens</i>	dewberry	35 (0)	0.4 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	33 (0)	2.6 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	31 (0)	1.7 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	22 (0)	1.1 (0)
	<i>Salix bebbiana</i>	beaked willow	22 (0)	0.4 (0)
	<i>Prunus pensylvanica</i>	pin cherry	18 (50)	1.8 (12.5)
	<i>Lonicera dioica</i>	twining honeysuckle	14 (0)	0.1 (0)
	<i>Rubus idaeus</i>	wild red raspberry	10 (0)	0.1 (0)
	<i>Symphoricarpos albus</i>	snowberry	10 (0)	0.1 (0)
	<i>Ribes triste</i>	wild red currant	8 (0)	+ (0)
	<i>Salix scouleriana</i>	Scouler's willow	6 (0)	0.5 (0)
	<i>Salix planifolia</i>	flat-leaved willow	4 (50)	0.6 (15)
	<i>Juniperus communis</i>	ground juniper	4 (0)	0.2 (0)
	<i>Vaccinium myrtillus</i>	low bilberry	2 (0)	0.2 (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	2 (0)	0.1 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	4 (0)	+ (0)
	<i>Corylus cornuta</i>	beaked hazelnut	2 (0)	+ (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	2 (0)	+ (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	2 (0)	+ (0)
	<i>Prunus virginiana</i>	choke cherry	2 (0)	+ (0)
	<i>Vaccinium caespitosum</i>	dwarf bilberry	4 (0)	+ (0)
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	45 (50)	0.3 (+)
	<i>Calamagrostis canadensis</i>	bluejoint	24 (0)	0.3 (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	22 (50)	0.1 (0.5)
	<i>Oryzopsis pungens</i>	northern rice grass	14 (0)	+ (0)
	<i>Schizachne purpurascens</i>	purple oat grass	4 (0)	0.1 (0)
	<i>Carex canescens ssp. canescens</i>	short sedge	2 (0)	+ (0)
	<i>Carex deflexa</i>	bent sedge	2 (0)	+ (0)
	<i>Carex siccata</i>	hay sedge	2 (0)	+ (0)
<i>Juncus balticus</i>	wire rush	2 (0)	+ (0)	
Forb	<i>Cornus canadensis</i>	bunchberry	69 (100)	4.9 (4.7)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	61 (100)	1.2 (1.7)
	<i>Epilobium angustifolium</i>	common fireweed	59 (100)	1.8 (1.9)
	<i>Trientalis borealis</i>	northern starflower	55 (50)	1.1 (0.2)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	45 (50)	3.6 (4.9)
	<i>Melampyrum lineare</i>	cow-wheat	35 (0)	0.1 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	29 (0)	0.3 (0)
	<i>Galium boreale</i>	northern bedstraw	29 (0)	0.1 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	27 (0)	0.2 (0)
	<i>Fragaria virginiana</i>	wild strawberry	27 (0)	0.1 (0)
	<i>Aster ciliolatus</i>	Lindley's aster	22 (0)	0.1 (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	22 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	12 (0)	+ (0)
	<i>Achillea millefolium</i>	common yarrow	10 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Geocaulon lividum</i>	northern bastard toadflax	10 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	10 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	10 (0)	+ (0)
	<i>Campanula rotundifolia</i>	harebell	8 (0)	+ (0)
	<i>Mitella nuda</i>	bishop's-cap	6 (0)	0.1 (0)
	<i>Aster conspicuus</i>	showy aster	6 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	6 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	6 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	6 (0)	+ (0)
	<i>Actaea rubra</i>	red and white baneberry	4 (0)	+ (0)
	<i>Aquilegia brevistyla</i>	blue columbine	4 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	4 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	4 (0)	+ (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	4 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	4 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	4 (0)	+ (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	2 (0)	0.3 (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	2 (0)	0.1 (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	2 (0)	0.1 (0)
	<i>Anemone multifida</i>	cut-leaved anemone	2 (0)	+ (0)
	<i>Coptis trifolia</i>	goldthread	2 (0)	+ (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	2 (0)	+ (0)
	<i>Fragaria vesca</i>	woodland strawberry	2 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	2 (0)	+ (0)
	<i>Senecio pauperculus</i>	balsam groundsel	2 (0)	+ (0)
	<i>Spiranthes lacera</i>	northern slender ladies'-tresses	2 (0)	+ (0)
<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	2 (0)	+ (0)	
<i>Viola adunca</i>	early blue violet	2 (0)	+ (0)	
Fern/Allies	<i>Lycopodium annotinum</i>	stiff club-moss	33 (50)	3.5 (19.8)
	<i>Lycopodium obscurum</i>	ground-pine	22 (0)	0.1 (0)
	<i>Diphasiastrum complanatum</i>	ground-cedar	18 (0)	0.2 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	12 (0)	0.1 (0)
	<i>Equisetum arvense</i>	common horsetail	4 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	4 (0)	+ (0)
	<i>Lycopodium clavatum</i>	running club-moss	4 (0)	+ (0)
	<i>Equisetum hyemale</i>	common scouring-rush	2 (0)	+ (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	2 (0)	+ (0)
Moss	<i>Pleurozium schreberi</i>	Schreber's moss	59 (50)	3.3 (18.5)
	<i>Hylocomium splendens</i>	stair-step moss	47 (50)	1.4 (0.2)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	22 (0)	0.1 (0)
	<i>Polytrichum strictum</i>	slender hair-cap	2 (50)	+ (0.2)
	<i>Aulacomnium palustre</i>	tufted moss	2 (0)	+ (0)
	<i>Brachythecium velutinum</i>		2 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	2 (0)	+ (0)
	<i>Dicranum spadiceum</i>	cushion moss	2 (0)	+ (0)
	<i>Polytrichum juniperinum</i>	juniper hair-cap	2 (0)	+ (0)
Lichen	<i>Cladina mitis</i>	reindeer lichen	12 (0)	1.8 (0)
	<i>Peltigera aphthosa</i>	studded leather lichen	10 (0)	0.1 (0)
	<i>Cladonia pyxidata</i>		4 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		4 (0)	+ (0)
	<i>Stereocaulon tomentosum</i>		4 (0)	+ (0)
	<i>Cladonia botrytes</i>		2 (50)	+ (0.2)
	<i>Cladonia sulphurina</i>		2 (50)	+ (0.2)
	<i>Cetraria nivalis</i>		2 (0)	+ (0)
	<i>Cladina stellaris</i>	reindeer lichen	2 (0)	+ (0)
	<i>Peltigera canina</i>	dog lichen	2 (0)	+ (0)
<i>Peltigera malacea</i>		2 (0)	+ (0)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

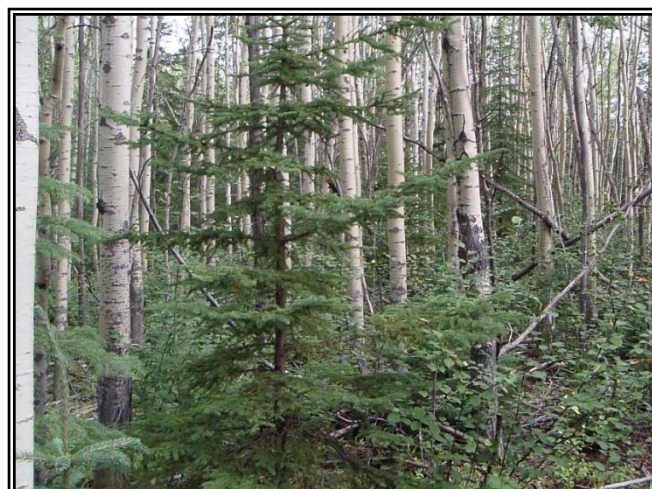
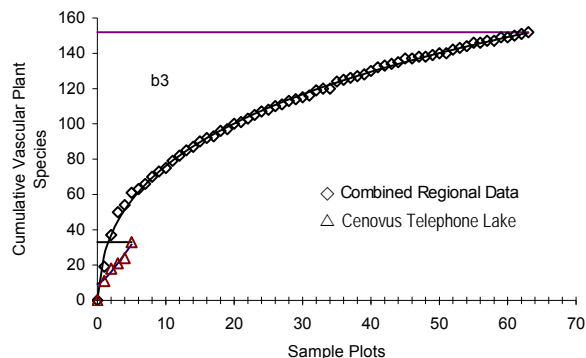
<b>Ecosite Phase</b>	b3- Aspen-White Spruce / Blueberry
<b>Sample Plots</b>	65 (5)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>1(0)</sup> 1-5 <sup>20(0)</sup> 6-10 <sup>7(2)</sup> 11-20 <sup>5(0)</sup> 21-60 <sup>3(0)</sup> 60 <sup>1(0)</sup>
<b>Moisture</b>	subxeric <sup>1(0)</sup> submesic <sup>15(4)</sup> mesic <sup>18(1)</sup> subhygric <sup>3(0)</sup> hygri11B <sup>(0)</sup> subhydric <sup>1(0)</sup>
<b>Nutrients</b>	poor <sup>5(0)</sup> medium <sup>24(5)</sup> rich <sup>1(0)</sup>
<b>Arboreal Lichens</b>	nil <sup>2(0)</sup> trace <sup>10(0)</sup> low <sup>16(1)</sup> medium <sup>6(2)</sup> high <sup>2(1)</sup>
<b>Snags (stems/ha)</b>	107 [0-600] *
<b>Down Wood (logs/ha)</b>	310 [25-1100] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>36(0)</sup> 6-10 <sup>6(0)</sup> 10-20 <sup>1(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>20(5)</sup>
<b>Seral Stage</b>	pole/sapling <sup>1(1)</sup> young <sup>7(0)</sup> midseral <sup>10(3)</sup> mature <sup>27(1)</sup>
<b>Height Class (m)</b>	10-15 <sup>6(1)</sup> 15-20 <sup>5(1)</sup> >20 <sup>11(0)</sup>
<b>Canopy Closure</b>	O(0-5) <sup>2(1)</sup> A(6-30) <sup>12(2)</sup> B(31-50) <sup>27(2)</sup> C(51-70) <sup>19(0)</sup> D(71-100) <sup>2(0)</sup>
<b>Stand Age - BH (yr)</b>	49 [14-68] (41 [14-58])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	123 (23)	30 (15)	153 (38)
<b>Mean Species<sup>(f)</sup></b>	16.5 (10)	2.6 (5.2)	19 (15.2)
<b>Unique Species<sup>(g)</sup></b>	1 (0)	1 (1)	2 (1)
<b>Dominant Species<sup>(h)</sup></b>	10 (9)	2 (4)	12 (13)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Populus tremuloides</i></b>	<b>aspen</b>	<b>85 (80)</b>	<b>37 (27.8)</b>
	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>72 (0)</b>	<b>22.2 (0)</b>
	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>45 (100)</b>	<b>21.7 (25.9)</b>
	<i>Betula papyrifera</i>	white birch	45 (80)	4.3 (11)
	<i>Pinus banksiana</i>	jack pine	26 (60)	2.1 (6)
	<i>Populus balsamifera</i>	balsam poplar	14 (0)	0.8 (0)
	<i>Larix laricina</i>	tamarack	5 (0)	0.7 (0)
	<i>Betula occidentalis</i>	water birch	2 (20)	+ (0.5)
	<i>Abies balsamea</i>	balsam fir	2 (0)	0.9 (0)
Shrub	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>75 (80)</b>	<b>16.2 (21)</b>
	<i>Rosa acicularis</i>	prickly rose	68 (20)	4.4 (1)
	<i>Vaccinium myrtilloides</i>	common blueberry	58 (80)	4.6 (6.2)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	55 (60)	1.8 (0.2)
	<i>Linnaea borealis</i>	twinline	52 (40)	1.3 (0.6)
	<i>Viburnum edule</i>	low-bush cranberry	40 (0)	0.9 (0)
	<i>Alnus viridis ssp crispa</i>	green alder	35 (0)	4.7 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	35 (0)	1.1 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	26 (0)	0.3 (0)
	<i>Salix bebbiana</i>	beaked willow	20 (20)	0.7 (0.7)
	<i>Rubus pubescens</i>	dewberry	18 (0)	0.2 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	15 (0)	0.6 (0)
	<i>Salix scouleriana</i>	Scouler's willow	11 (0)	0.4 (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	9 (20)	0.4 (3)
	<i>Lonicera caerulea</i>	fly honeysuckle	8 (0)	0.1 (0)
	<i>Salix myrtillofolia</i>	myrtle-leaved willow	6 (0)	0.2 (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	6 (0)	0.1 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	6 (0)	+ (0)
	<i>Salix planifolia</i>	flat-leaved willow	5 (20)	0.2 (1.6)
	<i>Prunus pensylvanica</i>	pin cherry	5 (20)	0.1 (+)
	<i>Ribes triste</i>	wild red currant	5 (0)	+ (0)
	<i>Symphoricarpos albus</i>	snowberry	5 (0)	+ (0)
	<i>Vaccinium caespitosum</i>	dwarf bilberry	5 (0)	+ (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	5 (0)	0.1 (0)
	<i>Salix discolor</i>	pussy willow	3 (20)	0.1 (0.7)
	<i>Salix glauca</i>	smooth willow	3 (0)	0.1 (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	3 (0)	+ (0)
	<i>Ribes lacustre</i>	bristly black currant	3 (0)	+ (0)
	<i>Rubus arcticus</i>	dwarf raspberry	3 (0)	+ (0)
	<i>Salix arbusculoides</i>	shrubby willow	2 (20)	+ (0.5)
	<i>Chamaedaphne calyculata</i>	leatherleaf	2 (0)	0.2 (0)
	<i>Vaccinium myrtilloides</i>	low bilberry	2 (0)	0.2 (0)
	<i>Betula pumila</i>	dwarf birch	2 (0)	0.4 (0)
	<i>Betula glandulosa</i>	bog birch	2 (0)	0.1 (0)
	<i>Andromeda polifolia</i>	bog rosemary	2 (0)	+ (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	2 (0)	+ (0)
<i>Cornus stolonifera</i>	red-osier dogwood	2 (0)	+ (0)	
<i>Kalmia polifolia</i>	northern laurel	2 (0)	+ (0)	
<i>Oxycoccus quadripetalus</i>	large bog cranberry	2 (0)	+ (0)	
<i>Rubus chamaemorus</i>	cloudberry	2 (0)	+ (0)	
<i>Salix lucida</i>	shining willow	2 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	42 (0)	0.5 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	18 (0)	0.2 (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	14 (20)	0.1 (+)
	<i>Oryzopsis pungens</i>	northern rice grass	9 (0)	0.1 (0)
	<i>Carex aquatilis</i>	water sedge	3 (0)	+ (0)
	<i>Carex canescens ssp. canescens</i>	short sedge	2 (0)	+ (0)
	<i>Carex concinna</i>	beautiful sedge	3 (0)	+ (0)
	<i>Carex diandra</i>	two-stamened sedge	2 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Carex disperma</i>	two-seeded sedge	3 (0)	+ (0)
	<i>Carex gynocrates</i>	northern bog sedge	3 (0)	+ (0)
	<i>Carex vaginata</i>	sheathed sedge	2 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	3 (0)	+ (0)
	<i>Oryzopsis hymenoides</i>	Indian rice grass	2 (0)	+ (0)
Forb	<b><i>Cornus canadensis</i></b>	<b>bunchberry</b>	<b>60 (100)</b>	<b>6.7 (4.2)</b>
	<i>Epilobium angustifolium</i>	common fireweed	52 (60)	1.3 (0.1)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	40 (0)	0.6 (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	38 (0)	0.6 (0)
	<i>Trientalis borealis</i>	northern starflower	37 (0)	0.3 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	29 (0)	0.1 (0)
	<i>Melampyrum lineare</i>	cow-wheat	26 (20)	0.2 (+)
	<i>Aster ciliolatus</i>	Lindley's aster	23 (0)	0.1 (0)
	<i>Fragaria virginiana</i>	wild strawberry	20 (0)	0.1 (0)
	<i>Galium boreale</i>	northern bedstraw	20 (0)	0.1 (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	14 (0)	+ (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	12 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	12 (0)	+ (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	11 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	11 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	11 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	8 (0)	+ (0)
	<i>Mitella nuda</i>	bishop's-cap	8 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	6 (0)	+ (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	5 (0)	0.1 (0)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	5 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	5 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	5 (0)	+ (0)
	<i>Coptis trifolia</i>	goldthread	3 (20)	+ (+)
	<i>Mertensia paniculata</i>	tall lungwort	3 (0)	0.1 (0)
	<i>Actaea rubra</i>	red and white baneberry	3 (0)	+ (0)
	<i>Aquilegia brevistyla</i>	blue columbine	3 (0)	+ (0)
	<i>Campanula rotundifolia</i>	harebell	3 (0)	+ (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	3 (0)	+ (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	3 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	3 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	3 (0)	+ (0)
	<i>Viola palustris</i>	marsh violet	3 (0)	+ (0)
	<i>Apocynum androsaemifolium</i>	spreading dogbane	2 (0)	0.1 (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	2 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	2 (0)	+ (0)
	<i>Caltha palustris</i>	marsh-marigold	2 (0)	+ (0)
	<i>Calypso bulbosa</i>	Venus'-slipper	2 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	2 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	2 (0)	+ (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	2 (0)	+ (0)
	<i>Cypripedium parviflorum var pubescens</i>	large yellow lady's-slipper	2 (0)	+ (0)
	<i>Drosera rotundifolia</i>	round-leaved sundew	2 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	2 (0)	+ (0)
	<i>Senecio pauperculus</i>	balsam groundsel	2 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)
	<i>Solidago simplex ssp simplex</i>	mountain goldenrod	2 (0)	+ (0)
<i>Spiranthes lacera</i>	northern slender ladies'-tresses	2 (0)	+ (0)	
<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	2 (0)	+ (0)	
<i>Viola adunca</i>	early blue violet	2 (0)	+ (0)	
Fern/Allies	<i>Diphasiastrum complanatum</i>	ground-cedar	26 (0)	0.8 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	23 (20)	0.2 (0.1)
	<i>Lycopodium obscurum</i>	ground-pine	22 (0)	0.3 (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	18 (0)	1.5 (0)



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Fern/Allies	<i>Equisetum arvense</i>	common horsetail	15 (0)	0.1 (0)
	<i>Lycopodium clavatum</i>	running club-moss	8 (20)	+ (0.1)
	<i>Equisetum pratense</i>	meadow horsetail	8 (0)	+ (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	3 (0)	+ (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	2 (0)	+ (0)
	<i>Equisetum variegatum</i>	variegated horsetail	2 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>60 (100)</b>	<b>18.8 (48.9)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>49 (40)</b>	<b>9.1 (5.6)</b>
	<i>Ptilium crista-castrensis</i>	knight's plume moss	26 (40)	1.3 (4.1)
	<i>Polytrichum strictum</i>	slender hair-cap	3 (40)	+ (0.1)
	<i>Tomentypnum nitens</i>	golden moss	3 (0)	1.2 (0)
	<i>Calliergon giganteum</i>		3 (0)	0.1 (0)
	<i>Brachythecium velutinum</i>		3 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	3 (0)	+ (0)
	<i>Dicranum undulatum</i>	wavy dicranum	2 (20)	+ (0.1)
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	2 (20)	+ (+)
	<i>Dicranum scoparium</i>	broom moss	2 (0)	+ (0)
	<i>Plagiomnium cuspidatum</i>		2 (0)	+ (0)
Lichen	<i>Cladina mitis</i>	reindeer lichen	32 (60)	2.5 (1.9)
	<i>Peltigera aphthosa</i>	studded leather lichen	28 (60)	0.1 (0.1)
	<i>Cladonia sulphurina</i>		9 (0)	+ (0)
	<i>Peltigera canina</i>	dog lichen	6 (0)	0.1 (0)
	<i>Cladonia cornuta</i>		5 (20)	+ (0.1)
	<i>Peltigera neopolydactyla</i>		3 (0)	+ (0)
	<i>Evernia mesomorpha</i>		2 (20)	+ (+)
	<i>Lecanora circumborealis</i>		2 (20)	+ (+)
	<i>Stereocaulon tomentosum</i>		2 (20)	+ (+)
	<i>Tuckermannopsis americana</i>		2 (20)	+ (+)
	<i>Usnea hirta</i>	old man's beard	2 (20)	+ (+)
	<i>Cladina stellaris</i>	reindeer lichen	2 (0)	+ (0)
	<i>Cladonia borealis</i>	red pyxie cup lichen	2 (0)	+ (0)
	<i>Cladonia cariota</i>		2 (0)	+ (0)
	<i>Cladonia gracilis</i>	graceful pyxie cup	2 (0)	+ (0)
	<i>Icmadophila ericetorum</i>		2 (0)	+ (0)
	<i>Melanelia trabeculata</i>		2 (0)	+ (0)
<i>Peltigera malacea</i>		2 (0)	+ (0)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

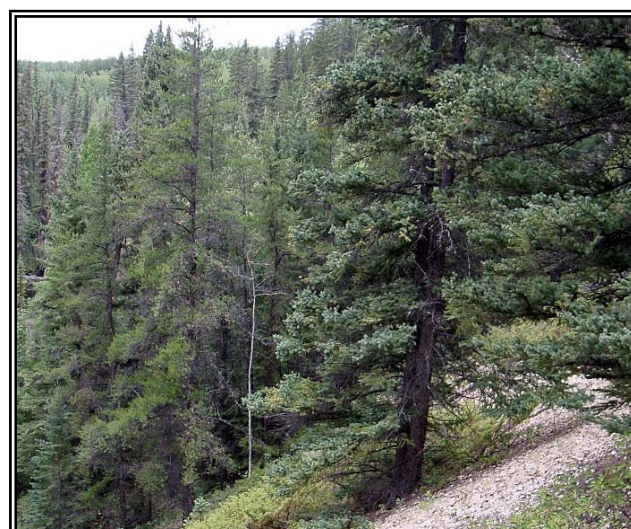
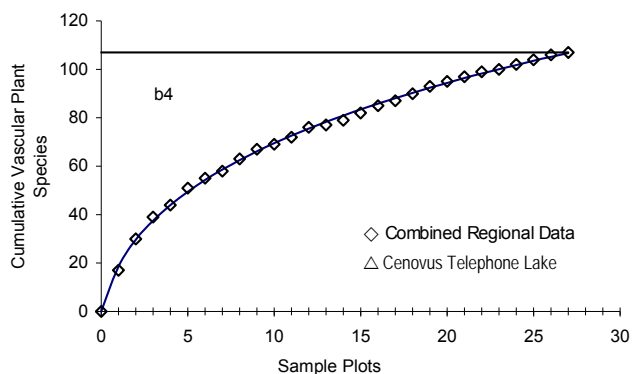
<b>Ecosite Phase</b>	b4- Jack Pine-White Spruce / Blueberry
<b>Sample Plots</b>	27 (1)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>18(0)</sup> 1-5 <sup>9(0)</sup> 11-20 <sup>1(0)</sup>
<b>Moisture</b>	xeric <sup>1(0)</sup> subxeric <sup>5(0)</sup> submesic <sup>6(1)</sup> mesic <sup>5(0)</sup>
<b>Nutrients</b>	poor <sup>3(0)</sup> medium <sup>7(1)</sup>
<b>Arboreal Lichens</b>	trace <sup>5(1)</sup> low <sup>3(0)</sup> medium <sup>5(0)</sup> high <sup>2(0)</sup>
<b>Snags (stems/ha)</b>	54 [0-125] *
<b>Down Wood (logs/ha)</b>	267 [50-700] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>17(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>7(1)</sup>
<b>Seral Stage</b>	young <sup>2(0)</sup> midseral <sup>4(1)</sup> mature <sup>12(0)</sup>
<b>Height Class (m)</b>	15-20 <sup>3(1)</sup> >20 <sup>7(0)</sup>
<b>Canopy Closure</b>	A(6-30) <sup>7(1)</sup> B(31-50) <sup>16(0)</sup> C(51-70) <sup>4(0)</sup>
<b>Stand Age - BH (yr)</b>	67 [43-98] (43 [43-43])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	71 (12)	16 (1)	87 (13)
<b>Mean Species<sup>(f)</sup></b>	12.4 (12)	2.2 (1)	14.6 (13)
<b>Unique Species<sup>(g)</sup></b>	0 (0)	0 (0)	0 (0)
<b>Dominant Species<sup>(h)</sup></b>	8 (12)	2 (1)	10 (13)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLISA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Pinus banksiana</i>	jack pine	78 (100)	19.7 (35)
	<i>Picea glauca</i>	white spruce	78 (0)	41.1 (0)
	<i>Populus tremuloides</i>	aspen	52 (0)	5.9 (0)
	<i>Betula papyrifera</i>	white birch	30 (0)	2 (0)
	<i>Populus balsamifera</i>	balsam poplar	11 (0)	0.2 (0)
	<i>Picea mariana</i>	black spruce	7 (100)	0.5 (5)
Shrub	<i>Rosa acicularis</i>	prickly rose	59 (0)	6.1 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	52 (100)	4 (33.5)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	44 (100)	4.1 (9.2)
	<i>Alnus viridis ssp crispa</i>	green alder	41 (0)	6.7 (0)
	<i>Ledum groenlandicum</i>	common Labrador tea	37 (100)	5.2 (0.7)
	<i>Linnaea borealis</i>	twinflower	37 (100)	0.5 (0.3)
	<i>Viburnum edule</i>	low-bush cranberry	33 (0)	0.4 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	30 (0)	0.7 (0)
	<i>Rubus pubescens</i>	dewberry	26 (0)	0.2 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	22 (0)	3.3 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	22 (0)	0.7 (0)
	<i>Salix bebbiana</i>	beaked willow	11 (100)	0.3 (2)
	<i>Vaccinium myrtillus</i>	low bilberry	7 (0)	3.5 (0)
	<i>Salix scouleriana</i>	Scouler's willow	7 (0)	0.9 (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	7 (0)	0.2 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	7 (0)	0.1 (0)
	<i>Juniperus communis</i>	ground juniper	4 (0)	0.2 (0)
	<i>Salix discolor</i>	pussy willow	4 (0)	0.2 (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	4 (0)	0.1 (0)
	<i>Rubus idaeus</i>	wild red raspberry	4 (0)	0.1 (0)
<i>Lonicera dioica</i>	twining honeysuckle	4 (0)	+ (0)	
<i>Ribes triste</i>	wild red currant	4 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	26 (0)	0.2 (0)
	<i>Oryzopsis pungens</i>	northern rice grass	19 (0)	0.3 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	15 (0)	0.2 (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	11 (100)	+ (+)
	<i>Schizachne purpurascens</i>	purple oat grass	7 (0)	0.3 (0)
	<i>Elymus lanceolatus</i>	northern wheat grass	4 (0)	+ (0)
Forb	<i>Cornus canadensis</i>	bunchberry	52 (100)	3.4 (8.7)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	33 (100)	0.8 (1)
	<i>Epilobium angustifolium</i>	common fireweed	33 (0)	0.5 (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	30 (0)	0.7 (0)
	<i>Trientalis borealis</i>	northern starflower	30 (0)	0.3 (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	26 (0)	0.2 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	26 (0)	+ (0)
	<i>Galium boreale</i>	northern bedstraw	15 (0)	0.2 (0)
	<i>Fragaria virginiana</i>	wild strawberry	19 (0)	0.1 (0)
	<i>Campanula rotundifolia</i>	harebell	19 (100)	+ (+)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	11 (100)	0.1 (+)
	<i>Aster ciliolatus</i>	Lindley's aster	11 (0)	0.2 (0)
	<i>Melampyrum lineare</i>	cow-wheat	7 (0)	0.3 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	7 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	7 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	7 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	7 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	4 (0)	0.3 (0)
	<i>Aster laevis</i>	smooth aster	4 (0)	0.1 (0)
	<i>Actaea rubra</i>	red and white baneberry	4 (0)	+ (0)
	<i>Anemone multifida</i>	cut-leaved anemone	4 (0)	+ (0)
	<i>Fragaria vesca</i>	woodland strawberry	4 (0)	+ (0)
	<i>Gentianella amarella</i>	felwort	4 (0)	+ (0)
<i>Lilium philadelphicum</i>	western wood lily	4 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Mitella nuda</i>	bishop's-cap	4 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	4 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	4 (0)	+ (0)
	<i>Saxifraga tricuspidata</i>	three-toothed saxifrage	4 (0)	+ (0)
	<i>Solidago canadensis</i>	Canada goldenrod	4 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	4 (0)	+ (0)
	<i>Spiranthes lacera</i>	northern slender ladies'-tresses	4 (0)	+ (0)
Fern/Allies	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	4 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	15 (0)	1.8 (0)
	<i>Diphasiastrum complanatum</i>	ground-cedar	15 (0)	1.3 (0)
	<i>Equisetum pratense</i>	meadow horsetail	7 (0)	+ (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	4 (0)	+ (0)
Moss	<i>Lycopodium obscurum</i>	ground-pine	4 (0)	+ (0)
	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>56 (100)</b>	<b>24.2 (1.5)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>37 (0)</b>	<b>7.5 (0)</b>
	<i>Brachythecium velutinum</i>		4 (0)	+ (0)
	<i>Dicranum fragilifolium</i>	cushion moss	4 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	4 (0)	+ (0)
	<i>Polytrichum juniperinum</i>	juniper hair-cap	4 (0)	+ (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	30 (0)	2.9 (0)
Liverwort	<i>Pylaisiella polyantha</i>		4 (0)	+ (0)
	<i>Jamesoniella autumnalis</i>	liverwort	4 (0)	+ (0)
Lichen	<i>Ptilidium pulcherrimum</i>	liverwort	4 (0)	+ (0)
	<i>Cladina mitis</i>	reindeer lichen	26 (0)	2.5 (0)
	<i>Peltigera aphthosa</i>	studded leather lichen	11 (0)	0.1 (0)
	<i>Peltigera canina</i>	dog lichen	11 (0)	0.1 (0)
	<i>Cladina stellaris</i>	reindeer lichen	11 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		7 (0)	+ (0)
	<i>Cladonia sulphurina</i>		4 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

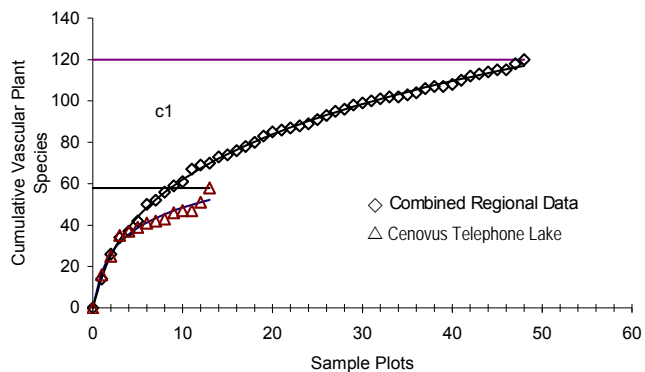
<b>Ecosite Phase</b>	c1- Jack Pine-Black Spruce / Labrador Tea
<b>Sample Plots</b>	48 (13)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>12(1)</sup> 1-5 <sup>12(0)</sup> 6-10 <sup>3(0)</sup> 11-20 <sup>1(1)</sup>
<b>Moisture</b>	xeric <sup>1(0)</sup> subxeric <sup>5(1)</sup> submesic <sup>9(3)</sup> mesic <sup>16(8)</sup> subhygic <sup>1(0)</sup> hygri <sup>11(1)</sup> B <sup>1(0)</sup> subhygic <sup>1(0)</sup>
<b>Nutrients</b>	poor <sup>27(12)</sup> medium <sup>6(1)</sup>
<b>Arboreal Lichens</b>	trace <sup>6(0)</sup> low <sup>14(2)</sup> medium <sup>9(8)</sup> high <sup>8(0)</sup>
<b>Snags (stems/ha)</b>	20 [0-50] *
<b>Down Wood (logs/ha)</b>	55 [0-125] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>19(1)</sup> 6-10 <sup>5(2)</sup> 10-20 <sup>3(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>24(12)</sup> sandy-clay <sup>1(0)</sup> muck <sup>1(0)</sup>
<b>Seral Stage</b>	pole/sapling <sup>2(1)</sup> young <sup>2(0)</sup> midseral <sup>14(4)</sup> mature <sup>20(6)</sup> old-growth <sup>1(1)</sup>
<b>Height Class (m)</b>	2-5 <sup>1(1)</sup> 5-10 <sup>1(0)</sup> 10-15 <sup>11(5)</sup> 15-20 <sup>10(4)</sup> >20 <sup>4(3)</sup>
<b>Canopy Closure</b>	O(0-5) <sup>1(0)</sup> A(6-30) <sup>16(6)</sup> B(31-50) <sup>20(5)</sup> C(51-70) <sup>9(0)</sup>
<b>Stand Age - BH (yr)</b>	57 [20-102] (59 [20-102])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	97 (36)	27 (23)	124 (59)
<b>Mean Species<sup>(f)</sup></b>	12.3 (11.2)	3.8 (6.5)	16.1 (17.7)
<b>Unique Species<sup>(g)</sup></b>	0 (0)	0 (1)	0 (1)
<b>Dominant Species<sup>(h)</sup></b>	7 (7)	3 (3)	10 (10)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Pinus banksiana</i>	jack pine	92 (100)	27.7 (22.1)
	<i>Picea mariana</i>	black spruce	88 (100)	40.6 (40)
	<i>Populus tremuloides</i>	aspen	38 (15)	2.7 (1.2)
	<i>Betula papyrifera</i>	white birch	21 (38)	0.6 (2.1)
	<i>Picea glauca</i>	white spruce	13 (0)	1.2 (0)
	<i>Populus balsamifera</i>	balsam poplar	6 (0)	0.2 (0)
	<i>Larix laricina</i>	tamarack	2 (0)	0.1 (0)
Shrub	<i>Ledum groenlandicum</i>	common Labrador tea	77 (92)	18 (14)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	75 (92)	3.2 (3.9)
	<i>Vaccinium myrtilloides</i>	common blueberry	75 (100)	10.1 (18.6)
	<i>Rosa acicularis</i>	prickly rose	52 (46)	2.3 (0.4)
	<i>Linnaea borealis</i>	twinflower	35 (23)	0.6 (0.1)
	<i>Salix bebbiana</i>	beaked willow	31 (38)	1.2 (3)
	<i>Alnus viridis ssp crisper</i>	green alder	29 (23)	2.3 (2.9)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	19 (0)	0.5 (0)
	<i>Salix scouleriana</i>	Scouler's willow	17 (15)	0.5 (1.5)
	<i>Amelanchier alnifolia</i>	saskatoon	17 (0)	0.1 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	13 (8)	0.5 (1.2)
	<i>Salix myrtilifolia</i>	myrtle-leaved willow	10 (0)	+ (0)
	<i>Betula pumila</i>	dwarf birch	6 (8)	0.2 (0.4)
	<i>Lonicera caerulea</i>	fly honeysuckle	6 (0)	0.2 (0)
	<i>Viburnum edule</i>	low-bush cranberry	6 (0)	0.1 (0)
	<i>Symphoricarpos albus</i>	snowberry	6 (0)	+ (0)
	<i>Salix arbusculoides</i>	shrubby willow	4 (15)	+ (0.1)
	<i>Kalmia polifolia</i>	northern laurel	4 (8)	+ (+)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	4 (0)	0.2 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	4 (0)	+ (0)
	<i>Prunus pensylvanica</i>	pin cherry	4 (0)	+ (0)
	<i>Rubus pubescens</i>	dewberry	4 (0)	+ (0)
	<i>Andromeda polifolia</i>	bog rosemary	2 (8)	0.4 (1.3)
	<i>Salix planifolia</i>	flat-leaved willow	2 (8)	0.2 (0.8)
	<i>Salix lucida</i>	shining willow	2 (8)	0.1 (0.2)
	<i>Alnus incana ssp tenuifolia</i>	river alder	2 (8)	0.1 (0.5)
	<i>Juniperus horizontalis</i>	creeping juniper	2 (0)	0.1 (0)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	2 (0)	0.1 (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	2 (0)	+ (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	2 (0)	+ (0)
<i>Ribes lacustre</i>	bristly black currant	2 (0)	+ (0)	
<i>Salix glauca</i>	smooth willow	2 (0)	+ (0)	
<i>Symphoricarpos occidentalis</i>	buckbrush	2 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	23 (0)	0.2 (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	21 (46)	0.2 (0.1)
	<i>Calamagrostis canadensis</i>	bluejoint	8 (0)	0.3 (0)
	<i>Oryzopsis pungens</i>	northern rice grass	6 (8)	0.1 (0.3)
	<i>Carex siccata</i>	hay sedge	2 (8)	+ (0.1)
	<i>Carex atherodes</i>	awned sedge	2 (0)	0.2 (0)
	<i>Carex utriculata</i>	small bottle sedge	2 (0)	0.3 (0)
	<i>Carex concinna</i>	beautiful sedge	2 (0)	+ (0)
	<i>Carex vaginata</i>	sheathed sedge	2 (0)	+ (0)
	<i>Schizachne purpurascens</i>	purple oat grass	2 (0)	+ (0)
Forb	<i>Cornus canadensis</i>	bunchberry	67 (85)	3.8 (2.1)
	<i>Epilobium angustifolium</i>	common fireweed	40 (54)	0.3 (0.1)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	31 (46)	0.4 (0.4)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	15 (8)	0.3 (+)
	<i>Aster ciliolatus</i>	Lindley's aster	15 (0)	0.3 (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	13 (15)	+ (+)
	<i>Melampyrum lineare</i>	cow-wheat	13 (8)	+ (+)
	<i>Fragaria virginiana</i>	wild strawberry	13 (0)	0.2 (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Galium boreale</i>	northern bedstraw	13 (0)	0.1 (0)
	<i>Geocalon lividum</i>	northern bastard toadflax	10 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	8 (0)	0.1 (0)
	<i>Mitella nuda</i>	bishop's-cap	6 (0)	0.1 (0)
	<i>Campanula rotundifolia</i>	harebell	6 (8)	+ (+)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	6 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	4 (8)	+ (+)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	4 (0)	+ (0)
	<i>Coptis trifolia</i>	goldthread	2 (8)	+ (+)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	2 (0)	0.1 (0)
	<i>Acorus americanus</i>	sweet flag	2 (0)	+ (0)
	<i>Cicuta maculata</i>	water-hemlock	2 (0)	+ (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	2 (0)	+ (0)
	<i>Galium labradoricum</i>	Labrador bedstraw	2 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	2 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	2 (0)	+ (0)
	<i>Lemna minor</i>	common duckweed	2 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	2 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	2 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	2 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	2 (0)	+ (0)
	<i>Polygonum amphibium</i>	water smartweed	2 (0)	+ (0)
	<i>Potamogeton gramineus</i>	various-leaved pondweed	2 (0)	+ (0)
	<i>Potentilla norvegica</i>	rough cinquefoil	2 (0)	+ (0)
	<i>Rorippa palustris</i>	marsh yellow cress	2 (0)	+ (0)
	<i>Solidago canadensis</i>	Canada goldenrod	2 (0)	+ (0)
<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)	
<i>Utricularia intermedia</i>	flat-leaved bladderwort	2 (0)	+ (0)	
<i>Utricularia minor</i>	small bladderwort	2 (0)	+ (0)	
<i>Viola renifolia</i>	kidney-leaved violet	2 (0)	+ (0)	
Fern/Allies	<i>Equisetum sylvaticum</i>	woodland horsetail	21 (31)	0.1 (+)
	<i>Lycopodium annotinum</i>	stiff club-moss	15 (23)	0.1 (0.1)
	<i>Equisetum arvense</i>	common horsetail	15 (0)	0.1 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	4 (0)	+ (0)
	<i>Diphasiastrum complanatum</i>	ground-cedar	2 (8)	+ (0.1)
	<i>Lycopodium obscurum</i>	ground-pine	2 (8)	+ (+)
	<i>Equisetum fluviatile</i>	swamp horsetail	2 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	2 (0)	+ (0)
<i>Lycopodium clavatum</i>	running club-moss	2 (0)	+ (0)	
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>77 (92)</b>	<b>35.9 (42.1)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>31 (8)</b>	<b>7.6 (2.1)</b>
	<i>Ptilium crista-castrensis</i>	knight's plume moss	29 (8)	2 (+)
	<i>Dicranum undulatum</i>	wavy dicranum	15 (38)	0.1 (0.3)
	<i>Polytrichum strictum</i>	slender hair-cap	10 (38)	0.2 (0.6)
	<i>Dicranum polysetum</i>	wavy dicranum	4 (8)	0.1 (0.2)
	<i>Aulacomnium palustre</i>	tufted moss	2 (8)	+ (+)
	<i>Polytrichum commune</i>	common hair-cap	2 (0)	+ (0)
Liverwort	<i>Ptilidium ciliare</i>	liverwort	2 (8)	+ (+)
Lichen	<b><i>Cladonia mitis</i></b>	<b>reindeer lichen</b>	<b>71 (100)</b>	<b>13 (21.2)</b>
	<i>Cladonia sulphurina</i>		27 (85)	0.1 (0.3)
	<i>Peltigera aphthosa</i>	studded leather lichen	27 (46)	0.4 (0.9)
	<i>Cladonia stellaris</i>	reindeer lichen	23 (46)	0.2 (0.8)
	<i>Cladonia borealis</i>	red pyxie cup lichen	10 (38)	+ (0.1)
	<i>Cladonia botrytes</i>		8 (31)	+ (0.2)
	<i>Cladonia cornuta</i>		8 (23)	+ (+)
	<i>Cladonia rangiferina</i>	reindeer lichen	6 (8)	0.4 (+)
	<i>Peltigera canina</i>	dog lichen	6 (0)	0.3 (0)
	<i>Cetraria nivalis</i>		4 (15)	+ (+)
<i>Peltigera neopolydactyla</i>		4 (8)	+ (+)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Lichen	<i>Peltigera didactyla</i>		2 (8)	0.1 (0.3)
	<i>Bryoria fuscescens</i>	old man's beard	2 (8)	+ (+)
	<i>Parmelia sulcata</i>		2 (8)	+ (+)
	<i>Tuckermannopsis americana</i>		2 (8)	+ (+)
	<i>Usnea hirta</i>	old man's beard	2 (8)	+ (+)
	<i>Cladonia crispata</i>		2 (0)	+ (0)
	<i>Cladonia pyxidata</i>		2 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).



### Comparison of Regional and Project Vegetation Data

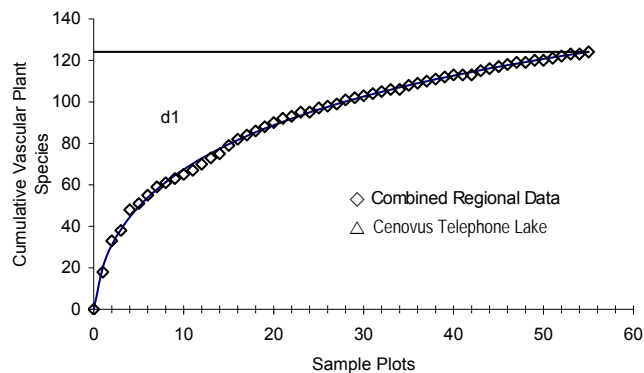
<b>Ecosite Phase</b>	d1- Aspen - Low Bush Cranberry
<b>Sample Plots</b>	55 (4)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>17(0)</sup> 1-5 <sup>19(1)</sup> 6-10 <sup>1(0)</sup> 11-20 <sup>2(2)</sup> 21-60 <sup>1(1)</sup>
<b>Moisture</b>	Subhygric <sup>2(0)</sup> Mesic <sup>26(3)</sup> Submesic <sup>3(1)</sup> subxeric <sup>1(0)</sup>
<b>Nutrients</b>	Medium <sup>22(4)</sup>
<b>Arboreal Lichens</b>	Nil <sup>15(1)</sup> Trace <sup>10(2)</sup> Low <sup>10(1)</sup> High <sup>1(0)</sup>
<b>Snags (stems/ha)</b>	66 [0-200] *
<b>Down Wood (logs/ha)</b>	214 [0-700] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>28(1)</sup> 6-10 <sup>2(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>14(3)</sup> clay <sup>1(1)</sup> loam <sup>2(0)</sup>
<b>Seral Stage</b>	Tall Shrub <sup>1(0)</sup> Pole/Sapling <sup>1(0)</sup> Young <sup>3(1)</sup> Mid-Seral <sup>6(0)</sup> Mature <sup>29(3)</sup> Old-Growth <sup>1(0)</sup>
<b>Height Class (m)</b>	10-15 <sup>2(1)</sup> 15-20 <sup>9(1)</sup> >20 <sup>7(2)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>2(0)</sup> A (6-30) <sup>3(2)</sup> B (31-50) <sup>9(1)</sup> C (51-75) <sup>37(1)</sup> D (76-100) <sup>4(0)</sup>
<b>Stand Age - BH (yr)</b>	55 [35-70] (60 [53-70])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	95 (45)	35 (13)	130 (58)
<b>Mean Species<sup>(f)</sup></b>	16.1 (22)	1.7 (3.8)	17.7 (25.8)
<b>Unique Species<sup>(g)</sup></b>	1 (6)	1 (0)	2 (6)
<b>Dominant Species<sup>(h)</sup></b>	12 (26)	0 (1)	12 (27)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Populus tremuloides</i></b>	<b>aspen</b>	<b>84 (100)</b>	<b>68.3 (54.7)</b>
	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>55 (75)</b>	<b>10.3 (9.8)</b>
	<i>Betula papyrifera</i>	white birch	38 (75)	4.6 (2.9)
	<i>Picea mariana</i>	black spruce	13 (25)	0.9 (3)
	<i>Populus balsamifera</i>	balsam poplar	13 (0)	1 (0)
	<i>Pinus banksiana</i>	jack pine	7 (0)	0.9 (0)
	<i>Larix laricina</i>	tamarack	2 (0)	0.9 (0)
Shrub	<b><i>Rosa acicularis</i></b>	<b>prickly rose</b>	<b>69 (100)</b>	<b>11 (9.5)</b>
	<b><i>Linnaea borealis</i></b>	<b>twinflower</b>	<b>62 (75)</b>	<b>6.8 (11.7)</b>
	<b><i>Viburnum edule</i></b>	<b>low-bush cranberry</b>	<b>60 (100)</b>	<b>10.1 (10.1)</b>
	<i>Rubus pubescens</i>	dewberry	55 (75)	1.4 (0.3)
	<b><i>Amelanchier alnifolia</i></b>	<b>saskatoon</b>	<b>42 (25)</b>	<b>5.4 (0.4)</b>
	<b><i>Alnus viridis ssp crispa</i></b>	<b>green alder</b>	<b>40 (0)</b>	<b>7.9 (0)</b>
	<i>Vaccinium myrtilloides</i>	common blueberry	38 (50)	1.1 (+)
	<i>Lonicera dioica</i>	twining honeysuckle	27 (0)	0.5 (0)
	<i>Ledum groenlandicum</i>	common Labrador tea	25 (50)	0.6 (0.1)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	24 (50)	1 (0.4)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	22 (0)	1.8 (0)
	<i>Salix bebbiana</i>	beaked willow	22 (0)	0.4 (0)
	<i>Rubus idaeus</i>	wild red raspberry	18 (50)	0.4 (0.3)
	<i>Prunus pensylvanica</i>	pin cherry	15 (0)	1.6 (0)
	<i>Symphoricarpos albus</i>	snowberry	13 (25)	0.3 (0.2)
	<i>Ribes triste</i>	wild red currant	9 (0)	0.1 (0)
	<i>Salix scouleriana</i>	Scouler's willow	7 (25)	0.3 (1.3)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	5 (0)	0.8 (0)
	<i>Salix lucida</i>	shining willow	2 (25)	+ (0.6)
	<i>Salix planifolia</i>	flat-leaved willow	2 (25)	+ (+)
	<i>Alnus incana ssp tenuifolia</i>	river alder	2 (0)	0.3 (0)
	<i>Ribes lacustre</i>	bristly black currant	2 (0)	0.3 (0)
	<i>Corylus cornuta</i>	beaked hazelnut	2 (0)	0.2 (0)
	<i>Andromeda polifolia</i>	bog rosemary	2 (0)	0.1 (0)
	<i>Betula pumila</i>	dwarf birch	2 (0)	0.1 (0)
	<i>Chamaedaphne calyculata</i>	leatherleaf	2 (0)	0.1 (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	2 (0)	0.1 (0)
	<i>Rubus chamaemorus</i>	cloudberry	2 (0)	0.1 (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	2 (0)	+ (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	2 (0)	+ (0)
	<i>Kalmia polifolia</i>	northern laurel	2 (0)	+ (0)
	<i>Prunus virginiana</i>	choke cherry	2 (0)	+ (0)
	<i>Salix discolor</i>	pussy willow	2 (0)	+ (0)
<i>Symphoricarpos occidentalis</i>	buckbrush	2 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	38 (50)	0.7 (1.4)
	<i>Calamagrostis canadensis</i>	bluejoint	29 (25)	1 (3.1)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	25 (50)	0.5 (0.1)
	<i>Schizachne purpurascens</i>	purple oat grass	4 (25)	+ (0.1)
	<i>Carex siccata</i>	hay sedge	4 (25)	0.1 (+)
	<i>Carex interior</i>	inland sedge	2 (0)	0.1 (0)
	<i>Eriophorum angustifolium</i>	cotton grass	2 (0)	0.1 (0)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	2 (0)	0.1 (0)
	<i>Carex disperma</i>	two-seeded sedge	2 (0)	+ (0)
	<i>Carex limosa</i>	mud sedge	2 (0)	+ (0)
<i>Carex tenuiflora</i>	thin-flowered sedge	2 (0)	+ (0)	
Forb	<b><i>Cornus canadensis</i></b>	<b>bunchberry</b>	<b>64 (100)</b>	<b>5.2 (7.1)</b>
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	58 (75)	1.1 (1.7)
	<i>Epilobium angustifolium</i>	common fireweed	53 (50)	1.6 (1.2)
	<b><i>Aralia nudicaulis</i></b>	<b>wild sarsaparilla</b>	<b>49 (75)</b>	<b>9.4 (9.3)</b>
	<i>Trientalis borealis</i>	northern starflower	49 (75)	2.4 (0.7)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	45 (75)	0.8 (0.8)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Pyrola asarifolia</i>	common pink wintergreen	35 (75)	0.2 (0.3)
	<i>Orthilia secunda</i>	one-sided wintergreen	35 (50)	0.1 (0.4)
	<i>Galium boreale</i>	northern bedstraw	35 (0)	0.8 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	33 (25)	0.4 (0.2)
	<i>Fragaria virginiana</i>	wild strawberry	29 (25)	0.2 (0.1)
	<i>Aster ciliolatus</i>	Lindley's aster	25 (0)	0.3 (0)
	<i>Vicia americana</i>	wild vetch	24 (50)	0.1 (0.4)
	<i>Mertensia paniculata</i>	tall lungwort	16 (50)	0.1 (0.5)
	<i>Achillea millefolium</i>	common yarrow	16 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	13 (0)	0.2 (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	9 (0)	0.1 (0)
	<i>Melampyrum lineare</i>	cow-wheat	9 (0)	0.1 (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	9 (0)	+ (0)
	<i>Actaea rubra</i>	red and white baneberry	7 (25)	+ (0.2)
	<i>Mitella nuda</i>	bishop's-cap	5 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	4 (25)	0.1 (0.2)
	<i>Viola canadensis</i>	western Canada violet	4 (25)	+ (0.2)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	4 (25)	+ (0.1)
	<i>Geocaldon lividum</i>	northern bastard toadflax	4 (25)	+ (+)
	<i>Thalictrum venulosum</i>	veiny meadow rue	4 (0)	0.2 (0)
	<i>Epilobium anagallidifolium</i>	alpine willowherb	2 (25)	0.1 (0.9)
	<i>Apocynum androsaemifolium</i>	spreading dogbane	2 (0)	0.1 (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	2 (0)	0.1 (0)
	<i>Agastache foeniculum</i>	giant hyssop	2 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	2 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	2 (0)	+ (0)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	2 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	2 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	2 (0)	+ (0)
	<i>Solidago canadensis</i>	Canada goldenrod	2 (0)	+ (0)
Fern/Allies	<i>Lycopodium annotinum</i>	stiff club-moss	16 (50)	1 (2.1)
	<i>Diphasiastrum complanatum</i>	ground-cedar	11 (50)	0.3 (1.1)
	<i>Equisetum sylvaticum</i>	woodland horsetail	7 (25)	0.5 (2.8)
	<i>Lycopodium obscurum</i>	ground-pine	5 (25)	0.1 (0.2)
	<i>Equisetum arvense</i>	common horsetail	4 (0)	+ (0)
	<i>Dryopteris assimilis</i>	broad spinulose shield fern	2 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	2 (0)	+ (0)
Moss	<i>Pleurozium schreberi</i>	Schreber's moss	42 (75)	1.8 (2.7)
	<i>Hylocomium splendens</i>	stair-step moss	35 (25)	1.2 (0.1)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	13 (0)	+ (0)
	<i>Brachythecium campestre</i>		4 (0)	+ (0)
	<i>Plagiomnium cuspidatum</i>		4 (0)	+ (0)
	<i>Pylaisiella polyantha</i>		2 (25)	+ (0.4)
	<i>Sanionia uncinata</i>	brown moss	2 (25)	+ (0.4)
	<i>Polytrichum strictum</i>	slender hair-cap	2 (25)	+ (+)
	<i>Drepanocladus aduncus</i>	brown moss	2 (25)	0.1 (0.8)
	<i>Dicranum undulatum</i>	wavy dicranum	2 (25)	+ (+)
	<i>Abietinella abietina</i>		2 (25)	+ (+)
	<i>Sphagnum fuscum</i>	rusty peat moss	2 (0)	0.3 (0)
	<i>Sphagnum angustifolium</i>	peat moss	2 (0)	0.1 (0)
	<i>Amblystegium serpens</i>		2 (0)	+ (0)
	<i>Brachythecium salebrosum</i>		2 (0)	+ (0)
	<i>Brachythecium velutinum</i>		2 (0)	+ (0)
	<i>Limprichtia revolvens</i>	brown moss	2 (0)	+ (0)
	Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	9 (25)
<i>Cladina mitis</i>		reindeer lichen	4 (25)	0.1 (0.2)
<i>Peltigera neopolydactyla</i>			4 (25)	+ (+)
<i>Cladonia sulphurina</i>			4 (0)	+ (0)
<i>Peltigera canina</i>		dog lichen	4 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Lichen	<i>Cladonia botrytes</i>		2 (25)	+ (+)
	<i>Cladonia multiformis</i>		2 (25)	+ (+)
	<i>Bryoria fuscescens</i>	old man's beard	2 (0)	+ (0)
	<i>Cladonia cenotea</i>		2 (0)	+ (0)
	<i>Cladonia cornuta</i>		2 (0)	+ (0)
	<i>Cladonia pyxidata</i>		2 (0)	+ (0)
	<i>Hypogymnia physodes</i>		2 (0)	+ (0)
	<i>Parmelia sulcata</i>		2 (0)	+ (0)
	<i>Peltigera malacea</i>		2 (0)	+ (0)
	<i>Physcia adscendens</i>		2 (0)	+ (0)
	<i>Ramalina pollinaria</i>		2 (0)	+ (0)
	<i>Stereocaulon tomentosum</i>		2 (0)	+ (0)
<i>Xanthoria fallax</i>		2 (0)	+ (0)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

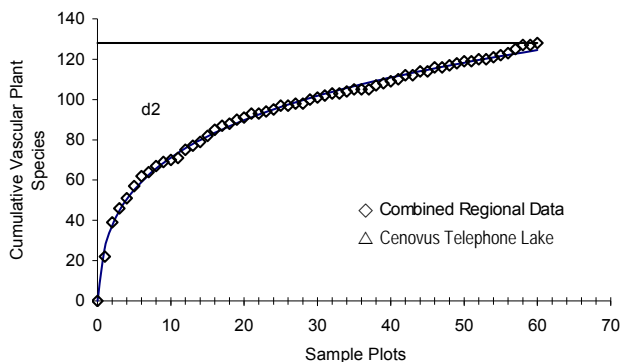
<b>Ecosite Phase</b>	d2- Aspen - White Spruce- Low Bush Cranberry
<b>Sample Plots</b>	62 (1)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>14(0)</sup> 1-5 <sup>22(0)</sup> 6-10 <sup>4(1)</sup> 11-20 <sup>3(0)</sup> 21-60 <sup>1(0)</sup>
<b>Moisture</b>	Subhydryc <sup>2(0)</sup> Subhygric <sup>6(0)</sup> Mesic <sup>20(1)</sup> Submesic <sup>5(0)</sup> xeric <sup>1(0)</sup>
<b>Nutrients</b>	Medium <sup>18(1)</sup> Rich <sup>6(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>5(0)</sup> Trace <sup>8(0)</sup> Low <sup>14(1)</sup> Moderate <sup>2(0)</sup> High <sup>7(0)</sup>
<b>Snags (stems/ha)</b>	63 [0-125] *
<b>Down Wood (logs/ha)</b>	135 [0-400] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>39(0)</sup> 6-10 <sup>4(0)</sup> 10-20 <sup>1(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>11(1)</sup> sandy-clay <sup>2(0)</sup> loam <sup>2(0)</sup> muck <sup>1(0)</sup>
<b>Seral Stage</b>	Tall Shrub <sup>1(0)</sup> Young <sup>2(0)</sup> Mid-Seral <sup>3(0)</sup> Mature <sup>33(1)</sup> Old-Growth <sup>2(0)</sup>
<b>Height Class (m)</b>	10-15 <sup>1(0)</sup> 15-20 <sup>2(0)</sup> >20 <sup>13(1)</sup>
<b>Canopy Closure</b>	A (6-30) <sup>11(0)</sup> B (31-50) <sup>11(0)</sup> C (51-75) <sup>35(1)</sup> D (76-100) <sup>4(0)</sup>
<b>Stand Age - BH (yr)</b>	68 [36-160] (75 [75-75])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	92 (28)	25 (4)	117 (32)
<b>Mean Species<sup>(f)</sup></b>	17.9 (28)	1.8 (4)	19.7 (32)
<b>Unique Species<sup>(g)</sup></b>	1 (1)	2 (1)	3 (2)
<b>Dominant Species<sup>(h)</sup></b>	9 (28)	2 (4)	11 (32)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Populus tremuloides</i></b>	<b>aspen</b>	<b>87 (100)</b>	<b>48.6 (53)</b>
	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>85 (100)</b>	<b>37.8 (45)</b>
	<b><i>Betula papyrifera</i></b>	<b>white birch</b>	<b>42 (100)</b>	<b>6.1 (3)</b>
	<i>Populus balsamifera</i>	balsam poplar	26 (0)	4.2 (0)
	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>18 (100)</b>	<b>5.5 (7)</b>
	<i>Abies balsamea</i>	balsam fir	8 (0)	3.4 (0)
	<i>Pinus banksiana</i>	jack pine	6 (100)	0.1 (2)
	<i>Larix laricina</i>	tamarack	2 (0)	+ (0)
Shrub	<b><i>Rosa acicularis</i></b>	<b>prickly rose</b>	<b>74 (100)</b>	<b>10 (17.5)</b>
	<b><i>Viburnum edule</i></b>	<b>low-bush cranberry</b>	<b>61 (100)</b>	<b>7.1 (30.1)</b>
	<i>Linnaea borealis</i>	twinflower	60 (100)	4.9 (15.5)
	<i>Rubus pubescens</i>	dewberry	55 (100)	1.4 (+)
	<i>Lonicera dioica</i>	twining honeysuckle	35 (100)	0.3 (2.4)
	<i>Alnus viridis ssp crispa</i>	green alder	35 (0)	4.3 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	34 (100)	2.2 (5.7)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	34 (0)	0.9 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	31 (0)	1.3 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	31 (0)	0.6 (0)
	<i>Salix bebbiana</i>	beaked willow	19 (100)	0.7 (0.5)
	<i>Ledum groenlandicum</i>	common Labrador tea	19 (100)	0.3 (0.7)
	<i>Ribes triste</i>	wild red currant	19 (0)	0.1 (0)
	<i>Symphoricarpos albus</i>	snowberry	16 (0)	0.3 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	13 (0)	0.2 (0)
	<i>Ribes lacustre</i>	bristly black currant	13 (0)	0.1 (0)
	<i>Rubus idaeus</i>	wild red raspberry	11 (100)	0.3 (0.7)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	11 (0)	0.2 (0)
	<i>Corylus cornuta</i>	beaked hazelnut	10 (0)	1.9 (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	5 (0)	0.1 (0)
	<i>Salix myrtilifolia</i>	myrtle-leaved willow	3 (0)	0.1 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	3 (0)	+ (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	3 (0)	+ (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	3 (0)	+ (0)
	<i>Prunus pennsylvanica</i>	pin cherry	2 (0)	0.1 (0)
	<i>Vaccinium myrtilus</i>	low bilberry	2 (0)	0.1 (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	2 (0)	+ (0)
<i>Salix planifolia</i>	flat-leaved willow	2 (0)	+ (0)	
<i>Salix scouleriana</i>	Scouler's willow	2 (0)	+ (0)	
<i>Symphoricarpos occidentalis</i>	buckbrush	2 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	31 (100)	0.5 (+)
	<i>Calamagrostis canadensis</i>	bluejoint	24 (0)	0.4 (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	13 (100)	0.2 (0.7)
	<i>Schizachne purpurascens</i>	purple oat grass	5 (0)	+ (0)
	<i>Carex disperma</i>	two-seeded sedge	2 (0)	+ (0)
	<i>Carex capillaris</i>	hair-like sedge	2 (0)	+ (0)
Forb	<b><i>Cornus canadensis</i></b>	<b>bunchberry</b>	<b>63 (100)</b>	<b>5.1 (21.5)</b>
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	48 (100)	0.6 (5.1)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	47 (100)	1.1 (0.7)
	<i>Epilobium angustifolium</i>	common fireweed	47 (100)	0.7 (2.7)
	<i>Trientalis borealis</i>	northern starflower	45 (100)	0.6 (1.7)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	42 (100)	3.9 (6.7)
	<i>Mitella nuda</i>	bishop's-cap	42 (0)	0.8 (0)
	<i>Galium boreale</i>	northern bedstraw	40 (0)	0.2 (0)
	<i>Fragaria virginiana</i>	wild strawberry	37 (0)	0.4 (0)
	<i>Aster ciliolatus</i>	Lindley's aster	34 (0)	0.5 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	31 (100)	0.3 (1.4)
	<i>Mertensia paniculata</i>	tall lungwort	26 (100)	0.5 (0.3)
	<i>Pyrola asarifolia</i>	common pink wintergreen	24 (100)	0.2 (9.9)
	<i>Orthilia secunda</i>	one-sided wintergreen	24 (100)	0.1 (2.2)
	<i>Achillea millefolium</i>	common yarrow	24 (0)	0.1 (0)
	<i>Viola renifolia</i>	kidney-leaved violet	21 (0)	0.1 (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	16 (0)	+ (0)
<i>Goodyera repens</i>	lesser rattlesnake plantain	16 (0)	+ (0)	
Forb	<i>Platanthera orbiculata</i>	round-leaved bog orchid	15 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
	<i>Vicia americana</i>	wild vetch	13 (0)	+ (0)
	<i>Actaea rubra</i>	red and white baneberry	11 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	10 (0)	0.2 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	10 (0)	+ (0)
	<i>Melampyrum lineare</i>	cow-wheat	8 (0)	0.1 (0)
	<i>Corallorhiza trifida</i>	pale coralroot	6 (100)	+ (+)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	6 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	5 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	3 (0)	+ (0)
	<i>Viola adunca</i>	early blue violet	3 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	3 (0)	+ (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	2 (0)	0.1 (0)
	<i>Astragalus americanus</i>	American milk vetch	2 (0)	+ (0)
	<i>Campanula rotundifolia</i>	harebell	2 (0)	+ (0)
	<i>Disporum trachycarpum</i>	fairybells	2 (0)	+ (0)
	<i>Epilobium glaberrimum</i>		2 (0)	+ (0)
	<i>Halenia deflexa</i>	spurred gentian	2 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	2 (0)	+ (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	2 (0)	+ (0)
	<i>Platanthera obtusata</i>	blunt-leaved bog orchid	2 (0)	+ (0)
<i>Smilacina stellata</i>	star-flowered Solomon's-seal	2 (0)	+ (0)	
Fern/Allies	<i>Lycopodium annotinum</i>	stiff club-moss	27 (100)	1.4 (0.7)
	<i>Equisetum arvense</i>	common horsetail	18 (0)	0.2 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	13 (0)	0.1 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	13 (0)	+ (0)
	<i>Lycopodium obscurum</i>	ground-pine	10 (0)	0.2 (0)
	<i>Diphasiastrum complanatum</i>	ground-cedar	3 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	3 (0)	+ (0)
<i>Botrychium virginianum</i>	Virginia grape fern	2 (0)	+ (0)	
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>53 (100)</b>	<b>6.1 (1)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>52 (100)</b>	<b>9.5 (1.8)</b>
	<i>Ptilium crista-castrensis</i>	knight's plume moss	23 (100)	1.3 (+)
	<i>Dicranum polysetum</i>	wavy dicranum	3 (0)	0.1 (0)
	<i>Brachythecium velutinum</i>		3 (0)	+ (0)
	<i>Platygyrium repens</i>		3 (0)	+ (0)
	<i>Tortula ruralis</i>	hairy screw moss	2 (100)	+ (0.3)
	<i>Brachythecium campestre</i>		2 (0)	+ (0)
	<i>Dicranum flagellare</i>	whip fork moss	2 (0)	+ (0)
	<i>Dicranum fragillifolium</i>	cushion moss	2 (0)	+ (0)
	<i>Dicranum undulatum</i>	wavy dicranum	2 (0)	+ (0)
	<i>Eurhynchium pulchellum</i>		2 (0)	+ (0)
	<i>Hypnum pallescens</i>		2 (0)	+ (0)
	<i>Mnium spinulosum</i>		2 (0)	+ (0)
	<i>Oncophorus wahlenbergii</i>	mountain curved-back moss	2 (0)	+ (0)
	<i>Plagiomnium cuspidatum</i>		2 (0)	+ (0)
	<i>Plagiomnium medium</i>		2 (0)	+ (0)
	<i>Polytrichum juniperinum</i>	juniper hair-cap	2 (0)	+ (0)
<i>Pylaisiella polyantha</i>		2 (0)	+ (0)	
<i>Tomentypnum nitens</i>	golden moss	2 (0)	+ (0)	
Liverwort	<i>Lophocolea heterophylla</i>	liverwort	2 (0)	+ (0)
Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	8 (0)	0.1 (0)
	<i>Peltigera canina</i>	dog lichen	6 (0)	0.1 (0)
	<i>Cladonia mitis</i>	reindeer lichen	6 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		2 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).



### Comparison of Regional and Project Vegetation Data

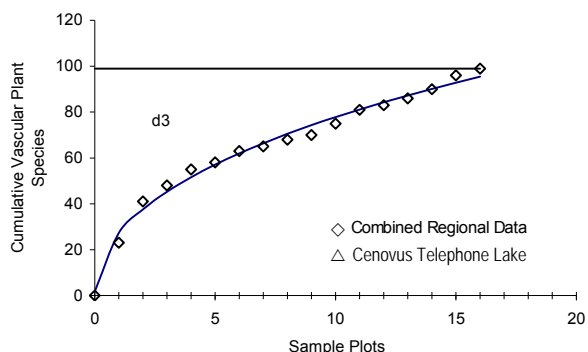
<b>Ecosite Phase</b>	d3 - White Spruce - Low Bush Cranberry
<b>Sample Plots</b>	17 (0)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>6(0)</sup> 1-5 <sup>6(0)</sup> 21-60 <sup>1(0)</sup>
<b>Moisture</b>	Hygric <sup>1(0)</sup> Subhygric <sup>1(0)</sup> Mesic <sup>3(0)</sup> Submesic <sup>3(0)</sup>
<b>Nutrients</b>	Medium <sup>3(0)</sup>
<b>Arboreal Lichens</b>	Trace <sup>4(0)</sup> Low <sup>1(0)</sup> Moderate <sup>1(0)</sup> High <sup>4(0)</sup>
<b>Snags (stems/ha)</b>	38 [0-75] *
<b>Down Wood (logs/ha)</b>	200 [0-400] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>11(0)</sup> 6-10 <sup>1(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>2(0)</sup>
<b>Seral Stage</b>	Tall Shrub <sup>1(0)</sup> Pole/Sapling <sup>1(0)</sup> Mature <sup>7(0)</sup> Old-Growth <sup>2(0)</sup>
<b>Height Class (m)</b>	>20 <sup>2(0)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>1(0)</sup> A (6-30) <sup>4(0)</sup> B (31-50) <sup>2(0)</sup> C (51-75) <sup>9(0)</sup> D (76-100) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	71 [55-87] (0 [0-0])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	75 (0)	7 (0)	82 (0)
<b>Mean Species<sup>(f)</sup></b>	14.4 (0)	1.5 (0)	15.9 (0)
<b>Unique Species<sup>(g)</sup></b>	1 (0)	0 (0)	1 (0)
<b>Dominant Species<sup>(h)</sup></b>	3 (0)	2 (0)	5 (0)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>82 (0)</b>	<b>60.2 (0)</b>
	<b><i>Betula papyrifera</i></b>	<b>white birch</b>	<b>59 (0)</b>	<b>11 (0)</b>
	<i>Populus tremuloides</i>	aspen	47 (0)	3.2 (0)
	<i>Populus balsamifera</i>	balsam poplar	18 (0)	2.2 (0)
	<i>Abies balsamea</i>	balsam fir	12 (0)	3.7 (0)
	<i>Larix laricina</i>	tamarack	6 (0)	3.9 (0)
	<i>Picea mariana</i>	black spruce	6 (0)	+ (0)
Shrub	<b><i>Rosa acicularis</i></b>	<b>prickly rose</b>	<b>53 (0)</b>	<b>5.9 (0)</b>
	<i>Viburnum edule</i>	low-bush cranberry	47 (0)	4.6 (0)
	<i>Linnaea borealis</i>	twinflor	47 (0)	2.8 (0)
	<i>Rubus pubescens</i>	dewberry	35 (0)	1.9 (0)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	35 (0)	0.9 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	29 (0)	1.2 (0)
	<i>Alnus viridis ssp crispa</i>	green alder	24 (0)	4.3 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	24 (0)	1 (0)
	<i>Ledum groenlandicum</i>	common Labrador tea	24 (0)	0.2 (0)
	<i>Salix bebbiana</i>	beaked willow	18 (0)	1 (0)
	<i>Ribes triste</i>	wild red currant	18 (0)	0.2 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	12 (0)	0.4 (0)
	<i>Rubus idaeus</i>	wild red raspberry	12 (0)	0.2 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	12 (0)	0.1 (0)
	<i>Symphoricarpos albus</i>	snowberry	12 (0)	+ (0)
	<i>Betula pumila</i>	dwarf birch	6 (0)	0.2 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	6 (0)	0.2 (0)
	<i>Ribes glandulosum</i>	skunk currant	6 (0)	0.2 (0)
	<i>Ribes lacustre</i>	bristly black currant	6 (0)	0.1 (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	6 (0)	+ (0)
<i>Salix scouleriana</i>	Scouler's willow	6 (0)	+ (0)	
Graminoid	<i>Leymus innovatus</i>	hairy wild rye	29 (0)	0.4 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	18 (0)	1.3 (0)
	<i>Carex deweyana</i>	Dewey's sedge	6 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	6 (0)	+ (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	6 (0)	+ (0)
Forb	<i>Cornus canadensis</i>	bunchberry	47 (0)	1.9 (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	41 (0)	0.5 (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	35 (0)	3.7 (0)
	<i>Trientalis borealis</i>	northern starflower	35 (0)	0.5 (0)
	<i>Galium boreale</i>	northern bedstraw	35 (0)	0.1 (0)
	<i>Epilobium angustifolium</i>	common fireweed	29 (0)	1.1 (0)
	<i>Mitella nuda</i>	bishop's-cap	29 (0)	0.5 (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	29 (0)	0.5 (0)
	<i>Fragaria virginiana</i>	wild strawberry	29 (0)	0.2 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	29 (0)	+ (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	24 (0)	0.2 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	24 (0)	0.2 (0)
Forb	<i>Mertensia paniculata</i>	tall lungwort	18 (0)	0.5 (0)
	<i>Aster ciliolatus</i>	Lindley's aster	18 (0)	0.2 (0)
	<i>Achillea millefolium</i>	common yarrow	18 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	18 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	18 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	12 (0)	0.2 (0)
	<i>Actaea rubra</i>	red and white baneberry	12 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	12 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	12 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	12 (0)	0.1 (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	6 (0)	1 (0)
	<i>Ranunculus gmelinii</i>	yellow water crowfoot	6 (0)	0.4 (0)
	<i>Caltha palustris</i>	marsh-marigold	6 (0)	0.2 (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Galium labradoricum</i>	Labrador bedstraw	6 (0)	0.2 (0)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	6 (0)	0.2 (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	6 (0)	0.1 (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	6 (0)	0.1 (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	6 (0)	0.1 (0)
	<i>Senecio pauperculus</i>	balsam groundsel	6 (0)	0.1 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	6 (0)	+ (0)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	6 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	6 (0)	+ (0)
	<i>Platanthera obtusata</i>	blunt-leaved bog orchid	6 (0)	+ (0)
	<i>Viola adunca</i>	early blue violet	6 (0)	+ (0)
Fern/Allies	<i>Equisetum arvense</i>	common horsetail	24 (0)	0.3 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	18 (0)	0.2 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	18 (0)	0.1 (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	12 (0)	0.3 (0)
	<i>Equisetum pratense</i>	meadow horsetail	12 (0)	+ (0)
	<i>Gymnocarpium dryopteris</i>	oak fern	6 (0)	0.1 (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>41 (0)</b>	<b>13.9 (0)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>35 (0)</b>	<b>12.8 (0)</b>
	<i>Ptilium crista-castrensis</i>	knight's plume moss	18 (0)	1.6 (0)
Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	24 (0)	0.9 (0)
	<i>Peltigera canina</i>	dog lichen	24 (0)	0.4 (0)
	<i>Cladina mitis</i>	reindeer lichen	6 (0)	+ (0)
	<i>Cladonia sulphurina</i>		6 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

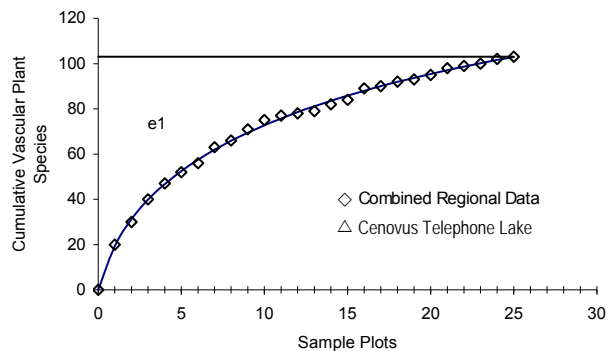
<b>Ecosite Phase</b>	e1- Balsam Poplar - Aspen - Dogwood
<b>Sample Plots</b>	25 (4)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>9(1)</sup> 1-5 <sup>4(1)</sup> 6-10 <sup>1(1)</sup> 21-60 <sup>1(0)</sup>
<b>Moisture</b>	Hydric <sup>1(0)</sup> Subhydric <sup>2(2)</sup> Hygric <sup>9(1)</sup> Subhydric <sup>4(1)</sup>
<b>Nutrients</b>	Rich <sup>13(2)</sup> Very Rich <sup>3(2)</sup>
<b>Arboreal Lichens</b>	Nil <sup>8(0)</sup> Trace <sup>5(1)</sup> Low <sup>1(0)</sup> Moderate <sup>1(0)</sup>
<b>Snags (stems/ha)</b>	75 [0-225] *
<b>Down Wood (logs/ha)</b>	150 [0-400] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>8(1)</sup> 6-10 <sup>1(0)</sup> 10-20 <sup>3(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>5(1)</sup> clay <sup>3(1)</sup> loam <sup>2(0)</sup> muck <sup>1(0)</sup>
<b>Seral Stage</b>	Pole/Sapling <sup>2(0)</sup> Young <sup>1(1)</sup> Mid-Seral <sup>4(0)</sup> Mature <sup>13(3)</sup> Old-Growth <sup>1(0)</sup>
<b>Height Class (m)</b>	5-10 <sup>1(0)</sup> 10-15 <sup>6(3)</sup> 15-20 <sup>3(0)</sup> >20 <sup>5(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>2(1)</sup> A (6-30) <sup>5(2)</sup> B (31-50) <sup>4(0)</sup> C (51-75) <sup>11(0)</sup> D (76-100) <sup>3(1)</sup>
<b>Stand Age - BH (yr)</b>	34 [19-52] (20 [19-21])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	102 (52)	23 (17)	125 (69)
<b>Mean Species<sup>(f)</sup></b>	19.7 (26)	1.4 (6.3)	21.1 (32.3)
<b>Unique Species<sup>(g)</sup></b>	1 (1)	0 (7)	1 (8)
<b>Dominant Species<sup>(h)</sup></b>	13 (35)	0 (6)	13 (41)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Populus tremuloides</i>	aspen	64 (50)	15.2 (2.5)
	<i>Betula papyrifera</i>	white birch	64 (50)	18 (26.3)
	<i>Populus balsamifera</i>	balsam poplar	56 (50)	37.4 (22.5)
	<i>Picea glauca</i>	white spruce	52 (50)	2.3 (1.8)
	<i>Picea mariana</i>	black spruce	24 (75)	2 (2.6)
	<i>Abies balsamea</i>	balsam fir	12 (0)	0.1 (0)
Shrub	<i>Ribes triste</i>	wild red currant	60 (100)	5.3 (11.7)
	<i>Rubus pubescens</i>	dewberry	56 (75)	1.7 (1.6)
	<i>Alnus incana ssp tenuifolia</i>	river alder	56 (100)	20 (36.6)
	<i>Viburnum edule</i>	low-bush cranberry	52 (75)	10.9 (5.3)
	<i>Rosa acicularis</i>	prickly rose	52 (50)	3.9 (2.4)
	<i>Rubus idaeus</i>	wild red raspberry	52 (100)	5.1 (8.6)
	<i>Cornus stolonifera</i>	red-osier dogwood	40 (0)	4.7 (0)
	<i>Ribes lacustre</i>	bristly black currant	32 (75)	0.3 (0.4)
	<i>Ribes hudsonianum</i>	northern black currant	32 (50)	3 (7.4)
	<i>Linnaea borealis</i>	twinflower	32 (50)	0.4 (0.4)
	<i>Salix lucida</i>	shining willow	28 (75)	4 (10.3)
	<i>Ribes oxycanthoides</i>	northern gooseberry	28 (50)	1.3 (5.7)
	<i>Symphoricarpos albus</i>	snowberry	28 (0)	0.8 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	24 (25)	1.1 (5)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	24 (0)	2.4 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	24 (0)	0.8 (0)
	<i>Alnus viridis ssp crispa</i>	green alder	20 (0)	5 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	16 (0)	0.1 (0)
	<i>Ribes glandulosum</i>	skunk currant	12 (50)	0.6 (3)
	<i>Rubus arcticus</i>	dwarf raspberry	12 (50)	0.1 (0.3)
	<i>Salix planifolia</i>	flat-leaved willow	8 (25)	1.9 (7.7)
	<i>Ledum groenlandicum</i>	common Labrador tea	8 (25)	+ (0.1)
	<i>Prunus pennsylvanica</i>	pin cherry	4 (25)	0.2 (1.5)
	<i>Salix bebbiana</i>	beaked willow	4 (0)	1.5 (0)
	<i>Salix exigua</i>	sandbar willow	4 (0)	0.3 (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	4 (0)	0.1 (0)
	<i>Salix scouleriana</i>	Scouler's willow	4 (0)	0.1 (0)
	<i>Prunus virginiana</i>	choke cherry	4 (0)	+ (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	4 (0)	+ (0)
	Graminoid	<i>Calamagrostis canadensis</i>	bluejoint	44 (100)
<i>Carex disperma</i>		two-seeded sedge	16 (75)	0.4 (0.4)
<i>Bromus ciliatus</i>		fringed brome	8 (0)	+ (0)
<i>Schizachne purpurascens</i>		purple oat grass	4 (25)	+ (0.2)
<i>Carex canescens ssp. canescens</i>		short sedge	4 (25)	+ (0.1)
<i>Carex concinna</i>		beautiful sedge	4 (25)	+ (+)
<i>Poa palustris</i>		fowl bluegrass	4 (0)	0.1 (0)
<i>Calamagrostis inexpansa</i>		northern reed grass	4 (0)	+ (0)
<i>Cinna latifolia</i>		drooping wood-reed	4 (0)	+ (0)
<i>Leymus innovatus</i>		hairy wild rye	4 (0)	+ (0)
<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	4 (0)	+ (0)	
Forb	<i>Mitella nuda</i>	bishop's-cap	56 (75)	1.9 (1.2)
	<i>Galium triflorum</i>	sweet-scented bedstraw	44 (50)	0.5 (+)
	<i>Cornus canadensis</i>	bunchberry	40 (100)	3.2 (4)
	<i>Epilobium angustifolium</i>	common fireweed	40 (75)	1.1 (3.1)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	36 (0)	7.2 (0)
	<i>Mertensia paniculata</i>	tall lungwort	36 (75)	1.5 (8.2)
	<i>Actaea rubra</i>	red and white baneberry	32 (50)	0.2 (0.6)
	<i>Galium boreale</i>	northern bedstraw	32 (25)	0.1 (+)
	<i>Pyrola asarifolia</i>	common pink wintergreen	28 (0)	0.4 (0)
	<i>Aster ciliolatus</i>	Lindley's aster	28 (0)	0.2 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	24 (25)	0.2 (0.3)
	<i>Trientalis borealis</i>	northern starflower	20 (50)	0.1 (0.4)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	20 (50)	+ (+)
	<i>Vicia americana</i>	wild vetch	20 (25)	0.1 (0.2)
	<i>Thalictrum venulosum</i>	veiny meadow rue	16 (50)	0.4 (1)
	<i>Circaea alpina</i>	small enchanter's nightshade	16 (0)	0.5 (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	16 (0)	0.1 (0)
	<i>Urtica dioica</i>	common nettle	16 (0)	0.1 (0)
	<i>Fragaria virginiana</i>	wild strawberry	16 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	16 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	16 (0)	+ (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	12 (50)	0.5 (0.3)
	<i>Impatiens capensis</i>	spotted touch-me-not	12 (0)	0.9 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	12 (0)	+ (0)
	<i>Caltha palustris</i>	marsh-marigold	8 (25)	0.2 (0.4)
	<i>Stellaria longipes</i>	long-stalked chickweed	8 (25)	+ (0.1)
	<i>Achillea millefolium</i>	common yarrow	8 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	8 (0)	+ (0)
	<i>Viola palustris</i>	marsh violet	8 (0)	+ (0)
	<i>Geum aleppicum</i>	yellow avens	4 (25)	+ (0.2)
	<i>Chrysosplenium tetrandrum</i>	green saxifrage	4 (25)	+ (+)
	<i>Epilobium palustre</i>	marsh willowherb	4 (25)	+ (+)
	<i>Potentilla palustris</i>	marsh cinquefoil	4 (25)	+ (+)
	<i>Trientalis europaea</i>	Arctic starflower	4 (25)	+ (+)
	<i>Aster conspicuus</i>	showy aster	4 (0)	0.1 (0)
	<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	4 (0)	0.1 (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	4 (0)	0.1 (0)
	<i>Agastache foeniculum</i>	giant hyssop	4 (0)	+ (0)
	<i>Anemone canadensis</i>	Canada anemone	4 (0)	+ (0)
	<i>Cicuta maculata</i>	water-hemlock	4 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	4 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	4 (0)	+ (0)
	<i>Lysimachia thyrsiflora</i>	tufted loosestrife	4 (0)	+ (0)
	<i>Mentha arvensis</i>	wild mint	4 (0)	+ (0)
	<i>Sanicula marilandica</i>	snakeroot	4 (0)	+ (0)
<i>Scutellaria galericulata</i>	marsh skullcap	4 (0)	+ (0)	
<i>Solidago canadensis</i>	Canada goldenrod	4 (0)	+ (0)	
<i>Stachys palustris</i>	marsh hedge-nettle	4 (0)	+ (0)	
<i>Thalictrum sparsiflorum</i>	flat-fruited meadow rue	4 (0)	+ (0)	
Fern/Allies	<i>Equisetum arvense</i>	common horsetail	48 (50)	1.4 (4.5)
	<i>Equisetum pratense</i>	meadow horsetail	40 (25)	3.3 (0.4)
	<i>Equisetum sylvaticum</i>	woodland horsetail	20 (50)	0.6 (2.1)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	16 (50)	0.5 (1.9)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	16 (25)	0.2 (+)
	<i>Gymnocarpium dryopteris</i>	oak fern	4 (0)	+ (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	4 (0)	+ (0)
Moss	<i>Pleurozium schreberi</i>	Schreber's moss	16 (25)	0.6 (1.1)
	<i>Plagiomnium ellipticum</i>		12 (75)	0.6 (4)
	<i>Plagiomnium cuspidatum</i>		12 (75)	+ (+)
	<i>Amblystegium serpens</i>		8 (50)	+ (+)
	<i>Aulacomnium palustre</i>	tufted moss	8 (50)	+ (+)
	<i>Pylaisiella polyantha</i>		8 (50)	+ (+)
	<i>Sanionia uncinata</i>	brown moss	8 (50)	+ (+)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	8 (25)	+ (0.1)
	<i>Polytrichum strictum</i>	slender hair-cap	4 (25)	+ (0.2)
	<i>Brachythecium mildeanum</i>		4 (25)	+ (+)
	<i>Brachythecium starkei</i>		4 (25)	+ (+)
	<i>Campylium hispidulum</i>		4 (25)	+ (+)
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	4 (25)	+ (+)
	<i>Orthotrichum obtusifolium</i>		4 (25)	+ (+)
<i>Plagiothecium denticulatum</i>		4 (25)	+ (+)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Moss	<i>Calliergon giganteum</i>		4 (0)	0.3 (0)
	<i>Hylocomium splendens</i>	stair-step moss	4 (0)	0.3 (0)
	<i>Brachythecium hylotapetum</i>		4 (0)	0.1 (0)
	<i>Climacium dendroides</i>		4 (0)	0.1 (0)
	<i>Tomentypnum nitens</i>	golden moss	4 (0)	+ (0)
Liverwort	<i>Marchantia polymorpha</i>	liverwort	4 (25)	+ (+)
Lichen	<i>Cladonia cornuta</i>		4 (25)	+ (+)
	<i>Cladonia sulphurina</i>		4 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

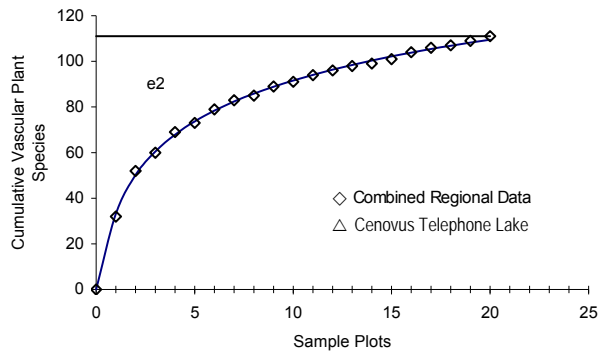
<b>Ecosite Phase</b>	e2- Balsam Poplar - White Spruce - Dogwood
<b>Sample Plots</b>	20 (0)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>9(0)</sup> 1-5 <sup>7(0)</sup>
<b>Moisture</b>	Subhydryc <sup>1(0)</sup> Hygric <sup>4(0)</sup> Subhygic <sup>8(0)</sup> Mesic <sup>1(0)</sup>
<b>Nutrients</b>	Medium <sup>4(0)</sup> Rich <sup>7(0)</sup> Very Rich <sup>3(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>4(0)</sup> Trace <sup>3(0)</sup> Low <sup>4(0)</sup> Moderate <sup>1(0)</sup> High <sup>2(0)</sup>
<b>Snags (stems/ha)</b>	100 [25-500] *
<b>Down Wood (logs/ha)</b>	190 [0-700] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>6(0)</sup> 6-10 <sup>5(0)</sup> 10-20 <sup>2(0)</sup> 20-40 <sup>0(0)</sup> 40-100 <sup>1(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>7(0)</sup> sandy-clay <sup>1(0)</sup> loam <sup>2(0)</sup> muck <sup>2(0)</sup>
<b>Seral Stage</b>	Pole/Sapling <sup>1(0)</sup> Mid-Seral <sup>1(0)</sup> Mature <sup>7(0)</sup> Old-Growth <sup>8(0)</sup>
<b>Height Class (m)</b>	10-15 <sup>1(0)</sup> >20 <sup>11(0)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>1(0)</sup> A (6-30) <sup>3(0)</sup> B (31-50) <sup>2(0)</sup> C (51-75) <sup>14(0)</sup>
<b>Stand Age - BH (yr)</b>	98 [35-166] (0 [0-0])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	103 (0)	8 (0)	111 (0)
<b>Mean Species<sup>(f)</sup></b>	27 (0)	2.4 (0)	29.4 (0)
<b>Unique Species<sup>(g)</sup></b>	0 (0)	0 (0)	0 (0)
<b>Dominant Species<sup>(h)</sup></b>	26 (0)	2 (0)	28 (0)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>	
Tree	<i>Picea glauca</i>	white spruce	90 (0)	26.1 (0)	
	<i>Betula papyrifera</i>	white birch	65 (0)	15.8 (0)	
	<i>Populus balsamifera</i>	balsam poplar	60 (0)	17.8 (0)	
	<i>Populus tremuloides</i>	aspen	50 (0)	7.6 (0)	
	<i>Picea mariana</i>	black spruce	35 (0)	9.1 (0)	
	<i>Abies balsamea</i>	balsam fir	20 (0)	2 (0)	
	<i>Larix laricina</i>	tamarack	5 (0)	0.1 (0)	
Shrub	<i>Viburnum edule</i>	low-bush cranberry	75 (0)	12.8 (0)	
	<i>Rubus pubescens</i>	dewberry	75 (0)	5.3 (0)	
	<i>Rosa acicularis</i>	prickly rose	70 (0)	5.3 (0)	
	<i>Ribes triste</i>	wild red currant	55 (0)	2.8 (0)	
	<i>Linnaea borealis</i>	twinline	65 (0)	2.6 (0)	
	<i>Ledum groenlandicum</i>	common Labrador tea	50 (0)	0.8 (0)	
	<i>Lonicera dioica</i>	twining honeysuckle	50 (0)	0.3 (0)	
	<i>Alnus incana ssp tenuifolia</i>	river alder	45 (0)	11.4 (0)	
	<i>Cornus stolonifera</i>	red-osier dogwood	45 (0)	7.1 (0)	
	<i>Ribes lacustre</i>	bristly black currant	45 (0)	0.5 (0)	
	<i>Vaccinium vitis-idaea</i>	bog cranberry	40 (0)	0.2 (0)	
	<i>Shepherdia canadensis</i>	Canada buffaloberry	35 (0)	2.4 (0)	
	<i>Rubus idaeus</i>	wild red raspberry	35 (0)	0.7 (0)	
	<i>Amelanchier alnifolia</i>	saskatoon	30 (0)	0.2 (0)	
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	25 (0)	5.1 (0)	
	<i>Ribes oxycanthoides</i>	northern gooseberry	25 (0)	0.1 (0)	
	<i>Salix lucida</i>	shining willow	20 (0)	1.8 (0)	
	<i>Alnus viridis ssp crispa</i>	green alder	20 (0)	1.6 (0)	
	<i>Ribes hudsonianum</i>	northern black currant	20 (0)	1 (0)	
	<i>Salix bebbiana</i>	beaked willow	20 (0)	0.3 (0)	
	<i>Symphoricarpos albus</i>	snowberry	20 (0)	0.1 (0)	
	<i>Rubus arcticus</i>	dwarf raspberry	20 (0)	+ (0)	
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	15 (0)	0.2 (0)	
	<i>Lonicera caerulea</i>	fly honeysuckle	10 (0)	+ (0)	
	<i>Salix glauca</i>	smooth willow	5 (0)	0.4 (0)	
	<i>Salix scouleriana</i>	Scouler's willow	5 (0)	0.3 (0)	
	<i>Ribes glandulosum</i>	skunk currant	5 (0)	0.1 (0)	
	<i>Spiraea alba</i>	narrow-leaved meadowsweet	5 (0)	0.1 (0)	
	<i>Rubus chamaemorus</i>	cloudberry	5 (0)	+ (0)	
	<i>Vaccinium myrtilloides</i>	common blueberry	5 (0)	+ (0)	
	Graminoid	<i>Calamagrostis canadensis</i>	bluejoint	40 (0)	0.7 (0)
		<i>Leymus innovatus</i>	hairy wild rye	25 (0)	+ (0)
		<i>Carex disperma</i>	two-seeded sedge	20 (0)	0.4 (0)
<i>Carex capillaris</i>		hair-like sedge	5 (0)	+ (0)	
<i>Carex gynocrates</i>		northern bog sedge	5 (0)	+ (0)	
<i>Cinna latifolia</i>		drooping wood-reed	5 (0)	+ (0)	
<i>Hierochloa alpina</i>		alpine sweet grass	5 (0)	+ (0)	
<i>Luzula parviflora</i>		small-flowered wood-rush	5 (0)	+ (0)	
	<i>Poa palustris</i>	fowl bluegrass	5 (0)	+ (0)	
Forb	<i>Mitella nuda</i>	bishop's-cap	75 (0)	1.7 (0)	
	<i>Cornus canadensis</i>	bunchberry	70 (0)	2.1 (0)	
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	60 (0)	0.6 (0)	
	<i>Fragaria virginiana</i>	wild strawberry	60 (0)	0.3 (0)	
	<i>Mertensia paniculata</i>	tall lungwort	55 (0)	0.8 (0)	
	<i>Epilobium angustifolium</i>	common fireweed	55 (0)	0.3 (0)	
	<i>Aralia nudicaulis</i>	wild sarsaparilla	50 (0)	4.1 (0)	
	<i>Aster ciliolatus</i>	Lindley's aster	50 (0)	0.4 (0)	
	<i>Galium triflorum</i>	sweet-scented bedstraw	50 (0)	0.2 (0)	
	<i>Trientalis borealis</i>	northern starflower	40 (0)	0.4 (0)	
	<i>Actaea rubra</i>	red and white baneberry	40 (0)	0.3 (0)	
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	40 (0)	0.2 (0)	



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Galium boreale</i>	northern bedstraw	35 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	35 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	30 (0)	0.1 (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	30 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	25 (0)	0.1 (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	25 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	25 (0)	+ (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	20 (0)	0.4 (0)
	<i>Caltha palustris</i>	marsh-marigold	15 (0)	0.5 (0)
	<i>Circaea alpina</i>	small enchanter's nightshade	15 (0)	+ (0)
	<i>Geocaldon lividum</i>	northern bastard toadflax	15 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	15 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	10 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	10 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	10 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	10 (0)	+ (0)
	<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	10 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	10 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	10 (0)	+ (0)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	10 (0)	+ (0)
	<i>Solidago canadensis</i>	Canada goldenrod	10 (0)	+ (0)
	<i>Lysimachia thyrsiflora</i>	tufted loosestrife	5 (0)	0.1 (0)
	<i>Viola renifolia</i>	kidney-leaved violet	5 (0)	0.1 (0)
	<i>Aquilegia brevistyla</i>	blue columbine	5 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	5 (0)	+ (0)
	<i>Astragalus americanus</i>	American milk vetch	5 (0)	+ (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	5 (0)	+ (0)
	<i>Epilobium ciliatum</i>	northern willowherb	5 (0)	+ (0)
	<i>Epilobium palustre</i>	marsh willowherb	5 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	5 (0)	+ (0)
	<i>Gaultheria hispidula</i>	creeping snowberry	5 (0)	+ (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	5 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	5 (0)	+ (0)
<i>Solidago multiradiata</i>	alpine goldenrod	5 (0)	+ (0)	
<i>Stellaria longipes</i>	long-stalked chickweed	5 (0)	+ (0)	
<i>Thalictrum sparsiflorum</i>	flat-fruited meadow rue	5 (0)	+ (0)	
<i>Thalictrum venulosum</i>	veiny meadow rue	5 (0)	+ (0)	
<i>Viola palustris</i>	marsh violet	5 (0)	+ (0)	
Fern/Allies	<i>Equisetum scirpoides</i>	dwarf scouring-rush	55 (0)	0.3 (0)
	<i>Equisetum arvense</i>	common horsetail	50 (0)	1.3 (0)
	<i>Equisetum pratense</i>	meadow horsetail	45 (0)	1.2 (0)
	<i>Gymnocarpium dryopteris</i>	oak fern	20 (0)	0.4 (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	20 (0)	0.4 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	15 (0)	0.2 (0)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	10 (0)	+ (0)
Moss	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>70 (0)</b>	<b>12.6 (0)</b>
	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>70 (0)</b>	<b>7.4 (0)</b>
	<i>Ptilium crista-castrensis</i>	knight's plume moss	35 (0)	1.3 (0)
	<i>Tomentypnum nitens</i>	golden moss	20 (0)	0.3 (0)
	<i>Climacium dendroides</i>		5 (0)	+ (0)
Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	25 (0)	0.1 (0)
	<i>Cladina mitis</i>	reindeer lichen	5 (0)	+ (0)
	<i>Peltigera canina</i>	dog lichen	5 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

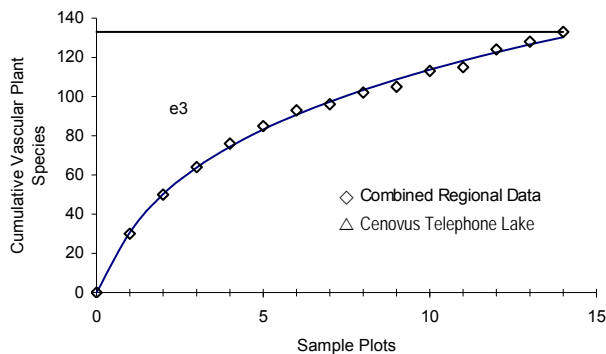
<b>Ecosite Phase</b>	e3- White Spruce - Dogwood
<b>Sample Plots</b>	14 (1)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>6(0)</sup> 1-5 <sup>1(0)</sup> 11-20 <sup>2(0)</sup> 21-60 <sup>1(0)</sup>
<b>Moisture</b>	Hydric <sup>1(0)</sup> Subhydric <sup>1(1)</sup> Hygric <sup>1(0)</sup> Subhydric <sup>1(0)</sup> Mesic <sup>3(0)</sup> Submesic <sup>1(0)</sup>
<b>Nutrients</b>	Medium <sup>4(0)</sup> Rich <sup>3(0)</sup> Very Rich <sup>1(1)</sup>
<b>Arboreal Lichens</b>	Trace <sup>3(0)</sup> Low <sup>1(0)</sup> Moderate <sup>2(1)</sup> High <sup>1(0)</sup>
<b>Snags (stems/ha)</b>	58 [50-75] *
<b>Down Wood (logs/ha)</b>	367 [100-600] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>4(0)</sup> 10-20 <sup>2(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>2(0)</sup> loam <sup>2(0)</sup>
<b>Seral Stage</b>	Herb <sup>1(0)</sup> Tall Shrub <sup>1(0)</sup> Mature <sup>6(1)</sup> Old-Growth <sup>6(0)</sup>
<b>Height Class (m)</b>	>20 <sup>4(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>1(0)</sup> A (6-30) <sup>3(1)</sup> B (31-50) <sup>2(0)</sup> C (51-75) <sup>8(0)</sup>
<b>Stand Age - BH (yr)</b>	107 [59-143] (59 [59-59])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	105 (49)	18 (6)	123 (55)
<b>Mean Species<sup>(f)</sup></b>	20.2 (49)	2.7 (6)	22.9 (55)
<b>Unique Species<sup>(g)</sup></b>	3 (6)	0 (1)	3 (7)
<b>Dominant Species<sup>(h)</sup></b>	8 (49)	2 (6)	10 (55)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLISA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Picea glauca</i></b>	<b>white spruce</b>	<b>86 (100)</b>	<b>48.4 (10)</b>
	<i>Populus tremuloides</i>	aspen	43 (0)	4.6 (0)
	<i>Betula papyrifera</i>	white birch	43 (0)	3.6 (0)
	<i>Populus balsamifera</i>	balsam poplar	43 (0)	1.6 (0)
	<i>Abies balsamea</i>	balsam fir	21 (0)	2.4 (0)
	<i>Picea mariana</i>	black spruce	14 (100)	1.9 (20)
Shrub	<i>Pinus banksiana</i>	jack pine	14 (0)	0.2 (0)
	<i>Rosa acicularis</i>	prickly rose	57 (100)	3.7 (7.2)
	<i>Linnaea borealis</i>	twinflor	50 (100)	2.2 (+)
	<b><i>Viburnum edule</i></b>	<b>low-bush cranberry</b>	<b>50 (0)</b>	<b>5.2 (0)</b>
	<i>Cornus stolonifera</i>	red-osier dogwood	43 (0)	4.9 (0)
	<i>Rubus pubescens</i>	dewberry	43 (0)	3.4 (0)
	<i>Ribes triste</i>	wild red currant	36 (100)	2.6 (1.8)
	<b><i>Alnus incana ssp tenuifolia</i></b>	<b>river alder</b>	<b>29 (100)</b>	<b>8.4 (0.7)</b>
	<i>Lonicera dioica</i>	twining honeysuckle	29 (100)	0.8 (5)
	<i>Ribes lacustre</i>	bristly black currant	29 (100)	0.2 (+)
	<i>Ribes oxycanthoides</i>	northern gooseberry	21 (100)	3.3 (5)
	<i>Ribes hudsonianum</i>	northern black currant	21 (100)	2.3 (21)
	<i>Ledum groenlandicum</i>	common Labrador tea	21 (100)	0.5 (0.3)
	<i>Rubus idaeus</i>	wild red raspberry	21 (0)	0.9 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	21 (0)	0.5 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	21 (0)	0.3 (0)
	<i>Symphoricarpos albus</i>	snowberry	21 (0)	0.3 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	21 (0)	0.2 (0)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	21 (0)	0.2 (0)
	<i>Alnus viridis ssp crispa</i>	green alder	14 (100)	5.9 (50)
	<i>Salix bebbiana</i>	beaked willow	14 (100)	0.4 (5)
	<i>Salix planifolia</i>	flat-leaved willow	14 (100)	0.1 (0.3)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	14 (0)	0.2 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	7 (100)	0.3 (3.5)
	<i>Rubus arcticus</i>	dwarf raspberry	7 (100)	+ (0.3)
	<i>Betula pumila</i>	dwarf birch	7 (100)	+ (+)
	<i>Rosa woodsii</i>	common wild rose	7 (0)	0.5 (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	7 (0)	0.3 (0)
	<i>Salix discolor</i>	pussy willow	7 (0)	0.1 (0)
	<i>Salix glauca</i>	smooth willow	7 (0)	0.1 (0)
	<i>Salix myrtilifolia</i>	myrtle-leaved willow	7 (0)	0.1 (0)
	<i>Ribes glandulosum</i>	skunk currant	7 (0)	+ (0)
	Graminoid	<i>Calamagrostis canadensis</i>	bluejoint	29 (100)
<i>Bromus ciliatus</i>		fringed brome	14 (100)	0.5 (+)
<i>Elymus trachycaulus</i>		slender wheatgrass	14 (100)	0.3 (+)
<i>Carex disperma</i>		two-seeded sedge	14 (100)	0.1 (+)
<i>Cinna latifolia</i>		drooping wood-reed	14 (0)	+ (0)
<i>Carex concinna</i>		beautiful sedge	7 (100)	0.3 (4.2)
<i>Poa palustris</i>		fowl bluegrass	7 (100)	+ (0.3)
<i>Carex athrostachya</i>		long-bracted sedge	7 (100)	+ (+)
<i>Oryzopsis asperifolia</i>		white-grained mountain rice grass	7 (0)	+ (0)
<i>Scirpus microcarpus</i>		small-fruited bulrush	7 (0)	+ (0)
<i>Agrostis scabra</i>		rough hair grass	7 (0)	1.3 (0)
<i>Calamagrostis inexpansa</i>		northern reed grass	7 (0)	0.3 (0)
<i>Leymus innovatus</i>		hairy wild rye	7 (0)	0.3 (0)
Forb		<i>Cornus canadensis</i>	bunchberry	57 (100)
	<i>Mitella nuda</i>	bishop's-cap	50 (100)	1.2 (0.7)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	43 (0)	0.2 (0)
	<i>Epilobium angustifolium</i>	common fireweed	36 (100)	1.9 (0.7)
	<i>Galium boreale</i>	northern bedstraw	36 (100)	0.3 (+)
	<i>Mertensia paniculata</i>	tall lungwort	36 (100)	0.3 (+)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	29 (0)	1.8 (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Aster ciliolatus</i>	Lindley's aster	29 (0)	0.4 (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	29 (0)	0.4 (0)
	<i>Vicia americana</i>	wild vetch	21 (100)	0.3 (+)
	<i>Fragaria virginiana</i>	wild strawberry	29 (0)	0.2 (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	29 (0)	0.1 (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	21 (100)	+ (+)
	<i>Orthilia secunda</i>	one-sided wintergreen	21 (0)	0.5 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	21 (0)	0.2 (0)
	<i>Trientalis borealis</i>	northern starflower	21 (0)	+ (0)
	<i>Caltha palustris</i>	marsh-marigold	14 (100)	0.5 (7.5)
	<i>Thalictrum venulosum</i>	veiny meadow rue	14 (100)	0.3 (0.3)
	<i>Epilobium ciliatum</i>	northern willowherb	14 (100)	+ (+)
	<i>Geum aleppicum</i>	yellow avens	14 (100)	+ (+)
	<i>Rumex occidentalis</i>	western dock	14 (100)	+ (+)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	14 (100)	+ (+)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	14 (0)	0.1 (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	14 (0)	+ (0)
	<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	7 (100)	0.3 (3.5)
	<i>Ranunculus sceleratus</i>	celery-leaved buttercup	7 (100)	0.1 (0.7)
	<i>Aquilegia brevistyla</i>	blue columbine	7 (100)	+ (+)
	<i>Chrysosplenium tetrandrum</i>	green saxifrage	7 (100)	+ (+)
	<i>Delphinium glaucum</i>	tall larkspur	7 (100)	+ (+)
	<i>Galium trifidum</i>	small bedstraw	7 (100)	+ (+)
	<i>Geum macrophyllum</i>	large-leaved yellow avens	7 (100)	+ (+)
	<i>Stellaria longipes</i>	long-stalked chickweed	7 (100)	+ (+)
	<i>Trientalis europaea</i>	Arctic starflower	7 (100)	+ (+)
	<i>Viola canadensis</i>	western Canada violet	7 (100)	+ (+)
	<i>Circaea alpina</i>	small enchanter's nightshade	7 (0)	0.9 (0)
	<i>Achillea millefolium</i>	common yarrow	7 (0)	0.3 (0)
	<i>Urtica dioica</i>	common nettle	7 (0)	0.3 (0)
	<i>Achillea sibirica</i>	many-flowered yarrow	7 (0)	0.1 (0)
	<i>Aster puniceus</i>	purple-stemmed aster	7 (0)	0.1 (0)
	<i>Stachys palustris</i>	marsh hedge-nettle	7 (0)	0.1 (0)
<i>Actaea rubra</i>	red and white baneberry	7 (0)	+ (0)	
<i>Cicuta maculata</i>	water-hemlock	7 (0)	+ (0)	
<i>Erigeron acris</i>	northern daisy fleabane	7 (0)	+ (0)	
<i>Platanthera orbiculata</i>	round-leaved bog orchid	7 (0)	+ (0)	
<i>Thalictrum sparsiflorum</i>	flat-fruited meadow rue	7 (0)	+ (0)	
<i>Viola palustris</i>	marsh violet	7 (0)	+ (0)	
<i>Viola renifolia</i>	kidney-leaved violet	7 (0)	+ (0)	
Fern/Allies	<i>Equisetum arvense</i>	common horsetail	43 (0)	1.5 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	36 (100)	1.2 (+)
	<i>Equisetum sylvaticum</i>	woodland horsetail	29 (100)	0.9 (11.3)
	<i>Gymnocarpium dryopteris</i>	oak fern	14 (0)	0.3 (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	14 (0)	0.1 (0)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	7 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	7 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>57 (100)</b>	<b>18.4 (1.4)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>36 (0)</b>	<b>10.9 (0)</b>
	<i>Ptilium crista-castrensis</i>	knight's plume moss	21 (0)	0.6 (0)
	<i>Climacium dendroides</i>		14 (100)	0.2 (2.2)
	<i>Eurhynchium pulchellum</i>		14 (100)	+ (+)
	<i>Pylaisiella polyantha</i>		14 (100)	+ (+)
	<i>Plagiomnium ellipticum</i>		7 (100)	0.1 (1.8)
	<i>Sphagnum angustifolium</i>	peat moss	7 (100)	+ (0.3)
	<i>Abietinella abietina</i>		7 (0)	0.1 (0)
	<i>Aulacomnium palustre</i>	tufted moss	7 (0)	0.1 (0)
	<i>Dicranum undulatum</i>	wavy dicranum	7 (0)	0.1 (0)
<i>Brachythecium campestre</i>		7 (0)	+ (0)	
Moss	<i>Dicranum flagellare</i>	whip fork moss	7 (0)	+ (0)
	<i>Sanionia uncinata</i>	brown moss	7 (0)	+ (0)

<b>Plant Type</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>Frequency (%)<sup>1</sup></b>	<b>Mean Cover (%)<sup>2</sup></b>
Liverwort	<i>Jamesoniella autumnalis</i>	liverwort	7 (0)	+ (0)
	<i>Ptilidium ciliare</i>	liverwort	7 (0)	+ (0)
Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	29 (0)	0.5 (0)
	<i>Peltigera neopolydactyla</i>		14 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

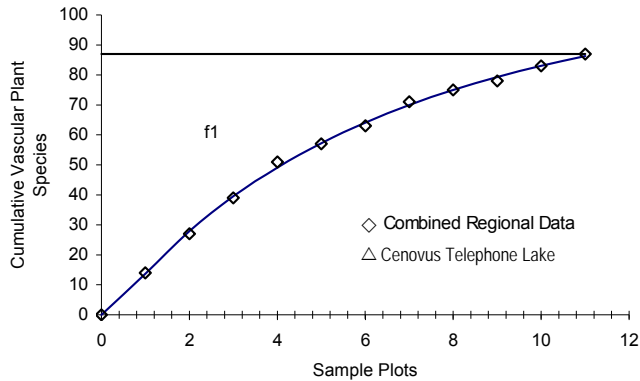
<b>Ecosite Phase</b>	f1- Balsam Poplar - Aspen - Horsetail
<b>Sample Plots</b>	11 (0)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>5(0)</sup> 1-5 <sup>2(0)</sup> 21-60 <sup>1(0)</sup>
<b>Moisture</b>	Subhydryc <sup>1(0)</sup> Hygric <sup>3(0)</sup> Subhygric <sup>1(0)</sup>
<b>Nutrients</b>	Poor <sup>1(0)</sup> Rich <sup>2(0)</sup> Very Rich <sup>2(0)</sup>
<b>Arboreal Lichens</b>	Trace <sup>6(0)</sup>
<b>Snags (stems/ha)</b>	150 [0-500] *
<b>Down Wood (logs/ha)</b>	350 [0-700] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>7(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>1(0)</sup> sandy-clay <sup>1(0)</sup> muck <sup>1(0)</sup>
<b>Seral Stage</b>	Pole/Sapling <sup>4(0)</sup> Mid-Seral <sup>1(0)</sup> Mature <sup>5(0)</sup>
<b>Height Class (m)</b>	10-15 <sup>1(0)</sup> 15-20 <sup>3(0)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>1(0)</sup> A (6-30) <sup>4(0)</sup> C (51-75) <sup>6(0)</sup>
<b>Stand Age - BH (yr)</b>	47 [28-65] (0 [0-0])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	81 (0)	7 (0)	88 (0)
<b>Mean Species<sup>(f)</sup></b>	16.2 (0)	1 (0)	17.2 (0)
<b>Unique Species<sup>(g)</sup></b>	3 (0)	0 (0)	3 (0)
<b>Dominant Species<sup>(h)</sup></b>	4 (0)	0 (0)	4 (0)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Picea glauca</i>	white spruce	64 (0)	2.7 (0)
	<i>Populus balsamifera</i>	balsam poplar	55 (0)	21.4 (0)
	<i>Betula papyrifera</i>	white birch	55 (0)	10.5 (0)
	<i>Populus tremuloides</i>	aspen	45 (0)	6.4 (0)
	<i>Larix laricina</i>	tamarack	27 (0)	2.7 (0)
	<i>Picea mariana</i>	black spruce	18 (0)	0.1 (0)
Shrub	<i>Rosa acicularis</i>	prickly rose	45 (0)	3.2 (0)
	<i>Rubus pubescens</i>	dewberry	45 (0)	2 (0)
	<i>Viburnum edule</i>	low-bush cranberry	36 (0)	3.1 (0)
	<i>Ribes hudsonianum</i>	northern black currant	36 (0)	2.6 (0)
	<i>Ribes lacustre</i>	bristly black currant	36 (0)	1.1 (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	27 (0)	3.3 (0)
	<i>Rubus idaeus</i>	wild red raspberry	27 (0)	1.9 (0)
	<i>Ribes triste</i>	wild red currant	27 (0)	0.6 (0)
	<i>Ledum groenlandicum</i>	common Labrador tea	27 (0)	0.5 (0)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	27 (0)	0.1 (0)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	18 (0)	3.2 (0)
	<i>Salix lucida</i>	shining willow	18 (0)	0.8 (0)
	<i>Linnaea borealis</i>	twinflower	18 (0)	0.2 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	18 (0)	0.2 (0)
	<i>Alnus viridis ssp crispa</i>	green alder	9 (0)	1.8 (0)
	<i>Salix bebbiana</i>	beaked willow	9 (0)	1 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	9 (0)	0.4 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	9 (0)	0.2 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	9 (0)	0.2 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	9 (0)	+ (0)
	<i>Betula pumila</i>	dwarf birch	9 (0)	+ (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	9 (0)	+ (0)
	<i>Ribes glandulosum</i>	skunk currant	9 (0)	+ (0)
<i>Ribes oxycanthoides</i>	northern gooseberry	9 (0)	+ (0)	
<i>Rubus arcticus</i>	dwarf raspberry	9 (0)	+ (0)	
<i>Symphoricarpos albus</i>	snowberry	9 (0)	+ (0)	
Graminoid	<i>Carex disperma</i>	two-seeded sedge	27 (0)	0.6 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	27 (0)	1.9 (0)
	<i>Poa palustris</i>	fowl bluegrass	18 (0)	0.1 (0)
	<i>Leymus innovatus</i>	hairy wild rye	9 (0)	0.1 (0)
	<i>Agrostis scabra</i>	rough hair grass	9 (0)	+ (0)
	<i>Carex aquatilis</i>	water sedge	9 (0)	+ (0)
	<i>Carex gynocrates</i>	northern bog sedge	9 (0)	+ (0)
<i>Elymus trachycaulus</i>	slender wheatgrass	9 (0)	+ (0)	
Forb	<i>Mitella nuda</i>	bishop's-cap	45 (0)	0.7 (0)
	<i>Galium boreale</i>	northern bedstraw	45 (0)	0.2 (0)
	<i>Cornus canadensis</i>	bunchberry	36 (0)	0.9 (0)
	<i>Epilobium angustifolium</i>	common fireweed	36 (0)	0.5 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	36 (0)	0.4 (0)
	<i>Actaea rubra</i>	red and white baneberry	36 (0)	0.3 (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	36 (0)	0.2 (0)
	<i>Mertensia paniculata</i>	tall lungwort	27 (0)	0.5 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	27 (0)	0.4 (0)
	<i>Caltha palustris</i>	marsh-marigold	27 (0)	0.1 (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	18 (0)	1.1 (0)
	<i>Aster ciliolatus</i>	Lindley's aster	18 (0)	0.1 (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	9 (0)	0.2 (0)
	<i>Anemone riparia</i>	tall anemone	9 (0)	0.1 (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	9 (0)	0.1 (0)
	<i>Stellaria longifolia</i>	long-leaved chickweed	9 (0)	0.1 (0)
<i>Achillea millefolium</i>	common yarrow	9 (0)	+ (0)	
<i>Caltha natans</i>	floating marsh-marigold	9 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Campanula rotundifolia</i>	harebell	9 (0)	+ (0)
	<i>Delphinium glaucum</i>	tall larkspur	9 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	9 (0)	+ (0)
	<i>Impatiens capensis</i>	spotted touch-me-not	9 (0)	+ (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	9 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	9 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	9 (0)	+ (0)
	<i>Scutellaria galericulata</i>	marsh skullcap	9 (0)	+ (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	9 (0)	+ (0)
	<i>Streptopus amplexifolius</i>	clasping-leaved twisted-stalk	9 (0)	+ (0)
	<i>Thalictrum sparsiflorum</i>	flat-fruited meadow rue	9 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	9 (0)	+ (0)
	<i>Urtica dioica</i>	common nettle	9 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	9 (0)	+ (0)
<i>Viola canadensis</i>	western Canada violet	9 (0)	+ (0)	
<i>Viola palustris</i>	marsh violet	9 (0)	+ (0)	
Fern/Allies	<b><i>Equisetum arvense</i></b>	<b>common horsetail</b>	<b>36 (0)</b>	<b>8.9 (0)</b>
	<i>Equisetum pratense</i>	meadow horsetail	27 (0)	3 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	27 (0)	1 (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	9 (0)	0.3 (0)
	<i>Gymnocarpium dryopteris</i>	oak fern	9 (0)	0.1 (0)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	9 (0)	+ (0)
	<i>Matteuccia struthiopteris</i>	ostrich fern	9 (0)	+ (0)
Moss	<i>Pleurozium schreberi</i>	Schreber's moss	27 (0)	0.1 (0)
	<i>Tomentypnum nitens</i>	golden moss	18 (0)	+ (0)
	<i>Hylocomium splendens</i>	stair-step moss	18 (0)	+ (0)
	<i>Climacium dendroides</i>		9 (0)	0.3 (0)
	<i>Sphagnum squarrosum</i>	squarrose peat moss	9 (0)	0.1 (0)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	9 (0)	+ (0)
Lichen	<i>Cladonia sulphurina</i>		9 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).



### Comparison of Regional and Project Vegetation Data

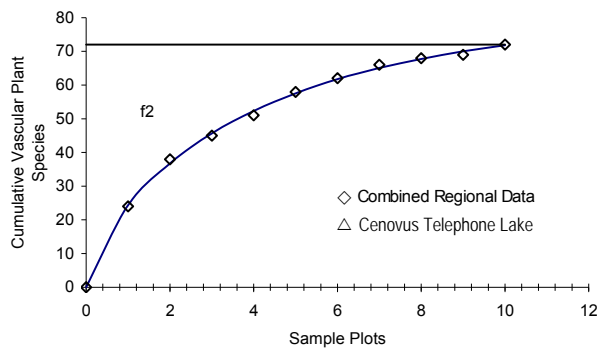
<b>Ecosite Phase</b>	f2- Balsam Poplar - White Spruce - Horsetail
<b>Sample Plots</b>	11 (0)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>3(0)</sup> 1-5 <sup>4(0)</sup> 6-10 <sup>1(0)</sup>
<b>Moisture</b>	Hygric <sup>4(0)</sup> Subhygric <sup>2(0)</sup> Mesic <sup>1(0)</sup>
<b>Nutrients</b>	Medium <sup>2(0)</sup> Rich <sup>5(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>1(0)</sup> Trace <sup>2(0)</sup> Low <sup>4(0)</sup> Moderate <sup>1(0)</sup>
<b>Snags (stems/ha)</b>	104 [0-500] *
<b>Down Wood (logs/ha)</b>	363 [50-1100] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>3(0)</sup> 10-20 <sup>2(0)</sup> 20-40 <sup>1(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>2(0)</sup> sandy-clay <sup>0(0)</sup> clay <sup>1(0)</sup> loam <sup>1(0)</sup> peat <sup>0(0)</sup> muck <sup>1(0)</sup>
<b>Seral Stage</b>	Pole/Sapling <sup>1(0)</sup> Young <sup>1(0)</sup> Mature <sup>6(0)</sup> Old-Growth <sup>3(0)</sup>
<b>Height Class (m)</b>	15-20 <sup>1(0)</sup> >20 <sup>5(0)</sup>
<b>Canopy Closure</b>	A (6-30) <sup>3(0)</sup> B (31-50) <sup>2(0)</sup> C (51-75) <sup>6(0)</sup>
<b>Stand Age - BH (yr)</b>	88 [52-122] (0 [0-0])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species <sup>(e)</sup></b>	78 (0)	10 (0)	88 (0)
<b>Mean Species <sup>(f)</sup></b>	18.5 (0)	0 (0)	20.7 (0)
<b>Unique Species <sup>(g)</sup></b>	1 (0)	0 (0)	1 (0)
<b>Dominant Species <sup>(h)</sup></b>	13 (0)	1 (0)	14 (0)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLISA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Picea glauca</i>	white spruce	100 (0)	20.9 (0)
	<i>Populus balsamifera</i>	balsam poplar	64 (0)	12.7 (0)
	<i>Populus tremuloides</i>	aspen	55 (0)	8.8 (0)
	<i>Betula papyrifera</i>	white birch	55 (0)	14.2 (0)
	<i>Picea mariana</i>	black spruce	45 (0)	4.1 (0)
	<i>Abies balsamea</i>	balsam fir	27 (0)	5.1 (0)
	<i>Larix laricina</i>	tamarack	9 (0)	7.2 (0)
	<i>Pinus banksiana</i>	jack pine	9 (0)	+ (0)
Shrub	<i>Rubus pubescens</i>	dewberry	55 (0)	2.2 (0)
	<i>Rosa acicularis</i>	prickly rose	55 (0)	1 (0)
	<i>Viburnum edule</i>	low-bush cranberry	45 (0)	2.1 (0)
	<i>Ribes triste</i>	wild red currant	45 (0)	1.6 (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	36 (0)	7.9 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	36 (0)	6.2 (0)
	<i>Ribes hudsonianum</i>	northern black currant	36 (0)	1.5 (0)
	<i>Rubus idaeus</i>	wild red raspberry	36 (0)	0.7 (0)
	<i>Linnaea borealis</i>	twinflower	36 (0)	0.3 (0)
	<i>Ledum groenlandicum</i>	common Labrador tea	27 (0)	0.9 (0)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	27 (0)	0.3 (0)
	<i>Symphoricarpos albus</i>	snowberry	18 (0)	+ (0)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	18 (0)	+ (0)
	<i>Betula pumila</i>	dwarf birch	9 (0)	1.8 (0)
	<i>Salix planifolia</i>	flat-leaved willow	9 (0)	0.7 (0)
	<i>Ribes lacustre</i>	bristly black currant	9 (0)	0.1 (0)
	<i>Salix candida</i>	hoary willow	9 (0)	0.1 (0)
	<i>Salix pedicellaris</i>	bog willow	9 (0)	0.1 (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	9 (0)	+ (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	9 (0)	+ (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	9 (0)	+ (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	9 (0)	+ (0)
	<i>Rubus chamaemorus</i>	cloudberry	9 (0)	+ (0)
<i>Salix scouleriana</i>	Scouler's willow	9 (0)	+ (0)	
<i>Vaccinium myrtilloides</i>	common blueberry	9 (0)	+ (0)	
Graminoid	<i>Carex disperma</i>	two-seeded sedge	27 (0)	0.1 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	18 (0)	0.2 (0)
	<i>Carex aquatilis</i>	water sedge	9 (0)	0.7 (0)
	<i>Calamagrostis inexpansa</i>	northern reed grass	9 (0)	0.3 (0)
	<i>Carex capillaris</i>	hair-like sedge	9 (0)	+ (0)
	<i>Carex gynocrates</i>	northern bog sedge	9 (0)	+ (0)
	<i>Carex limosa</i>	mud sedge	9 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	9 (0)	+ (0)
Forb	<i>Mertensia paniculata</i>	tall lungwort	55 (0)	1.3 (0)
	<i>Cornus canadensis</i>	bunchberry	55 (0)	0.8 (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	45 (0)	2.6 (0)
	<i>Mitella nuda</i>	bishop's-cap	45 (0)	0.5 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	45 (0)	0.1 (0)
	<i>Actaea rubra</i>	red and white baneberry	36 (0)	0.1 (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	27 (0)	0.9 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	27 (0)	0.3 (0)
	<i>Circaea alpina</i>	small enchanter's nightshade	27 (0)	0.1 (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	27 (0)	0.1 (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	27 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	27 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	18 (0)	0.2 (0)
	<i>Viola canadensis</i>	western Canada violet	18 (0)	0.1 (0)
	<i>Caltha palustris</i>	marsh-marigold	18 (0)	+ (0)
	<i>Galium boreale</i>	northern bedstraw	18 (0)	+ (0)
<i>Fragaria virginiana</i>	wild strawberry	9 (0)	0.1 (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Achillea millefolium</i>	common yarrow	9 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	9 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	9 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	9 (0)	+ (0)
	<i>Impatiens capensis</i>	spotted touch-me-not	9 (0)	+ (0)
	<i>Malaxis monophylla</i>	white adder's-mouth	9 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	9 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	9 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	9 (0)	+ (0)
	<i>Scutellaria galericulata</i>	marsh skullcap	9 (0)	+ (0)
	<i>Stellaria longipes</i>	long-stalked chickweed	9 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	9 (0)	+ (0)
Fern/Allies	<b><i>Equisetum pratense</i></b>	<b>meadow horsetail</b>	<b>45 (0)</b>	<b>8.4 (0)</b>
	<i>Equisetum arvense</i>	common horsetail	45 (0)	3.7 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	27 (0)	2.4 (0)
	<i>Gymnocarpium dryopteris</i>	oak fern	9 (0)	0.3 (0)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	9 (0)	+ (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	9 (0)	+ (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	9 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	9 (0)	+ (0)
Moss	<i>Hylocomium splendens</i>	stair-step moss	55 (0)	2.6 (0)
	<i>Pleurozium schreberi</i>	Schreber's moss	45 (0)	3.1 (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	36 (0)	0.8 (0)
	<i>Climacium dendroides</i>		18 (0)	0.3 (0)
	<i>Tomentypnum nitens</i>	golden moss	9 (0)	4.3 (0)
	<i>Calliergon giganteum</i>		9 (0)	1.9 (0)
Lichen	<i>Aulacomnium palustre</i>	tufted moss	9 (0)	0.1 (0)
	<i>Cladonia sulphurina</i>		18 (0)	+ (0)
	<i>Peltigera canina</i>	dog lichen	18 (0)	+ (0)
	<i>Peltigera aphthosa</i>	studded leather lichen	9 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

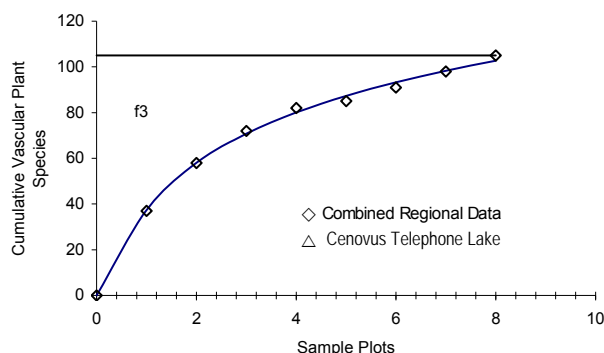
<b>Ecosite Phase</b>	f3- White Spruce - Horsetail
<b>Sample Plots</b>	8 (1)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>5(1)</sup> 1-5 <sup>1(0)</sup> 11-20 <sup>1(0)</sup>
<b>Moisture</b>	Subhydryc <sup>1(1)</sup> Hygric <sup>4(0)</sup> Subhygric <sup>3(0)</sup>
<b>Nutrients</b>	Medium <sup>1(0)</sup> Rich <sup>5(0)</sup> Very Rich <sup>1(1)</sup>
<b>Arboreal Lichens</b>	Trace <sup>2(1)</sup> Low <sup>2(0)</sup> Moderate <sup>1(0)</sup> High <sup>1(0)</sup>
<b>Snags (stems/ha)</b>	50 [25-100] *
<b>Down Wood (logs/ha)</b>	475 [75-700] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>1(0)</sup> 10-20 <sup>3(0)</sup> 100 <sup>1(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>3(0)</sup> sandy-clay <sup>1(0)</sup> peat <sup>1(1)</sup> muck <sup>1(0)</sup>
<b>Seral Stage</b>	Mature <sup>1(0)</sup> Old-Growth <sup>6(1)</sup>
<b>Height Class (m)</b>	>20 <sup>6(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>1(1)</sup> A (6-30) <sup>1(0)</sup> C (51-75) <sup>5(0)</sup> D (76-100) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	128 [93-175] (93 [93-93])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	107 (36)	15 (5)	122 (41)
<b>Mean Species<sup>(f)</sup></b>	34.5 (36)	3 (2)	38.9 (41)
<b>Unique Species<sup>(g)</sup></b>	0 (1)	0 (1)	0 (2)
<b>Dominant Species<sup>(h)</sup></b>	36 (36)	3 (5)	39 (41)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Picea glauca</i>	white spruce	88 (100)	67.8 (3)
	<i>Abies balsamea</i>	balsam fir	50 (0)	19.3 (0)
	<i>Betula papyrifera</i>	white birch	50 (100)	9 (60)
	<i>Populus balsamifera</i>	balsam poplar	50 (0)	6 (0)
	<i>Populus tremuloides</i>	aspen	50 (0)	1.8 (0)
	<i>Larix laricina</i>	tamarack	13 (0)	14.3 (0)
	<i>Picea mariana</i>	black spruce	13 (0)	5.1 (0)
Shrub	<i>Rosa acicularis</i>	prickly rose	88 (100)	3 (1)
	<i>Rubus pubescens</i>	dewberry	88 (100)	1.2 (0.3)
	<i>Ribes lacustre</i>	bristly black currant	88 (100)	0.3 (2)
	<i>Linnaea borealis</i>	twinflower	75 (100)	3.2 (3.5)
	<i>Ledum groenlandicum</i>	common Labrador tea	63 (100)	2.6 (12.9)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	63 (100)	0.9 (0.7)
	<i>Cornus stolonifera</i>	red-osier dogwood	63 (0)	1.5 (0)
	<i>Ribes triste</i>	wild red currant	63 (0)	1.2 (0)
	<i>Viburnum edule</i>	low-bush cranberry	50 (0)	1.5 (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	38 (100)	5.8 (22)
	<i>Ribes hudsonianum</i>	northern black currant	38 (100)	0.3 (1)
	<i>Rubus idaeus</i>	wild red raspberry	38 (100)	0.2 (+)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	38 (0)	0.4 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	38 (0)	0.1 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	38 (0)	+ (0)
	<i>Rubus arcticus</i>	dwarf raspberry	25 (100)	0.3 (1.5)
	<i>Ribes oxycanthoides</i>	northern gooseberry	25 (100)	0.2 (1.3)
	<i>Salix bebbiana</i>	beaked willow	25 (0)	0.9 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	25 (0)	0.9 (0)
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	25 (0)	0.6 (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	25 (0)	0.3 (0)
	<i>Salix planifolia</i>	flat-leaved willow	25 (0)	0.3 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	13 (100)	+ (+)
	<i>Salix lucida</i>	shining willow	13 (100)	+ (0.3)
	<i>Betula pumila</i>	dwarf birch	13 (0)	8.6 (0)
	<i>Salix candida</i>	hoary willow	13 (0)	1 (0)
	<i>Salix scouleriana</i>	Scouler's willow	13 (0)	0.3 (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	13 (0)	0.2 (0)
	<i>Salix maccalliana</i>	velvet-fruited willow	13 (0)	0.1 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	13 (0)	+ (0)
<i>Salix pedicellaris</i>	bog willow	13 (0)	+ (0)	
<i>Symphoricarpos albus</i>	snowberry	13 (0)	+ (0)	
Graminoid	<i>Carex disperma</i>	two-seeded sedge	50 (100)	0.5 (0.7)
	<i>Calamagrostis canadensis</i>	bluejoint	50 (100)	0.4 (1)
	<i>Carex aquatilis</i>	water sedge	25 (0)	0.1 (0)
	<i>Leymus innovatus</i>	hairy wild rye	25 (0)	+ (0)
	<i>Carex canescens ssp. canescens</i>	short sedge	13 (100)	0.4 (3.5)
	<i>Poa palustris</i>	fowl bluegrass	13 (100)	+ (0.3)
	<i>Carex oligosperma</i>	few-fruited sedge	13 (0)	1.2 (0)
	<i>Carex vaginata</i>	sheathed sedge	13 (0)	0.9 (0)
	<i>Bromus ciliatus</i>	fringed brome	13 (0)	+ (0)
	<i>Carex capillaris</i>	hair-like sedge	13 (0)	+ (0)
	<i>Carex gynocrates</i>	northern bog sedge	13 (0)	+ (0)
	<i>Carex interior</i>	inland sedge	13 (0)	+ (0)
	<i>Carex limosa</i>	mud sedge	13 (0)	+ (0)
	<i>Carex loliacea</i>	rye-grass sedge	13 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	13 (0)	+ (0)
	<i>Eriophorum angustifolium</i>	cotton grass	13 (0)	+ (0)
	<i>Glyceria grandis</i>	common tall manna grass	13 (0)	+ (0)
Forb	<i>Cornus canadensis</i>	bunchberry	88 (100)	1.3 (1.3)
	<i>Mitella nuda</i>	bishop's-cap	88 (100)	0.9 (4.2)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Orthilia secunda</i>	one-sided wintergreen	63 (100)	0.1 (0.7)
	<i>Trientalis borealis</i>	northern starflower	50 (100)	0.3 (0.6)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	50 (0)	0.3 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	50 (100)	+ (+)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	50 (0)	1.7 (0)
	<i>Epilobium angustifolium</i>	common fireweed	50 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	50 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	50 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	50 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	50 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	50 (0)	+ (0)
	<i>Platanthera obtusata</i>	blunt-leaved bog orchid	38 (100)	+ (+)
	<i>Pyrola asarifolia</i>	common pink wintergreen	38 (100)	+ (+)
	<i>Galium boreale</i>	northern bedstraw	38 (0)	0.1 (0)
	<i>Actaea rubra</i>	red and white baneberry	38 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	38 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	38 (0)	+ (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	25 (100)	1.1 (0.3)
	<i>Potentilla palustris</i>	marsh cinquefoil	25 (100)	0.3 (1.8)
	<i>Galium trifidum</i>	small bedstraw	25 (100)	+ (+)
	<i>Urtica dioica</i>	common nettle	25 (0)	0.4 (0)
	<i>Geocaldon lividum</i>	northern bastard toadflax	25 (0)	0.1 (0)
	<i>Circaea alpina</i>	small enchanter's nightshade	25 (0)	+ (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	25 (0)	+ (0)
	<i>Cicuta maculata</i>	water-hemlock	13 (100)	0.9 (7.5)
	<i>Cicuta bulbifera</i>	bulb-bearing water-hemlock	13 (100)	+ (0.3)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	13 (100)	+ (+)
	<i>Ranunculus sceleratus</i>	celery-leaved buttercup	13 (100)	+ (+)
	<i>Scutellaria galericulata</i>	marsh skullcap	13 (100)	+ (+)
	<i>Menyanthes trifoliata</i>	buck-bean	13 (0)	0.7 (0)
	<i>Caltha palustris</i>	marsh-marigold	13 (0)	0.1 (0)
	<i>Stachys palustris</i>	marsh hedge-nettle	13 (0)	0.1 (0)
	<i>Drosera rotundifolia</i>	round-leaved sundew	13 (0)	+ (0)
	<i>Fragaria vesca</i>	woodland strawberry	13 (0)	+ (0)
<i>Lilium philadelphicum</i>	western wood lily	13 (0)	+ (0)	
<i>Moehringia lateriflora</i>	blunt-leaved sandwort	13 (0)	+ (0)	
<i>Rumex occidentalis</i>	western dock	13 (0)	+ (0)	
<i>Solidago multiradiata</i>	alpine goldenrod	13 (0)	+ (0)	
<i>Stellaria longipes</i>	long-stalked chickweed	13 (0)	+ (0)	
<i>Triglochin maritima</i>	seaside arrow-grass	13 (0)	+ (0)	
<i>Vicia americana</i>	wild vetch	13 (0)	+ (0)	
<i>Viola palustris</i>	marsh violet	13 (0)	+ (0)	
Fern/Allies	<b><i>Equisetum arvense</i></b>	<b>common horsetail</b>	<b>88 (100)</b>	<b>10.8 (16.9)</b>
	<b><i>Equisetum pratense</i></b>	<b>meadow horsetail</b>	<b>63 (0)</b>	<b>9.5 (0)</b>
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	50 (0)	3.2 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	38 (100)	0.4 (1.5)
	<i>Gymnocarpium dryopteris</i>	oak fern	25 (0)	0.1 (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	25 (0)	+ (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	13 (0)	+ (0)
Moss	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>88 (100)</b>	<b>26.2 (0.3)</b>
	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>75 (0)</b>	<b>23 (0)</b>
	<b><i>Ptilium crista-castrensis</i></b>	<b>knight's plume moss</b>	<b>50 (0)</b>	<b>7.1 (0)</b>
	<i>Aulacomnium palustre</i>	tufted moss	25 (100)	2.3 (0.6)
	<i>Sphagnum warnstorffii</i>	peat moss	13 (100)	0.7 (5.3)
	<i>Plagiomnium ellipticum</i>		13 (100)	+ (0.3)
	<i>Calliergon giganteum</i>		13 (0)	4.9 (0)
	<i>Tomentypnum nitens</i>	golden moss	13 (0)	0.8 (0)
	<i>Polytrichum juniperinum</i>	juniper hair-cap	13 (0)	+ (0)
Liverwort	<i>Marchantia polymorpha</i>	liverwort	25 (0)	0.1 (0)
	<i>Ptilidium pulcherrimum</i>	liverwort	13 (100)	0.1 (0.7)

<b>Plant Type</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>Frequency (%)<sup>1</sup></b>	<b>Mean Cover (%)<sup>2</sup></b>
Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	38 (0)	0.1 (0)
	<i>Peltigera canina</i>	dog lichen	38 (0)	+ (0)
	<i>Cladonia mitis</i>	reindeer lichen	13 (0)	+ (0)
	<i>Cladonia sulphurina</i>		13 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

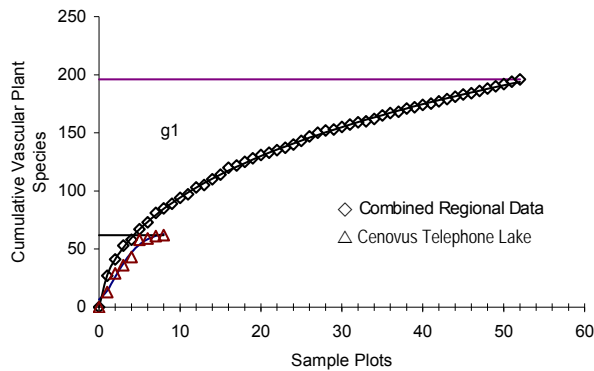
<b>Ecosite Phase</b>	g1- Black Spruce - Jack Pine - Labrador Tea
<b>Sample Plots</b>	52 (8)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>11(0)</sup> 1-5 <sup>19(2)</sup> 6-10 <sup>3(0)</sup> 11-20 <sup>1(0)</sup>
<b>Moisture</b>	Hydric <sup>1(0)</sup> Subhydric <sup>4(0)</sup> Hygric <sup>13(3)</sup> Subhygric <sup>15(2)</sup> Mesic <sup>6(3)</sup> Submesic <sup>0(0)</sup> subxeric <sup>1(0)</sup>
<b>Nutrients</b>	Poor <sup>26(6)</sup> Medium <sup>8(2)</sup> Rich <sup>1(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>4(0)</sup> Trace <sup>5(2)</sup> Low <sup>16(4)</sup> Moderate <sup>3(0)</sup> High <sup>3(0)</sup>
<b>Snags (stems/ha)</b>	20 [0-50] *
<b>Down Wood (logs/ha)</b>	130 [0-1100] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>18(0)</sup> 6-10 <sup>5(0)</sup> 10-20 <sup>1(0)</sup> 20-40 <sup>3(2)</sup> 40-100 <sup>2(2)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>13(4)</sup> sandy-clay <sup>1(0)</sup> clay <sup>1(0)</sup> peat <sup>2(2)</sup> muck <sup>3(0)</sup>
<b>Seral Stage</b>	Pole/Sapling <sup>4(3)</sup> Young <sup>3(0)</sup> Mid-Seral <sup>11(0)</sup> Mature <sup>24(5)</sup> Old-Growth <sup>1(0)</sup>
<b>Height Class (m)</b>	2-5 <sup>1(1)</sup> 5-10 <sup>2(0)</sup> 10-15 <sup>9(2)</sup> 15-20 <sup>5(2)</sup> >20 <sup>3(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>2(1)</sup> A (6-30) <sup>15(2)</sup> B (31-50) <sup>12(3)</sup> C (51-75) <sup>20(0)</sup> D (76-100) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	53 [18-85] (48 [18-65])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species <sup>(e)</sup></b>	132 (41)	45 (22)	177 (63)
<b>Mean Species <sup>(f)</sup></b>	13.3 (11.3)	2 (3)	17.1 (19.3)
<b>Unique Species <sup>(g)</sup></b>	3 (2)	3 (2)	6 (4)
<b>Dominant Species <sup>(h)</sup></b>	5 (7)	3 (9)	8 (16)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Picea mariana</i>	black spruce	75 (100)	54.2 (44.5)
	<i>Pinus banksiana</i>	jack pine	50 (75)	9.1 (9.3)
	<i>Populus tremuloides</i>	aspen	21 (0)	2.8 (0)
	<i>Larix laricina</i>	tamarack	15 (0)	2.7 (0)
	<i>Picea glauca</i>	white spruce	15 (0)	1.6 (0)
	<i>Populus balsamifera</i>	balsam poplar	13 (0)	0.1 (0)
	<i>Betula papyrifera</i>	white birch	12 (25)	0.3 (0.8)
	<i>Betula occidentalis</i>	water birch	4 (13)	0.1 (0.5)
Shrub	<i>Ledum groenlandicum</i>	common Labrador tea	71 (100)	20.9 (21.1)
	<i>Vaccinium myrtilloides</i>	common blueberry	58 (75)	3.5 (3)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	50 (88)	2.3 (3.3)
	<i>Rosa acicularis</i>	prickly rose	40 (13)	0.5 (0.4)
	<i>Salix myrtilifolia</i>	myrtle-leaved willow	29 (13)	2.1 (0.1)
	<i>Alnus viridis ssp crisper</i>	green alder	27 (25)	2.5 (1.2)
	<i>Linnaea borealis</i>	twinline	27 (25)	0.4 (0.1)
	<i>Salix bebbiana</i>	beaked willow	25 (50)	1 (2.4)
	<i>Lonicera caerulea</i>	fly honeysuckle	19 (13)	0.7 (+)
	<i>Arctostaphylos rubra</i>	alpine bearberry	17 (0)	0.7 (0)
	<i>Betula glandulosa</i>	bog birch	15 (25)	1 (1.6)
	<i>Rubus arcticus</i>	dwarf raspberry	15 (13)	0.1 (+)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	15 (0)	0.3 (0)
	<i>Betula pumila</i>	dwarf birch	13 (13)	3.5 (1)
	<i>Rubus pubescens</i>	dewberry	13 (13)	0.1 (0.1)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	13 (0)	1 (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	13 (0)	0.1 (0)
	<i>Kalmia polifolia</i>	northern laurel	10 (13)	+ (+)
	<i>Salix planifolia</i>	flat-leaved willow	10 (0)	0.5 (0)
	<i>Chamaedaphne calyculata</i>	leatherleaf	8 (25)	1 (4.6)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	8 (25)	+ (+)
	<i>Rubus chamaemorus</i>	cloudberry	6 (25)	0.1 (0.4)
	<i>Alnus incana ssp tenuifolia</i>	river alder	6 (13)	0.2 (1)
	<i>Amelanchier alnifolia</i>	saskatoon	6 (13)	+ (+)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	6 (0)	+ (0)
	<i>Andromeda polifolia</i>	bog rosemary	4 (13)	0.1 (0.3)
	<i>Ribes triste</i>	wild red currant	4 (13)	+ (+)
	<i>Viburnum edule</i>	low-bush cranberry	4 (0)	0.1 (0)
	<i>Juniperus horizontalis</i>	creeping juniper	4 (0)	+ (0)
	<i>Rubus idaeus</i>	wild red raspberry	4 (0)	+ (0)
	<i>Symphoricarpos occidentalis</i>	buckbrush	4 (0)	+ (0)
	<i>Salix glauca</i>	smooth willow	2 (0)	0.1 (0)
	<i>Salix lutea</i>	yellow willow	2 (0)	0.1 (0)
	<i>Salix pedicellaris</i>	bog willow	2 (0)	0.1 (0)
	<i>Vaccinium myrtillus</i>	low bilberry	2 (0)	0.1 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	2 (0)	+ (0)
	<i>Lonicera dioica</i>	twining honeysuckle	2 (0)	+ (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	2 (0)	+ (0)
	<i>Ribes lacustre</i>	bristly black currant	2 (0)	+ (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	2 (0)	+ (0)
	<i>Salix discolor</i>	pussy willow	2 (0)	+ (0)
	<i>Salix lucida</i>	shining willow	2 (0)	+ (0)
	<i>Salix maccalliana</i>	velvet-fruited willow	2 (0)	+ (0)
<i>Salix scouleriana</i>	Scouler's willow	2 (0)	+ (0)	
<i>Symphoricarpos albus</i>	snowberry	2 (0)	+ (0)	
Graminoid	<i>Calamagrostis canadensis</i>	bluejoint	12 (13)	0.2 (+)
	<i>Carex aquatilis</i>	water sedge	12 (0)	0.1 (0)
	<i>Leymus innovatus</i>	hairy wild rye	12 (0)	0.1 (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	6 (13)	+ (0.2)
	<i>Carex concinna</i>	beautiful sedge	6 (13)	+ (+)
	<i>Carex vaginata</i>	sheathed sedge	6 (0)	0.4 (0)
	<i>Carex gynocrates</i>	northern bog sedge	4 (0)	+ (0)
	<i>Carex leptalea</i>	bristle-stalked sedge	4 (0)	+ (0)
Graminoid	<i>Oryzopsis pungens</i>	northern rice grass	4 (0)	+ (0)
Graminoid	<i>Carex oligosperma</i>	few-fruited sedge	2 (13)	0.5 (3.1)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
	<i>Carex rostrata</i>	beaked sedge	2 (13)	+ (0.3)
	<i>Calamagrostis purpurascens</i>	purple reed grass	2 (13)	+ (+)
	<i>Carex diandra</i>	two-stamened sedge	2 (0)	0.2 (0)
	<i>Carex capillaris</i>	hair-like sedge	2 (0)	+ (0)
	<i>Carex capitata</i>	capitate sedge	2 (0)	+ (0)
	<i>Carex disperma</i>	two-seeded sedge	2 (0)	+ (0)
	<i>Carex limosa</i>	mud sedge	2 (0)	+ (0)
	<i>Carex norvegica</i>	Norway sedge	2 (0)	+ (0)
	<i>Carex prairea</i>	prairie sedge	2 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	2 (0)	+ (0)
	<i>Deschampsia cespitosa</i>	tufted hair grass	2 (0)	+ (0)
	<i>Juncus balticus</i>	wire rush	2 (0)	+ (0)
	<i>Schizachne purpurascens</i>	purple oat grass	2 (0)	+ (0)
	<i>Scirpus cespitosus</i>	tufted bulrush	2 (0)	+ (0)
	<i>Scirpus microcarpus</i>	small-fruited bulrush	2 (0)	+ (0)
Forb	<i>Cornus canadensis</i>	bunchberry	46 (38)	1.1 (1.4)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	37 (25)	0.2 (0.2)
	<i>Epilobium angustifolium</i>	common fireweed	29 (25)	0.3 (0.1)
	<i>Achillea millefolium</i>	common yarrow	29 (13)	0.3 (+)
	<i>Aster ciliolatus</i>	Lindley's aster	23 (0)	0.5 (0)
	<i>Galium boreale</i>	northern bedstraw	21 (0)	0.1 (0)
	<i>Mitella nuda</i>	bishop's-cap	19 (25)	0.1 (+)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	17 (0)	0.4 (0)
	<i>Fragaria virginiana</i>	wild strawberry	15 (0)	0.5 (0)
	<i>Coptis trifolia</i>	goldthread	13 (13)	+ (+)
	<i>Geocaulon lividum</i>	northern bastard toadflax	13 (0)	0.3 (0)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	10 (13)	0.1 (+)
	<i>Melampyrum lineare</i>	cow-wheat	8 (0)	0.3 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	6 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	6 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	6 (0)	+ (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	4 (0)	0.1 (0)
	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	4 (0)	0.1 (0)
	<i>Lilium philadelphicum</i>	western wood lily	4 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	4 (0)	+ (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	4 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	4 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	4 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	2 (13)	+ (+)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	2 (0)	0.1 (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	2 (0)	+ (0)
	<i>Anemone canadensis</i>	Canada anemone	2 (0)	+ (0)
	<i>Aquilegia brevistyla</i>	blue columbine	2 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	2 (0)	+ (0)
	<i>Cicuta maculata</i>	water-hemlock	2 (0)	+ (0)
	<i>Drosera rotundifolia</i>	round-leaved sundew	2 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	2 (0)	+ (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	2 (0)	+ (0)
	<i>Listera cordata</i>	heart-leaved twayblade	2 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	2 (0)	+ (0)
	<i>Myriophyllum exalbescens</i>	spiked water-milfoil	2 (0)	+ (0)
	<i>Oxytropis splendens</i>	showy locoweed	2 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	2 (0)	+ (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	2 (0)	+ (0)
	<i>Potamogeton richardsonii</i>	clasping-leaf pondweed	2 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	2 (0)	+ (0)
<i>Ranunculus lapponicus</i>	Lapland buttercup	2 (0)	+ (0)	
<i>Rumex occidentalis</i>	western dock	2 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>	
Forb	<i>Solidago canadensis</i>	Canada goldenrod	2 (0)	+ (0)	
	<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)	
	<i>Solidago simplex ssp simplex</i>	mountain goldenrod	2 (0)	+ (0)	
	<i>Trientalis borealis</i>	northern starflower	2 (0)	+ (0)	
	<i>Urtica dioica</i>	common nettle	2 (0)	+ (0)	
Fern/Allies	<i>Equisetum sylvaticum</i>	woodland horsetail	27 (50)	0.3 (1.3)	
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	25 (25)	0.3 (0.1)	
	<i>Equisetum arvense</i>	common horsetail	21 (0)	0.4 (0)	
	<i>Equisetum pratense</i>	meadow horsetail	8 (0)	+ (0)	
	<i>Lycopodium annotinum</i>	stiff club-moss	6 (0)	0.2 (0)	
	<i>Equisetum fluviatile</i>	swamp horsetail	2 (0)	+ (0)	
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>56 (75)</b>	<b>28.2 (58.1)</b>	
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>48 (63)</b>	<b>7.4 (4.5)</b>	
	<i>Ptilium crista-castrensis</i>	knight's plume moss	29 (50)	1.4 (3.7)	
	<i>Polytrichum strictum</i>	slender hair-cap	13 (88)	0.4 (2.6)	
	<i>Dicranum undulatum</i>	wavy dicranum	12 (63)	0.1 (0.4)	
	<i>Aulacomnium palustre</i>	tufted moss	10 (0)	0.1 (0)	
	<i>Sphagnum angustifolium</i>	peat moss	8 (38)	1.4 (7.1)	
	<i>Sphagnum fuscum</i>	rusty peat moss	6 (25)	1 (2.5)	
	<i>Bryum pseudotriquetrum</i>		4 (13)	0.2 (1.6)	
	<i>Sphagnum magellanicum</i>	midway peat moss	2 (13)	0.1 (0.4)	
	<i>Abietinella abietina</i>		2 (13)	+ (+)	
	<i>Tomentypnum nitens</i>	golden moss	2 (0)	0.6 (0)	
	<i>Brachythecium mildeanum</i>		2 (0)	+ (0)	
	<i>Campylium stellatum</i>		2 (0)	+ (0)	
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	2 (0)	+ (0)	
	<i>Dicranum acutifolium</i>	cushion moss	2 (0)	+ (0)	
	<i>Dicranum flagellare</i>	whip fork moss	2 (0)	+ (0)	
	<i>Dicranum polysetum</i>	wavy dicranum	2 (0)	+ (0)	
	<i>Dicranum scoparium</i>	broom moss	2 (0)	+ (0)	
	<i>Drepanocladus aduncus</i>	brown moss	2 (0)	+ (0)	
	<i>Hamatocaulis vernicosus</i>	brown moss	2 (0)	+ (0)	
	<i>Hypnum lindbergii</i>		2 (0)	+ (0)	
	<i>Pohlia nutans</i>	copper wire moss	2 (0)	+ (0)	
	<i>Polytrichum juniperinum</i>	juniper hair-cap	2 (0)	+ (0)	
	<i>Pylaisiella polyantha</i>		2 (0)	+ (0)	
	<i>Sphagnum warnstorffii</i>	peat moss	2 (0)	+ (0)	
	<i>Tetraplodon angustatus</i>	narrow-leaved splachnum	2 (0)	+ (0)	
	Liverwort	<i>Lepidozia reptans</i>	liverwort	2 (13)	+ (+)
		<i>Calypogeia sphagnicola</i>	liverwort	2 (0)	+ (0)
		<i>Mylia anomala</i>	liverwort	2 (0)	+ (0)
<i>Ptilidium pulcherrimum</i>		liverwort	2 (0)	+ (0)	
<i>Riccardia latifrons</i>		liverwort	2 (0)	+ (0)	
Lichen	<b><i>Cladina mitis</i></b>	<b>reindeer lichen</b>	<b>52 (88)</b>	<b>9 (7.4)</b>	
	<i>Peltigera aphthosa</i>	studded leather lichen	35 (63)	0.5 (2.8)	
	<i>Cladonia sulphurina</i>		15 (63)	+ (0.1)	
	<i>Peltigera canina</i>	dog lichen	12 (0)	0.1 (0)	
	<i>Cladonia borealis</i>	red pyxie cup lichen	8 (38)	+ (+)	
	<i>Cladina stellaris</i>	reindeer lichen	8 (0)	+ (0)	
	<i>Cladonia botrytes</i>		6 (25)	0.1 (0.7)	
	<i>Cladonia cornuta</i>		4 (13)	+ (0.2)	
	<i>Cladonia multiformis</i>		2 (13)	+ (0.1)	
	<i>Evernia mesomorpha</i>		2 (13)	+ (+)	
	<i>Lecanora circumborealis</i>		2 (13)	+ (+)	
	<i>Melanelia septentrionalis</i>		2 (13)	+ (+)	
	<i>Tuckermannopsis pinastri</i>		2 (13)	+ (+)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

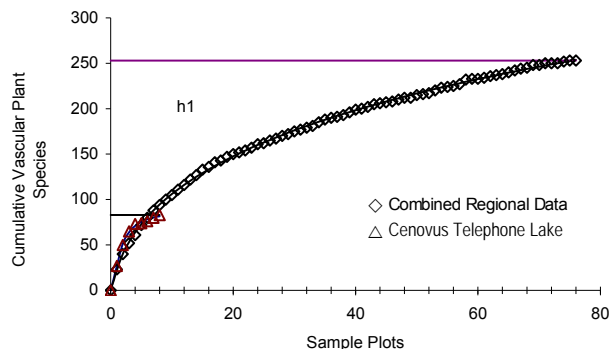
<b>Ecosite Phase</b>	h1- White Spruce - Black Spruce - Labrador Tea/Horsetail
<b>Sample Plots</b>	76 (8)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>31(0)</sup> 1-5 <sup>20(1)</sup> 6-10 <sup>1(1)</sup> 11-20 <sup>1(0)</sup>
<b>Moisture</b>	Hydric <sup>7(2)</sup> Subhydic <sup>10(1)</sup> Hygic <sup>17(2)</sup> Subhygic <sup>14(2)</sup> Mesic <sup>4(1)</sup> Submesic <sup>0(0)</sup> subseric <sup>1(0)</sup>
<b>Nutrients</b>	Poor <sup>8(1)</sup> Medium <sup>23(5)</sup> Rich <sup>11(2)</sup> Very Rich <sup>2(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>1(0)</sup> Trace <sup>10(1)</sup> Low <sup>20(2)</sup> Moderate <sup>10(3)</sup> High <sup>10(0)</sup>
<b>Snags (stems/ha)</b>	55 [0-200] *
<b>Down Wood (logs/ha)</b>	226 [0-1100] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>28(0)</sup> 6-10 <sup>2(1)</sup> 10-20 <sup>6(0)</sup> 20-40 <sup>10(1)</sup> 40-100 <sup>4(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>11(4)</sup> clay <sup>2(0)</sup> loam <sup>5(0)</sup> peat <sup>7(4)</sup> muck <sup>8(0)</sup>
<b>Seral Stage</b>	Initial <sup>2(1)</sup> Tall Shrub <sup>1(1)</sup> Pole/Sapling <sup>1(0)</sup> Young <sup>7(1)</sup> Mid-Seral <sup>11(3)</sup> Mature <sup>31(2)</sup> Old-Growth <sup>7(0)</sup>
<b>Height Class (m)</b>	2-5 <sup>1(0)</sup> 5-10 <sup>3(2)</sup> 10-15 <sup>9(4)</sup> 15-20 <sup>8(0)</sup> >20 <sup>9(0)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>4(2)</sup> A (6-30) <sup>24(3)</sup> B (31-50) <sup>18(1)</sup> C (51-75) <sup>27(0)</sup> D (76-100) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	73 [30-170] (57 [30-93])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	174 (61)	52 (28)	226 (89)
<b>Mean Species<sup>(f)</sup></b>	19 (16.4)	2 (3)	22.6 (23.3)
<b>Unique Species<sup>(g)</sup></b>	5 (0)	4 (3)	9 (3)
<b>Dominant Species<sup>(h)</sup></b>	6 (11)	2 (5)	8 (16)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Picea mariana</i>	black spruce	80 (100)	43.9 (36.6)
	<i>Picea glauca</i>	white spruce	71 (25)	29 (2.3)
	<i>Larix laricina</i>	tamarack	30 (0)	3.7 (0)
	<i>Populus balsamifera</i>	balsam poplar	21 (0)	3.3 (0)
	<i>Betula papyrifera</i>	white birch	20 (38)	1 (1.6)
	<i>Populus tremuloides</i>	aspen	17 (25)	1.1 (0.6)
	<i>Pinus banksiana</i>	jack pine	8 (25)	0.2 (0.4)
	<i>Abies balsamea</i>	balsam fir	5 (0)	0.7 (0)
	<i>Betula occidentalis</i>	water birch	3 (13)	0.4 (2.5)
Shrub	<i>Ledum groenlandicum</i>	common Labrador tea	70 (88)	17.4 (23.7)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	62 (88)	2 (5.4)
	<i>Linnaea borealis</i>	twinflower	50 (38)	0.9 (0.1)
	<i>Rosa acicularis</i>	prickly rose	41 (38)	1 (0.6)
	<i>Rubus arcticus</i>	dwarf raspberry	34 (38)	0.3 (0.5)
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	32 (13)	1 (1.1)
	<i>Lonicera caerulea</i>	fly honeysuckle	28 (13)	0.7 (+)
	<i>Rubus pubescens</i>	dewberry	28 (13)	0.4 (+)
	<i>Salix bebbiana</i>	beaked willow	26 (63)	1.2 (0.8)
	<i>Vaccinium myrtilloides</i>	common blueberry	25 (38)	0.4 (2.2)
	<i>Alnus incana ssp tenuifolia</i>	river alder	24 (38)	3.2 (8.4)
	<i>Betula pumila</i>	dwarf birch	24 (38)	1.8 (5.4)
	<i>Viburnum edule</i>	low-bush cranberry	24 (0)	0.3 (0)
	<i>Ribes hudsonianum</i>	northern black currant	22 (38)	0.7 (0.6)
	<i>Ribes triste</i>	wild red currant	20 (13)	0.4 (+)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	20 (0)	0.4 (0)
	<i>Rubus chamaemorus</i>	cloudberry	14 (38)	0.1 (0.3)
	<i>Salix planifolia</i>	flat-leaved willow	14 (25)	1.4 (8.9)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	14 (0)	0.2 (0)
	<i>Ribes lacustre</i>	bristly black currant	14 (0)	0.1 (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	13 (0)	0.3 (0)
	<i>Lonicera dioica</i>	twining honeysuckle	13 (0)	0.1 (0)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	12 (13)	0.1 (0.2)
	<i>Rubus idaeus</i>	wild red raspberry	11 (13)	0.3 (+)
	<i>Arctostaphylos rubra</i>	alpine bearberry	11 (0)	0.4 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	11 (0)	0.2 (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	11 (0)	+ (0)
	<i>Alnus viridis ssp crispa</i>	green alder	9 (13)	0.7 (+)
	<i>Amelanchier alnifolia</i>	saskatoon	9 (0)	0.1 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	8 (0)	0.1 (0)
	<i>Salix scouleriana</i>	Scouler's willow	7 (0)	0.3 (0)
	<i>Betula glandulosa</i>	bog birch	5 (0)	0.2 (0)
	<i>Symphoricarpos albus</i>	snowberry	5 (0)	+ (0)
	<i>Salix lucida</i>	shining willow	4 (0)	0.1 (0)
	<i>Salix pedicellaris</i>	bog willow	3 (13)	0.5 (0.1)
	<i>Kalmia polifolia</i>	northern laurel	3 (13)	0.1 (+)
	<i>Lonicera involucrata</i>	bracted honeysuckle	3 (0)	0.1 (0)
	<i>Salix glauca</i>	smooth willow	3 (0)	0.1 (0)
	<i>Ledum palustre</i>	northern Labrador tea	3 (0)	+ (0)
	<i>Salix maccalliana</i>	velvet-fruited willow	3 (0)	+ (0)
	<i>Ribes glandulosum</i>	skunk currant	1 (13)	+ (+)
	<i>Salix petiolaris</i>	basket willow	1 (0)	0.5 (0)
	<i>Salix pyrifolia</i>	balsam willow	1 (0)	0.5 (0)
<i>Chamaedaphne calyculata</i>	leatherleaf	1 (0)	+ (0)	
<i>Oxycoccus quadripetalus</i>	large bog cranberry	1 (0)	+ (0)	
<i>Prunus pennsylvanica</i>	pin cherry	1 (0)	+ (0)	
<i>Prunus virginiana</i>	choke cherry	1 (0)	+ (0)	
<i>Rubus parviflorus</i>	thimbleberry	1 (0)	+ (0)	
<i>Salix candida</i>	hoary willow	1 (0)	+ (0)	
Shrub	<i>Salix lutea</i>	yellow willow	1 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Calamagrostis canadensis</i>	bluejoint	33 (38)	1.4 (1.9)
	<i>Carex disperma</i>	two-seeded sedge	25 (38)	0.3 (+)
	<i>Carex vaginata</i>	sheathed sedge	13 (13)	0.5 (0.1)
	<i>Leymus innovatus</i>	hairy wild rye	13 (0)	+ (0)
	<i>Carex aquatilis</i>	water sedge	12 (0)	0.6 (0)
	<i>Carex gynocrates</i>	northern bog sedge	8 (13)	+ (+)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	5 (13)	+ (0.2)
	<i>Elymus trachycaulus</i>	slender wheatgrass	5 (0)	+ (0)
	<i>Carex capillaris</i>	hair-like sedge	5 (0)	+ (0)
	<i>Carex concinna</i>	beautiful sedge	4 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	4 (0)	+ (0)
	<i>Carex canescens ssp canescens</i>	short sedge	3 (0)	0.2 (0)
	<i>Poa palustris</i>	fowl bluegrass	3 (0)	0.2 (0)
	<i>Deschampsia cespitosa</i>	tufted hair grass	3 (0)	+ (0)
	<i>Schizachne purpurascens</i>	purple oat grass	3 (0)	+ (0)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	1 (0)	0.1 (0)
	<i>Carex utriculata</i>	small bottle sedge	1 (13)	+ (0.4)
	<i>Agrostis scabra</i>	rough hair grass	1 (13)	+ (+)
	<i>Carex siccata</i>	hay sedge	1 (13)	+ (+)
	<i>Bromus ciliatus</i>	fringed brome	1 (0)	+ (0)
	<i>Calamagrostis inexpansa</i>	northern reed grass	1 (0)	+ (0)
	<i>Carex diandra</i>	two-stamened sedge	1 (0)	+ (0)
	<i>Carex interior</i>	inland sedge	1 (0)	+ (0)
	<i>Carex leptalea</i>	bristle-stalked sedge	1 (0)	+ (0)
	<i>Carex rostrata</i>	beaked sedge	1 (0)	+ (0)
	<i>Eriophorum brachyantherum</i>	close-sheathed cotton grass	1 (0)	+ (0)
	<i>Glyceria grandis</i>	common tall manna grass	1 (0)	+ (0)
	<i>Juncus balticus</i>	wire rush	1 (0)	+ (0)
	<i>Oryzopsis pungens</i>	northern rice grass	1 (0)	+ (0)
	<i>Scirpus cyperinus</i>	wool-grass	1 (0)	+ (0)
Forb	<i>Mitella nuda</i>	bishop's-cap	55 (38)	0.7 (0.3)
	<i>Cornus canadensis</i>	bunchberry	41 (50)	0.9 (0.8)
	<i>Epilobium angustifolium</i>	common fireweed	37 (50)	0.5 (0.4)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	37 (50)	0.4 (0.9)
	<i>Achillea millefolium</i>	common yarrow	33 (13)	0.1 (+)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	30 (25)	0.7 (1)
	<i>Geocaulon lividum</i>	northern bastard toadflax	29 (0)	0.1 (0)
	<i>Fragaria virginiana</i>	wild strawberry	26 (0)	0.1 (0)
	<i>Galium boreale</i>	northern bedstraw	22 (13)	0.1 (+)
	<i>Mertensia paniculata</i>	tall lungwort	20 (25)	0.2 (+)
	<i>Aster ciliolatus</i>	Lindley's aster	20 (0)	0.2 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	16 (13)	0.1 (+)
	<i>Pyrola asarifolia</i>	common pink wintergreen	16 (0)	0.1 (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	14 (13)	0.2 (+)
	<i>Trientalis borealis</i>	northern starflower	13 (13)	+ (+)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	11 (13)	0.1 (+)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	11 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	9 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	8 (25)	+ (+)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	8 (0)	0.1 (0)
	<i>Actaea rubra</i>	red and white baneberry	8 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	8 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	7 (13)	0.4 (2.1)
	<i>Solidago multiradiata</i>	alpine goldenrod	7 (0)	+ (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	5 (0)	0.1 (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	5 (0)	+ (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	5 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	4 (13)	+ (0.4)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Stellaria longipes</i>	long-stalked chickweed	4 (13)	+ (+)
	<i>Caltha palustris</i>	marsh-marigold	4 (0)	+ (0)
	<i>Circaea alpina</i>	small enchanter's nightshade	4 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	4 (0)	+ (0)
	<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	4 (0)	+ (0)
	<i>Platanthera obtusata</i>	blunt-leaved bog orchid	4 (0)	+ (0)
	<i>Senecio pauperculus</i>	balsam groundsel	4 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	4 (0)	+ (0)
	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	3 (13)	+ (+)
	<i>Epilobium ciliatum</i>	northern willowherb	3 (13)	+ (+)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	3 (0)	0.5 (0)
	<i>Comandra umbellata</i>	bastard toadflax	3 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	3 (0)	+ (0)
	<i>Listera cordata</i>	heart-leaved twayblade	3 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	3 (0)	+ (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	3 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	3 (0)	+ (0)
	<i>Viola palustris</i>	marsh violet	3 (0)	+ (0)
	<i>Anemone canadensis</i>	Canada anemone	1 (0)	+ (0)
	<i>Aquilegia brevistyla</i>	blue columbine	1 (0)	+ (0)
	<i>Aster conspicuus</i>	showy aster	1 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	1 (0)	+ (0)
	<i>Castilleja rupii</i>	purple paintbrush	1 (0)	+ (0)
	<i>Chrysosplenium tetrandrum</i>	green saxifrage	1 (0)	+ (0)
	<i>Cirsium drummondii</i>	Drummond's thistle	1 (0)	+ (0)
	<i>Coptis trifolia</i>	goldthread	1 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	1 (0)	+ (0)
	<i>Cypripedium parviflorum var pubescens</i>	large yellow lady's-slipper	1 (0)	+ (0)
	<i>Delphinium glaucum</i>	tall larkspur	1 (0)	+ (0)
	<i>Drosera rotundifolia</i>	round-leaved sundew	1 (0)	+ (0)
	<i>Epilobium leptophyllum</i>	narrow-leaved willowherb	1 (0)	+ (0)
	<i>Fragaria vesca</i>	woodland strawberry	1 (0)	+ (0)
	<i>Galium labradoricum</i>	Labrador bedstraw	1 (0)	+ (0)
	<i>Halenia deflexa</i>	spurred gentian	1 (0)	+ (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	1 (0)	+ (0)
	<i>Lysimachia thyrsoiflora</i>	tufted loosestrife	1 (0)	+ (0)
	<i>Melampyrum lineare</i>	cow-wheat	1 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	1 (0)	+ (0)
	<i>Monotropa uniflora</i>	Indian-pipe	1 (0)	+ (0)
	<i>Potentilla nivea</i>	snow cinquefoil	1 (0)	+ (0)
<i>Potentilla tridentata</i>	three-toothed cinquefoil	1 (0)	+ (0)	
<i>Rhinanthus minor</i>	yellow rattle	1 (0)	+ (0)	
<i>Saxifraga tricuspidata</i>	three-toothed saxifrage	1 (0)	+ (0)	
<i>Scheuchzeria palustris</i>	scheuchzeria	1 (0)	+ (0)	
<i>Thalictrum venulosum</i>	veiny meadow rue	1 (0)	+ (0)	
<i>Urtica dioica</i>	common nettle	1 (0)	+ (0)	
<i>Viola adunca</i>	early blue violet	1 (0)	+ (0)	
Fern/Allies	<i>Equisetum arvense</i>	common horsetail	46 (25)	3.9 (1.9)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	34 (13)	0.5 (+)
	<i>Equisetum sylvaticum</i>	woodland horsetail	32 (88)	2 (6.3)
	<i>Equisetum fluviatile</i>	swamp horsetail	7 (13)	0.2 (1.7)
	<i>Equisetum pratense</i>	meadow horsetail	14 (13)	0.5 (+)
	<i>Botrychium virginianum</i>	Virginia grape fern	3 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	3 (0)	+ (0)
	<i>Selaginella selaginoides</i>	spiny-edged little club-moss	3 (0)	+ (0)
	<i>Lycopodium clavatum</i>	running club-moss	1 (13)	+ (0.2)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	1 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>68 (88)</b>	<b>24.1 (22.8)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>59 (50)</b>	<b>14.9 (3.5)</b>

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Moss	<i>Tomentypnum nitens</i>	golden moss	9 (13)	1.3 (0.9)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	25 (13)	1.7 (0.2)
	<i>Aulacomnium palustre</i>	tufted moss	16 (63)	0.1 (0.4)
	<i>Polytrichum strictum</i>	slender hair-cap	4 (38)	0.5 (5.2)
	<i>Sphagnum magellanicum</i>	midway peat moss	4 (25)	0.2 (1.6)
	<i>Dicranum undulatum</i>	wavy dicranum	4 (13)	+ (0.1)
	<i>Sphagnum angustifolium</i>	peat moss	4 (13)	+ (+)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	4 (0)	1.7 (0)
	<i>Bryum pseudotriquetrum</i>		4 (0)	+ (0)
	<i>Pohlia nutans</i>	copper wire moss	3 (13)	0.4 (3.7)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	3 (13)	0.2 (1.8)
	<i>Sphagnum russowii</i>	wide-tongued peat moss	3 (13)	0.2 (0.1)
	<i>Sphagnum fuscum</i>	rusty peat moss	3 (13)	+ (0.1)
	<i>Plagiomnium ellipticum</i>		3 (13)	+ (+)
	<i>Climacium dendroides</i>		3 (0)	0.1 (0)
	<i>Thuidium recognitum</i>		1 (13)	+ (0.3)
	<i>Rhizomnium pseudopunctatum</i>		1 (13)	+ (0.1)
	<i>Dicranum polysetum</i>	wavy dicranum	1 (13)	+ (+)
	<i>Sphagnum wulfianum</i>	peat moss	1 (13)	+ (+)
	<i>Brachythecium campestre</i>		1 (0)	+ (0)
	<i>Calliergon giganteum</i>		1 (0)	+ (0)
	<i>Campylium stellatum</i>		1 (0)	+ (0)
	<i>Dicranum bonjeanii</i>	thin-rib curved-tail moss	1 (0)	+ (0)
	<i>Dicranum fragilifolium</i>	cushion moss	1 (0)	+ (0)
	<i>Eurhynchium pulchellum</i>		1 (0)	+ (0)
	<i>Hypnum lindbergii</i>		1 (0)	+ (0)
	<i>Hypnum pratense</i>		1 (0)	+ (0)
	<i>Oncophorus wahlenbergii</i>	mountain curved-back moss	1 (0)	+ (0)
	<i>Pohlia sphagnicola</i>		1 (0)	+ (0)
	<i>Polytrichum commune</i>	common hair-cap	1 (0)	+ (0)
<i>Sanionia uncinata</i>	brown moss	1 (0)	+ (0)	
Liverwort	<i>Ptilidium ciliare</i>	liverwort	3 (0)	+ (0)
	<i>Jamesoniella autumnalis</i>	liverwort	1 (0)	+ (0)
	<i>Lepidozia reptans</i>	liverwort	1 (0)	+ (0)
	<i>Lophocolea minor</i>	liverwort	1 (0)	+ (0)
	<i>Mylia anomala</i>	liverwort	1 (0)	+ (0)
	<i>Ptilidium pulcherrimum</i>	liverwort	1 (0)	+ (0)
Lichen	<i>Peltigera aphthosa</i>	studded leather lichen	34 (38)	0.3 (0.2)
	<i>Cladonia mitis</i>	reindeer lichen	29 (63)	1.9 (7.3)
	<i>Peltigera canina</i>	dog lichen	16 (13)	0.2 (+)
	<i>Cladonia sulphurina</i>		7 (38)	+ (0.3)
	<i>Cladonia stellaris</i>	reindeer lichen	5 (13)	0.1 (0.6)
	<i>Cladonia botrytes</i>		4 (38)	0.1 (1.1)
	<i>Cladonia cornuta</i>		4 (25)	+ (0.2)
	<i>Peltigera neopolydactyla</i>		4 (0)	+ (0)
	<i>Cladonia borealis</i>	red pyxie cup lichen	1 (13)	+ (0.1)
	<i>Cladonia cariosa</i>		1 (13)	+ (0.1)
	<i>Cladonia phyllophora</i>		1 (13)	+ (+)
	<i>Cladonia pyxidata</i>		1 (0)	+ (0)
	<i>Peltigera horizontalis</i>		1 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).



### Comparison of Regional and Project Vegetation Data

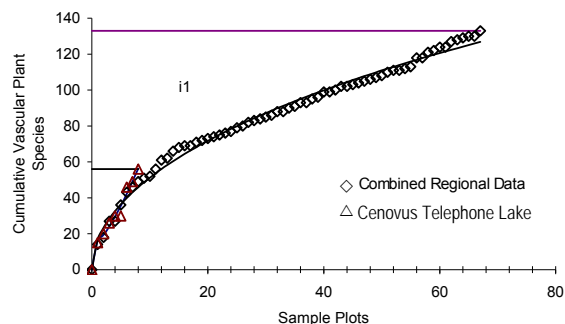
<b>Ecosite Phase</b>	i1- Treed Bog
<b>Sample Plots</b>	71 (8)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>32(0)</sup> 1-5 <sup>14(1)</sup>
<b>Moisture</b>	Hydric <sup>3(1)</sup> Subhydric <sup>27(2)</sup> Hygric <sup>7(4)</sup> Subhydric <sup>4(0)</sup> Mesic <sup>1(1)</sup>
<b>Nutrients</b>	Very Poor <sup>11(2)</sup> Poor <sup>22(5)</sup> Medium <sup>1(1)</sup>
<b>Arboreal Lichens</b>	Nil <sup>2(0)</sup> Trace <sup>12(0)</sup> Low <sup>14(3)</sup> Moderate <sup>9(4)</sup> High <sup>8(0)</sup>
<b>Snags (stems/ha)</b>	2 [0-25] *
<b>Down Wood (logs/ha)</b>	9 [0-50] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>29(0)</sup> 6-10 <sup>1(0)</sup> 10-20 <sup>1(1)</sup> 20-40 <sup>6(2)</sup> 40-100 <sup>9(3)</sup> 100 <sup>6(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>5(2)</sup> sandy-clay <sup>0(0)</sup> peat <sup>8(5)</sup> muck <sup>12(0)</sup>
<b>Seral Stage</b>	Pole/Sapling <sup>12(0)</sup> Young <sup>4(0)</sup> Mid-Seral <sup>6(0)</sup> Mature <sup>33(8)</sup> Old-Growth <sup>1(0)</sup>
<b>Height Class (m)</b>	2-5 <sup>1(1)</sup> 5-10 <sup>6(1)</sup> 10-15 <sup>9(4)</sup> 15-20 <sup>2(2)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>16(0)</sup> A (6-30) <sup>47(7)</sup> B (31-50) <sup>3(0)</sup> C (51-75) <sup>2(1)</sup>
<b>Stand Age - BH (yr)</b>	68 [21-160] (70 [40-160])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	79 (31)	58 (28)	137 (59)
<b>Mean Species<sup>(f)</sup></b>	7.4 (11.1)	2.0 (2.0)	11.0 (20.3)
<b>Unique Species<sup>(g)</sup></b>	3 (1)	4 (1)	7 (2)
<b>Dominant Species<sup>(h)</sup></b>	5 (9)	3 (7)	8 (16)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>	
Tree	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>96 (100)</b>	<b>53.1 (60)</b>	
	<i>Larix laricina</i>	tamarack	17 (25)	0.6 (0.8)	
	<i>Betula papyrifera</i>	white birch	3 (13)	+ (0.1)	
	<i>Picea glauca</i>	white spruce	1 (0)	+ (0)	
Shrub	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>76 (100)</b>	<b>39 (60.5)</b>	
	<i>Vaccinium vitis-idaea</i>	bog cranberry	55 (100)	2.6 (6)	
	<i>Oxycoccus microcarpus</i>	small bog cranberry	55 (100)	1 (0.7)	
	<i>Rubus chamaemorus</i>	cloudberry	51 (88)	4.9 (11.4)	
	<i>Chamaedaphne calyculata</i>	leatherleaf	32 (38)	4.7 (4.8)	
	<i>Andromeda polifolia</i>	bog rosemary	21 (0)	0.7 (0)	
	<i>Kalmia polifolia</i>	northern laurel	14 (25)	0.2 (0.2)	
	<i>Salix myrtillofolia</i>	myrtle-leaved willow	13 (50)	0.8 (2.6)	
	<i>Vaccinium myrtilloides</i>	common blueberry	13 (13)	0.1 (0.1)	
	<i>Arctostaphylos rubra</i>	alpine bearberry	10 (0)	0.4 (0)	
	<i>Betula pumila</i>	dwarf birch	8 (38)	1.2 (8.2)	
	<i>Betula glandulosa</i>	bog birch	8 (13)	0.2 (0.4)	
	<i>Ledum palustre</i>	northern Labrador tea	7 (13)	0.1 (0.2)	
	<i>Salix planifolia</i>	flat-leaved willow	6 (38)	0.4 (3.3)	
	<i>Lonicera caerulea</i>	fly honeysuckle	4 (0)	0.1 (0)	
	<i>Rubus arcticus</i>	dwarf raspberry	4 (0)	+ (0)	
	<i>Salix bebbiana</i>	beaked willow	4 (0)	+ (0)	
	<i>Alnus viridis ssp crisper</i>	green alder	3 (0)	0.1 (0)	
	<i>Salix maccalliana</i>	velvet-fruited willow	1 (0)	0.2 (0)	
	<i>Alnus incana ssp tenuifolia</i>	river alder	1 (0)	+ (0)	
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	1 (0)	+ (0)	
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	1 (0)	+ (0)	
	<i>Rosa acicularis</i>	prickly rose	1 (0)	+ (0)	
	<i>Rubus idaeus</i>	wild red raspberry	1 (0)	+ (0)	
	<i>Salix lucida</i>	shining willow	1 (0)	+ (0)	
	<i>Salix pedicellaris</i>	bog willow	1 (0)	+ (0)	
	<i>Vaccinium caespitosum</i>	dwarf bilberry	1 (0)	+ (0)	
	Graminoid	<i>Carex aquatilis</i>	water sedge	13 (13)	0.2 (+)
		<i>Eriophorum vaginatum</i>	sheathed cotton grass	13 (0)	1.1 (0)
		<i>Calamagrostis canadensis</i>	bluejoint	10 (25)	0.1 (+)
<i>Carex disperma</i>		two-seeded sedge	3 (0)	+ (0)	
<i>Carex gynocrates</i>		northern bog sedge	3 (0)	+ (0)	
<i>Carex vaginata</i>		sheathed sedge	3 (0)	+ (0)	
<i>Eriophorum polystachion</i>		tall cotton grass	1 (0)	0.2 (0)	
<i>Eriophorum viridi-carinatum</i>		thin-leaved cotton grass	1 (0)	0.2 (0)	
<i>Eriophorum angustifolium</i>		cotton grass	1 (0)	0.1 (0)	
<i>Carex brunnescens</i>		brownish sedge	1 (0)	+ (0)	
<i>Carex capillaris</i>		hair-like sedge	1 (0)	+ (0)	
<i>Carex leptalea</i>		bristle-stalked sedge	1 (0)	+ (0)	
<i>Carex limosa</i>		mud sedge	1 (0)	+ (0)	
<i>Carex siccata</i>		hay sedge	1 (0)	+ (0)	
Forb		<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	39 (63)	0.9 (0.3)
	<i>Drosera rotundifolia</i>	round-leaved sundew	15 (25)	+ (+)	
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	8 (13)	0.1 (0.1)	
	<i>Orthilia secunda</i>	one-sided wintergreen	7 (38)	+ (0.1)	
	<i>Geocaulon lividum</i>	northern bastard toadflax	6 (0)	0.1 (0)	
	<i>Mitella nuda</i>	bishop's-cap	4 (13)	+ (0.2)	
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	4 (13)	+ (+)	
	<i>Pyrola asarifolia</i>	common pink wintergreen	3 (25)	+ (+)	
	<i>Platanthera hyperborea</i>	northern green bog orchid	3 (13)	+ (+)	
	<i>Epilobium angustifolium</i>	common fireweed	3 (13)	0.1 (+)	
	<i>Achillea millefolium</i>	common yarrow	3 (13)	+ (+)	
	<i>Cornus canadensis</i>	bunchberry	3 (0)	0.1 (0)	
	<i>Parnassia palustris</i>	northern grass-of-parnassus	3 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Chrysosplenium iowense</i>	golden saxifrage	1 (13)	+ (+)
	<i>Mertensia paniculata</i>	tall lungwort	1 (13)	+ (+)
	<i>Calla palustris</i>	water arum	1 (0)	+ (0)
	<i>Cicuta bulbifera</i>	bulb-bearing water-hemlock	1 (0)	+ (0)
	<i>Eriogonum ovalifolium</i>	silver-plant	1 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	1 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	1 (0)	+ (0)
	<i>Hippuris vulgaris</i>	common mare's-tail	1 (0)	+ (0)
	<i>Lemna minor</i>	common duckweed	1 (0)	+ (0)
	<i>Melampyrum lineare</i>	cow-wheat	1 (0)	+ (0)
	<i>Menyanthes trifoliata</i>	buck-bean	1 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	1 (0)	+ (0)
	<i>Pyrola minor</i>	lesser wintergreen	1 (0)	+ (0)
	<i>Ranunculus gmelinii</i>	yellow water crowfoot	1 (0)	+ (0)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	1 (0)	+ (0)
<i>Scheuchzeria palustris</i>	scheuchzeria	1 (0)	+ (0)	
Fern/Allies	<i>Equisetum sylvaticum</i>	woodland horsetail	15 (50)	1.2 (4.8)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	11 (25)	0.1 (0.1)
	<i>Equisetum arvense</i>	common horsetail	10 (0)	0.4 (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	4 (0)	0.1 (0)
	<i>Equisetum pratense</i>	meadow horsetail	1 (0)	0.2 (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>54 (100)</b>	<b>13.7 (37.6)</b>
	<b><i>Sphagnum fuscum</i></b>	<b>rusty peat moss</b>	<b>25 (75)</b>	<b>6.8 (25.4)</b>
	<i>Sphagnum angustifolium</i>	peat moss	20 (63)	2.8 (11)
	<i>Hylocomium splendens</i>	stair-step moss	23 (63)	2.3 (3)
	<i>Dicranum undulatum</i>	wavy dicranum	15 (63)	0.2 (1.3)
	<i>Aulacomnium palustre</i>	tufted moss	13 (13)	0.2 (+)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	8 (38)	0.3 (1.7)
	<i>Tomentypnum nitens</i>	golden moss	8 (0)	0.2 (0)
	<i>Sphagnum magellanicum</i>	midway peat moss	7 (25)	0.4 (1.6)
	<i>Polytrichum strictum</i>	slender hair-cap	6 (38)	+ (0.2)
	<i>Sphagnum warnstorffii</i>	peat moss	6 (13)	1 (1.6)
	<i>Bryum pseudotriquetrum</i>		4 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	3 (13)	+ (+)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	3 (13)	+ (+)
	<i>Polytrichum juniperinum</i>	juniper hair-cap	1 (0)	0.2 (0)
	<i>Sphagnum russowii</i>	wide-tongued peat moss	1 (0)	0.1 (0)
	<i>Brachythecium mildeanum</i>		1 (0)	+ (0)
	<i>Brachythecium rivulare</i>		1 (0)	+ (0)
	<i>Calliergon giganteum</i>		1 (0)	+ (0)
	<i>Conardia compacta</i>		1 (0)	+ (0)
	<i>Drepanocladus aduncus</i>	brown moss	1 (0)	+ (0)
	<i>Hamatocaulis vernicosus</i>	brown moss	1 (0)	+ (0)
	<i>Helodium blandowii</i>		1 (0)	+ (0)
	<i>Leptobryum pyriforme</i>		1 (0)	+ (0)
	<i>Plagiomnium ellipticum</i>		1 (0)	+ (0)
	<i>Pohlia nutans</i>	copper wire moss	1 (0)	+ (0)
	<i>Pohlia sphagnicola</i>		1 (0)	+ (0)
	<i>Rhizomnium gracile</i>		1 (0)	+ (0)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	1 (0)	+ (0)
	Liverwort	<i>Mylia anomala</i>	liverwort	6 (0)
<i>Aneura pinguis</i>		liverwort	1 (0)	+ (0)
<i>Marchantia polymorpha</i>		liverwort	1 (0)	+ (0)
<i>Scapania paludosa</i>		liverwort	1 (0)	+ (0)
Lichen	<b><i>Cladina mitis</i></b>	<b>reindeer lichen</b>	<b>51 (88)</b>	<b>5.4 (7.9)</b>
	<i>Cladonia sulphurina</i>		14 (63)	+ (+)
	<i>Peltigera aphthosa</i>	studded leather lichen	13 (38)	0.1 (0.2)
	<i>Cladonia rangiferina</i>	reindeer lichen	11 (13)	0.3 (+)
	<i>Icmadophila ericetorum</i>		10 (38)	+ (+)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Lichen	<i>Cladina stellaris</i>	reindeer lichen	8 (25)	0.1 (0.3)
	<i>Cladonia cornuta</i>		3 (25)	+ (+)
	<i>Peltigera canina</i>	dog lichen	3 (13)	0.2 (+)
	<i>Cladonia borealis</i>	red pyxie cup lichen	3 (13)	+ (+)
	<i>Cladonia crispata</i>		3 (0)	0.1 (0)
	<i>Lecanora circumborealis</i>		1 (13)	0.5 (4.3)
	<i>Evernia mesomorpha</i>		1 (13)	0.3 (2.8)
	<i>Cladonia botrytes</i>		1 (13)	+ (0.1)
	<i>Bryoria fuscescens</i>	old man's beard	1 (13)	+ (+)
	<i>Cladonia gracilis</i>	graceful pyxie cup	1 (13)	+ (+)
	<i>Parmelia sulcata</i>		1 (13)	+ (+)
	<i>Ramalina pollinaria</i>		1 (13)	+ (+)
	<i>Cladonia cervicornis</i>		1 (0)	0.1 (0)
	<i>Cladonia deformis</i>		1 (0)	0.1 (0)
	<i>Cladina stygia</i>		1 (0)	+ (0)
	<i>Cladonia cenotea</i>		1 (0)	+ (0)
	<i>Cladonia chlorophaea</i>		1 (0)	+ (0)
	<i>Cladonia uncialis</i>		1 (0)	+ (0)
	<i>Hypogymnia physodes</i>		1 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		1 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

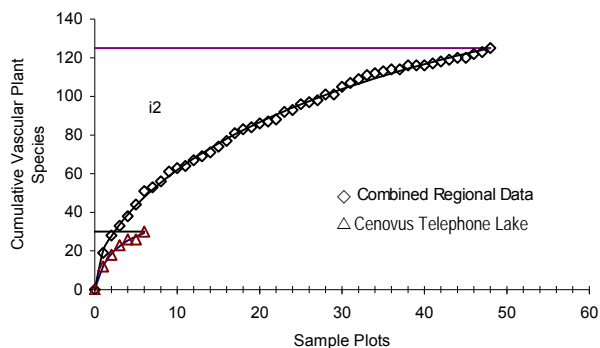
<b>Ecosite Phase</b>	i2- Shrubby Bog
<b>Sample Plots</b>	48 (6)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>32(0)</sup> 1-5 <sup>5(0)</sup>
<b>Moisture</b>	Hydric <sup>6(1)</sup> Subhydric <sup>25(4)</sup> Hygic <sup>7(0)</sup> Subhydric <sup>3(1)</sup>
<b>Nutrients</b>	Very Poor <sup>12(2)</sup> Poor <sup>26(4)</sup>
<b>Arboreal Lichens</b>	Nil <sup>4(0)</sup> Trace <sup>4(2)</sup> Low <sup>21(1)</sup> Moderate <sup>2(0)</sup> High <sup>2(0)</sup>
<b>Snags (stems/ha)</b>	3 [0-50] *
<b>Down Wood (logs/ha)</b>	10 [0-175] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>12(0)</sup> 10-20 <sup>1(0)</sup> 20-40 <sup>8(0)</sup> 40-100 <sup>4(2)</sup> 100 <sup>8(0)</sup>
<b>Soil Texture Class</b>	peat <sup>11(6)</sup> muck <sup>19(0)</sup>
<b>Seral Stage</b>	Initial <sup>1(1)</sup> Herb <sup>1(1)</sup> LowShrub <sup>1(0)</sup> Tall Shrub <sup>22(3)</sup> Pole/Sapling <sup>3(0)</sup> Mid-Seral <sup>4(0)</sup> Mature <sup>9(0)</sup>
<b>Height Class (m)</b>	2-5 <sup>7(1)</sup> 5-10 <sup>13(2)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>34(2)</sup> A (6-30) <sup>6(0)</sup> B (31-50) <sup>2(0)</sup> C (51-75) <sup>2(0)</sup>
<b>Stand Age - BH (yr)</b>	52 [32-80] (78 [78-78])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	71 (18)	51 (18)	122 (36)
<b>Mean Species<sup>(f)</sup></b>	9.9 (9.8)	4.3 (6.8)	14.2 (16.7)
<b>Unique Species<sup>(g)</sup></b>	0 (0)	8 (4)	8 (4)
<b>Dominant Species<sup>(h)</sup></b>	7 (11)	4 (8)	11 (19)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>94 (100)</b>	<b>45.9 (13.6)</b>
	<i>Larix laricina</i>	tamarack	19 (17)	0.6 (0.2)
	<i>Pinus banksiana</i>	jack pine	4 (17)	0.4 (3.3)
	<i>Betula papyrifera</i>	white birch	2 (0)	+ (0)
Shrub	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>88 (83)</b>	<b>32.5 (49.1)</b>
	<i>Oxycoccus microcarpus</i>	small bog cranberry	85 (100)	2.3 (1.5)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	73 (67)	2.4 (4.3)
	<b><i>Chamaedaphne calyculata</i></b>	<b>leatherleaf</b>	<b>65 (83)</b>	<b>21.1 (20.9)</b>
	<i>Rubus chamaemorus</i>	cloudberry	58 (83)	2.4 (6.2)
	<i>Kalmia polifolia</i>	northern laurel	38 (83)	1 (2.5)
	<i>Andromeda polifolia</i>	bog rosemary	27 (67)	1.6 (2)
	<i>Betula glandulosa</i>	bog birch	19 (0)	0.9 (0)
	<i>Salix myrtillofolia</i>	myrtle-leaved willow	13 (0)	0.8 (0)
	<i>Ledum palustre</i>	northern Labrador tea	13 (0)	0.1 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	10 (0)	0.1 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	8 (17)	0.2 (0.1)
	<i>Salix planifolia</i>	flat-leaved willow	8 (0)	0.3 (0)
	<i>Salix pedicularis</i>	bog willow	8 (0)	0.2 (0)
	<i>Rubus arcticus</i>	dwarf raspberry	8 (0)	+ (0)
	<i>Salix lucida</i>	shining willow	6 (0)	0.2 (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	6 (0)	+ (0)
	<i>Alnus viridis ssp crispa</i>	green alder	4 (0)	0.3 (0)
	<i>Rubus idaeus</i>	wild red raspberry	2 (0)	0.3 (0)
	<i>Betula pumila</i>	dwarf birch	2 (0)	0.2 (0)
	<i>Salix bebbiana</i>	beaked willow	2 (0)	0.2 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	2 (0)	+ (0)
	<i>Empetrum nigrum</i>	crowberry	2 (0)	+ (0)
	<i>Linnaea borealis</i>	twinflower	2 (0)	+ (0)
	<i>Ribes lacustre</i>	bristly black currant	2 (0)	+ (0)
	<i>Ribes triste</i>	wild red currant	2 (0)	+ (0)
	<i>Rosa acicularis</i>	prickly rose	2 (0)	+ (0)
	<i>Rubus pubescens</i>	dewberry	2 (0)	+ (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	2 (0)	+ (0)
	<i>Vaccinium caespitosum</i>	dwarf bilberry	2 (0)	+ (0)
Graminoid	<i>Eriophorum vaginatum</i>	sheathed cotton grass	33 (83)	2.4 (8.6)
	<i>Carex aquatilis</i>	water sedge	23 (17)	0.2 (+)
	<i>Carex gynocrates</i>	northern bog sedge	10 (33)	+ (+)
	<i>Eriophorum brachyantherum</i>	close-sheathed cotton grass	6 (0)	0.1 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	4 (0)	+ (0)
	<i>Carex vaginata</i>	sheathed sedge	4 (0)	+ (0)
	<i>Carex diandra</i>	two-stamened sedge	2 (17)	+ (+)
	<i>Eriophorum viridi-carinatum</i>	thin-leaved cotton grass	2 (0)	0.8 (0)
	<i>Calamagrostis inexpansa</i>	northern reed grass	2 (0)	+ (0)
	<i>Carex disperma</i>	two-seeded sedge	2 (0)	+ (0)
	<i>Eriophorum chamissonis</i>	russett cotton grass	2 (0)	+ (0)
	Forb	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	52 (50)
<i>Drosera rotundifolia</i>		round-leaved sundew	25 (17)	+ (+)
<i>Smilacina stellata</i>		star-flowered Solomon's-seal	10 (50)	0.6 (5)
<i>Epilobium angustifolium</i>		common fireweed	10 (0)	+ (0)
<i>Mitella nuda</i>		bishop's-cap	6 (0)	+ (0)
<i>Orthilia secunda</i>		one-sided wintergreen	6 (0)	+ (0)
<i>Spiranthes romanzoffiana</i>		hooded ladies'-tresses	6 (0)	+ (0)
<i>Achillea millefolium</i>		common yarrow	4 (0)	+ (0)
<i>Amerorchis rotundifolia</i>		round-leaved orchid	4 (0)	+ (0)
<i>Aster ciliolatus</i>		Lindley's aster	4 (0)	+ (0)
<i>Cornus canadensis</i>		bunchberry	4 (0)	+ (0)
<i>Petasites frigidus var palmatus</i>		palmate-leaved coltsfoot	4 (0)	+ (0)
<i>Petasites frigidus var sagittatus</i>		arrow-leaved coltsfoot	4 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Pyrola asarifolia</i>	common pink wintergreen	4 (0)	+ (0)
	<i>Senecio pauperculus</i>	balsam groundsel	4 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	2 (0)	+ (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	2 (0)	+ (0)
	<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	2 (0)	+ (0)
	<i>Menyanthes trifoliata</i>	buck-bean	2 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)
	<i>Viola palustris</i>	marsh violet	2 (0)	+ (0)
Fern/Allies	<i>Equisetum sylvaticum</i>	woodland horsetail	27 (0)	0.6 (0)
	<i>Equisetum arvense</i>	common horsetail	13 (0)	0.3 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	13 (0)	0.1 (0)
	<i>Equisetum fluviatile</i>	swamp horsetail	4 (0)	+ (0)
	<i>Equisetum palustre</i>	marsh horsetail	2 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>44 (0)</b>	<b>6.3 (0)</b>
	<b><i>Sphagnum fuscum</i></b>	<b>rusty peat moss</b>	<b>27 (83)</b>	<b>6.9 (16.8)</b>
	<b><i>Sphagnum angustifolium</i></b>	<b>peat moss</b>	<b>23 (67)</b>	<b>5.8 (24.6)</b>
	<i>Sphagnum magellanicum</i>	midway peat moss	19 (67)	2.7 (14.1)
	<i>Aulacomnium palustre</i>	tufted moss	19 (17)	0.4 (0.2)
	<i>Tomentypnum nitens</i>	golden moss	19 (0)	2.3 (0)
	<i>Polytrichum strictum</i>	slender hair-cap	17 (67)	+ (0.3)
	<i>Hylocomium splendens</i>	stair-step moss	17 (0)	1.4 (0)
	<i>Dicranum undulatum</i>	wavy dicranum	13 (50)	0.6 (3.8)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	10 (0)	1.6 (0)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	6 (17)	0.5 (2.4)
	<i>Sphagnum fallax</i>	peat moss	6 (0)	0.4 (0)
	<i>Polytrichum commune</i>	common hair-cap	4 (17)	+ (0.1)
	<i>Pohlia nutans</i>	copper wire moss	4 (0)	+ (0)
	<i>Pohlia sphagnicola</i>		4 (0)	+ (0)
	<i>Limprichtia revolvens</i>	brown moss	2 (17)	0.2 (1.5)
	<i>Sphagnum warnstorffii</i>	peat moss	2 (0)	0.8 (0)
	<i>Sphagnum fimbriatum</i>	fringed bog moss	2 (0)	0.5 (0)
	<i>Sphagnum jensenii</i>	pendant branch peat moss	2 (0)	0.2 (0)
	<i>Sphagnum squarrosum</i>	squarrose peat moss	2 (0)	0.2 (0)
	<i>Calliergon giganteum</i>		2 (0)	0.1 (0)
	<i>Calliergon stramineum</i>		2 (0)	+ (0)
	<i>Drepanocladus aduncus</i>	brown moss	2 (0)	+ (0)
	<i>Pylaisiella polyantha</i>		2 (0)	+ (0)
	<i>Sphagnum riparium</i>	shore-growing peat moss	2 (0)	+ (0)
	<i>Warnstorfia fluitans</i>		2 (0)	+ (0)
Liverwort	<i>Mylia anomala</i>	liverwort	6 (17)	+ (+)
	<i>Cephalozia connivens</i>	liverwort	2 (0)	+ (0)
	<i>Scapania paludosa</i>	liverwort	2 (0)	+ (0)
Lichen	<b><i>Cladina mitis</i></b>	<b>reindeer lichen</b>	<b>60 (17)</b>	<b>7.4 (0.7)</b>
	<i>Cladonia sulphurina</i>		21 (67)	0.2 (1.3)
	<i>Peltigera aphthosa</i>	studded leather lichen	15 (0)	+ (0)
	<i>Cladonia borealis</i>	red pyxie cup lichen	10 (67)	+ (0.1)
	<i>Cladonia stellaris</i>	reindeer lichen	10 (0)	0.1 (0)
	<i>Cladonia rangiferina</i>	reindeer lichen	8 (0)	1 (0)
	<i>Cladonia gracilis</i>	graceful pyxie cup	6 (50)	+ (0.3)
	<i>Immadophila ericetorum</i>		4 (0)	+ (0)
	<i>Bryoria furcellata</i>	old man's beard	2 (17)	+ (+)
	<i>Cladonia botrytes</i>		2 (17)	+ (+)
	<i>Cladonia carneola</i>		2 (17)	+ (+)
	<i>Trapeliopsis granulosa</i>		2 (17)	+ (+)
	<i>Cladonia cariosa</i>		2 (0)	+ (0)
	<i>Cladonia coccifera</i>	British solider lichen	2 (0)	+ (0)
	<i>Cladonia cornuta</i>		2 (0)	+ (0)
	<i>Cladonia cristatella</i>		2 (0)	+ (0)
	<i>Cladonia pyxidata</i>		2 (0)	+ (0)

<b>Plant Type</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>Frequency (%)<sup>1</sup></b>	<b>Mean Cover (%)<sup>2</sup></b>
Lichen	<i>Cladonia rei</i>		2 (0)	+ (0)
	<i>Hypogymnia physodes</i>		2 (0)	+ (0)
	<i>Peltigera canina</i>	dog lichen	2 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		2 (0)	+ (0)
	<i>Tuckermannopsis pinastri</i>		2 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).



### Comparison of Regional and Project Vegetation Data

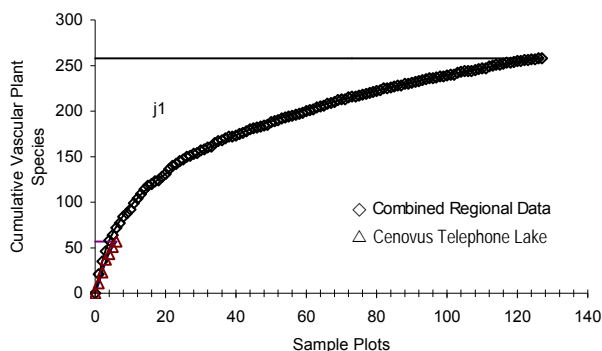
<b>Ecosite Phase</b>	j1- Treed Poor Fen
<b>Sample Plots</b>	127 (6)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>55(0)</sup> 1-5 <sup>31(2)</sup>
<b>Moisture</b>	Hydric <sup>30(0)</sup> Subhydric <sup>30(4)</sup> Hygric <sup>17(1)</sup> Subhygric <sup>7(0)</sup> Mesic <sup>2(0)</sup>
<b>Nutrients</b>	Very Poor <sup>3(1)</sup> Poor <sup>20(2)</sup> Medium <sup>25(1)</sup> Rich <sup>8(1)</sup> Very Rich <sup>2(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>7(0)</sup> Trace <sup>12(0)</sup> Low <sup>17(1)</sup> Moderate <sup>21(2)</sup> High <sup>24(2)</sup>
<b>Snags (stems/ha)</b>	41 [0-300] *
<b>Down Wood (logs/ha)</b>	50 [0-400] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>51(0)</sup> 6-10 <sup>0(0)</sup> 10-20 <sup>1(0)</sup> 20-40 <sup>7(1)</sup> 40-100 <sup>13(1)</sup> 100 <sup>12(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>7(3)</sup> clay <sup>1(0)</sup> peat <sup>9(2)</sup> muck <sup>23(0)</sup>
<b>Seral Stage</b>	Tall Shrub <sup>4(0)</sup> Pole/Sapling <sup>11(1)</sup> Young <sup>6(0)</sup> Mid-Seral <sup>14(0)</sup> Mature <sup>54(4)</sup> Old-Growth <sup>2(0)</sup>
<b>Height Class (m)</b>	5-10 <sup>4(2)</sup> 10-15 <sup>12(1)</sup> 15-20 <sup>6(1)</sup> >20 <sup>5(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>20(0)</sup> A (6-30) <sup>55(6)</sup> B (31-50) <sup>47(0)</sup> C (51-75) <sup>5(0)</sup>
<b>Stand Age - BH (yr)</b>	70 [26-108] (77 [49-105])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	169 (39)	64 (20)	233 (59)
<b>Mean Species<sup>(f)</sup></b>	13.5 (13)	4 (7.2)	17.5 (20.2)
<b>Unique Species<sup>(g)</sup></b>	3 (2)	5 (0)	8 (2)
<b>Dominant Species<sup>(h)</sup></b>	5 (10)	2 (8)	7 (18)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLISA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>	
Tree	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>87 (83)</b>	<b>48.6 (42)</b>	
	<b><i>Larix laricina</i></b>	<b>tamarack</b>	<b>82 (100)</b>	<b>21.8 (20.6)</b>	
	<i>Betula papyrifera</i>	white birch	12 (0)	0.5 (0)	
	<i>Picea glauca</i>	white spruce	8 (17)	0.4 (3.7)	
	<i>Abies balsamea</i>	balsam fir	4 (0)	+ (0)	
	<i>Populus tremuloides</i>	aspen	2 (0)	0.1 (0)	
	<i>Pinus banksiana</i>	jack pine	2 (0)	+ (0)	
	<i>Populus balsamifera</i>	balsam poplar	1 (0)	+ (0)	
Shrub	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>73 (83)</b>	<b>21.3 (28.6)</b>	
	<i>Vaccinium vitis-idaea</i>	bog cranberry	57 (50)	2.8 (2.6)	
	<i>Oxycoccus microcarpus</i>	small bog cranberry	46 (33)	1.6 (0.7)	
	<i>Betula pumila</i>	dwarf birch	37 (83)	4.9 (14.6)	
	<i>Salix myrtilifolia</i>	myrtle-leaved willow	27 (67)	1.5 (3)	
	<i>Rubus chamaemorus</i>	cloudberry	25 (50)	0.8 (3)	
	<i>Arctostaphylos rubra</i>	alpine bearberry	21 (33)	0.8 (1.9)	
	<i>Rubus arcticus</i>	dwarf raspberry	21 (17)	0.2 (+)	
	<i>Salix planifolia</i>	flat-leaved willow	19 (33)	2.2 (11)	
	<i>Lonicera caerulea</i>	fly honeysuckle	19 (0)	0.4 (0)	
	<i>Vaccinium myrtilloides</i>	common blueberry	14 (0)	0.3 (0)	
	<i>Andromeda polifolia</i>	bog rosemary	11 (0)	0.4 (0)	
	<i>Betula glandulosa</i>	bog birch	10 (0)	1.1 (0)	
	<i>Linnaea borealis</i>	twinflower	10 (0)	0.1 (0)	
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	10 (0)	0.1 (0)	
	<i>Salix bebbiana</i>	beaked willow	9 (0)	0.5 (0)	
	<i>Rosa acicularis</i>	prickly rose	8 (0)	0.1 (0)	
	<i>Salix candida</i>	hoary willow	7 (17)	0.5 (0.1)	
	<i>Ribes hudsonianum</i>	northern black currant	7 (17)	0.1 (0.3)	
	<i>Ribes triste</i>	wild red currant	7 (17)	+ (0.1)	
	<i>Alnus incana ssp tenuifolia</i>	river alder	7 (0)	0.5 (0)	
	<i>Kalmia polifolia</i>	northern laurel	5 (33)	0.1 (0.2)	
	<i>Chamaedaphne calyculata</i>	leatherleaf	5 (17)	0.6 (2.8)	
	<i>Salix maccalliana</i>	velvet-fruited willow	5 (17)	0.5 (1.7)	
		<i>Rubus pubescens</i>	dewberry	5 (0)	+ (0)
		<i>Salix pedicellaris</i>	bog willow	4 (17)	0.3 (3.5)
		<i>Potentilla fruticosa</i>	shrubby cinquefoil	4 (0)	0.2 (0)
		<i>Arctostaphylos uva-ursi</i>	common bearberry	4 (0)	0.1 (0)
		<i>Oxycoccus quadripetalus</i>	large bog cranberry	3 (17)	+ (0.2)
		<i>Myrica gale</i>	sweet gale	3 (0)	0.1 (0)
		<i>Lonicera dioica</i>	twining honeysuckle	3 (0)	+ (0)
		<i>Salix lucida</i>	shining willow	3 (0)	+ (0)
		<i>Salix scouleriana</i>	Scouler's willow	2 (17)	+ (0.1)
		<i>Alnus viridis ssp crispa</i>	green alder	2 (0)	0.1 (0)
		<i>Salix arbusculoides</i>	shrubby willow	2 (0)	0.1 (0)
		<i>Ribes lacustre</i>	bristly black currant	2 (0)	+ (0)
		<i>Ribes oxycanthoides</i>	northern gooseberry	2 (0)	+ (0)
		<i>Rubus idaeus</i>	wild red raspberry	2 (0)	+ (0)
		<i>Salix discolor</i>	pussy willow	2 (0)	+ (0)
		<i>Shepherdia canadensis</i>	Canada buffaloberry	2 (0)	+ (0)
		<i>Symphoricarpos albus</i>	snowberry	2 (0)	+ (0)
		<i>Viburnum edule</i>	low-bush cranberry	2 (0)	+ (0)
		<i>Ledum palustre</i>	northern Labrador tea	1 (17)	+ (0.5)
		<i>Salix lutea</i>	yellow willow	1 (0)	0.1 (0)
		<i>Amelanchier alnifolia</i>	saskatoon	1 (0)	+ (0)
		<i>Cornus stolonifera</i>	red-osier dogwood	1 (0)	+ (0)
		<i>Empetrum nigrum</i>	crowberry	1 (0)	+ (0)
	<i>Juniperus horizontalis</i>	creeping juniper	1 (0)	+ (0)	
	<i>Prunus pensylvanica</i>	pin cherry	1 (0)	+ (0)	
	<i>Ribes glandulosum</i>	skunk currant	1 (0)	+ (0)	
Shrub	<i>Salix alaxensis</i>	Alaska willow	1 (0)	+ (0)	
	<i>Salix glauca</i>	smooth willow	1 (0)	+ (0)	
	<i>Spiraea alba</i>	narrow-leaved meadowsweet	1 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Carex aquatilis</i>	water sedge	42 (67)	1.5 (3)
	<i>Calamagrostis canadensis</i>	bluejoint	28 (33)	1 (0.1)
	<i>Carex gynocrates</i>	northern bog sedge	20 (33)	0.4 (0.9)
	<i>Carex disperma</i>	two-seeded sedge	16 (0)	0.4 (0)
	<i>Carex vaginata</i>	sheathed sedge	12 (0)	0.2 (0)
	<i>Carex diandra</i>	two-stamened sedge	6 (0)	0.2 (0)
	<i>Carex paupercula</i>	poor sedge	5 (33)	0.1 (0.1)
	<i>Carex tenuiflora</i>	thin-flowered sedge	5 (17)	0.1 (+)
	<i>Carex leptalea</i>	bristle-stalked sedge	5 (0)	+ (0)
	<i>Carex limosa</i>	mud sedge	5 (0)	+ (0)
	<i>Eriophorum viridi-carinatum</i>	thin-leaved cotton grass	4 (0)	0.1 (0)
	<i>Carex canescens ssp canescens</i>	short sedge	3 (0)	+ (0)
	<i>Carex prairea</i>	prairie sedge	2 (0)	0.2 (0)
	<i>Carex utriculata</i>	small bottle sedge	2 (0)	0.2 (0)
	<i>Carex brunnescens</i>	brownish sedge	2 (0)	+ (0)
	<i>Deschampsia cespitosa</i>	tufted hair grass	2 (0)	+ (0)
	<i>Eleocharis palustris</i>	creeping spike-rush	2 (0)	+ (0)
	<i>Elymus trachycaulus</i>	slender wheatgrass	2 (0)	+ (0)
	<i>Leymus innovatus</i>	hairy wild rye	2 (0)	+ (0)
	<i>Luzula parviflora</i>	small-flowered wood-rush	2 (0)	+ (0)
	<i>Agrostis scabra</i>	rough hair grass	1 (0)	+ (0)
	<i>Calamagrostis inexpansa</i>	northern reed grass	1 (0)	+ (0)
	<i>Carex capillaris</i>	hair-like sedge	1 (0)	+ (0)
	<i>Carex capitata</i>	capitate sedge	1 (0)	+ (0)
	<i>Carex concinna</i>	beautiful sedge	1 (0)	+ (0)
	<i>Carex lasiocarpa</i>	hairy-fruited sedge	1 (0)	+ (0)
	<i>Carex leptopoda</i>	taper-fruit short-scale sedge	1 (0)	+ (0)
	<i>Carex pachystachya</i>	sedge	1 (0)	+ (0)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	1 (0)	+ (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	1 (0)	+ (0)
<i>Typha latifolia</i>	common cattail	1 (0)	+ (0)	
Forb	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	54 (67)	2.9 (0.8)
	<i>Mitella nuda</i>	bishop's-cap	29 (17)	0.2 (0.1)
	<i>Orthilia secunda</i>	one-sided wintergreen	22 (33)	+ (+)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	21 (0)	0.5 (0)
	<i>Drosera rotundifolia</i>	round-leaved sundew	18 (0)	0.1 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	15 (0)	0.2 (0)
	<i>Geocalaon lividum</i>	northern bastard toadflax	14 (0)	0.1 (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	12 (17)	0.3 (0.1)
	<i>Epilobium angustifolium</i>	common fireweed	12 (0)	0.3 (0)
	<i>Achillea millefolium</i>	common yarrow	12 (0)	0.1 (0)
	<i>Caltha palustris</i>	marsh-marigold	10 (0)	0.2 (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	9 (33)	+ (0.1)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	9 (17)	0.1 (0.6)
	<i>Cornus canadensis</i>	bunchberry	8 (1)	0.1 (+)
	<i>Stellaria longipes</i>	long-stalked chickweed	8 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	6 (0)	0.1 (0)
	<i>Galium trifidum</i>	small bedstraw	6 (0)	+ (0)
	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	6 (0)	+ (0)
	<i>Epilobium leptophyllum</i>	narrow-leaved willowherb	5 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	5 (0)	+ (0)
	<i>Galium boreale</i>	northern bedstraw	5 (0)	+ (0)
	<i>Melampyrum lineare</i>	cow-wheat	5 (0)	+ (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	5 (0)	+ (0)
	<i>Menyanthes trifoliata</i>	buck-bean	4 (0)	0.1 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	4 (0)	+ (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Mertensia paniculata</i>	tall lungwort	4 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	4 (0)	+ (0)
	<i>Rumex occidentalis</i>	western dock	4 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	3 (17)	+ (1)
	<i>Epilobium palustre</i>	marsh willowherb	3 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	3 (0)	+ (0)
	<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	2 (17)	+ (0.3)
	<i>Calla palustris</i>	water arum	2 (0)	0.1 (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	2 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	2 (0)	+ (0)
	<i>Coptis trifolia</i>	goldthread	2 (0)	+ (0)
	<i>Galium labradoricum</i>	Labrador bedstraw	2 (0)	+ (0)
	<i>Listera cordata</i>	heart-leaved twayblade	2 (0)	+ (0)
	<i>Lysimachia thyrsoiflora</i>	tufted loosestrife	2 (0)	+ (0)
	<i>Malaxis paludosa</i>	bog adder's-mouth	2 (0)	+ (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	2 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	2 (0)	+ (0)
	<i>Ranunculus gmelinii</i>	yellow water crowfoot	2 (0)	+ (0)
	<i>Senecio pauperculus</i>	balsam groundsel	2 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	2 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	2 (0)	+ (0)
	<i>Triglochin maritima</i>	seaside arrow-grass	2 (0)	+ (0)
	<i>Viola renifolia</i>	kidney-leaved violet	2 (0)	+ (0)
	<i>Actaea rubra</i>	red and white baneberry	1 (0)	+ (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	1 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	1 (0)	+ (0)
	<i>Epilobium ciliatum</i>	northern willowherb	1 (0)	+ (0)
	<i>Fragaria vesca</i>	woodland strawberry	1 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	1 (0)	+ (0)
	<i>Hippuris vulgaris</i>	common mare's-tail	1 (0)	+ (0)
	<i>Leptarrhena pyrolifolia</i>	leather-leaved saxifrage	1 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	1 (0)	+ (0)
	<i>Pedicularis labradorica</i>	Labrador lousewort	1 (0)	+ (0)
	<i>Petasites frigidus</i>		1 (0)	+ (0)
	<i>Platanthera obtusata</i>	blunt-leaved bog orchid	1 (0)	+ (0)
	<i>Platanthera orbiculata</i>	round-leaved bog orchid	1 (0)	+ (0)
<i>Potamogeton gramineus</i>	various-leaved pondweed	1 (0)	+ (0)	
<i>Ranunculus sceleratus</i>	celery-leaved buttercup	1 (0)	+ (0)	
<i>Sarracenia purpurea</i>	pitcher-plant	1 (0)	+ (0)	
<i>Scutellaria galericulata</i>	marsh skullcap	1 (0)	+ (0)	
<i>Stellaria calycantha</i>	northern stitchwort	1 (0)	+ (0)	
<i>Utricularia intermedia</i>	flat-leaved bladderwort	1 (0)	+ (0)	
<i>Viola canadensis</i>	western Canada violet	1 (0)	+ (0)	
<i>Viola palustris</i>	marsh violet	1 (0)	+ (0)	
Fern/Allies	<i>Equisetum arvense</i>	common horsetail	32 (17)	2.1 (2.8)
	<i>Equisetum sylvaticum</i>	woodland horsetail	22 (17)	1 (0.1)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	18 (17)	0.2 (1.5)
	<i>Equisetum fluviatile</i>	swamp horsetail	15 (17)	1.2 (+)
	<i>Equisetum pratense</i>	meadow horsetail	3 (0)	0.1 (0)
	<i>Equisetum palustre</i>	marsh horsetail	1 (0)	+ (0)
	<i>Equisetum variegatum</i>	variegated horsetail	1 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	1 (0)	+ (0)
Moss	<b><i>Pleurozium schreberi</i></b>	<b>Schreber's moss</b>	<b>51 (83)</b>	<b>12 (21.4)</b>
	<b><i>Hylocomium splendens</i></b>	<b>stair-step moss</b>	<b>40 (50)</b>	<b>6.4 (10.8)</b>
	<i>Aulacomnium palustre</i>	tufted moss	34 (33)	1.4 (0.3)
	<i>Tomentypnum nitens</i>	golden moss	26 (33)	3.7 (2.5)
	<i>Dicranum undulatum</i>	wavy dicranum	14 (50)	0.3 (0.9)
	<i>Sphagnum fuscum</i>	rusty peat moss	13 (17)	2.7 (0.1)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	13 (0)	0.9 (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Moss	<i>Sphagnum angustifolium</i>	peat moss	11 (67)	2.2 (28)
	<i>Polytrichum strictum</i>	slender hair-cap	11 (50)	0.2 (2.7)
	<i>Sphagnum warnstorffii</i>	peat moss	7 (0)	0.7 (0)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	5 (0)	0.7 (0)
	<i>Calliergon richardsonii</i>		5 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	5 (0)	+ (0)
	<i>Pohlia nutans</i>	copper wire moss	5 (0)	+ (0)
	<i>Calliergon giganteum</i>		4 (0)	0.3 (0)
	<i>Sanionia uncinata</i>	brown moss	4 (0)	+ (0)
	<i>Polytrichum commune</i>	common hair-cap	3 (17)	+ (+)
	<i>Sphagnum russowii</i>	wide-tongued peat moss	2 (17)	0.3 (+)
	<i>Abietinella abietina</i>		2 (17)	0.1 (0.6)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	2 (0)	0.2 (0)
	<i>Sphagnum magellanicum</i>	midway peat moss	2 (0)	0.2 (0)
	<i>Drepanocladus aduncus</i>	brown moss	2 (0)	0.1 (0)
	<i>Plagiomnium ellipticum</i>		2 (0)	0.1 (0)
	<i>Dicranum scoparium</i>	broom moss	2 (0)	+ (0)
	<i>Helodium blandowii</i>		2 (0)	+ (0)
	<i>Pohlia sphagnicola</i>		2 (0)	+ (0)
	<i>Rhizomnium magnifolium</i>		2 (0)	+ (0)
	<i>Amblystegium serpens</i>		1 (0)	+ (0)
	<i>Campylium stellatum</i>		1 (0)	+ (0)
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	1 (0)	+ (0)
	<i>Leptobryum pyriforme</i>		1 (0)	+ (0)
	<i>Leptodictyum riparium</i>		1 (0)	+ (0)
	<i>Plagiomnium ciliare</i>		1 (0)	+ (0)
	<i>Plagiomnium cuspidatum</i>		1 (0)	+ (0)
	<i>Plagiomnium rostratum</i>		1 (0)	+ (0)
	<i>Plagiothecium denticulatum</i>		1 (0)	+ (0)
	<i>Pylaisiella polyantha</i>		1 (0)	+ (0)
<i>Splachnum luteum</i>	yellow collar moss	1 (0)	+ (0)	
<i>Thuidium recognitum</i>		1 (0)	+ (0)	
Liverwort	<i>Ptilidium ciliare</i>	liverwort	5 (0)	+ (0)
	<i>Mylia anomala</i>	liverwort	4 (0)	+ (0)
	<i>Calypogeia sphagnicola</i>	liverwort	2 (0)	+ (0)
	<i>Ptilidium pulcherrimum</i>	liverwort	2 (0)	+ (0)
	<i>Conocephalum conicum</i>	liverwort	1 (0)	+ (0)
	<i>Lepidozia reptans</i>	liverwort	1 (0)	+ (0)
	<i>Lophocolea heterophylla</i>	liverwort	1 (0)	+ (0)
Lichen	<i>Cladina mitis</i>	reindeer lichen	35 (67)	1.9 (1)
	<i>Peltigera aphthosa</i>	studded leather lichen	25 (17)	0.1 (0.3)
	<i>Cladonia sulphurina</i>		11 (67)	0.1 (0.1)
	<i>Peltigera neopolydactyla</i>		9 (50)	+ (0.2)
	<i>Peltigera canina</i>	dog lichen	8 (0)	0.2 (0)
	<i>Cladina stellaris</i>	reindeer lichen	4 (17)	+ (+)
	<i>Cladina rangiferina</i>	reindeer lichen	4 (0)	0.1 (0)
	<i>Cladonia cornuta</i>		2 (17)	+ (0.1)
	<i>Cladonia borealis</i>	red pyxie cup lichen	2 (17)	+ (+)
	<i>Cladonia coniocraea</i>		2 (0)	+ (0)
	<i>Cladonia crispata</i>		2 (0)	+ (0)
	<i>Cladonia botrytes</i>		1 (17)	+ (0.1)
	<i>Cladonia gracilis</i>	graceful pyxie cup	1 (17)	+ (+)
	<i>Cladonia deformis</i>		1 (0)	+ (0)
	<i>Cladonia pyxidata</i>		1 (0)	+ (0)
	<i>Cladonia scabruscula</i>		1 (0)	+ (0)
	<i>Hypogymnia physodes</i>		1 (0)	+ (0)
<i>Icmadophila ericetorum</i>		1 (0)	+ (0)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

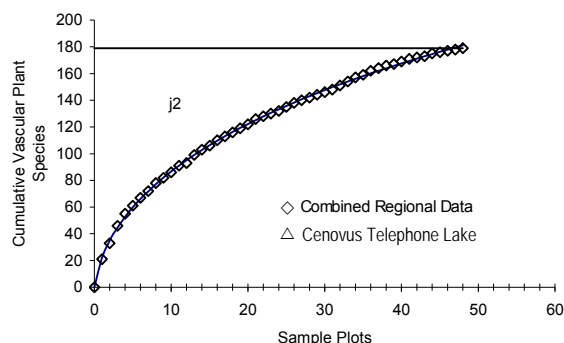
<b>Ecosite Phase</b>	j2- Shrubby Poor Fen
<b>Sample Plots</b>	49 (3)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>36(1)</sup> 1-5 <sup>3(0)</sup>
<b>Moisture</b>	Aquatic <sup>1(0)</sup> Hydric <sup>12(0)</sup> Subhydric <sup>11B<sup>0(2)</sup></sup> Hygic <sup>5(0)</sup> Subhygic <sup>1(1)</sup>
<b>Nutrients</b>	Very Poor <sup>2(0)</sup> Poor <sup>19(3)</sup> Medium <sup>10(0)</sup> Rich <sup>4(0)</sup> Very
<b>Arboreal Lichens</b>	Nil <sup>13(1)</sup> Trace <sup>2(0)</sup> Low <sup>12(1)</sup> Moderate <sup>6(1)</sup> High <sup>3(0)</sup>
<b>Snags (stems/ha)</b>	2 [0-25] *
<b>Down Wood (logs/ha)</b>	1 [0-25] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>7(0)</sup> 6-10 <sup>0(0)</sup> 10-20 <sup>1(0)</sup> 20-40 <sup>11(1)</sup> 40-100 <sup>2(0)</sup> 100 <sup>7(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>1(1)</sup> peat <sup>7(2)</sup> muck <sup>16(0)</sup>
<b>Seral Stage</b>	Low Shrub <sup>4(0)</sup> Tall Shrub <sup>33(2)</sup> Pole/Sapling <sup>3(1)</sup> Young <sup>1(0)</sup> Mid-Seral <sup>1(0)</sup> Mature <sup>3(0)</sup>
<b>Height Class (m)</b>	2-5 <sup>4(1)</sup> 5-10 <sup>11(1)</sup> 10-15 <sup>1(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>41(2)</sup> A (6-30) <sup>6(1)</sup> B (31-50) <sup>2(0)</sup>
<b>Stand Age - BH (yr)</b>	47 [15-100] (15 [15-15])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species <sup>(e)</sup></b>	126 (24)	43 (11)	169 (35)
<b>Mean Species <sup>(f)</sup></b>	13.4 (14)	3.3 (5)	16.8 (19)
<b>Unique Species <sup>(g)</sup></b>	1 (0)	4 (0)	5 (0)
<b>Dominant Species <sup>(h)</sup></b>	7 (14)	0 (8)	7 (22)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>80 (100)</b>	<b>24.4 (30.1)</b>
	<b><i>Larix laricina</i></b>	<b>tamarack</b>	<b>69 (67)</b>	<b>11.1 (0.8)</b>
	<i>Betula papyrifera</i>	white birch	14 (67)	0.5 (0.2)
	<i>Pinus banksiana</i>	jack pine	8 (67)	0.2 (3.5)
	<i>Picea glauca</i>	white spruce	6 (0)	0.5 (0)
	<i>Populus tremuloides</i>	aspen	4 (0)	+ (0)
	<i>Abies balsamea</i>	balsam fir	2 (0)	+ (0)
Shrub	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>69 (100)</b>	<b>14.5 (38.3)</b>
	<i>Oxycoccus microcarpus</i>	small bog cranberry	63 (100)	2.5 (0.7)
	<b><i>Chamaedaphne calyculata</i></b>	<b>leatherleaf</b>	<b>39 (100)</b>	<b>7.1 (11.5)</b>
	<i>Vaccinium vitis-idaea</i>	bog cranberry	39 (67)	1.6 (8)
	<b><i>Betula glandulosa</i></b>	<b>bog birch</b>	<b>35 (33)</b>	<b>6.9 (5.3)</b>
	<i>Andromeda polifolia</i>	bog rosemary	33 (33)	2.4 (0.3)
	<i>Betula pumila</i>	dwarf birch	29 (100)	5 (11.7)
	<i>Rubus chamaemorus</i>	cloudberry	24 (100)	1.1 (6.2)
	<i>Kalmia polifolia</i>	northern laurel	24 (67)	0.4 (0.5)
	<i>Salix pedicellaris</i>	bog willow	20 (33)	2.3 (1.7)
	<i>Salix planifolia</i>	flat-leaved willow	20 (33)	1.8 (3.8)
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	20 (0)	1.2 (0)
	<i>Rubus arcticus</i>	dwarf raspberry	20 (0)	+ (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	12 (0)	0.4 (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	10 (33)	0.7 (5.1)
	<i>Alnus incana ssp tenuifolia</i>	river alder	8 (0)	2.4 (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	8 (0)	+ (0)
	<i>Salix lucida</i>	shining willow	6 (0)	0.3 (0)
	<i>Ledum palustre</i>	northern Labrador tea	6 (0)	0.1 (0)
	<i>Linnaea borealis</i>	twinflower	6 (0)	0.1 (0)
	<i>Rosa acicularis</i>	prickly rose	6 (0)	0.1 (0)
	<i>Salix candida</i>	hoary willow	6 (0)	0.1 (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	6 (0)	+ (0)
	<i>Salix bebbiana</i>	beaked willow	4 (0)	0.2 (0)
	<i>Alnus viridis ssp crispa</i>	green alder	4 (0)	0.1 (0)
	<i>Ribes triste</i>	wild red currant	4 (0)	0.1 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	4 (0)	+ (0)
	<i>Ribes hudsonianum</i>	northern black currant	4 (0)	+ (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	4 (0)	+ (0)
	<i>Symphoricarpos albus</i>	snowberry	4 (0)	+ (0)
	<i>Viburnum edule</i>	low-bush cranberry	4 (0)	+ (0)
	<i>Myrica gale</i>	sweet gale	2 (0)	0.1 (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	2 (0)	0.1 (0)
<i>Cornus stolonifera</i>	red-osier dogwood	2 (0)	+ (0)	
<i>Empetrum nigrum</i>	crowberry	2 (0)	+ (0)	
<i>Lonicera dioica</i>	twining honeysuckle	2 (0)	+ (0)	
<i>Ribes lacustre</i>	bristly black currant	2 (0)	+ (0)	
<i>Rubus pubescens</i>	dewberry	2 (0)	+ (0)	
<i>Salix lutea</i>	yellow willow	2 (0)	+ (0)	
<i>Vaccinium caespitosum</i>	dwarf bilberry	2 (0)	+ (0)	
Graminoid	<i>Carex aquatilis</i>	water sedge	45 (67)	2.1 (8.4)
	<i>Carex gynocrates</i>	northern bog sedge	20 (0)	0.5 (0)
	<i>Carex limosa</i>	mud sedge	18 (0)	0.2 (0)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	14 (33)	0.8 (0.2)
	<i>Carex pauperula</i>	poor sedge	12 (33)	0.7 (0.2)
	<i>Carex disperma</i>	two-seeded sedge	10 (0)	0.2 (0)
	<i>Carex diandra</i>	two-stamened sedge	8 (0)	1.5 (0)
	<i>Calamagrostis canadensis</i>	bluejoint	6 (33)	0.1 (0.1)
	<i>Carex utriculata</i>	small bottle sedge	6 (0)	0.2 (0)
	<i>Eriophorum viridi-carinatum</i>	thin-leaved cotton grass	4 (0)	0.2 (0)
<i>Carex vaginata</i>	sheathed sedge	4 (0)	0.1 (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Carex capillaris</i>	hair-like sedge	4 (0)	+ (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	2 (33)	+ (+)
	<i>Leymus innovatus</i>	hairy wild rye	2 (0)	0.1 (0)
	<i>Poa palustris</i>	fowl bluegrass	2 (0)	0.1 (0)
	<i>Calamagrostis inexpansa</i>	northern reed grass	2 (0)	+ (0)
	<i>Carex tenuiflora</i>	thin-flowered sedge	2 (0)	+ (0)
	<i>Eleocharis palustris</i>	creeping spike-rush	2 (0)	+ (0)
	<i>Eriophorum chamissonis</i>	russett cotton grass	2 (0)	+ (0)
	<i>Scirpus hudsonianus</i>	Hudson Bay bulrush	2 (0)	+ (0)
Forb	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	63 (33)	2.8 (2.8)
	<i>Drosera rotundifolia</i>	round-leaved sundew	29 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	22 (0)	0.2 (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	16 (0)	+ (0)
	<i>Galium trifidum</i>	small bedstraw	14 (0)	+ (0)
	<i>Menyanthes trifoliata</i>	buck-bean	12 (0)	1 (0)
	<i>Epilobium angustifolium</i>	common fireweed	12 (0)	0.1 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	10 (33)	0.1 (0.1)
	<i>Mitella nuda</i>	bishop's-cap	10 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	10 (0)	+ (0)
	<i>Geocaldon lividum</i>	northern bastard toadflax	8 (0)	0.2 (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	8 (0)	+ (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	8 (0)	+ (0)
	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	8 (0)	+ (0)
	<i>Galium boreale</i>	northern bedstraw	6 (0)	0.2 (0)
	<i>Sarracenia purpurea</i>	pitcher-plant	6 (0)	+ (0)
	<i>Cornus canadensis</i>	bunchberry	4 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	4 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	4 (0)	+ (0)
	<i>Caltha palustris</i>	marsh-marigold	4 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	4 (0)	+ (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	4 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	4 (0)	+ (0)
	<i>Platanthera hyperborea</i>	northern green bog orchid	4 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	4 (0)	+ (0)
	<i>Stellaria longipes</i>	long-stalked chickweed	4 (0)	+ (0)
	<i>Triglochin maritima</i>	seaside arrow-grass	4 (0)	+ (0)
	<i>Utricularia intermedia</i>	flat-leaved bladderwort	4 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	2 (0)	0.1 (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	2 (0)	+ (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	2 (0)	+ (0)
	<i>Aster borealis</i>	marsh aster	2 (0)	+ (0)
	<i>Cirsium drummondii</i>	Drummond's thistle	2 (0)	+ (0)
	<i>Coeloglossum viride</i>	bracted bog orchid	2 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	2 (0)	+ (0)
	<i>Epilobium ciliatum</i>	northern willowherb	2 (0)	+ (0)
	<i>Epilobium palustre</i>	marsh willowherb	2 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	2 (0)	+ (0)
	<i>Gaultheria hispidula</i>	creeping snowberry	2 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	2 (0)	+ (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	2 (0)	+ (0)
	<i>Malaxis paludosa</i>	bog adder's-mouth	2 (0)	+ (0)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	2 (0)	+ (0)
	<i>Pedicularis labradorica</i>	Labrador lousewort	2 (0)	+ (0)
	<i>Pedicularis parviflora</i>	swamp lousewort	2 (0)	+ (0)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	2 (0)	+ (0)
	<i>Rumex occidentalis</i>	western dock	2 (0)	+ (0)
	<i>Smilacina racemosa</i>	False Solomon's-seal	2 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	2 (0)	+ (0)
	<i>Solidago simplex ssp simplex</i>	mountain goldenrod	2 (0)	+ (0)
<i>Trientalis borealis</i>	northern starflower	2 (0)	+ (0)	



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Fern/Allies	<i>Equisetum fluviatile</i>	swamp horsetail	29 (0)	0.5 (0)
	<i>Equisetum arvense</i>	common horsetail	22 (0)	0.9 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	12 (33)	0.3 (0.3)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	10 (0)	+ (0)
	<i>Equisetum hyemale</i>	common scouring-rush	6 (0)	+ (0)
	<i>Equisetum variegatum</i>	variegated horsetail	4 (0)	+ (0)
	<i>Equisetum palustre</i>	marsh horsetail	2 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	2 (0)	+ (0)
Moss	<i>Tomentypnum nitens</i>	golden moss	35 (0)	4.9 (0)
	<i>Pleurozium schreberi</i>	Schreber's moss	33 (67)	2.4 (1.2)
	<i>Aulacomnium palustre</i>	tufted moss	31 (0)	2 (0)
	<i>Hylocomium splendens</i>	stair-step moss	20 (0)	0.7 (0)
	<i>Polytrichum strictum</i>	slender hair-cap	16 (67)	0.3 (3.7)
	<i>Sphagnum angustifolium</i>	peat moss	16 (33)	3.3 (26.1)
	<i>Pohlia nutans</i>	copper wire moss	16 (33)	0.1 (1.4)
	<i>Sphagnum fuscum</i>	rusty peat moss	14 (33)	2.5 (11.5)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	14 (33)	1.9 (5)
	<i>Sphagnum magellanicum</i>	midway peat moss	10 (33)	0.6 (6.6)
	<i>Sphagnum warnstorffii</i>	peat moss	6 (0)	0.3 (0)
	<i>Hamatocaulis vernicosus</i>	brown moss	4 (0)	0.8 (0)
	<i>Calliergon richardsonii</i>		4 (0)	0.4 (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	4 (0)	0.4 (0)
	<i>Sphagnum fallax</i>	peat moss	4 (0)	0.1 (0)
	<i>Brachythecium rivulare</i>		2 (0)	0.2 (0)
	<i>Bryum pseudotriquetrum</i>		2 (0)	0.2 (0)
	<i>Calliergon giganteum</i>		2 (0)	0.2 (0)
	<i>Sanionia uncinata</i>	brown moss	2 (0)	0.2 (0)
	<i>Warnstorffia exannulata</i>	brown moss	2 (0)	0.1 (0)
	<i>Calliergon stramineum</i>		2 (0)	+ (0)
	<i>Campylium chrysophyllum</i>		2 (0)	+ (0)
	<i>Campylium stellatum</i>		2 (0)	+ (0)
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	2 (0)	+ (0)
	<i>Dicranum undulatum</i>	wavy dicranum	2 (0)	+ (0)
	<i>Drepanocladus aduncus</i>	brown moss	2 (0)	+ (0)
	<i>Helodium blandowii</i>		2 (0)	+ (0)
	<i>Rhizomnium pseudopunctatum</i>		2 (0)	+ (0)
	<i>Sphagnum riparium</i>	shore-growing peat moss	2 (0)	+ (0)
	<i>Tetraplodon angustatus</i>	narrow-leaved splachnum	2 (0)	+ (0)
	<i>Tomentypnum falcifolium</i>	golden moss	2 (0)	+ (0)
	Liverwort	<i>Mylia anomala</i>	liverwort	2 (0)
<i>Riccardia multifida</i>		liverwort	2 (0)	+ (0)
Lichen	<i>Cladina mitis</i>	reindeer lichen	31 (67)	0.5 (3.3)
	<i>Peltigera aphthosa</i>	studded leather lichen	10 (33)	0.1 (0.1)
	<i>Cladonia sulphurina</i>		8 (67)	0.2 (2.1)
	<i>Icmadophila ericetorum</i>		4 (33)	+ (0.2)
	<i>Peltigera canina</i>	dog lichen	2 (0)	0.1 (0)
	<i>Chaenotheca trichialis</i>		2 (0)	+ (0)
	<i>Cladina rangiferina</i>	reindeer lichen	2 (0)	+ (0)
	<i>Cladonia chlorophaea</i>		2 (0)	+ (0)
	<i>Cladonia gracilis</i>	graceful pyxie cup	2 (0)	+ (0)
	<i>Peltigera malacea</i>		2 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

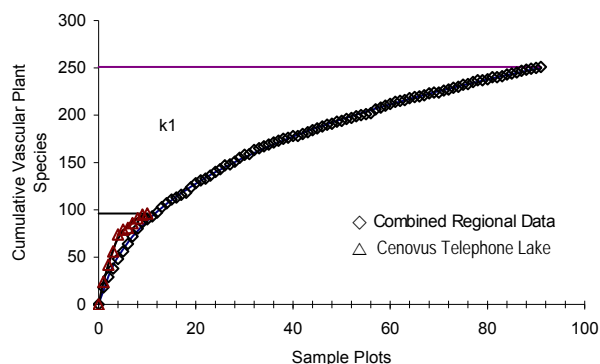
<b>Ecosite Phase</b>	k1- Treed Rich Fen
<b>Sample Plots</b>	91 (10)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>43(1)</sup> 1-5 <sup>8(0)</sup>
<b>Moisture</b>	Hydric <sup>36(3)</sup> Subhydric <sup>14(5)</sup> Hygric <sup>5(1)</sup> Subhygric <sup>2(1)</sup>
<b>Nutrients</b>	Poor <sup>3(0)</sup> Medium <sup>8(4)</sup> Rich <sup>34(4)</sup> Very Rich <sup>8(2)</sup>
<b>Arboreal Lichens</b>	Nil <sup>4(0)</sup> Trace <sup>9(0)</sup> Low <sup>12(5)</sup> Moderate <sup>13(3)</sup> High <sup>14(2)</sup>
<b>Snags (stems/ha)</b>	44 [0-200] *
<b>Down Wood (logs/ha)</b>	85 [0-600] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>36(0)</sup> 6-10 <sup>3(1)</sup> 10-20 <sup>2(1)</sup> 20-40 <sup>7(1)</sup> 40-100 <sup>7(0)</sup> 100 <sup>12(3)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>3(2)</sup> clay <sup>1(0)</sup> loam <sup>1(0)</sup> peat <sup>16(7)</sup> muck <sup>12(0)</sup>
<b>Seral Stage</b>	Herb <sup>1(0)</sup> Tall Shrub <sup>1(0)</sup> Pole/Sapling <sup>11(1)</sup> Young <sup>4(1)</sup> Mid-Seral <sup>16(2)</sup> Mature <sup>34(6)</sup> Old-Growth <sup>2(0)</sup>
<b>Height Class (m)</b>	5-10 <sup>2(2)</sup> 10-15 <sup>19(6)</sup> 15-20 <sup>7(0)</sup> >20 <sup>3(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>13(2)</sup> A (6-30) <sup>69(8)</sup> B (31-50) <sup>8(0)</sup> C (51-75) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	77 [25-162] (63 [25-105])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	165 (77)	68 (29)	233 (106)
<b>Mean Species<sup>(f)</sup></b>	14.7 (19.6)	3.4 (6.7)	18.2 (26.3)
<b>Unique Species<sup>(g)</sup></b>	3 (4)	8 (3)	11 (7)
<b>Dominant Species<sup>(h)</sup></b>	6 (13)	0 (7)	6 (20)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<b><i>Larix laricina</i></b>	<b>tamarack</b>	<b>93 (100)</b>	<b>40.3 (39.5)</b>
	<b><i>Picea mariana</i></b>	<b>black spruce</b>	<b>71 (90)</b>	<b>13.3 (15.4)</b>
	<i>Betula papyrifera</i>	white birch	15 (10)	1.7 (0.5)
	<i>Picea glauca</i>	white spruce	10 (0)	1 (0)
	<i>Pinus banksiana</i>	jack pine	1 (10)	0.3 (3)
	<i>Populus balsamifera</i>	balsam poplar	1 (0)	0.1 (0)
	<i>Abies balsamea</i>	balsam fir	1 (0)	+ (0)
Shrub	<b><i>Betula pumila</i></b>	<b>dwarf birch</b>	<b>62 (100)</b>	<b>22.8 (41.4)</b>
	<b><i>Ledum groenlandicum</i></b>	<b>common Labrador tea</b>	<b>48 (40)</b>	<b>5.3 (5)</b>
	<i>Oxycoccus microcarpus</i>	small bog cranberry	44 (70)	2.6 (3.1)
	<i>Salix planifolia</i>	flat-leaved willow	24 (40)	3.8 (6.7)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	24 (40)	0.5 (0.6)
	<i>Rubus arcticus</i>	dwarf raspberry	22 (20)	0.4 (1.8)
	<i>Salix candida</i>	hoary willow	19 (10)	0.6 (0.1)
	<b><i>Betula glandulosa</i></b>	<b>bog birch</b>	<b>16 (0)</b>	<b>7.8 (0)</b>
	<i>Andromeda polifolia</i>	bog rosemary	13 (30)	0.5 (0.3)
	<i>Salix pedicellaris</i>	bog willow	13 (10)	0.5 (2)
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	12 (20)	0.8 (2)
	<i>Ribes hudsonianum</i>	northern black currant	9 (10)	0.2 (+)
	<i>Alnus incana ssp tenuifolia</i>	river alder	9 (0)	1.9 (0)
	<i>Salix bebbiana</i>	beaked willow	9 (0)	1.2 (0)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	9 (0)	0.8 (0)
	<i>Myrica gale</i>	sweet gale	8 (10)	1.3 (0.9)
	<i>Lonicera caerulea</i>	fly honeysuckle	8 (10)	0.3 (0.1)
	<i>Chamaedaphne calyculata</i>	leatherleaf	7 (20)	0.7 (1.6)
	<i>Rubus chamaemorus</i>	cloudberry	5 (20)	+ (0.1)
	<i>Alnus viridis ssp crispa</i>	green alder	5 (0)	0.7 (0)
	<i>Linnaea borealis</i>	twinflower	5 (0)	+ (0)
	<i>Rubus idaeus</i>	wild red raspberry	5 (0)	+ (0)
	<i>Salix lutea</i>	yellow willow	4 (0)	0.7 (0)
	<i>Kalmia polifolia</i>	northern laurel	4 (30)	0.1 (0.9)
	<i>Oxycoccus quadripetalus</i>	large bog cranberry	4 (0)	0.2 (0)
	<i>Ribes lacustre</i>	bristly black currant	4 (0)	+ (0)
	<i>Ribes triste</i>	wild red currant	4 (0)	+ (0)
	<i>Rosa acicularis</i>	prickly rose	4 (0)	+ (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	3 (10)	0.2 (1.3)
	<i>Ribes glandulosum</i>	skunk currant	3 (0)	0.3 (0)
	<i>Salix lucida</i>	shining willow	2 (0)	0.2 (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	3 (0)	0.1 (0)
	<i>Rubus pubescens</i>	dewberry	3 (0)	+ (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	3 (0)	+ (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	2 (0)	+ (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	1 (0)	+ (0)
	<i>Lonicera dioica</i>	twining honeysuckle	1 (0)	+ (0)
	<i>Salix glauca</i>	smooth willow	1 (0)	+ (0)
	<i>Salix pyrifolia</i>	balsam willow	1 (0)	+ (0)
	<i>Salix scouleriana</i>	Scouler's willow	1 (0)	+ (0)
	<i>Symphoricarpos albus</i>	snowberry	1 (0)	+ (0)
Graminoid	<i>Carex aquatilis</i>	water sedge	42 (70)	4 (1.8)
	<i>Calamagrostis canadensis</i>	bluejoint	33 (50)	2.4 (0.8)
	<i>Carex disperma</i>	two-seeded sedge	26 (20)	0.7 (0.3)
	<i>Carex diandra</i>	two-stamened sedge	20 (30)	1.1 (2.5)
	<i>Carex gynocrates</i>	northern bog sedge	16 (50)	0.4 (0.4)
	<i>Carex limosa</i>	mud sedge	14 (30)	0.2 (+)
	<i>Carex paupercula</i>	poor sedge	12 (50)	0.3 (0.9)
	<i>Carex utriculata</i>	small bottle sedge	10 (20)	0.6 (0.2)
	<i>Carex prairea</i>	prairie sedge	9 (0)	0.9 (0)
	<i>Eriophorum viridi-carinatum</i>	thin-leaved cotton grass	8 (20)	0.1 (0.1)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Carex tenuiflora</i>	thin-flowered sedge	7 (30)	0.2 (0.2)
	<i>Carex canescens ssp canescens</i>	short sedge	6 (10)	0.5 (0.1)
	<i>Poa palustris</i>	fowl bluegrass	5 (10)	0.2 (0.1)
	<i>Carex leptalea</i>	bristle-stalked sedge	4 (0)	0.4 (0)
	<i>Eriophorum angustifolium</i>	cotton grass	4 (10)	0.1 (+)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	3 (20)	+ (0.2)
	<i>Calamagrostis inexpansa</i>	northern reed grass	3 (10)	+ (+)
	<i>Carex interior</i>	inland sedge	3 (10)	+ (+)
	<i>Carex chordorrhiza</i>	prostrate sedge	3 (0)	1 (0)
	<i>Carex pseudocyperus</i>	cyperus-like sedge	3 (0)	0.1 (0)
	<i>Carex loliacea</i>	rye-grass sedge	3 (0)	+ (0)
	<i>Carex vaginata</i>	sheathed sedge	2 (20)	+ (+)
	<i>Typha latifolia</i>	common cattail	2 (10)	+ (+)
	<i>Carex capillaris</i>	hair-like sedge	2 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	2 (0)	+ (0)
	<i>Luzula parviflora</i>	small-flowered wood-rush	2 (0)	+ (0)
	<i>Agrostis scabra</i>	rough hair grass	1 (10)	+ (+)
	<i>Carex capitata</i>	capitate sedge	1 (10)	+ (+)
	<i>Carex praegracilis</i>	graceful sedge	1 (0)	0.1 (0)
	<i>Carex concinna</i>	beautiful sedge	1 (0)	+ (0)
	<i>Carex lasiocarpa</i>	hairy-fruited sedge	1 (0)	+ (0)
	<i>Carex parryana</i>	Parry's sedge	1 (0)	+ (0)
	<i>Carex pauciflora</i>	few-flowered sedge	1 (0)	+ (0)
	<i>Carex pellita</i>	woolly sedge	1 (0)	+ (0)
	<i>Deschampsia cespitosa</i>	tufted hair grass	1 (0)	+ (0)
	<i>Elymus trachycaulus</i>	slender wheatgrass	1 (0)	+ (0)
	<i>Eriophorum brachyantherum</i>	close-sheathed cotton grass	1 (0)	+ (0)
	<i>Eriophorum polystachion</i>	tall cotton grass	1 (0)	+ (0)
	<i>Juncus balticus</i>	wire rush	1 (0)	+ (0)
	<i>Leymus innovatus</i>	hairy wild rye	1 (0)	+ (0)
<i>Poa pratensis</i>	Kentucky bluegrass	1 (0)	+ (0)	
Forb	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	52 (40)	4.9 (1.9)
	<i>Caltha palustris</i>	marsh-marigold	44 (60)	1.9 (2.5)
	<i>Potentilla palustris</i>	marsh cinquefoil	38 (30)	1.2 (0.3)
	<i>Stellaria longipes</i>	long-stalked chickweed	27 (40)	0.1 (+)
	<i>Galium trifidum</i>	small bedstraw	25 (30)	0.1 (0.1)
	<i>Pyrola asarifolia</i>	common pink wintergreen	23 (50)	0.1 (0.3)
	<i>Menyanthes trifoliata</i>	buck-bean	21 (50)	2.6 (8.5)
	<i>Orthilia secunda</i>	one-sided wintergreen	19 (20)	0.1 (+)
	<i>Lysimachia thyrsiflora</i>	tufted loosestrife	18 (0)	0.1 (0)
	<i>Epilobium palustre</i>	marsh willowherb	16 (60)	+ (0.2)
	<i>Mitella nuda</i>	bishop's-cap	16 (20)	0.2 (+)
	<i>Drosera rotundifolia</i>	round-leaved sundew	15 (20)	+ (0.2)
	<i>Rumex occidentalis</i>	western dock	13 (10)	0.1 (0.1)
	<i>Galium labradoricum</i>	Labrador bedstraw	13 (0)	0.1 (0)
	<i>Triglochin maritima</i>	seaside arrow-grass	12 (30)	0.1 (0.1)
	<i>Epilobium ciliatum</i>	northern willowherb	12 (10)	+ (+)
	<i>Platanthera hyperborea</i>	northern green bog orchid	11 (20)	+ (+)
	<i>Calla palustris</i>	water arum	10 (0)	0.5 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	10 (0)	0.2 (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	9 (20)	0.1 (0.4)
	<i>Cicuta maculata</i>	water-hemlock	9 (20)	0.1 (0.1)
	<i>Galium boreale</i>	northern bedstraw	7 (40)	0.1 (0.6)
	<i>Cornus canadensis</i>	bunchberry	7 (10)	0.1 (0.2)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	5 (20)	0.5 (2.5)
	<i>Moehringia lateriflora</i>	blunt-leaved sandwort	5 (10)	+ (+)
	<i>Sarracenia purpurea</i>	pitcher-plant	4 (10)	0.1 (0.2)
	<i>Epilobium angustifolium</i>	common fireweed	4 (10)	+ (0.2)
	<i>Ranunculus lapponicus</i>	Lapland buttercup	4 (10)	+ (+)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	4 (10)	+ (+)
	<i>Aster puniceus</i>	purple-stemmed aster	4 (0)	0.2 (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	4 (0)	0.1 (0)
	<i>Scutellaria galericulata</i>	marsh skullcap	4 (0)	+ (0)
	<i>Lemna minor</i>	common duckweed	3 (10)	0.1 (+)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	3 (10)	+ (+)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	3 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	3 (0)	+ (0)
	<i>Stellaria longifolia</i>	long-leaved chickweed	3 (0)	+ (0)
	<i>Utricularia intermedia</i>	flat-leaved bladderwort	2 (10)	+ (+)
	<i>Achillea millefolium</i>	common yarrow	2 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	2 (0)	+ (0)
	<i>Cardamine pensylvanica</i>	bitter cress	2 (0)	+ (0)
	<i>Epilobium leptophyllum</i>	narrow-leaved willowherb	2 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	2 (0)	+ (0)
	<i>Impatiens capensis</i>	spotted touch-me-not	2 (0)	+ (0)
	<i>Viola palustris</i>	marsh violet	2 (0)	+ (0)
	<i>Coeloglossum viride</i>	bracted bog orchid	1 (10)	+ (+)
	<i>Nuphar lutea ssp variegata</i>	yellow pond-lily	1 (10)	+ (+)
	<i>Utricularia minor</i>	small bladderwort	1 (0)	+ (0)
	<i>Urtica dioica</i>	common nettle	1 (0)	0.4 (0)
	<i>Geum macrophyllum</i>	large-leaved yellow avens	1 (0)	0.2 (0)
	<i>Circaea alpina</i>	small enchanter's nightshade	1 (0)	0.1 (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	1 (0)	+ (0)
	<i>Aster borealis</i>	marsh aster	1 (0)	+ (0)
	<i>Bidens cernua</i>	nodding beggarticks	1 (0)	+ (0)
	<i>Caltha natans</i>	floating marsh-marigold	1 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	1 (0)	+ (0)
	<i>Hippuris vulgaris</i>	common mare's-tail	1 (0)	+ (0)
	<i>Lilium philadelphicum</i>	western wood lily	1 (0)	+ (0)
	<i>Malaxis paludosa</i>	bog adder's-mouth	1 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	1 (0)	+ (0)
	<i>Moneses uniflora</i>	one-flowered wintergreen	1 (0)	+ (0)
<i>Platanthera orbiculata</i>	round-leaved bog orchid	1 (0)	+ (0)	
<i>Ranunculus abortivus</i>	small-flowered buttercup	1 (0)	+ (0)	
<i>Ranunculus cymbalaria</i>	seaside buttercup	1 (0)	+ (0)	
<i>Ranunculus sceleratus</i>	celery-leaved buttercup	1 (0)	+ (0)	
<i>Sagittaria latifolia</i>	broad-leaved arrowhead	1 (0)	+ (0)	
<i>Senecio pauperculus</i>	balsam groundsel	1 (0)	+ (0)	
<i>Sium suave</i>	water parsnip	1 (0)	+ (0)	
<i>Tofieldia glutinosa</i>	sticky false asphodel	1 (0)	+ (0)	
Fern/Allies	<i>Equisetum fluviatile</i>	swamp horsetail	30 (20)	2.2 (+)
	<i>Equisetum arvense</i>	common horsetail	9 (10)	0.1 (0.2)
	<i>Equisetum sylvaticum</i>	woodland horsetail	8 (10)	0.6 (1.1)
	<i>Equisetum hyemale</i>	common scouring-rush	4 (10)	0.3 (0.8)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	4 (10)	+ (+)
	<i>Lycopodium annotinum</i>	stiff club-moss	1 (10)	+ (+)
	<i>Equisetum pratense</i>	meadow horsetail	1 (0)	+ (0)
Moss	<i>Tomentypnum nitens</i>	golden moss	41 (80)	3.7 (9.7)
	<i>Pleurozium schreberi</i>	Schreber's moss	38 (70)	4.9 (10.4)
	<i>Aulacomnium palustre</i>	tufted moss	32 (50)	1.5 (1.7)
	<i>Hylocomium splendens</i>	stair-step moss	14 (20)	0.9 (3.4)
	<i>Dicranum undulatum</i>	wavy dicranum	13 (50)	0.4 (1.7)
	<i>Plagiomnium ellipticum</i>		12 (30)	0.6 (2.4)
	<i>Calliergon giganteum</i>		11 (0)	2.2 (0)
	<i>Sphagnum fuscum</i>	rusty peat moss	10 (20)	1.6 (5.6)
	<i>Helodium blandowii</i>		10 (10)	+ (+)
	<i>Sphagnum angustifolium</i>	peat moss	8 (40)	2.1 (10.5)
<i>Sphagnum warnstorffii</i>	peat moss	8 (20)	1.2 (8.2)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Moss	<i>Hamatocaulis vernicosus</i>	brown moss	8 (10)	0.1 (+)
	<i>Drepanocladus aduncus</i>	brown moss	7 (10)	0.2 (1.7)
	<i>Pohlia nutans</i>	copper wire moss	7 (0)	+ (0)
	<i>Sanionia uncinata</i>	brown moss	5 (0)	+ (0)
	<i>Calliergon richardsonii</i>		4 (20)	+ (0.1)
	<i>Polytrichum strictum</i>	slender hair-cap	4 (10)	+ (0.1)
	<i>Bryum pseudotriquetrum</i>		4 (0)	+ (0)
	<i>Climacium dendroides</i>		3 (10)	+ (+)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	3 (0)	0.2 (0)
	<i>Campylium stellatum</i>		3 (0)	+ (0)
	<i>Tetraplodon angustatus</i>	narrow-leaved splachnum	2 (20)	+ (0.2)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	2 (10)	0.4 (1.5)
	<i>Sphagnum teres</i>	thin-leaved peat moss	2 (10)	0.1 (+)
	<i>Brachythecium mildeanum</i>		2 (0)	+ (0)
	<i>Polytrichum commune</i>	common hair-cap	1 (10)	+ (+)
	<i>Sphagnum russowii</i>	wide-tongued peat moss	1 (0)	0.2 (0)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	1 (0)	0.1 (0)
	<i>Abietinella abietina</i>		1 (0)	+ (0)
	<i>Amblystegium serpens</i>		1 (0)	+ (0)
	<i>Brachythecium campestre</i>		1 (0)	+ (0)
	<i>Brachythecium salebrosum</i>		1 (0)	+ (0)
	<i>Brachythecium turgidum</i>		1 (0)	+ (0)
	<i>Bryoerythrophyllum recurvirostre</i>	red leaf moss	1 (0)	+ (0)
	<i>Calliergon cordifolium</i>		1 (0)	+ (0)
	<i>Calliergon stramineum</i>		1 (0)	+ (0)
	<i>Calliergon trifarium</i>		1 (0)	+ (0)
	<i>Calliergonella cuspidata</i>		1 (0)	+ (0)
	<i>Dicranum scoparium</i>	broom moss	1 (0)	+ (0)
	<i>Distichium capillaceum</i>		1 (0)	+ (0)
	<i>Meesia triquetra</i>		1 (0)	+ (0)
	<i>Plagiomnium drummondii</i>		1 (0)	+ (0)
	<i>Plagiothecium laetum</i>		1 (0)	+ (0)
	<i>Platydictya jungermannioides</i>		1 (0)	+ (0)
<i>Pohlia sphagnicola</i>		1 (0)	+ (0)	
<i>Pylaisiella polyantha</i>		1 (0)	+ (0)	
<i>Scorpidium scorpioides</i>		1 (0)	+ (0)	
<i>Thuidium recognitum</i>		1 (0)	+ (0)	
Liverwort	<i>Marchantia polymorpha</i>	liverwort	3 (10)	0.2 (1.3)
	<i>Ptilidium pulcherrimum</i>	liverwort	2 (0)	+ (0)
	<i>Aneura pinguis</i>	liverwort	1 (0)	+ (0)
	<i>Calypogeia sphagnicola</i>	liverwort	1 (0)	+ (0)
	<i>Lophocolea heterophylla</i>	liverwort	1 (0)	+ (0)
	<i>Lophocolea minor</i>	liverwort	1 (0)	+ (0)
	<i>Lophozia ventricosa</i>	liverwort	1 (0)	+ (0)
<i>Mylia anomala</i>	liverwort	1 (0)	+ (0)	
Lichen	<i>Cladina mitis</i>	reindeer lichen	14 (30)	+ (0.1)
	<i>Peltigera aphthosa</i>	studded leather lichen	10 (30)	0.1 (0.4)
	<i>Cladonia sulphurina</i>		9 (20)	+ (+)
	<i>Cladonia cornuta</i>		4 (20)	+ (+)
	<i>Cladonia botrytes</i>		2 (20)	+ (+)
	<i>Peltigera canina</i>	dog lichen	2 (10)	+ (0.1)
	<i>Peltigera neopolydactyla</i>		2 (10)	+ (0.1)
	<i>Cladonia cenotea</i>		1 (10)	+ (+)
	<i>Cladonia fimbriata</i>		1 (10)	+ (+)
	<i>Cladonia rangiferina</i>	reindeer lichen	1 (0)	+ (0)
	<i>Cladonia stygia</i>		1 (0)	+ (0)
<i>Icmadophila ericetorum</i>		1 (0)	+ (0)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

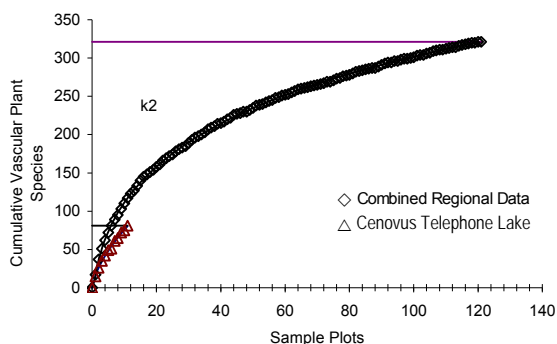
<b>Ecosite Phase</b>	k2- Shrubby Rich Fen
<b>Sample Plots</b>	125 (11)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>72(1)</sup> 1-5 <sup>6(1)</sup>
<b>Moisture</b>	Hydric <sup>54(8)</sup> Subhydri <sup>11B(8(3))</sup> Hydric <sup>7(0)</sup> Subhygric <sup>1(0)</sup>
<b>Nutrients</b>	Poor <sup>5(2)</sup> Medium <sup>18(3)</sup> Rich <sup>53(6)</sup> Very Rich <sup>9(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>25(0)</sup> Trace <sup>7(1)</sup> Low <sup>23(3)</sup> Moderate <sup>7(1)</sup> High <sup>3(0)</sup>
<b>Snags (stems/ha)</b>	19 [0-175] *
<b>Down Wood (logs/ha)</b>	29 [0-225] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>43(0)</sup> 6-10 <sup>2(0)</sup> 10-20 <sup>3(1)</sup> 20-40 <sup>14(2)</sup> 40-100 <sup>10(2)</sup> 100 <sup>18(1)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>15(3)</sup> clay <sup>2(0)</sup> loam <sup>3(0)</sup> peat <sup>12(7)</sup> muck <sup>20(0)</sup>
<b>Seral Stage</b>	Herb <sup>11(1)</sup> LowShrub <sup>17(0)</sup> Tall Shrub <sup>65(8)</sup> Pole/Sapling <sup>2(0)</sup> Young <sup>2(1)</sup> Mid-Seral <sup>4(0)</sup> Mature <sup>4(1)</sup>
<b>Height Class (m)</b>	2-5 <sup>3(2)</sup> 5-10 <sup>7(1)</sup> 10-15 <sup>5(1)</sup> 15-20 <sup>1(1)</sup> >20 <sup>1(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>103(2)</sup> A (6-30) <sup>12(3)</sup> B (31-50) <sup>3(0)</sup> D (76-100) <sup>1(0)</sup>
<b>Stand Age - BH (yr)</b>	60 [18-96] (55 [27-75])

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	216 (60)	91 (29)	307 (89)
<b>Mean Species<sup>(f)</sup></b>	14.1 (12.4)	3.4 (4.5)	17.6 (16.8)
<b>Unique Species<sup>(g)</sup></b>	5 (4)	10 (5)	15 (9)
<b>Dominant Species<sup>(h)</sup></b>	6 (6)	0 (2)	6 (8)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Larix laricina</i>	tamarack	53 (45)	8.2 (5.6)
	<i>Picea mariana</i>	black spruce	26 (45)	4.1 (3.8)
	<i>Betula papyrifera</i>	white birch	17 (9)	2.5 (1)
	<i>Picea glauca</i>	white spruce	14 (0)	0.6 (0)
	<i>Populus balsamifera</i>	balsam poplar	6 (0)	0.1 (0)
	<i>Populus tremuloides</i>	aspen	6 (0)	0.1 (0)
	<i>Pinus banksiana</i>	jack pine	2 (9)	0.1 (0.6)
	<i>Betula occidentalis</i>	water birch	2 (0)	0.1 (0)
	<i>Abies balsamea</i>	balsam fir	2 (0)	+ (0)
Shrub	<i>Betula pumila</i>	dwarf birch	48 (45)	16.2 (20)
	<i>Rubus arcticus</i>	dwarf raspberry	32 (27)	0.5 (0.1)
	<i>Salix planifolia</i>	flat-leaved willow	26 (27)	5.2 (13.1)
	<i>Salix pedicellaris</i>	bog willow	23 (18)	1.5 (0.5)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	22 (45)	0.6 (2)
	<i>Alnus incana ssp tenuifolia</i>	river alder	20 (9)	5.6 (4.5)
	<i>Betula glandulosa</i>	bog birch	20 (36)	4.8 (16.5)
	<i>Ledum groenlandicum</i>	common Labrador tea	20 (36)	1.9 (3.5)
	<i>Andromeda polifolia</i>	bog rosemary	17 (9)	1.5 (0.7)
	<i>Lonicera caerulea</i>	fly honeysuckle	15 (0)	0.4 (0)
	<i>Salix bebbiana</i>	beaked willow	12 (0)	2.3 (0)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	10 (27)	0.4 (0.7)
	<i>Salix candida</i>	hoary willow	10 (0)	0.8 (0)
	<i>Rubus pubescens</i>	dewberry	9 (0)	0.3 (0)
	<i>Salix myrtillifolia</i>	myrtle-leaved willow	9 (0)	0.2 (0)
	<i>Myrica gale</i>	sweet gale	8 (9)	1.7 (1.2)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	7 (0)	0.5 (0)
	<i>Rubus idaeus</i>	wild red raspberry	7 (0)	0.3 (0)
	<i>Chamaedaphne calyculata</i>	leatherleaf	6 (36)	1.5 (15)
	<i>Salix lucida</i>	shining willow	6 (0)	1.3 (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	6 (0)	0.4 (0)
	<i>Ribes hudsonianum</i>	northern black currant	6 (0)	0.2 (0)
	<i>Ribes oxycanthoides</i>	northern gooseberry	6 (0)	0.1 (0)
	<i>Rosa acicularis</i>	prickly rose	6 (0)	0.1 (0)
	<i>Ribes triste</i>	wild red currant	6 (0)	+ (0)
	<i>Kalmia polifolia</i>	northern laurel	5 (27)	0.1 (1.4)
	<i>Viburnum edule</i>	low-bush cranberry	5 (0)	+ (0)
	<i>Rubus chamaemorus</i>	cloudberry	4 (18)	+ (0.4)
	<i>Alnus viridis ssp crispa</i>	green alder	4 (0)	0.3 (0)
	<i>Salix lutea</i>	yellow willow	4 (0)	0.2 (0)
	<i>Salix glauca</i>	smooth willow	3 (0)	1.4 (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	3 (0)	+ (0)
	<i>Linnaea borealis</i>	twinline	3 (0)	+ (0)
	<i>Ribes lacustre</i>	bristly black currant	3 (0)	+ (0)
	<i>Salix serissima</i>	autumn willow	2 (0)	0.1 (0)
	<i>Amelanchier alnifolia</i>	saskatoon	2 (0)	+ (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	2 (0)	+ (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	2 (0)	+ (0)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	2 (0)	+ (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	2 (0)	+ (0)
	<i>Salix maccalliana</i>	velvet-fruited willow	1 (0)	0.7 (0)
	<i>Salix discolor</i>	pussy willow	1 (0)	0.3 (0)
<i>Salix pyrifolia</i>	balsam willow	1 (0)	0.1 (0)	
<i>Salix exigua</i>	sandbar willow	1 (0)	0.1 (0)	
<i>Juniperus communis</i>	ground juniper	1 (0)	+ (0)	
<i>Lonicera dioica</i>	twining honeysuckle	1 (0)	+ (0)	
<i>Oxycoccus quadripetalus</i>	large bog cranberry	1 (0)	+ (0)	
<i>Symphoricarpos albus</i>	snowberry	1 (0)	+ (0)	



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Carex aquatilis</i>	water sedge	47 (73)	8.8 (15)
	<i>Calamagrostis canadensis</i>	bluejoint	29 (36)	2.4 (2.6)
	<i>Carex diandra</i>	two-stamened sedge	22 (9)	4.4 (1)
	<i>Carex utriculata</i>	small bottle sedge	22 (18)	3 (3.6)
	<i>Carex disperma</i>	two-seeded sedge	12 (0)	0.2 (0)
	<i>Carex limosa</i>	mud sedge	10 (9)	0.2 (0.2)
	<i>Carex paupercula</i>	poor sedge	9 (18)	1.2 (0.5)
	<i>Glyceria grandis</i>	common tall manna grass	6 (0)	0.6 (0)
	<i>Typha latifolia</i>	common cattail	6 (0)	0.2 (0)
	<i>Carex canescens ssp canescens</i>	short sedge	5 (27)	0.1 (1.3)
	<i>Calamagrostis inexpansa</i>	northern reed grass	5 (9)	0.2 (+)
	<i>Eriophorum viridi-carinatum</i>	thin-leaved cotton grass	5 (9)	0.1 (0.8)
	<i>Carex gynocrates</i>	northern bog sedge	5 (9)	0.1 (0.1)
	<i>Agrostis scabra</i>	rough hair grass	5 (0)	0.1 (0)
	<i>Carex chordorrhiza</i>	prostrate sedge	4 (0)	0.8 (0)
	<i>Carex tenuiflora</i>	thin-flowered sedge	3 (0)	0.1 (0)
	<i>Carex rostrata</i>	beaked sedge	2 (9)	0.1 (0.7)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	2 (9)	+ (+)
	<i>Carex prairea</i>	prairie sedge	2 (0)	0.1 (0)
	<i>Eriophorum angustifolium</i>	cotton grass	2 (0)	0.1 (0)
	<i>Eriophorum polystachion</i>	tall cotton grass	2 (0)	0.1 (0)
	<i>Phalaris arundinacea</i>	reed canary grass	2 (0)	0.1 (0)
	<i>Bromus ciliatus</i>	fringed brome	2 (0)	+ (0)
	<i>Carex atherodes</i>	awned sedge	2 (0)	+ (0)
	<i>Carex capillaris</i>	hair-like sedge	2 (0)	+ (0)
	<i>Carex interior</i>	inland sedge	2 (0)	+ (0)
	<i>Carex lasiocarpa</i>	hairy-fruited sedge	2 (0)	+ (0)
	<i>Carex leptalea</i>	bristle-stalked sedge	2 (0)	+ (0)
	<i>Carex vaginata</i>	sheathed sedge	2 (0)	+ (0)
	<i>Juncus balticus</i>	wire rush	2 (0)	+ (0)
	<i>Poa palustris</i>	fowl bluegrass	2 (0)	+ (0)
	<i>Carex bebbii</i>	Bebb's sedge	1 (0)	0.5 (0)
	<i>Carex oligosperma</i>	few-fruited sedge	1 (9)	+ (0.2)
	<i>Carex atosquama</i>	dark-scaled sedge	1 (0)	+ (0)
	<i>Carex pachystachya</i>	sedge	1 (0)	+ (0)
	<i>Carex praegracilis</i>	graceful sedge	1 (0)	+ (0)
	<i>Carex pseudocyperus</i>	cyperus-like sedge	1 (0)	+ (0)
	<i>Carex siccata</i>	hay sedge	1 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	1 (0)	+ (0)
	<i>Deschampsia cespitosa</i>	tufted hair grass	1 (0)	+ (0)
<i>Eleocharis palustris</i>	creeping spike-rush	1 (0)	+ (0)	
<i>Elymus trachycaulus</i>	slender wheatgrass	1 (0)	+ (0)	
<i>Eriophorum chamissonis</i>	russett cotton grass	1 (0)	+ (0)	
<i>Luzula parviflora</i>	small-flowered wood-rush	1 (0)	+ (0)	
<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	1 (0)	+ (0)	
<i>Scirpus microcarpus</i>	small-fruited bulrush	1 (0)	+ (0)	
Forb	<i>Potentilla palustris</i>	marsh cinquefoil	54 (45)	1.6 (2.9)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	39 (36)	1.4 (1.8)
	<i>Caltha palustris</i>	marsh-marigold	27 (27)	1.3 (0.2)
	<i>Galium trifidum</i>	small bedstraw	26 (18)	0.1 (0.2)
	<i>Menyanthes trifoliata</i>	buck-bean	21 (36)	1.2 (0.9)
	<i>Galium triflorum</i>	sweet-scented bedstraw	20 (0)	0.1 (0)
	<i>Stellaria longipes</i>	long-stalked chickweed	16 (36)	+ (0.1)
	<i>Galium boreale</i>	northern bedstraw	14 (27)	0.1 (0.1)
	<i>Rumex occidentalis</i>	western dock	14 (9)	0.1 (0.1)
	<i>Epilobium angustifolium</i>	common fireweed	14 (0)	0.2 (0)
	<i>Triglochin maritima</i>	seaside arrow-grass	14 (0)	0.1 (0)
	<i>Cicuta bulbifera</i>	bulb-bearing water-hemlock	13 (18)	+ (0.1)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	13 (0)	0.2 (0)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Pyrola asarifolia</i>	common pink wintergreen	12 (18)	0.1 (0.1)
	<i>Lysimachia thyrsoiflora</i>	tufted loosestrife	12 (0)	0.1 (0)
	<i>Mitella nuda</i>	bishop's-cap	12 (0)	0.1 (0)
	<i>Aster puniceus</i>	purple-stemmed aster	11 (0)	0.1 (0)
	<i>Epilobium ciliatum</i>	northern willowherb	10 (18)	+ (0.1)
	<i>Epilobium palustre</i>	marsh willowherb	9 (27)	0.1 (0.2)
	<i>Drosera rotundifolia</i>	round-leaved sundew	9 (18)	+ (0.1)
	<i>Galium labradoricum</i>	Labrador bedstraw	9 (18)	+ (0.1)
	<i>Utricularia intermedia</i>	flat-leaved bladderwort	8 (18)	0.2 (0.4)
	<i>Sarracenia purpurea</i>	pitcher-plant	7 (0)	0.4 (0)
	<i>Calla palustris</i>	water arum	7 (0)	0.1 (0)
	<i>Ranunculus gmelinii</i>	yellow water crowfoot	6 (9)	+ (+)
	<i>Scutellaria galericulata</i>	marsh skullcap	6 (9)	+ (+)
	<i>Cornus canadensis</i>	bunchberry	6 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	6 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	6 (0)	+ (0)
	<i>Orthilia secunda</i>	one-sided wintergreen	6 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	6 (0)	+ (0)
	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	6 (0)	+ (0)
	<i>Stellaria longifolia</i>	long-leaved chickweed	6 (0)	+ (0)
	<i>Urtica dioica</i>	common nettle	5 (9)	0.1 (+)
	<i>Platanthera hyperborea</i>	northern green bog orchid	5 (9)	+ (+)
	<i>Senecio pauperculus</i>	balsam groundsel	5 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	5 (0)	+ (0)
	<i>Hippuris vulgaris</i>	common mare's-tail	4 (0)	+ (0)
	<i>Lemna minor</i>	common duckweed	4 (0)	+ (0)
	<i>Mentha arvensis</i>	wild mint	4 (0)	+ (0)
	<i>Scheuchzeria palustris</i>	scheuchzeria	3 (9)	+ (+)
	<i>Polygonum coccineum</i>	water smartweed	3 (0)	0.2 (0)
	<i>Cicuta maculata</i>	water-hemlock	3 (0)	+ (0)
	<i>Drosera anglica</i>	oblong-leaved sundew	3 (0)	+ (0)
	<i>Epilobium leptophyllum</i>	narrow-leaved willowherb	3 (0)	+ (0)
	<i>Pedicularis parviflora</i>	swamp lousewort	3 (0)	+ (0)
	<i>Potentilla norvegica</i>	rough cinquefoil	3 (0)	+ (0)
	<i>Utricularia minor</i>	small bladderwort	3 (0)	+ (0)
	<i>Ranunculus sceleratus</i>	celery-leaved buttercup	2 (9)	0.1 (0.8)
	<i>Sium suave</i>	water parsnip	2 (9)	0.1 (0.1)
	<i>Caltha natans</i>	floating marsh-marigold	2 (9)	+ (+)
	<i>Pinguicula vulgaris</i>	common butterwort	2 (18)	+ (+)
	<i>Bidens cernua</i>	nodding beggarticks	2 (0)	0.1 (0)
	<i>Geum aleppicum</i>	yellow avens	2 (0)	0.1 (0)
	<i>Impatiens capensis</i>	spotted touch-me-not	2 (0)	0.1 (0)
	<i>Actaea rubra</i>	red and white baneberry	2 (0)	+ (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	2 (0)	+ (0)
	<i>Aster borealis</i>	marsh aster	2 (0)	+ (0)
	<i>Cardamine pensylvanica</i>	bitter cress	2 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	2 (0)	+ (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	2 (0)	+ (0)
	<i>Geum macrophyllum</i>	large-leaved yellow avens	2 (0)	+ (0)
	<i>Lycopus uniflorus</i>	northern water-horehound	2 (0)	+ (0)
<i>Maianthemum canadense</i>	wild lily-of-the-valley	2 (0)	+ (0)	
<i>Melampyrum lineare</i>	cow-wheat	2 (0)	+ (0)	
<i>Mertensia paniculata</i>	tall lungwort	2 (0)	+ (0)	
<i>Moehringia lateriflora</i>	blunt-leaved sandwort	2 (0)	+ (0)	
<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	2 (0)	+ (0)	
<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	2 (0)	+ (0)	
<i>Polygonum amphibium</i>	water smartweed	2 (0)	+ (0)	
<i>Ranunculus abortivus</i>	small-flowered buttercup	2 (0)	+ (0)	
<i>Ranunculus lapponicus</i>	Lapland buttercup	2 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Stellaria calycantha</i>	northern stitchwort	2 (0)	+ (0)
	<i>Tofieldia glutinosa</i>	sticky false asphodel	2 (0)	+ (0)
	<i>Vicia americana</i>	wild vetch	2 (0)	+ (0)
	<i>Viola canadensis</i>	western Canada violet	2 (0)	+ (0)
	<i>Viola palustris</i>	marsh violet	2 (0)	+ (0)
	<i>Leptarrhena pyrolifolia</i>	leather-leaved saxifrage	1 (9)	+ (+)
	<i>Nuphar lutea ssp variegata</i>	yellow pond-lily	1 (9)	+ (+)
	<i>Potamogeton natans</i>	floating-leaf pondweed	1 (9)	+ (+)
	<i>Acorus americanus</i>	sweet flag	1 (0)	+ (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	1 (0)	+ (0)
	<i>Antennaria parvifolia</i>	small-leaved everlasting	1 (0)	+ (0)
	<i>Apocynum androsaemifolium</i>	spreading dogbane	1 (0)	+ (0)
	<i>Cardamine pratensis</i>	meadow bitter cress	1 (0)	+ (0)
	<i>Chrysosplenium tetrandrum</i>	green saxifrage	1 (0)	+ (0)
	<i>Circaea alpina</i>	small enchanter's nightshade	1 (0)	+ (0)
	<i>Cypripedium acaule</i>	stemless lady's-slipper	1 (0)	+ (0)
	<i>Cypripedium parviflorum var pubescens</i>	large yellow lady's-slipper	1 (0)	+ (0)
	<i>Impatiens noli-tangere</i>	western jewelweed	1 (0)	+ (0)
	<i>Myriophyllum exalbescens</i>	spiked water-milfoil	1 (0)	+ (0)
	<i>Potamogeton gramineus</i>	various-leaved pondweed	1 (0)	+ (0)
	<i>Potentilla gracilis</i>	graceful cinquefoil	1 (0)	+ (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	1 (0)	+ (0)
	<i>Ranunculus cymbalaria</i>	seaside buttercup	1 (0)	+ (0)
	<i>Rorippa palustris</i>	marsh yellow cress	1 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	1 (0)	+ (0)
	<i>Sparganium angustifolium</i>	narrow-leaved bur-reed	1 (0)	+ (0)
<i>Stachys palustris</i>	marsh hedge-nettle	1 (0)	+ (0)	
<i>Utricularia vulgaris</i>	common bladderwort	1 (0)	+ (0)	
<i>Viola adunca</i>	early blue violet	1 (0)	+ (0)	
Fern/Allies	<i>Equisetum fluviatile</i>	swamp horsetail	27 (0)	2.7 (0)
	<i>Equisetum arvense</i>	common horsetail	16 (0)	0.4 (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	8 (9)	0.3 (0.3)
	<i>Botrychium virginianum</i>	Virginia grape fern	2 (0)	+ (0)
	<i>Diphasiastrum complanatum</i>	ground-cedar	2 (0)	+ (0)
	<i>Equisetum palustre</i>	marsh horsetail	2 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	2 (0)	+ (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	2 (0)	+ (0)
	<i>Equisetum hyemale</i>	common scouring-rush	1 (9)	+ (+)
	<i>Dryopteris carthusiana</i>	narrow spinulose shield fern	1 (0)	+ (0)
	<i>Gymnocarpium dryopteris</i>	oak fern	1 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	1 (0)	+ (0)
	Moss	<i>Tomentypnum nitens</i>	golden moss	31 (18)
<i>Aulacomnium palustre</i>		tufted moss	25 (36)	0.6 (1.1)
<i>Pleurozium schreberi</i>		Schreber's moss	19 (18)	1.7 (0.3)
<i>Bryum pseudotriquetrum</i>			19 (18)	0.1 (0.8)
<i>Drepanocladus aduncus</i>		brown moss	15 (9)	0.8 (+)
<i>Campylium stellatum</i>			14 (9)	+ (0.1)
<i>Plagiomnium ellipticum</i>			12 (27)	0.2 (+)
<i>Calliergon giganteum</i>			11 (0)	0.3 (0)
<i>Hylocomium splendens</i>		stair-step moss	10 (0)	0.6 (0)
<i>Sanionia uncinata</i>		brown moss	10 (0)	0.5 (0)
<i>Brachythecium mildeanum</i>			10 (0)	0.1 (0)
<i>Hamatocaulis vernicosus</i>		brown moss	8 (0)	1.2 (0)
<i>Sphagnum angustifolium</i>		peat moss	6 (45)	0.9 (10)
<i>Sphagnum fuscum</i>		rusty peat moss	6 (36)	1.4 (8)
<i>Dicranum undulatum</i>		wavy dicranum	6 (18)	0.2 (1.9)
<i>Helodium blandowii</i>			6 (0)	+ (0)
<i>Hypnum pratense</i>			6 (0)	+ (0)
<i>Meesia triquetra</i>		5 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Moss	<i>Pohlia nutans</i>	copper wire moss	6 (0)	+ (0)
	<i>Limprichtia revolvens</i>	brown moss	5 (0)	0.4 (0)
	<i>Climacium dendroides</i>		5 (0)	0.2 (0)
	<i>Sphagnum magellanicum</i>	midway peat moss	3 (27)	0.3 (2.9)
	<i>Polytrichum strictum</i>	slender hair-cap	3 (18)	0.1 (1)
	<i>Brachythecium rivulare</i>		3 (9)	+ (0.2)
	<i>Calliergon stramineum</i>		3 (9)	+ (+)
	<i>Leptodictyum riparium</i>		3 (0)	0.1 (0)
	<i>Amblystegium serpens</i>		3 (0)	+ (0)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	2 (9)	0.2 (1.8)
	<i>Sphagnum warnstorffii</i>	peat moss	2 (9)	0.1 (1.5)
	<i>Sphagnum squarrosum</i>	squarrose peat moss	2 (9)	+ (0.3)
	<i>Calliergon richardsonii</i>		2 (9)	+ (0.2)
	<i>Rhizomnium magnifolium</i>		2 (0)	0.2 (0)
	<i>Abietinella abietina</i>		2 (0)	+ (0)
	<i>Brachythecium salebrosum</i>		2 (0)	+ (0)
	<i>Bryoerythrophyllum recurvirostre</i>	red leaf moss	2 (0)	+ (0)
	<i>Dicranum polysetum</i>	wavy dicranum	2 (0)	+ (0)
	<i>Eurhynchium pulchellum</i>		2 (0)	+ (0)
	<i>Hypnum lindbergii</i>		2 (0)	+ (0)
	<i>Plagiomnium cuspidatum</i>		2 (0)	+ (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	2 (0)	+ (0)
	<i>Rhizomnium pseudopunctatum</i>		2 (0)	+ (0)
	<i>Scorpidium scorpioides</i>		2 (0)	+ (0)
	<i>Sphagnum fallax</i>	peat moss	2 (0)	+ (0)
	<i>Sphagnum riparium</i>	shore-growing peat moss	1 (9)	0.3 (3.5)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	1 (9)	0.2 (2)
	<i>Sphagnum teres</i>	thin-leaved peat moss	1 (9)	0.2 (1.8)
	<i>Thuidium recognitum</i>		1 (9)	+ (0.3)
	<i>Cratoneuron commutatum</i>		1 (0)	0.1 (0)
	<i>Brachythecium hylotapetum</i>		1 (0)	+ (0)
	<i>Brachythecium starkei</i>		1 (0)	+ (0)
	<i>Brachythecium turgidum</i>		1 (0)	+ (0)
	<i>Campylium radicale</i>		1 (0)	+ (0)
<i>Dicranum flagellare</i>	whip fork moss	1 (0)	+ (0)	
<i>Drepanocladus sendtneri</i>	brown moss	1 (0)	+ (0)	
<i>Leptobryum pyriforme</i>		1 (0)	+ (0)	
<i>Leptodictyum humile</i>		1 (0)	+ (0)	
<i>Myurella tenerrima</i>		1 (0)	+ (0)	
<i>Oncophorus wahlenbergii</i>	mountain curved-back moss	1 (0)	+ (0)	
<i>Paludella squarrosa</i>		1 (0)	+ (0)	
<i>Plagiomnium medium</i>		1 (0)	+ (0)	
<i>Plagiothecium denticulatum</i>		1 (0)	+ (0)	
<i>Warnstorffia exannulata</i>	brown moss	1 (0)	+ (0)	
Liverwort	<i>Marchantia polymorpha</i>	liverwort	4 (0)	+ (0)
	<i>Aneura pinguis</i>	liverwort	3 (0)	+ (0)
	<i>Calypogeia sphagnicola</i>	liverwort	2 (0)	+ (0)
	<i>Mylia anomala</i>	liverwort	2 (0)	+ (0)
	<i>Conocephalum conicum</i>	liverwort	1 (9)	+ (+)
	<i>Blepharostoma trichophyllum</i>	liverwort	1 (0)	+ (0)
	<i>Lepidozia reptans</i>	liverwort	1 (0)	+ (0)
	<i>Lophocolea heterophylla</i>	liverwort	1 (0)	+ (0)
	<i>Lophocolea minor</i>	liverwort	1 (0)	+ (0)
	<i>Ptilidium ciliare</i>	liverwort	1 (0)	+ (0)
<i>Scapania paludicola</i>	liverwort	1 (0)	+ (0)	
Lichen	<i>Cladina mitis</i>	reindeer lichen	6 (9)	0.1 (+)
	<i>Peltigera aphthosa</i>	studded leather lichen	4 (0)	+ (0)
	<i>Tuckermannopsis americana</i>		2 (18)	+ (+)
	<i>Bryoria fuscescens</i>	old man's beard	2 (9)	0.2 (1.8)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Lichen	<i>Parmelia sulcata</i>		2 (9)	+ (+)
	<i>Usnea hirta</i>	old man's beard	2 (9)	+ (+)
	<i>Peltigera canina</i>	dog lichen	2 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		2 (0)	+ (0)
	<i>Cladonia botrytes</i>		1 (9)	+ (+)
	<i>Cladonia rangiferina</i>	reindeer lichen	1 (0)	+ (0)
	<i>Cladonia cornuta</i>		1 (0)	+ (0)
	<i>Cladonia pyxidata</i>		1 (0)	+ (0)
	<i>Cladonia sulphurina</i>		1 (0)	+ (0)
	<i>Evernia mesomorpha</i>		1 (0)	+ (0)
	<i>Phaeophyscia orbicularis</i>		1 (0)	+ (0)
	<i>Rhizocarpon grande</i>		1 (0)	+ (0)
	<i>Usnea subfloridana</i>	old man's beard	1 (0)	+ (0)
<i>Xanthoria fallax</i>		1 (0)	+ (0)	

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

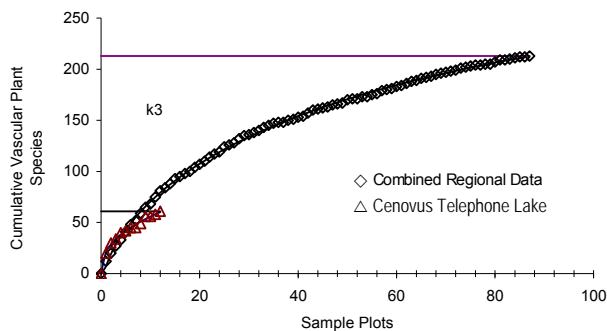
<b>Ecosite Phase</b>	k3- Graminoid Fen
<b>Sample Plots</b>	91 (12)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>49(1)</sup> 1-5 <sup>2(0)</sup>
<b>Moisture</b>	Hydric <sup>52(8)</sup> Subhydric <sup>12(3)</sup> Hygric <sup>8(1)</sup> Subhygric <sup>1(0)</sup>
<b>Nutrients</b>	Very Poor <sup>2(1)</sup> Poor <sup>4(1)</sup> Medium <sup>19(6)</sup> Rich <sup>38(4)</sup> Very Rich <sup>9(0)</sup>
<b>Arboreal Lichens</b>	Nil <sup>25(0)</sup> Trace <sup>6(1)</sup> Low <sup>3(0)</sup>
<b>Snags (stems/ha)</b>	10 [0-100] *
<b>Down Wood (logs/ha)</b>	35 [0-700] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>20(0)</sup> 10-20 <sup>1(1)</sup> 20-40 <sup>5(1)</sup> 40-100 <sup>7(1)</sup> 100 <sup>24(3)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>5(2)</sup> peat <sup>16(9)</sup> muck <sup>20(0)</sup>
<b>Seral Stage</b>	Initial <sup>3(0)</sup> Herb <sup>68(11)</sup> Mid-Seral <sup>3(1)</sup> Mature <sup>4(0)</sup>
<b>Height Class (m)</b>	2-5 <sup>1(0)</sup>
<b>Canopy Closure</b>	0 (0-5) <sup>80(7)</sup>
<b>Stand Age - BH (yr)</b>	n/a

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	196 (53)	48 (10)	244 (63)
<b>Mean Species<sup>(f)</sup></b>	11.2 (11)	1.9 (1.8)	13.1 (12.8)
<b>Unique Species<sup>(g)</sup></b>	5 (3)	1 (1)	6 (4)
<b>Dominant Species<sup>(h)</sup></b>	2 (7)	0 (2)	2 (9)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Tree	<i>Larix laricina</i>	tamarack	23 (8)	0.6 (0.4)
	<i>Picea mariana</i>	black spruce	13 (8)	0.6 (1.7)
	<i>Populus tremuloides</i>	aspen	9 (0)	+ (0)
	<i>Betula papyrifera</i>	white birch	8 (8)	0.1 (0.4)
	<i>Picea glauca</i>	white spruce	8 (0)	0.3 (0)
	<i>Pinus banksiana</i>	jack pine	5 (8)	+ (0.3)
	<i>Populus balsamifera</i>	balsam poplar	5 (0)	+ (0)
	<i>Betula occidentalis</i>	water birch	1 (0)	+ (0)
Shrub	<i>Betula pumila</i>	dwarf birch	31 (50)	3 (4.6)
	<i>Salix pedicellaris</i>	bog willow	21 (8)	1.2 (1.1)
	<i>Salix planifolia</i>	flat-leaved willow	20 (0)	0.7 (0)
	<i>Andromeda polifolia</i>	bog rosemary	14 (17)	0.7 (1)
	<i>Betula glandulosa</i>	bog birch	12 (17)	0.3 (0.1)
	<i>Ledum groenlandicum</i>	common Labrador tea	11 (8)	0.9 (0.4)
	<i>Salix candida</i>	hoary willow	9 (8)	0.4 (0.6)
	<i>Oxycoccus microcarpus</i>	small bog cranberry	9 (8)	+ (+)
	<i>Rosa acicularis</i>	prickly rose	9 (0)	0.1 (0)
	<i>Chamaedaphne calyculata</i>	leatherleaf	8 (25)	2.8 (1.1)
	<i>Shepherdia canadensis</i>	Canada buffaloberry	7 (0)	+ (0)
	<i>Vaccinium vitis-idaea</i>	bog cranberry	7 (0)	+ (0)
	<i>Kalmia polifolia</i>	northern laurel	5 (25)	+ (0.1)
	<i>Rubus arcticus</i>	dwarf raspberry	5 (0)	+ (0)
	<i>Vaccinium myrtilloides</i>	common blueberry	5 (0)	+ (0)
	<i>Salix myrtillofolia</i>	myrtle-leaved willow	4 (0)	0.1 (0)
	<i>Salix bebbiana</i>	beaked willow	4 (0)	+ (0)
	<i>Amelanchier alnifolia</i>	saskatoon	4 (0)	+ (0)
	<i>Arctostaphylos uva-ursi</i>	common bearberry	4 (0)	+ (0)
	<i>Cornus stolonifera</i>	red-osier dogwood	4 (0)	+ (0)
	<i>Lonicera caerulea</i>	fly honeysuckle	4 (0)	+ (0)
	<i>Rubus pubescens</i>	dewberry	4 (0)	+ (0)
	<i>Alnus viridis ssp crisper</i>	green alder	3 (0)	+ (0)
	<i>Linnaea borealis</i>	twinflower	3 (0)	+ (0)
	<i>Ribes lacustre</i>	bristly black currant	3 (0)	+ (0)
	<i>Symphoricarpos albus</i>	snowberry	3 (0)	+ (0)
	<i>Viburnum edule</i>	low-bush cranberry	3 (0)	+ (0)
	<i>Salix glauca</i>	smooth willow	2 (0)	0.1 (0)
	<i>Myrica gale</i>	sweet gale	2 (0)	+ (0)
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	2 (0)	+ (0)
	<i>Ribes triste</i>	wild red currant	2 (0)	+ (0)
	<i>Alnus incana ssp tenuifolia</i>	river alder	1 (0)	+ (0)
	<i>Arctostaphylos rubra</i>	alpine bearberry	1 (0)	+ (0)
	<i>Lonicera dioica</i>	twining honeysuckle	1 (0)	+ (0)
	<i>Lonicera involucrata</i>	bracted honeysuckle	1 (0)	+ (0)
	<i>Oxycoccus quadripetalus</i>	large bog cranberry	1 (0)	+ (0)
	<i>Prunus virginiana</i>	choke cherry	1 (0)	+ (0)
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	1 (0)	+ (0)
	<i>Ribes hudsonianum</i>	northern black currant	1 (0)	+ (0)
	<i>Rubus idaeus</i>	wild red raspberry	1 (0)	+ (0)
	<i>Salix discolor</i>	pussy willow	1 (0)	+ (0)
<i>Salix exigua</i>	sandbar willow	1 (0)	+ (0)	
<i>Salix pyrifolia</i>	balsam willow	1 (0)	+ (0)	
Graminoid	<b><i>Carex aquatilis</i></b>	<b>water sedge</b>	<b>43 (42)</b>	<b>10.4 (5.1)</b>
	<b><i>Carex diandra</i></b>	<b>two-stamened sedge</b>	<b>40 (50)</b>	<b>7.7 (7.5)</b>
	<i>Carex utriculata</i>	small bottle sedge	30 (50)	4.8 (5.6)
	<i>Calamagrostis canadensis</i>	bluejoint	20 (8)	0.8 (0.1)
	<i>Carex limosa</i>	mud sedge	18 (50)	2.2 (8.7)
	<i>Typha latifolia</i>	common cattail	16 (0)	0.3 (0)
	<i>Carex paupercola</i>		14 (25)	1.1 (1.3)

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Carex rostrata</i>	beaked sedge	9 (17)	1.7 (2.1)
	<i>Carex oligosperma</i>	few-fruited sedge	8 (50)	1.8 (12.8)
	<i>Eriophorum vaginatum</i>	sheathed cotton grass	8 (25)	0.3 (2.4)
	<i>Carex lasiocarpa</i>	hairy-fruited sedge	8 (0)	1.3 (0)
	<i>Calamagrostis inexpansa</i>	northern reed grass	7 (17)	+ (0.1)
	<i>Agrostis scabra</i>	rough hair grass	7 (8)	+ (0.1)
	<i>Eriophorum viridi-carinatum</i>	thin-leaved cotton grass	4 (0)	0.2 (0)
	<i>Carex chordorrhiza</i>	prostrate sedge	4 (0)	0.1 (0)
	<i>Carex gynocrates</i>	northern bog sedge	3 (0)	0.1 (0)
	<i>Leymus innovatus</i>	hairy wild rye	3 (0)	+ (0)
	<i>Carex tenuiflora</i>	thin-flowered sedge	2 (8)	+ (+)
	<i>Carex atherodes</i>	awned sedge	2 (0)	0.1 (0)
	<i>Carex vaginata</i>	sheathed sedge	2 (0)	0.1 (0)
	<i>Carex canescens ssp canescens</i>	short sedge	2 (0)	+ (0)
	<i>Eriophorum brachyantherum</i>	close-sheathed cotton grass	2 (0)	+ (0)
	<i>Glyceria grandis</i>	common tall manna grass	2 (0)	+ (0)
	<i>Oryzopsis asperifolia</i>	white-grained mountain rice grass	2 (0)	+ (0)
	<i>Oryzopsis pungens</i>	northern rice grass	2 (0)	+ (0)
	<i>Carex viridula</i>	green sedge	1 (8)	0.4 (3)
	<i>Eriophorum angustifolium</i>	cotton grass	1 (8)	+ (0.1)
	<i>Carex pseudocyperus</i>	cyperus-like sedge	1 (0)	0.4 (0)
	<i>Schoenoplectus acutus</i>	great bulrush	1 (0)	0.4 (0)
	<i>Scirpus cespitosus</i>	tufted bulrush	1 (0)	0.1 (0)
	<i>Scirpus hudsonianus</i>	Hudson Bay bulrush	1 (0)	0.1 (0)
	<i>Carex concinna</i>	beautiful sedge	1 (0)	+ (0)
	<i>Carex disperma</i>	two-seeded sedge	1 (0)	+ (0)
	<i>Carex interior</i>	inland sedge	1 (0)	+ (0)
	<i>Carex lacustris</i>	lakeshore sedge	1 (0)	+ (0)
	<i>Carex leptalea</i>	bristle-stalked sedge	1 (0)	+ (0)
	<i>Carex loliacea</i>	rye-grass sedge	1 (0)	+ (0)
	<i>Carex pachystachya</i>	sedge	1 (0)	+ (0)
	<i>Cinna latifolia</i>	drooping wood-reed	1 (0)	+ (0)
	<i>Eleocharis palustris</i>	creeping spike-rush	1 (0)	+ (0)
	<i>Eriophorum chamissonis</i>	russett cotton grass	1 (0)	+ (0)
<i>Eriophorum polystachion</i>	tall cotton grass	1 (0)	+ (0)	
<i>Glyceria striata</i>	fowl manna grass	1 (0)	+ (0)	
<i>Juncus balticus</i>	wire rush	1 (0)	+ (0)	
<i>Phalaris arundinacea</i>	reed canary grass	1 (0)	+ (0)	
Forb	<i>Potentilla palustris</i>	marsh cinquefoil	47 (50)	1.5 (2)
	<i>Menyanthes trifoliata</i>	buck-bean	27 (42)	2 (8.3)
	<i>Utricularia intermedia</i>	flat-leaved bladderwort	26 (25)	1.7 (0.1)
	<i>Galium trifidum</i>	small bedstraw	24 (25)	0.1 (0.3)
	<i>Triglochin maritima</i>	seaside arrow-grass	22 (33)	0.1 (0.2)
	<i>Stellaria longipes</i>	long-stalked chickweed	15 (42)	+ (+)
	<i>Smilacina trifolia</i>	three-leaved Solomon's-seal	15 (25)	0.1 (0.4)
	<i>Epilobium palustre</i>	marsh willowherb	14 (42)	0.1 (0.3)
	<i>Lysimachia thyrsiflora</i>	tufted loosestrife	14 (8)	0.1 (+)
	<i>Rumex occidentalis</i>	western dock	14 (17)	+ (0.1)
	<i>Caltha palustris</i>	marsh-marigold	13 (33)	0.3 (1.2)
	<i>Sarracenia purpurea</i>	pitcher-plant	11 (8)	0.3 (0.1)
	<i>Calla palustris</i>	water arum	10 (17)	0.4 (0.2)
	<i>Polygonum amphibium</i>	water smartweed	10 (0)	0.1 (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	10 (0)	+ (0)
	<i>Cicuta maculata</i>	water-hemlock	9 (33)	0.1 (0.4)
	<i>Galium boreale</i>	northern bedstraw	9 (8)	+ (0.2)
	<i>Lemna minor</i>	common duckweed	8 (17)	0.1 (0.1)
	<i>Epilobium angustifolium</i>	common fireweed	8 (0)	+ (0)
	<i>Drosera rotundifolia</i>	round-leaved sundew	7 (8)	+ (+)
<i>Cicuta bulbifera</i>	bulb-bearing water-hemlock	7 (0)	+ (0)	



Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Utricularia minor</i>	small bladderwort	7 (0)	+ (0)
	<i>Scheuchzeria palustris</i>	scheuchzeria	5 (17)	0.1 (0.3)
	<i>Epilobium ciliatum</i>	northern willowherb	5 (0)	+ (0)
	<i>Maianthemum canadense</i>	wild lily-of-the-valley	5 (0)	+ (0)
	<i>Mitella nuda</i>	bishop's-cap	5 (0)	+ (0)
	<i>Potamogeton gramineus</i>	various-leaved pondweed	5 (0)	+ (0)
	<i>Galium labradoricum</i>	Labrador bedstraw	4 (17)	0.1 (0.5)
	<i>Utricularia vulgaris</i>	common bladderwort	4 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	4 (0)	+ (0)
	<i>Drosera anglica</i>	oblong-leaved sundew	4 (0)	+ (0)
	<i>Fragaria virginiana</i>	wild strawberry	4 (0)	+ (0)
	<i>Hippuris vulgaris</i>	common mare's-tail	4 (0)	+ (0)
	<i>Parnassia palustris</i>	northern grass-of-parnassus	4 (0)	+ (0)
	<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	4 (0)	+ (0)
	<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses	4 (0)	+ (0)
	<i>Urtica dioica</i>	common nettle	3 (8)	+ (+)
	<i>Nuphar lutea ssp variegata</i>	yellow pond-lily	3 (0)	0.1 (0)
	<i>Melampyrum lineare</i>	cow-wheat	3 (0)	+ (0)
	<i>Pyrola asarifolia</i>	common pink wintergreen	3 (0)	+ (0)
	<i>Solidago multiradiata</i>	alpine goldenrod	3 (0)	+ (0)
	<i>Pedicularis parviflora</i>	swamp lousewort	2 (8)	+ (+)
	<i>Aster ciliolatus</i>	Lindley's aster	2 (0)	+ (0)
	<i>Bidens cernua</i>	noddling beggarticks	2 (0)	+ (0)
	<i>Campanula rotundifolia</i>	harebell	2 (0)	+ (0)
	<i>Geocaulon lividum</i>	northern bastard toadflax	2 (0)	+ (0)
	<i>Lathyrus ochroleucus</i>	cream-colored vetchling	2 (0)	+ (0)
	<i>Mentha arvensis</i>	wild mint	2 (0)	+ (0)
	<i>Mertensia paniculata</i>	tall lungwort	2 (0)	+ (0)
	<i>Potentilla norvegica</i>	rough cinquefoil	2 (0)	+ (0)
	<i>Ranunculus sceleratus</i>	celery-leaved buttercup	2 (0)	+ (0)
	<i>Rorippa palustris</i>	marsh yellow cress	2 (0)	+ (0)
	<i>Scutellaria galericulata</i>	marsh skullcap	2 (0)	+ (0)
	<i>Sium suave</i>	water parsnip	2 (0)	+ (0)
	<i>Tofieldia glutinosa</i>	sticky false asphodel	2 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	2 (0)	+ (0)
	<i>Pinguicula vulgaris</i>	common butterwort	1 (8)	+ (+)
	<i>Platanthera hyperborea</i>	northern green bog orchid	1 (8)	+ (+)
	<i>Polygonum lapathifolium</i>	pale persicaria	1 (8)	+ (+)
	<i>Achillea sibirica</i>	many-flowered yarrow	1 (0)	+ (0)
	<i>Acorus americanus</i>	sweet flag	1 (0)	+ (0)
	<i>Amerorchis rotundifolia</i>	round-leaved orchid	1 (0)	+ (0)
	<i>Anemone multifida</i>	cut-leaved anemone	1 (0)	+ (0)
	<i>Aster borealis</i>	marsh aster	1 (0)	+ (0)
	<i>Aster puniceus</i>	purple-stemmed aster	1 (0)	+ (0)
	<i>Comandra umbellata</i>	bastard toadflax	1 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	1 (0)	+ (0)
	<i>Cypripedium parviflorum var pubescens</i>	large yellow lady's-slipper	1 (0)	+ (0)
	<i>Epilobium leptophyllum</i>	narrow-leaved willowherb	1 (0)	+ (0)
	<i>Geum aleppicum</i>	yellow avens	1 (0)	+ (0)
	<i>Goodyera repens</i>	lesser rattlesnake plantain	1 (0)	+ (0)
<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	1 (0)	+ (0)	
<i>Impatiens capensis</i>	spotted touch-me-not	1 (0)	+ (0)	
<i>Lemna trisulca</i>	ivy-leaved duckweed	1 (0)	+ (0)	
<i>Listera cordata</i>	heart-leaved twayblade	1 (0)	+ (0)	
<i>Moehringia lateriflora</i>	blunt-leaved sandwort	1 (0)	+ (0)	
<i>Moneses uniflora</i>	one-flowered wintergreen	1 (0)	+ (0)	
<i>Myriophyllum exalbescens</i>	spiked water-milfoil	1 (0)	+ (0)	
<i>Orthilia secunda</i>	one-sided wintergreen	1 (0)	+ (0)	
<i>Pedicularis labradorica</i>	Labrador lousewort	1 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Petasites frigidus var x vitifolius</i>	vine-leaved coltsfoot	1 (0)	+ (0)
	<i>Potamogeton natans</i>	floating-leaf pondweed	1 (0)	+ (0)
	<i>Potentilla tridentata</i>	three-toothed cinquefoil	1 (0)	+ (0)
	<i>Pyrola chlorantha</i>	greenish-flowered wintergreen	1 (0)	+ (0)
	<i>Ranunculus gmelinii</i>	yellow water crowfoot	1 (0)	+ (0)
	<i>Rumex orbiculatus</i>	water dock	1 (0)	+ (0)
	<i>Sagittaria latifolia</i>	broad-leaved arrowhead	1 (0)	+ (0)
	<i>Smilacina stellata</i>	star-flowered Solomon's-seal	1 (0)	+ (0)
	<i>Solidago simplex ssp simplex</i>	mountain goldenrod	1 (0)	+ (0)
	<i>Sparganium minimum</i>	slender bur-reed	1 (0)	+ (0)
	<i>Stellaria longifolia</i>	long-leaved chickweed	1 (0)	+ (0)
<i>Viola palustris</i>	marsh violet	1 (0)	+ (0)	
Fern/Allies	<i>Equisetum fluviale</i>	swamp horsetail	25 (17)	1.1 (0.1)
	<i>Equisetum arvense</i>	common horsetail	4 (0)	0.1 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	4 (0)	+ (0)
	<i>Equisetum hyemale</i>	common scouring-rush	3 (8)	+ (0.1)
	<i>Equisetum pratense</i>	meadow horsetail	2 (0)	+ (0)
	<i>Equisetum sylvaticum</i>	woodland horsetail	2 (0)	+ (0)
	<i>Botrychium virginianum</i>	Virginia grape fern	1 (0)	+ (0)
<i>Diphasiastrum complanatum</i>	ground-cedar	1 (0)	+ (0)	
Moss	<i>Aulacomnium palustre</i>	tufted moss	18 (17)	0.4 (1.5)
	<i>Tomentypnum nitens</i>	golden moss	15 (8)	0.8 (0.2)
	<i>Pleurozium schreberi</i>	Schreber's moss	15 (17)	1.1 (0.4)
	<i>Hamatocaulis vernicosus</i>	brown moss	12 (33)	2.3 (3.3)
	<i>Drepanocladus aduncus</i>	brown moss	10 (0)	0.6 (0)
	<i>Sphagnum angustifolium</i>	peat moss	9 (42)	2.3 (14.3)
	<i>Calliergon giganteum</i>		7 (0)	2.4 (0)
	<i>Hylocomium splendens</i>	stair-step moss	7 (0)	0.6 (0)
	<i>Sphagnum fuscum</i>	rusty peat moss	5 (25)	1.1 (8)
	<i>Limprichtia revolvens</i>	brown moss	5 (0)	0.8 (0)
	<i>Bryum pseudotriquetrum</i>		5 (0)	0.1 (0)
	<i>Ceratodon purpureus</i>	purple horn-toothed moss	5 (0)	+ (0)
	<i>Campyllum stellatum</i>		4 (0)	0.1 (0)
	<i>Calliergon richardsonii</i>		3 (8)	+ (0.3)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	3 (0)	0.6 (0)
	<i>Leptodictyum riparium</i>		3 (0)	0.5 (0)
	<i>Sanionia uncinata</i>	brown moss	3 (0)	0.2 (0)
	<i>Calliergon stramineum</i>		3 (0)	+ (0)
	<i>Sphagnum magellanicum</i>	midway peat moss	2 (8)	0.2 (+)
	<i>Warnstorfia exannulata</i>	brown moss	2 (8)	+ (+)
	<i>Calliergon trifarium</i>		2 (0)	0.4 (0)
	<i>Sphagnum capillifolium</i>	acute-leaved peat moss	2 (0)	0.2 (0)
	<i>Sphagnum fallax</i>	peat moss	2 (0)	0.2 (0)
	<i>Meesia triquetra</i>		2 (0)	+ (0)
	<i>Plagiomnium ellipticum</i>		2 (0)	+ (0)
	<i>Pohlia nutans</i>	copper wire moss	2 (0)	+ (0)
	<i>Scorpidium scorpioides</i>		2 (0)	+ (0)
	<i>Warnstorfia fluitans</i>		2 (0)	+ (0)
	<i>Brachythecium rivulare</i>		1 (8)	0.6 (4.2)
	<i>Sphagnum russowii</i>	wide-tongued peat moss	1 (0)	0.7 (0)
	<i>Sphagnum squarrosum</i>	squarrose peat moss	1 (0)	0.4 (0)
	<i>Ptilium crista-castrensis</i>	knight's plume moss	1 (0)	0.1 (0)
	<i>Sphagnum teres</i>	thin-leaved peat moss	1 (0)	0.1 (0)
	<i>Brachythecium mildeanum</i>		1 (0)	+ (0)
<i>Climacium dendroides</i>		1 (0)	+ (0)	
<i>Dicranum undulatum</i>	wavy dicranum	1 (0)	+ (0)	
<i>Funaria hygrometrica</i>	cord moss	1 (0)	+ (0)	
<i>Helodium blandowii</i>		1 (0)	+ (0)	
<i>Leptodictyum humile</i>		1 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Moss	<i>Pohlia sphagnicola</i>		1 (0)	+ (0)
	<i>Sphagnum riparium</i>	shore-growing peat moss	1 (0)	+ (0)
Liverwort	<i>Aneura pinguis</i>	liverwort	3 (0)	+ (0)
	<i>Conocephalum conicum</i>	liverwort	2 (0)	+ (0)
	<i>Marchantia polymorpha</i>	liverwort	1 (0)	+ (0)
Lichen	<i>Cladina mitis</i>	reindeer lichen	5 (0)	+ (0)
	<i>Peltigera aphthosa</i>	studded leather lichen	4 (0)	+ (0)
	<i>Cladonia gracilis</i>	graceful pyxie cup	1 (0)	+ (0)
	<i>Peltigera neopolydactyla</i>		1 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

### Comparison of Regional and Project Vegetation Data

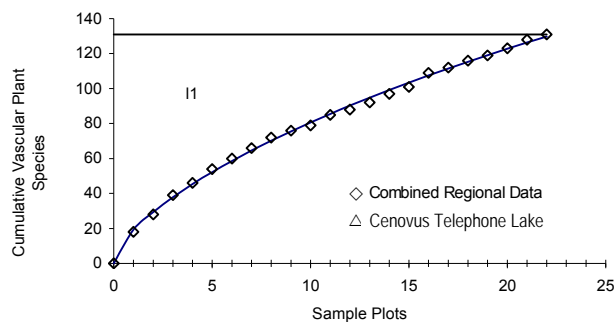
<b>Ecosite Phase</b>	I1- Graminoid Marsh
<b>Sample Plots</b>	25 (3)

Site and Stand Characteristics	
<b>Slope</b>	0 <sup>17(0)</sup>
<b>Moisture</b>	Aquatic <sup>1(0)</sup> Hydric <sup>17(2)</sup> Subhydric <sup>2(0)</sup>
<b>Nutrients</b>	Very Poor <sup>1(0)</sup> Medium <sup>2(1)</sup> Rich <sup>10(1)</sup> Very Rich <sup>7(1)</sup>
<b>Arboreal Lichens</b>	Nil <sup>10(1)</sup> Trace <sup>1(0)</sup> Low <sup>1(1)</sup>
<b>Snags (stems/ha)</b>	0 [0-0] *
<b>Down Wood (logs/ha)</b>	0 [0-0] *
<b>Duff/Peat Depth (cm)</b>	0-5 <sup>6(1)</sup> 10-20 <sup>1(0)</sup> 40-100 <sup>2(0)</sup> 100 <sup>2(0)</sup>
<b>Soil Texture Class</b>	rocky/sandy <sup>1(1)</sup> peat <sup>3(2)</sup> muck <sup>6(0)</sup>
<b>Seral Stage</b>	Initial <sup>1(0)</sup> Herb <sup>21(3)</sup>
<b>Height Class (m)</b>	5-10 <sup>1(1)</sup>
<b>Canopy Closure</b>	O (0-5) <sup>24(3)</sup>
<b>Stand Age - BH (yr)</b>	n/a

Species Richness Summary			
	Vascular <sup>(d)</sup>	Non-Vascular <sup>(d)</sup>	Total <sup>(d)</sup>
<b>Total Species<sup>(e)</sup></b>	137 (32)	17 (0)	154 (32)
<b>Mean Species<sup>(f)</sup></b>	14.2 (14.3)	1.1 (0)	15.2 (14.3)
<b>Unique Species<sup>(g)</sup></b>	5 (4)	2 (0)	7 (4)
<b>Dominant Species<sup>(h)</sup></b>	3 (14)	0 (0)	3 (14)

(d) Regional (Local) Species Richness Statistics  
 (e) species that occur among all sample plots  
 (f) mean number of species per sample plot  
 (g) species that occur only in this ecosite phase (shaded rows)  
 (h) species with ≥5% cover and occurring in ≥25% of sample plots (bold type)  
 \* snags and downed wood were not measured in the TLSA

Vascular Plant Species Accumulation Curve:  
 Regional and Local Comparison



Representative Site Photo

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>	
Tree	<i>Larix laricina</i>	tamarack	12 (33)	0.4 (3.3)	
	<i>Betula papyrifera</i>	white birch	12 (33)	+ (+)	
	<i>Picea mariana</i>	black spruce	12 (0)	+ (0)	
	<i>Picea glauca</i>	white spruce	8 (0)	0.3 (0)	
	<i>Populus tremuloides</i>	aspen	4 (0)	+ (0)	
Shrub	<i>Betula pumila</i>	dwarf birch	32 (33)	0.8 (2.1)	
	<i>Salix planifolia</i>	flat-leaved willow	16 (67)	0.5 (2.4)	
	<i>Betula glandulosa</i>	bog birch	12 (33)	1 (8.3)	
	<i>Myrica gale</i>	sweet gale	12 (0)	3.2 (0)	
	<i>Ledum groenlandicum</i>	common Labrador tea	8 (0)	1.2 (0)	
	<i>Salix myrtilifolia</i>	myrtle-leaved willow	8 (0)	0.2 (0)	
	<i>Salix pedicellaris</i>	bog willow	8 (0)	0.1 (0)	
	<i>Vaccinium myrtilloides</i>	common blueberry	8 (0)	0.1 (0)	
	<i>Vaccinium vitis-idaea</i>	bog cranberry	8 (0)	0.1 (0)	
	<i>Rhamnus alnifolia</i>	alder-leaved buckthorn	8 (0)	+ (0)	
	<i>Rosa acicularis</i>	prickly rose	8 (0)	+ (0)	
	<i>Rubus arcticus</i>	dwarf raspberry	8 (0)	+ (0)	
	<i>Rubus pubescens</i>	dewberry	8 (0)	+ (0)	
	<i>Ledum palustre</i>	northern Labrador tea	4 (0)	0.1 (0)	
	<i>Potentilla fruticosa</i>	shrubby cinquefoil	4 (0)	0.1 (0)	
	<i>Salix maccalliana</i>	velvet-fruited willow	4 (0)	0.1 (0)	
	<i>Amelanchier alnifolia</i>	saskatoon	4 (0)	+ (0)	
	<i>Arctostaphylos uva-ursi</i>	common bearberry	4 (0)	+ (0)	
	<i>Cornus stolonifera</i>	red-osier dogwood	4 (0)	+ (0)	
	<i>Linnaea borealis</i>	twinline	4 (0)	+ (0)	
	<i>Lonicera caerulea</i>	fly honeysuckle	4 (0)	+ (0)	
	<i>Lonicera dioica</i>	twining honeysuckle	4 (0)	+ (0)	
	<i>Ribes lacustre</i>	bristly black currant	4 (0)	+ (0)	
	<i>Ribes oxycanthoides</i>	northern gooseberry	4 (0)	+ (0)	
	<i>Ribes triste</i>	wild red currant	4 (0)	+ (0)	
	<i>Rubus idaeus</i>	wild red raspberry	4 (0)	+ (0)	
	<i>Salix bebbiana</i>	beaked willow	4 (0)	+ (0)	
	<i>Symphoricarpos albus</i>	snowberry	4 (0)	+ (0)	
	<i>Viburnum edule</i>	low-bush cranberry	4 (0)	+ (0)	
	Graminoid	<b><i>Typha latifolia</i></b>	<b>common cattail</b>	<b>60 (33)</b>	<b>8.2 (5.2)</b>
		<b><i>Carex aquatilis</i></b>	<b>water sedge</b>	<b>52 (67)</b>	<b>8.9 (16.4)</b>
		<i>Carex utriculata</i>	small bottle sedge	36 (67)	4.7 (8.3)
<i>Carex diandra</i>		two-stamened sedge	32 (67)	2.3 (1.9)	
<i>Calamagrostis canadensis</i>		bluejoint	28 (67)	2.8 (17.3)	
<i>Carex pseudocyperus</i>		cyperus-like sedge	16 (0)	0.1 (0)	
<i>Calamagrostis inexpansa</i>		northern reed grass	16 (0)	+ (0)	
<i>Eleocharis acicularis</i>		needle spike-rush	8 (33)	+ (+)	
<i>Carex atherodes</i>		awned sedge	8 (0)	0.5 (0)	
<i>Carex capillaris</i>		hair-like sedge	8 (0)	0.2 (0)	
<i>Carex disperma</i>		two-seeded sedge	8 (0)	+ (0)	
<i>Carex lasiocarpa</i>		hairy-fruited sedge	4 (0)	0.7 (0)	
<i>Carex paupercula</i>		poor sedge	4 (0)	0.7 (0)	
<i>Phalaris arundinacea</i>		reed canary grass	4 (0)	0.6 (0)	
<i>Carex rostrata</i>		beaked sedge	4 (0)	0.3 (0)	
<i>Carex prairea</i>		prairie sedge	4 (0)	0.1 (0)	
<i>Scolochloa festucacea</i>		spangletop	4 (0)	0.1 (0)	
<i>Carex gynocrates</i>		northern bog sedge	4 (0)	+ (0)	
<i>Carex limosa</i>		mud sedge	4 (0)	+ (0)	
<i>Carex pachystachya</i>		sedge	4 (0)	+ (0)	
<i>Carex vaginata</i>		sheathed sedge	4 (0)	+ (0)	
<i>Deschampsia cespitosa</i>		tufted hair grass	4 (0)	+ (0)	
<i>Eleocharis palustris</i>		creeping spike-rush	4 (0)	+ (0)	
<i>Eriophorum viridi-carinatum</i>		thin-leaved cotton grass	4 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Graminoid	<i>Glyceria borealis</i>	northern manna grass	4 (0)	+ (0)
	<i>Leymus innovatus</i>	hairy wild rye	4 (0)	+ (0)
	<i>Potentilla palustris</i>	marsh cinquefoil	52 (67)	1 (1.3)
Forb	<i>Cicuta bulbifera</i>	bulb-bearing water-hemlock	48 (67)	0.3 (1.5)
	<i>Galium trifidum</i>	small bedstraw	44 (67)	1.1 (1.9)
	<i>Lemna minor</i>	common duckweed	36 (67)	0.6 (3)
	<i>Rumex occidentalis</i>	western dock	28 (33)	0.1 (+)
	<i>Hippuris vulgaris</i>	common mare's-tail	24 (33)	0.3 (+)
	<i>Utricularia intermedia</i>	flat-leaved bladderwort	24 (0)	0.2 (0)
	<i>Calla palustris</i>	water arum	24 (0)	1.6 (0)
	<i>Polygonum amphibium</i>	water smartweed	20 (67)	0.3 (0.7)
	<i>Utricularia vulgaris</i>	common bladderwort	20 (33)	1.1 (6.5)
	<i>Lysimachia thyrsiflora</i>	tufted loosestrife	20 (33)	0.8 (0.1)
	<i>Caltha palustris</i>	marsh-marigold	20 (33)	0.2 (+)
	<i>Menyanthes trifoliata</i>	buck-bean	20 (0)	2.9 (0)
	<i>Cicuta maculata</i>	water-hemlock	20 (0)	0.1 (0)
	<i>Epilobium palustre</i>	marsh willowherb	16 (67)	0.1 (0.4)
	<i>Epilobium angustifolium</i>	common fireweed	16 (33)	0.7 (5.3)
	<i>Stellaria longipes</i>	long-stalked chickweed	16 (33)	+ (0.2)
	<i>Mentha arvensis</i>	wild mint	16 (33)	+ (+)
	<i>Scutellaria galericulata</i>	marsh skullcap	16 (0)	0.2 (0)
	<i>Nuphar lutea ssp variegata</i>	yellow pond-lily	16 (0)	0.1 (0)
	<i>Urtica dioica</i>	common nettle	12 (33)	0.2 (1.4)
	<i>Triglochin maritima</i>	seaside arrow-grass	12 (0)	0.3 (0)
	<i>Potamogeton gramineus</i>	various-leaved pondweed	12 (0)	0.1 (0)
	<i>Mitella nuda</i>	bishop's-cap	12 (0)	+ (0)
	<i>Myriophyllum exalbescens</i>	spiked water-milfoil	12 (0)	+ (0)
	<i>Ranunculus sceleratus</i>	celery-leaved buttercup	8 (33)	+ (0.1)
	<i>Utricularia minor</i>	small bladderwort	8 (0)	1.1 (0)
	<i>Aster puniceus</i>	purple-stemmed aster	8 (0)	+ (0)
	<i>Galium triflorum</i>	sweet-scented bedstraw	8 (0)	+ (0)
	<i>Petasites frigidus var palmatus</i>	palmate-leaved coltsfoot	8 (0)	+ (0)
	<i>Potentilla norvegica</i>	rough cinquefoil	8 (0)	+ (0)
	<i>Thalictrum venulosum</i>	veiny meadow rue	4 (33)	1.1 (9.2)
	<i>Delphinium glaucum</i>	tall larkspur	4 (33)	0.1 (1.2)
	<i>Heraclium lanatum</i>	cow parsnip	4 (33)	+ (0.2)
	<i>Mertensia paniculata</i>	tall lungwort	4 (33)	+ (0.2)
	<i>Vicia americana</i>	wild vetch	4 (33)	+ (0.2)
	<i>Bidens cernua</i>	nodding beggarticks	4 (0)	0.1 (0)
	<i>Lemna trisulca</i>	ivy-leaved duckweed	4 (0)	0.1 (0)
	<i>Rorippa palustris</i>	marsh yellow cress	4 (0)	0.1 (0)
	<i>Rumex maritimus</i>	golden dock	4 (0)	0.1 (0)
	<i>Achillea millefolium</i>	common yarrow	4 (0)	+ (0)
	<i>Acorus americanus</i>	sweet flag	4 (0)	+ (0)
	<i>Anemone canadensis</i>	Canada anemone	4 (0)	+ (0)
	<i>Aralia nudicaulis</i>	wild sarsaparilla	4 (0)	+ (0)
	<i>Aster ciliolatus</i>	Lindley's aster	4 (0)	+ (0)
	<i>Corallorhiza trifida</i>	pale coralroot	4 (0)	+ (0)
	<i>Epilobium ciliatum</i>	northern willowherb	4 (0)	+ (0)
	<i>Epilobium leptophyllum</i>	narrow-leaved willowherb	4 (0)	+ (0)
<i>Fragaria virginiana</i>	wild strawberry	4 (0)	+ (0)	
<i>Galium labradoricum</i>	Labrador bedstraw	4 (0)	+ (0)	
<i>Geocaulon lividum</i>	northern bastard toadflax	4 (0)	+ (0)	
<i>Geum aleppicum</i>	yellow avens	4 (0)	+ (0)	
<i>Impatiens noli-tangere</i>	western jewelweed	4 (0)	+ (0)	
<i>Listera cordata</i>	heart-leaved twayblade	4 (0)	+ (0)	
<i>Maianthemum canadense</i>	wild lily-of-the-valley	4 (0)	+ (0)	
<i>Nymphaea tetragona</i>	white water-lily	4 (0)	+ (0)	
<i>Petasites frigidus var sagittatus</i>	arrow-leaved coltsfoot	4 (0)	+ (0)	

Plant Type	Scientific Name	Common Name	Frequency (%) <sup>1</sup>	Mean Cover (%) <sup>2</sup>
Forb	<i>Platanthera hyperborea</i>	northern green bog orchid	4 (0)	+ (0)
	<i>Potamogeton natans</i>	floating-leaf pondweed	4 (0)	+ (0)
	<i>Ranunculus abortivus</i>	small-flowered buttercup	4 (0)	+ (0)
	<i>Ranunculus aquatilis</i>	large-leaved white water crowfoot	4 (0)	+ (0)
	<i>Ranunculus gmelinii</i>	yellow water crowfoot	4 (0)	+ (0)
	<i>Sagittaria cuneata</i>	arum-leaved arrowhead	4 (0)	+ (0)
	<i>Sagittaria latifolia</i>	broad-leaved arrowhead	4 (0)	+ (0)
	<i>Scheuchzeria palustris</i>	scheuchzeria	4 (0)	+ (0)
	<i>Sium suave</i>	water parsnip	4 (0)	+ (0)
	<i>Sparganium angustifolium</i>	narrow-leaved bur-reed	4 (0)	+ (0)
	<i>Stellaria calycantha</i>	northern stitchwort	4 (0)	+ (0)
	<i>Stellaria crassifolia</i>	fleshy stitchwort	4 (0)	+ (0)
	<i>Trientalis borealis</i>	northern starflower	4 (0)	+ (0)
	<i>Triglochin palustris</i>	slender arrow-grass	4 (0)	+ (0)
<i>Viola palustris</i>	marsh violet	4 (0)	+ (0)	
Fern/Allies	<i>Equisetum fluviatile</i>	swamp horsetail	24 (0)	0.6 (0)
	<i>Equisetum arvense</i>	common horsetail	12 (0)	0.1 (0)
	<i>Equisetum scirpoides</i>	dwarf scouring-rush	12 (0)	+ (0)
	<i>Equisetum pratense</i>	meadow horsetail	8 (0)	+ (0)
	<i>Lycopodium annotinum</i>	stiff club-moss	4 (0)	+ (0)
Moss	<i>Drepanocladus aduncus</i>	brown moss	24 (0)	3.9 (0)
	<i>Calliergon giganteum</i>		12 (0)	3.4 (0)
	<i>Pleurozium schreberi</i>	Schreber's moss	8 (0)	2.2 (0)
	<i>Hylocomium splendens</i>	stair-step moss	8 (0)	1.2 (0)
	<i>Bryum pseudotriquetrum</i>		8 (0)	0.1 (0)
	<i>Calliergon trifarium</i>		4 (0)	0.1 (0)
	<i>Hamatocaulis vernicosus</i>	brown moss	4 (0)	0.1 (0)
	<i>Brachythecium mildeanum</i>		4 (0)	+ (0)
	<i>Campylium stellatum</i>		4 (0)	+ (0)
	<i>Cratoneuron filicinum</i>		4 (0)	+ (0)
	<i>Plagiomnium ellipticum</i>		4 (0)	+ (0)
	<i>Pohlia nutans</i>	copper wire moss	4 (0)	+ (0)
	<i>Sphagnum girgensohnii</i>	Girgensohn's moss	4 (0)	+ (0)
	<i>Tomentypnum nitens</i>	golden moss	4 (0)	+ (0)
Liverwort	<i>Marchantia polymorpha</i>	liverwort	4 (0)	+ (0)
Lichen	<i>Nodobryoria abbreviata</i>	old man's beard	4 (0)	+ (0)
	<i>Peltigera aphthosa</i>	studded leather lichen	4 (0)	+ (0)

<sup>1</sup> Regional (Local) percent of sample sites with species present.

<sup>2</sup> Regional (Local) mean percent cover; regionally unique species that occur only in this ecosite phase (shaded rows); regionally dominant species with ≥5% cover and occurring in ≥25% of sample plots (bold type).

## 2.0 ALBERTA WETLAND TYPES (AWI)

Wetlands are defined in Canada as “...land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation and various kinds of biological activity which are adapted to a wet environment” (NWWG 1988). Wetlands within the TLSA were classified according to the Alberta Wetland Inventory Standards (version 1.0) developed by Halsey and Vitt (1997) based on aerial photography previously typed to Alberta Vegetation Inventory standards. This system follows the wetland classes developed by the NWWG (1988). Five wetland classes are defined for Alberta: shallow open water, marsh, swamp, fen, and bog. Three are non-peat forming (shallow open water, marsh, swamp) and two are peat forming (bog and fen). Wetland classes are modified into finer groups based on vegetation cover, developmental structure, and local landforms (Table I2-1).

**Table I2-1: Wetland Classification Scheme**

Classification	Symbol
<i>Wetland Class</i>	
Bog	B
Fen	F
Swamp	S
Marsh	M
Shallow Open Water	W
Non-wetland	Z
<i>Vegetation Modifier</i>	
Forested closed canopy >70% tree cover	F
Wooded open canopy >6% - 70% tree cover	T
Open: shrubs, sedges, graminoids, herbs, etc. <6% tree cover	O
<i>Wetland Complex Landform Modifier</i>	
Permafrost present	X
Patterning present	P
Permafrost or patterning is not present	N
<i>Local Landform Modifier</i>	
Collapse scar	C
Internal lawn with islands of forested peat plateau	R
Internal lawns	I
No internal lawns are present	N
Shrub cover >25% when tree cover <6%	S
Graminoid dominated with shrub cover <25% and tree cover <6%	G

### 2.1 Bogs

Bogs are ombrotrophic peatlands, receiving water and nutrients solely from precipitation resulting in acidic conditions. Low decomposition rates relative to plant production results in peat accumulation. The water table is generally 40 to 60 cm below the peat surface. Bogs are



acidic, low nutrient ecosystems and are dominated by oligotrophic species such as rusty peat moss (*Sphagnum fuscum*), red-stem feather moss (*Pleurozium schreberi*), stair-step moss (*Hylocomnium splendens*), reindeer lichens (*Cladina* spp.) and ericaceous shrubs. Bogs may be open, wooded or forested, with black spruce (*Picea mariana*) as the only dominant tree species (Halsey and Vitt 1997; Keys 1992).

Five bog classes have been identified: BTNN (non-patterned, wooded bogs with no internal lawns), BTNI (wooded bogs with internal lawns), BTNR (non-patterned, wooded bogs with islands of forested peat plateau and internal lawns), BTXC (wooded bogs with permafrost and collapse scars) and BFNN (non-patterned, forested bogs with no internal lawns),

### **2.1.1 Wooded Bogs without Internal Lawns (BTNN)**

This common community is wooded, with total black spruce cover ranging between 6% and 70%, and with no permafrost, patterning or internal lawns present. These correspond to the “flat bogs” of Zoltai *et al.* (1988), occurring in complexes with large fen systems. This community is also found in small basins (“basin bogs”) associated with hummocky terrain, in broad, poorly defined depressions, or along drainage divides (Halsey and Vitt 1997).

This bog type is dominated by black spruce usually less than 10 m in height and typically between 5% and 30% in canopy closure. The shrub layer is dominated by low shrub species such as Labrador tea (*Ledum groenlandicum*), bog cranberry (*Vaccinium vitis-idaea*), cloudberry (*Rubus chamaemorus*) and small bog cranberry (*Oxycoccus microcarpus*). Graminoid species are not common in this community and are limited to species such as cotton grasses (*Eriophorum* spp.). Peat mosses and reindeer lichens dominate the ground cover. Other common mosses include wavy dicranum (*Dicranum undulatum*) and red-stem feather moss.

### **2.1.2 Non-patterned, Forested Bogs with no Internal Lawns (BFNN)**

This community is very similar to BTNN with the primary difference being the density of trees. It is uncommon in the TLSA.

### **2.1.3 Wooded Bogs with Internal Lawns (BTNI)**

This bog type is characterized by open, wet peat moss and sedge (*Carex* spp.) dominated internal lawns that often contain stands of dead trees within an otherwise uniform bog island or peninsula. Common peat mosses include (*Sphagnum angustifolium*, *S. riparium* and *S. fallax*), with hummocks of peat moss (*S. fuscum* or *S. magellanicum*) and associated bog vegetation near the margins of the lawns. Even though permafrost is absent, thin, seasonal frost layers can be present well into the summer. Internal lawns represent former areas of permafrost that have become degraded. They can occur in irregular patterns radiating outward from the bog island centre or in indistinct, non-radiating patterns. This wetland bog type is uncommon in the TLSA.

#### **2.1.4 Wooded Bogs with Forested Permafrost Bog and Internal Lawns (BTNR)**

These wetlands are dominated by a wooded bog with a ground cover of rusty peat moss and lichens, interspersed with a forested bog that is dominated by feather mosses. These areas of forested bog are raised above the surrounding wooded bog and represent relict permafrost internal lawns of peat moss and sedges with standing dead black spruce are common. This wetland bog type is uncommon in the TLSA.

#### **2.1.5 Wooded Bogs with Permafrost and Collapse Scars (BTXC)**

Wooded permafrost bogs have a flat, raised surface, dominated by lichens interspersed with rusty peat moss and red-stem feather moss. Collapse scars are typically a metre lower than the surrounding bog surface. They can occur as isolated circular areas or as interconnected, elongate drainage channels. This wetland bog is uncommon in the TLSA.

### **2.2 Fens**

Fens are also peatlands, but they are affected by mineral soil water (ground and/or surface water), which may be relatively rich in nutrients (minerotrophic). Unlike bogs, fens have some degree of water movement through them and more nutrients as a result. Water levels in fens are typically at or near the peat surface. Fens are classed into poor fens, moderate-rich fens and extreme-rich fens based on a vegetation (species richness) gradient that correlates strongly with a chemical gradient.

Poor fens are low in indicator species such as tamarack (*Larix laricina*), willow (*Salix spp.*) and dwarf birch (*Betula pumila*) and high in oligotrophic and mesotrophic species including peat mosses, black spruce, cloudberry and Labrador tea. They are moderately acidic (pH 4.5 to 5.5), poor in base cations and have little or no alkalinity. Moderate-rich fens are intermediate between poor and extreme-rich fens with a slightly acidic to neutral pH (5.5 to 7.0). They have low to moderate alkalinity and typically support a ground layer of brown mosses (e.g., *Drepanocladus spp.*, *Brachythecium spp.*, or *Calliergon spp.*). Extreme-rich fens are high in indicator species such as: dwarf birch, sedges, swamp horsetail (*Equisetum fluviatile*), marsh marigold (*Caltha palustris*), marsh cinquefoil (*Potentilla palustris*), tamarack, willow, and mosses (*Drepanocladus spp.*, *Scorpidium spp.*, and *Campylium spp.*). These sites have a high pH (above 7.0). They have high concentrations of base cations and high alkalinity (Halsey and Vitt 1997, OSWWG 2000).

Six fen classes have been identified: FONG (non-patterned, open, graminoid fens), FONS (non-patterned, open, shrubby fens), FTNN (non-patterned, wooded fens with no internal lawns), FTNI (wooded bogs with internal lawns), FTNR (non-patterned, wooded fens with islands of forested peat plateau and internal lawns) and FTPN (patterned, wooded fens with no internal lawns).

### **2.2.1 Non-patterned, Open, Graminoid-dominated Fens (FONG)**

This fen type is open, dominated by graminoid species and has no patterning. There is little tree cover, comprising a few scattered tamarack and/or black spruce trees. Tall shrub cover is less than 25%, although low shrubs may be mixed in with the graminoid vegetation. This fen type may occur as collapse scars in association with peat plateaus, at the margins of bog islands, as deeper phases within riverine swamps (SONS), inland of lacustrine marshes (MONG), or as small isolated basins. They may also occur as wetter phases in featureless wooded fens (FTNN) in flat, featureless peatlands sloping gently in the direction of drainage (Halsey and Vitt 1997).

This community is uncommon but scattered throughout the TLSA. Graminoid species dominate this community in various combinations with sedges as the most prevalent species, however common tall manna grass (*Glyceria grandis*), bluejoint (*Calamagrostis canadensis*), and rough hair grass (*Agrostis scabra*) can also be present. Scattered low shrubs including dwarf birch, sweet gale (*Myrica gale*) and flat-leaved willow (*Salix planifolia*) are present throughout this fen type. Peat moss species dominates the ground cover.

### **2.2.2 Non-patterned, Open, Shrub-dominated Fens (FONS)**

These fens are shrub-dominated, non-patterned, non-treed fens dominated by birch and willow (typically below 1.5 m in height). They are found as small isolated basins within wooded fens (FTNN) sloping gently in the direction of drainage, and inland of riverine swamps (SONS) and lacustrine marshes (MONS). These fens can be poor or rich (Halsey and Vitt 1997).

This wetland type is common within the TLSA, typically in association with creeks. Typical shrub species can include dwarf birch, flat-leaved willow, bog willow (*Salix pedicellaris*), bog rosemary (*Andromeda polifolia*) and leatherleaf (*Chamadaphne calyculata*). Common graminoid species include sedges, sheathed cotton grass (*Eriophorum vaginatum*) and common tall manna grass. Peat mosses are common on hummocks in association with golden moss (*Tomenthypnum nitens*) and tufted moss. Water mosses (e.g., Drepanocladus spp., Calliergon spp.) are typically found in water filled depressions.

### **2.2.3 Non-patterned, Wooded Fens with No Internal Lawns (FTNN)**

This fen type is the dominant wetland type in the TLSA. These non-patterned fens are wooded with a combination of black spruce and tamarack. These fens can be poor to rich depending on local drainage/seepage conditions (Halsey and Vitt 1997). Low shrubs dominate a large proportion of this community including myrtle-leaved willow (*Salix myrtifolia*), Labrador tea, dwarf-birch, cloudberry and bog cranberry. The ground cover is composed predominantly of sedges and sheathed cotton grass, along with a wide variety of forb species. Peat moss in association with golden moss and tufted moss form hummocks through the system. Red-stem feather moss, stair-step moss, and reindeer lichen are common on the tops of hummocks, whereas pools are dominated by water mosses.

#### **2.2.4 Non-patterned, Wooded Fens with Internal Lawns (FTNI)**

Islands of internal fens occur as wetter depressions within wooded fens and are generally located along the margins of mineral uplands or bogs. These islands are identified by presence of randomly tilted, dead trees indicating the former presence of small densely-wooded permafrost bodies. They are surrounded by a narrow fringe of denser tree cover dominated by black spruce, marking the original extent of the peat plateau. Internal lawns have a ground cover composed of wetter species of peat moss or brown moss than the surrounding wooded fen. This wetland fen type is common in the TLSA.

#### **2.2.5 Non-patterned, Wooded Fens with Islands of Forested Peat Plateau and Internal Lawns (FTNR)**

This wetland community is uncommon in the TLSA and is typically located along the edges of uplands or large bogs. It is characterized by peat plateaus which are islands within wooded fens that are forested exclusively by black spruce. These islands are surrounded by wetter and lower areas that represent the internal lawns. These lawns may have standing dead trees but are dominated by graminoid species, peat moss, and brown moss (Halsey and Vitt 1997).

#### **2.2.6 Patterned, Wooded Fens with No Internal Lawns (FTPN)**

This wetland community is also uncommon in the TLSA. It is characterized by open wet “flarks” and drier shrubby or wooded “strings”. Strings are oriented perpendicular to surface water flow and can be covered with black spruce, tamarack, willows and birch, while graminoid species are typically associated with the standing water found in the flarks. Moss species will be dependent on the richness of each particular fen with peat moss in poor fens to brown mosses in extremely rich fens (Halsey and Vitt 1997).

### **2.3 Marshes**

Marshes are not peatlands but may have some peat accumulation. They are dominated by emergent vegetation such as sedges, reed grasses (*Phalaris arundinaceae.*, *Phragmites australis.*), rushes (*Juncus spp.*), cattails (*Typha latifolia*), or bulrushes (*Scirpus spp.*) (Keys 1992). Seasonal water fluctuations are characteristic of marshes. Marshes typically have relatively high amounts of water flow and nutrient levels, resulting in abundant vascular plant production. Rapid decomposition restricts the formation of peat in these communities. Plant communities of marshes are strongly influenced by the chemistry of the water. Alkaline marshes (dominated by calcium and bicarbonate) have vegetation dominated by sedges, bulrushes and cattails, whereas Saline marshes (dominated by sodium and sulphate) have vegetation dominated by samphire (*Salicornia europea*) and bulrushes (Halsey and Vitt 1997).

### **2.3.1 Graminoid Dominated Marsh (MONG)**

This graminoid-dominated wetland is differentiated from open fens because of its association with fluctuating water levels. In Alberta, marshes are typically associated with the margins of streams and lakes and with shallow open water (Halsey and Vitt 1997).

Marshes in the TLSA are associated with the edges of lakes, slow moving rivers and shallow flooded areas. They are dominated in various areas by sedges, bluejoint, and cattail. Shrubs including sweet gale, willows and dwarf birch are present in dry/raised locations. Mosses are not prevalent in this community and tend towards species that can tolerate standing water for at least part of the year such as purple horn-toothed moss (*Ceratodon purpureus*), acute-leaved peat moss or streamside water moss. This community grades into shallow open water (WONN) as the water depth increases and into shrubby swamp (SONS) as water depth decreases. Marshes are uncommon in the TLSA.

### **2.4 Shallow Open Water (WONN)**

Shallow open waters are also non-peat forming wetlands. They are characterized by aquatic processes confined to less than 2 m depth at mid-summer. The submergent and floating-leaved vegetation form a transition to truly aquatic ecosystems (Halsey and Vitt 1997). The vegetation community is dependent on the chemical conditions of the water (OSWWG 2000). Shorelines, mudflats, shallow lakes, ponds, pools, oxbows, channels and similar features may be included in this class (Keys 1992). Pondweeds (*Potamogeton* spp.), water-milfoil (*Myriophyllum exalbescens*), bladderwort (*Utricularia vulgaris*), yellow pond lily (*Nuphar variegatum*), and hornwort (*Ceratophyllum demersum*) are typical shallow water species.

### **2.5 Swamps**

Swamps are considered as non-peatlands but can have deep pockets of peat accumulation. They tend to have medium to tall overstorey trees (>12 m) and/or a high cover of tall shrubs (>2 m). They have a poorly developed bryophyte (moss) layer because of a combination of strong seasonal fluctuations in the water level that results in high decomposition rates, and high rates of vascular plant production. The vegetation composition varies widely and in Alberta may be composed of some combination of black spruce, tamarack, birch and willow (Halsey and Vitt 1997, OSWWG 2000). Swamps are not common in Alberta, being generally confined to the transition zone between peatlands and upland forests, but in the TLSA swamps are fairly common, and may be related to the terrain, such that water seepage rates are high and contact with the mineral soil is probable. Swamp classes that were identified in the TLSA include SONS (shrubby swamps), SFNN (forested swamps), and STNN (wooded swamps).

#### **2.5.1 Shrubby Swamps (SONS)**

Shrubby swamps are uncommon, but typically occur along floodplains, stream terraces and peatland margins. The chemistry of these sites is affected by over-bank flooding that refreshes nutrient and sediment supply on an annual or more frequent basis. They commonly have mineral soils with shallow organic or organic/mineral surface horizons, although they can also

have deeper peats in basinal settings (e.g., in cut-off meanders). The soils in this wetland type often display 'cumulic' layering consisting of alternating layers of alluvial silt and organic material. Shrubby swamps are dominated by willows. These species generally grow above 2 m. Other species may include dwarf birch, paper birch (*Betula papyrifera*) and river alder (*Alnus tenuifolia*). Fluctuating water tables generally prevent the establishment of mosses, except on higher hummocks. The diverse understorey is dominated by a variety of sedges and bluejoint. Red-stem feather moss, stair-step moss, tufted moss, and golden moss are often present in drier locations. Shrubby swamps may be confused with open, shrub-dominated fens. They are differentiated by shrub height and position in the landscape (Halsey and Vitt 1997).

### **2.5.2 Wooded Swamps (STNN)**

Wooded swamps are characterized by low to moderate canopy covers and medium to tall (8 to 16 m) trees. They typically have a canopy of black spruce and tamarack, but a few scattered white spruce (*Picea glauca*), balsam poplar (*Populus balsamifera*), paper birch, or balsam fir (*Abies balsamea*) may be present where mineral soil is close to the surface. Wooded swamps occur in association with floodplains, streams and along the margins of some peatland complexes. Tree height is greater in swamps than in fens probably because the organic accumulation in swamps is less than 40 cm (Halsey and Vitt 1997).

This wetland community is the second most common in the TLSA after wooded fens. A wide variety of shrub species including: river alder, Labrador tea, dwarf birch, willow, sweet gale, fly honeysuckle (*Lonicera villosa*), currant (*Ribes* spp.) and bog cranberry dominate the understorey. The ground cover is often very diverse, with species typical of both fen and marsh habitats including: bog rosemary, alpine bearberry (*Arctostaphylos rubra*), two-seeded sedge, marsh cinquefoil, swamp horsetail, bedstraw (*Galium* spp.) and arrow-leaved coltsfoot (*Petasites sagittatus*). Mosses are diverse and include peat mosses, golden moss, tufted moss, red-stem feather moss, stair-step moss, cushion moss (*Dicranum* spp.) and other watermosses. Peat depths tend to be slightly greater in treed swamps than shrubby swamps due to the growth of mosses at the surface.

### **2.5.3 Forested Swamps (SFNN)**

The forested swamp is characterized by greater tree densities (>70%). It is similar in description to STNN (above), with greater cover of overstorey black spruce and tamarack, and a shaded understorey with fewer shrubs. Forested swamps are uncommon in the TLSA.

### 3.0 REFERENCES

- Beckingham, J.D. and J.H. Archibald. 1996. *Field Guide to Ecosites of Northern Alberta*. Special Report 5. Northern Forestry Centre, Canadian Forest Service. Edmonton, AB.
- Halsey, L. and D.H. Vitt. 1997. *Alberta Wetland Inventory Standards – Version 1.0*. In: Alberta Vegetation Inventory Standards Manual. R. Nesby. 1997. Resource Data Division, Alberta Environmental Protection. Edmonton, AB.
- Keys, D. 1992. *Canadian Peat Moss and the Environment*. North American Wetlands Conservation Council (Canada). Issues Paper, No. 1992-3.
- National Wetlands Working Group (NWWG). 1988. *Wetlands of Canada*. Ecological Land Classification Series, No. 24. Sustainable Development Branch, Environment Canada, Ottawa, ON and Polysciences Publications Inc. Montreal, PQ.
- Oil Sands Wetlands Working Group (OSWWG). 2000. *Guideline for Wetland Establishment on Reclaimed Oil Sands Leases*. Neil Chymko (ed.). Report #ESD/LM/00-1. ISBN 0-7785-1042-5, Publication No. T/517. Alberta Environment, Environmental Service. Edmonton AB.
- Zoltai, S.C., S. Taylor, J.K. Jeglum, G.F. Mills, and J.D. Johnson. 1988. *Wetlands of Boreal Canada*. In: Wetlands of Canada. Published by the National Wetlands Working Group, Ecological Land Classification Series No. 24. Sustainable Development Branch, Environment Canada, Ottawa, ON and Polyscience Publications Inc., Montreal, PQ.

***Appendix I3***

***Vegetation Assessment Methods***



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## 1.0 HABITAT DIVERSITY

A set of vegetation and wetland indicators were selected to assess habitat diversity at baseline:

- the distribution of local vegetation cover classes (ecosite phase);
- the distribution of local wetland types (Alberta Wetland Inventory (AWI));
- the distribution of regional landscape cover classes (Alberta Ground Cover Classification (AGCC) – based);
- the distribution of local riparian habitat (ecosite phase); and
- the distribution of local old growth forests (ecosite phase).

### 1.1 Ecological Land Classes

Ecological Land Classes (ELC) in the terrestrial local study area (TLSA) include ecosite phases (Beckingham and Archibald 1996), open water and disturbance classes. These were identified and mapped as described in [Appendix I1](#). A detailed summary of the ELC are provided in [Appendix I2](#).

The baseline area and percent distribution of each ELC was determined. For summary purposes, ELC were combined into uplands, lowlands, open water and disturbances.

Uncommon ELC were defined as ecosite phases or open water classes that occupied  $\leq 1\%$  of the TLSA at baseline.

Sensitive ELC are defined as ecosite phases sensitive to ecological changes resulting from disturbances associated with Project development. Project disturbances and associated stresses that might directly or indirectly effect vegetation resources include air emissions, changes in surface and ground water quality and quantity and acidification of soils. Bogs, fens and ecosites on sandy soils represent the most sensitive communities present in the TLSA.

### 1.2 Wetland Types

A wetland classification map was developed according to the procedures outlined in the AWI Standards Version 1.0 manual (Halsey and Vitt 1997). The AWI classification divides wetlands into five main classes: bog, fen, swamp, marsh and shallow open water. Each of these are subdivided further into types depending upon vegetative and other ecological characteristics (Halsey and Vitt 1997). A detailed summary of the wetland types is provided in [Appendix I2](#).

The baseline area and percent distribution of each wetland type was calculated for the TLSA. Uncommon Wetland Types were defined as those types occupying  $\leq 1\%$  of the TLSA at baseline.

### 1.3 Regional Landscape Cover Classes

Regional Landscape Cover Classes (LCC) were determined based on mapped and classified satellite imagery (AGCC) for northern Alberta. Details of this mapping are provided in [Appendix I1](#).

## 1.4 Riparian Habitat

Riparian habitat in the TLSA were determined by buffering creeks, rivers, water bodies and associated alluvial deposits as defined by soils and terrain mapping ([Volume 2, Section 10.0](#)) using a setback of 100 m.

The distribution of each ELC unit in riparian areas was determined for baseline.

## 1.5 Old Growth Forests

Old growth forest was defined based on the age of each forested ELC. Age was determined based on the origin code in the Alberta Vegetation Inventory, then the year of origin was subtracted from the current year (2011). Old growth forests were identified in the TLSA based on species-specific age definitions ([Table I3-1](#)) for forested ecosite phases based on dominant tree species classes (Schneider 2001).

**Table I3-1: Old Growth Age for Forested Ecosite Phases**

Forested Ecosite Phases	Old-Growth Age (years)
Pine-dominant Forest (a1, c1)	>120
Spruce-dominant Forest (b4, d3, e3, f3, g1, h1)	>140
Deciduous Forest (b2, d1, e1, f1)	>100
Mixedwood Forest (b1, b3, d2, e2, f2)	>100
Treed Wetlands (i1, j1, k1)	>140

## 2.0 SPECIES DIVERSITY

### 2.1 Species Richness by Ecosite Phase (TLSA)

In this section, the estimation of species richness within each ELC class is assessed and ranked from low to high. These ranks allow plant species richness to be mapped and summarized in categories in the TLSA.

Three measures of species richness were calculated for each ELC class, which were then combined in an overall assessment of plant species diversity.

- total species richness – total species occurring among all plots of each ELC class;
- mean species richness – mean species per plot sampled of each ELC class; and
- unique species richness – number of species occurring within no other ELC classes.

### **Sample Size and Pooling of Data**

The sampling effort needed to obtain a statistically precise mean richness measurement depends on the number of sample sites measured. To have good confidence in the mean, a sample size of 10 sites or more is considered ideal, and a sample of 5 sites is considered adequate. Less than 5 sites will not provide confidence. Therefore, the sampling goal in a baseline study is to obtain at least 5 to 10 samples of each ELC unit to effectively characterise the mean cover and species diversity.

In this study, a total of 132 sample sites were measured in the TLSA covering 26 ELC classes. The total numbers of detailed vegetation plots, for which species richness values have been assessed, are presented in [Table I3-2](#). To increase the accuracy of species richness metrics, Cenovus has entered into data sharing agreements with several other oil sands companies and has obtained detailed vegetation plot data, resulting in an increased sample size for each ELC type. Data were obtained from the following baseline surveys:

- Birch Mountain Hammerstone Project (57 detailed plots);
- Shell Canada Muskeg River Expansion Project (98 detailed plots);
- Petro-Canada UTS Project (65 detailed plots);
- Husky Canada Sunrise Project (119 detailed plots);
- Syncrude Canada Aurora North and South Projects (124 detailed plots);
- Imperial Oil Ltd. Kearl Lake Project (276 detailed plots); and
- SynEnCo Northern Lights Project (203 detailed plots).

**Table I3-2: Vegetation Plots Used in Species Richness Assessments**

ELC Class	Description	Other Companies	Telephone Lake	Total ELC Plots
a1	lichen Pj	40	10	50
b1	blueberry Pj-Aw	49	6	55
b2	blueberry Aw-Bw	49	2	51
b3	blueberry Aw-Sw	60	5	65
b4	blueberry Sw-Pj	26	1	27
c1	Labrador tea-mesic Pj-Sb	35	13	48
d1	low-bush cranberry Aw	51	4	55
d2	low bush cranberry Aw-Sw	61	1	62
d3	low bush cranberry Sw	17	-	17
e1	dogwood Pb-Aw	21	4	25
e2	dogwood Pb-Sw	20	-	20
e3	dogwood Sw	13	1	14
f1	horsetail Pb-Aw	11	-	11
f2	horsetail Pb-Sw	11	-	11
f3	horsetail Sw	7	1	8
g1	Labrador tea-subhygric Sb-Pj	44	8	52
h1	Labrador tea/horsetail Sw-Sb	68	8	76
i1	treed bog	63	8	71
i2	shrubby bog	42	6	48
j1	treed poor fen	124	6	130
j2	shrubby poor fen	46	3	49
k1	treed rich fen	81	10	91
k2	shrubby rich fen	114	11	125
k3	graminoid rich fen	79	12	91
l1	graminoid marsh	22	3	25
REG	shrubland/regeneration	51	9	60
<b>Total</b>		<b>1,205</b>	<b>132</b>	<b>1,337</b>

### **Species Richness Methods**

From each ELC plot a list of species and their percent cover was determined. Only species identified to both genus and species were used in analyses. Introduced species were excluded from species richness calculations and have been assessed in a separate section of the main report. ELC classes identified as shrubland or regenerating were not used in the analysis since these classes were not systematically sampled.

### **Total Species Richness and Species Accumulation Curves**

Total species richness is a measure of the total number of species occurring within each ELC class throughout a region of interest. Total species richness is strongly influenced by the number of plots sampled, because the cumulative pool of observed species increases with the total area sampled and with the number of locations sampled.

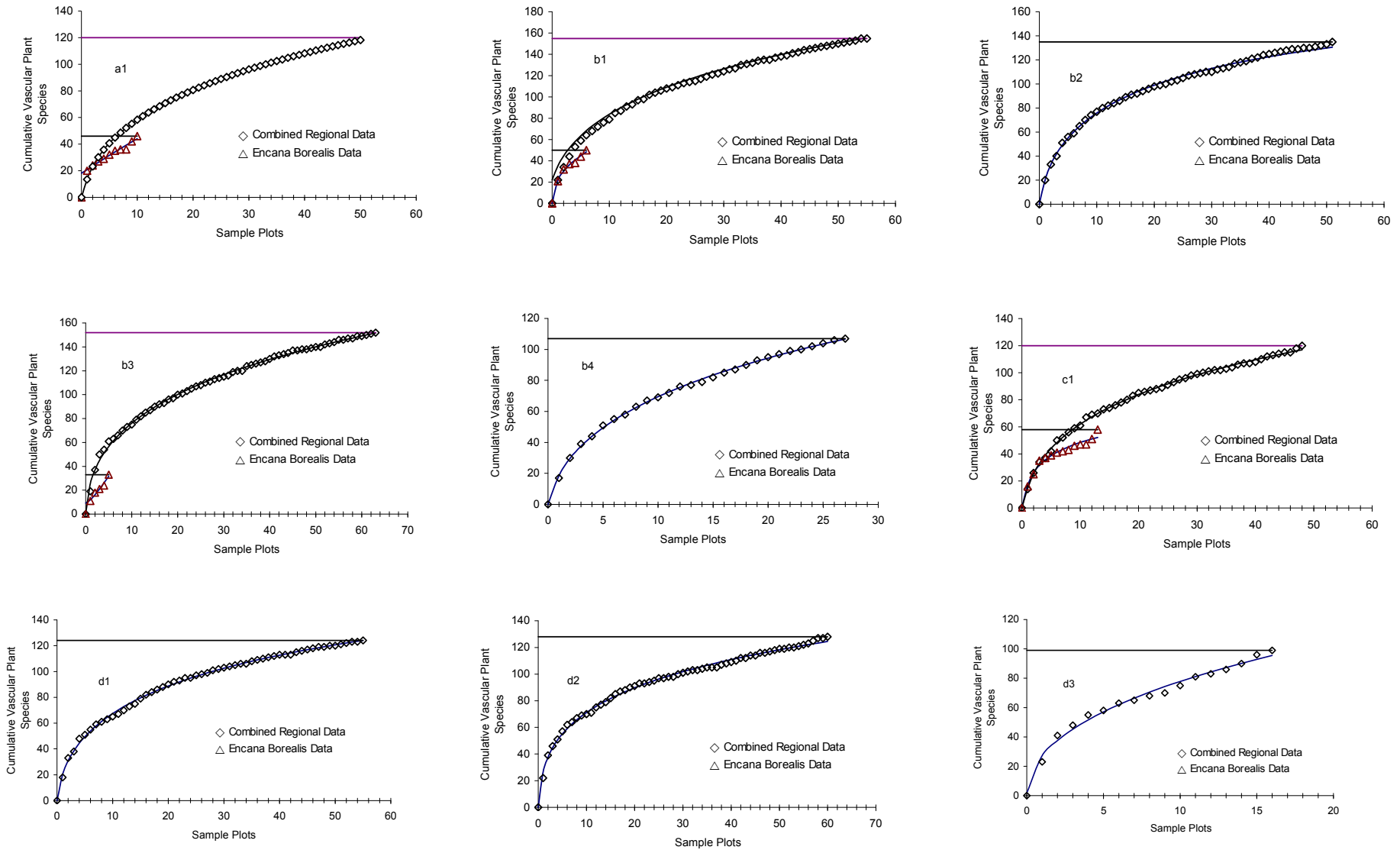
Species accumulation curves were developed to examine the pattern of increase of total vascular plant species in each ELC class (Figure I3-1). These curves were used to demonstrate whether the sample size was high enough to have confidence in the measured total species richness values. Species accumulation curves show the total number of species observed, after one plot is measured, then two, (and so on) until all samples of an ELC unit are included. These curves typically show a rapid increase in the number of species through the first 5 to 10 plots, followed by a reduced rate of species accumulation until an asymptote is reached. To have confidence in the total richness measure, the cumulative number of species should be at or near the asymptote. Closeness to an asymptote was determined by examining the increase in species over the last 5 sample sites. If the increase over this range was  $\leq 3$  species, the curve was assessed as being near an asymptote. Approximately a quarter of the ELC classes were at or close to an asymptote (b3, d1, h1, j1, k2 and k3).

Variance between measured and population values of total species richness for these ELC classes is considered to be minimal and confidence is high. Among the remaining ELC classes, 12 more appear to be heading towards an asymptote (a1, b1, b2, b4, c1, d2, e1, g1, i1, i2, j2, and k1).

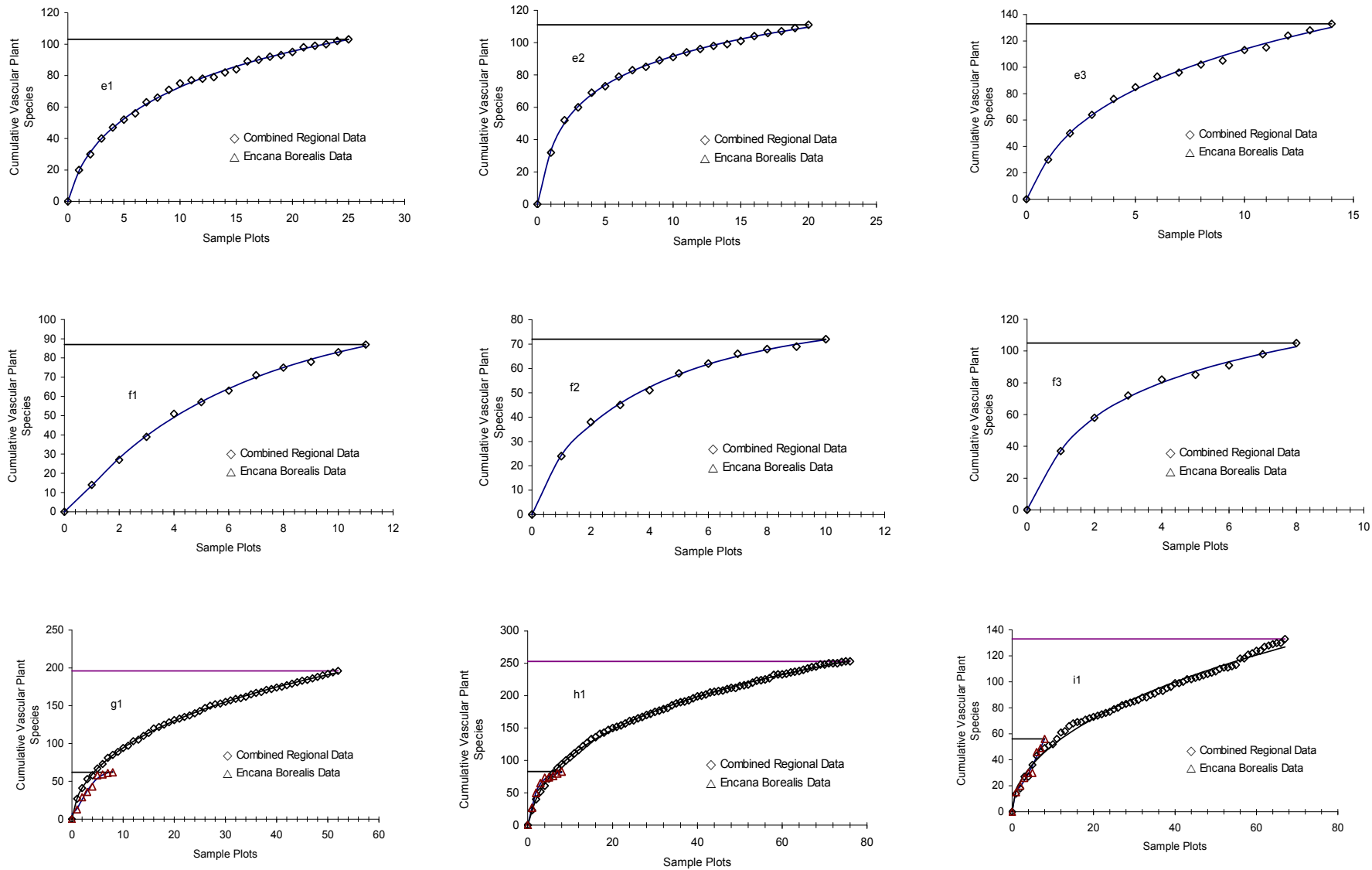
Variance between measured and population values of total species richness for these ELC units (and confidence in the measurement) is considered to be moderate. The final ELC classes have not begun to level off and the total number of species may be much higher than the values calculated from on the sample data (d3, e2, e3, f1, f2, f3, and l1).

The variance between measured and population values for these ELC classes is unknown and confidence in the measurement is low

Based on the accumulation curves, we can conclude that confidence in the total richness statistic is generally moderate.



**Figure I3-1: Species Accumulation Curves for ELC Classes Showing the Project and Combined Regional Plant Species Datasets**



**Figure I3-1: Species Accumulation Curves for ELC Classes Showing the Project and Combined Regional Plant Species Datasets (cont'd)**



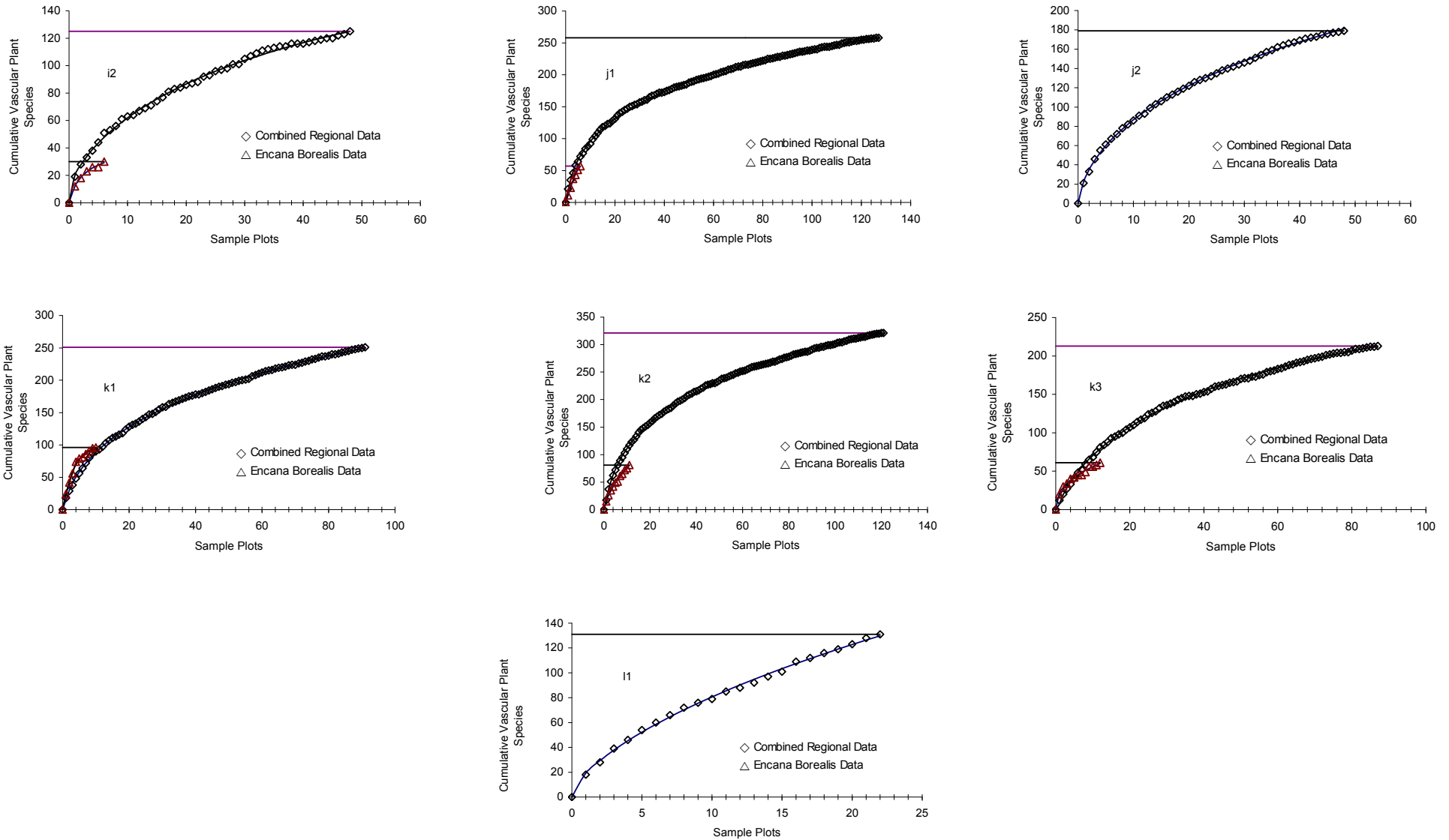


Figure I3-1: Species Accumulation Curves for ELC Classes Showing the Project and Combined Regional Plant Species Datasets (cont'd)

Total species richness was ranked, using the following criteria (Table I3-3). Total (sample) species richness for each ELC class for vascular and non-vascular species is summarized in Table I3-4.

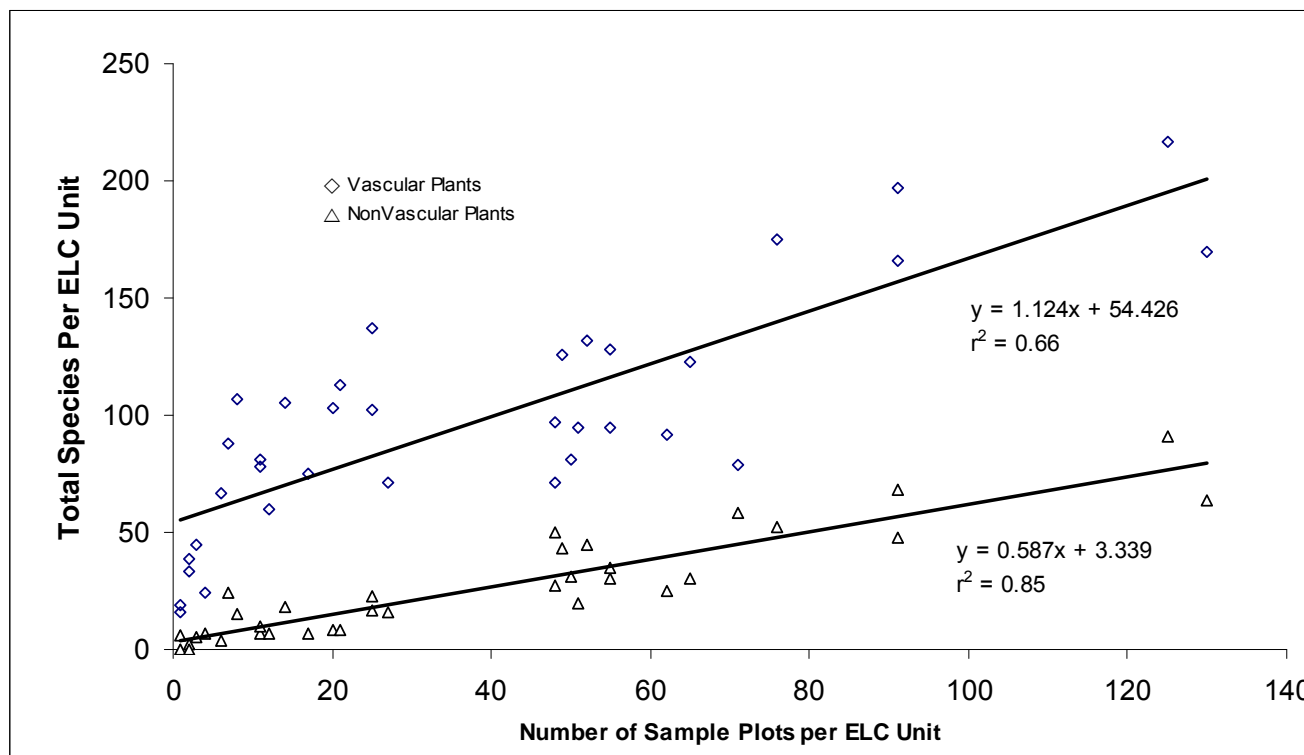
**Table I3-3: Total Species Richness Criteria**

Rank	Vascular	Non-Vascular
Very High	>184	>75
High	137 – 184	57 – 75
Medium	92 – 136	38 – 56
Low	46 – 91	19 – 37
Very Low	1 –45	1 –18

**Table I3-4: Ranking of Total Species Richness**

ELC Class	N	Total Vascular Species	Vascular Ranking	Total Non-Vascular Species	Non-Vascular Ranking
a1	50	81	Low	31	Low
b1	55	128	Medium	30	Low
b2	51	95	Medium	20	Low
b3	65	123	Medium	30	Low
b4	27	71	Low	16	Very Low
c1	48	97	Medium	27	Low
d1	55	95	Medium	35	Low
d2	62	92	Medium	25	Low
d3	17	75	Low	7	Very Low
e1	25	102	Medium	23	Low
e2	20	103	Medium	8	Very Low
e3	14	105	Medium	18	Very Low
f1	11	81	Low	7	Very Low
f2	11	78	Low	10	Very Low
f3	8	107	Medium	15	Very Low
g1	52	132	Medium	45	Medium
h1	76	174	High	52	Medium
i1	71	79	Low	58	High
i2	48	71	Low	50	Medium
j1	130	169	High	64	High
j2	49	126	Medium	43	Medium
k1	91	165	High	68	High
k2	125	216	Very High	91	Very High
k3	91	196	Very High	48	Medium
l1	25	137	Medium	17	Very Low

An alternative ranking of total species richness was used to account for the trend that ELC classes with a greater number of sample plots tend to also have a greater number of total species observations. In this analysis a covariance approach was used to remove this trend from the observations using simple linear regression of total species per ELC unit versus number of sample plots (Figure I3-2), and then the residuals were ranked.



**Figure I3-2: Linear Regression of Total Species versus the Number of Sample Plots for Each ELC Unit**

Total species richness was ranked, using the following criteria (Table I3-5). Total (sample) species residuals for each ELC class for vascular and non-vascular is summarized in Table I3-6.

**Table I3-5: Total Species Richness Criteria for Residuals of Covariance Analysis**

Rank	Vascular	Non-Vascular
Very High	>+40	>+15
High	+20 to +40	+5 to +15
Medium	0.1 to +19.9	-5 to +5
Low	-20 to 0	-15 to -5
Very Low	<-20	<-15

**Table I3-6: Ranking of Total Vascular and Non-Vascular Species Residuals**

ELC Class	N	Total Vascular Plants	Predicted Number of Vascular Plants	Residual	Ranked Residuals	Total Non-Vascular Plants	Predicted Number of Non-Vascular Plants	Residual	Ranked Residuals
a1	50	81	110.6	-29.6	Very Low	31	32.7	-1.7	Low
b1	55	128	116.3	11.7	Medium	30	35.6	-5.6	Low
b2	51	95	111.8	-16.8	Low	20	33.3	-13.3	Very Low
b3	65	123	127.5	-4.5	Low	30	41.5	-11.5	Very Low
b4	27	71	84.8	-13.8	Low	16	19.2	-3.2	Low
c1	48	97	108.4	-11.4	Low	27	31.5	-4.5	Low
d1	55	95	116.3	-21.3	Very Low	35	35.6	-0.6	Low
d2	62	92	124.1	-32.1	Very Low	25	39.7	-14.7	Very Low
d3	17	75	73.5	1.5	Medium	7	13.3	-6.3	Low
e1	25	102	82.5	19.5	Medium	23	18.0	5.0	Medium
e2	20	103	76.9	26.1	High	8	15.1	-7.1	Very Low
e3	14	105	70.2	34.8	High	18	11.6	6.4	Medium
f1	11	81	66.8	14.2	Medium	7	9.8	-2.8	Low
f2	11	78	66.8	11.2	Medium	10	9.8	0.2	Medium
f3	8	107	63.4	43.6	Very High	15	8.0	7.0	Medium
g1	52	132	112.9	19.1	Medium	45	33.9	11.1	High
h1	76	174	139.9	34.1	High	52	47.9	4.1	Medium
i1	71	79	134.3	-55.3	Very Low	58	45.0	13.0	High
i2	48	71	108.4	-37.4	Very Low	50	31.5	18.5	Very High
j1	130	169	200.6	-31.6	Very Low	64	79.6	-15.6	Very Low
j2	49	126	109.5	16.5	Medium	43	32.1	10.9	High
k1	91	165	156.7	8.3	Medium	68	56.7	11.3	High
k2	125	216	195.0	21.0	High	91	76.7	14.3	High
k3	91	196	156.7	39.3	High	48	56.7	-8.7	Very Low
l1	25	137	82.5	54.5	Very High	17	18.0	-1.0	Low

### **Mean Species Richness**

Mean species richness is the mean number of species per sample plot of each ELC class. Mean species richness provides an expected number of species observed at any location and is not another estimate of total species richness. Some ELC classes have high mean richness and low to medium total richness, and vice versa. Because mean species richness is a statistical measure, it tends to be less affected by sample size than total richness, once a sample size of approximately five plots per ELC class has been achieved. This number of plots has been achieved for all ELC classes in this assessment.

Mean species richness was ranked using the criteria in [Table I3-7](#). Mean richness for each ELC class for vascular and non-vascular is shown in [Table I3-8](#).

**Table I3-7: Mean Species Richness Criteria**

Rank	Vascular	Non-Vascular
Very High	>28.0	>5.3
High	21.1 – 28.0	4.2 – 5.3
Medium	14.1 – 21.0	2.6 – 4.1
Low	7.1 – 14.0	1.3 – 2.5
Very Low	0.1 – 7.0	0.1 – 1.2

**Table I3-8: Ranking of Mean Species Richness**

ELC Class	N	Mean Vascular	Vascular Ranking	Mean Non-Vascular	Non-Vascular Ranking
a1	50	11.1	Low	3.0	Medium
b1	55	17.1	Medium	3.0	Medium
b2	51	17.9	Medium	1.8	Low
b3	65	16.5	Medium	2.6	Low
b4	27	12.4	Low	2.2	Low
c1	48	12.3	Low	3.8	Medium
d1	55	16.1	Medium	1.7	Low
d2	62	17.9	Medium	1.8	Low
d3	17	14.4	Medium	1.5	Low
e1	25	19.7	Medium	1.4	Low
e2	20	27.0	High	2.4	Low
e3	14	20.2	Medium	2.7	Medium
f1	11	16.2	Medium	1.0	Very Low
f2	11	18.5	Medium	2.3	Low
f3	8	34.5	Very High	4.4	High
g1	52	13.3	Low	3.8	Medium
h1	76	19.0	Medium	3.6	Medium
i1	71	7.4	Low	3.6	Medium
i2	48	9.9	Low	4.3	High
j1	130	13.5	Low	4.0	Medium
j2	49	13.4	Low	3.3	Medium
k1	91	14.7	Medium	3.4	Medium
k2	125	14.1	Medium	3.4	Medium
k3	91	11.2	Low	1.9	Low
l1	25	14.2	Medium	1.1	Very Low

The majority of ELC classes have medium rankings of vascular and non-vascular mean species richness. However, one ELC unit (f3) has a very high rank for vascular and a high rank for non-vascular mean species richness.

### **Unique Plant Species**

Unique species richness is the total number of species unique to each ELC class. Like total richness, this measurement is dependant on the total number of plots sampled. The importance of this measurement occurs when an ELC class is significantly impacted by development and these species could also be significantly impacted. This issue is compounded if the ELC classes are uncommon (occupying  $\leq 1\%$  of the local or regional study area), since even small impacts to these ELC classes can be locally or regionally significant. In the TLISA, uncommon ELC classes include b3, b4, d1, d2, d3, e1, e2, and f1. Unique species are in some cases rare plant species. Unique plant species for each ELC class for vascular and non-vascular is shown in [Table I3-9](#).

**Table I3-9: Unique Species Observations by ELC Type**

ELC Class	Type	Scientific Name	Common Name
b1	Forb	<i>Agoseris glauca</i>	yellow false dandelion
	Forb	<i>Astragalus canadensis</i>	Canadian milk vetch
	Forb	<i>Chimaphila umbellata</i>	prince's-pine
	Forb	<i>Erigeron philadelphicus</i>	Philadelphia fleabane
b2	Graminoid	<i>Carex deflexa</i>	bent sedge
	Moss	<i>Dicranum spadiceum</i>	cushion moss
b3	Forb	<i>Calypso bulbosa</i>	Venus'-slipper
	Lichen	<i>Melanelia trabeculata</i>	–
d1	Fern/Allies	<i>Dryopteris assimilis</i>	broad spinulose shield fern
	Lichen	<i>Physcia adscendens</i>	–
d2	Forb	<i>Epilobium glaberrimum</i>	willow-herb
	Moss	<i>Hypnum pallescens</i>	–
	Moss	<i>Mnium spinulosum</i>	–
d3	Graminoid	<i>Carex deweyana</i>	Dewey's sedge
e1	Forb	<i>Sanicula marilandica</i>	snakeroot
e3	Graminoid	<i>Carex athrostachya</i>	long-bracted sedge
	Forb	<i>Erigeron acris</i>	northern daisy fleabane
	Shrub	<i>Rosa woodsii</i>	common wild rose
f1	Forb	<i>Anemone riparia</i>	tall anemone
	Fern/Allies	<i>Matteuccia struthiopteris</i>	ostrich fern
	Forb	<i>Streptopus amplexifolius</i>	clasping-leaved twisted-stalk
f2	Forb	<i>Malaxis monophylla</i>	white adder's-mouth
g1	Graminoid	<i>Calamagrostis purpurascens</i>	purple reed grass
	Graminoid	<i>Carex norvegica</i>	Norway sedge
	Moss	<i>Dicranum acutifolium</i>	cushion moss
	Lichen	<i>Melanelia septentrionalis</i>	–
	Forb	<i>Oxytropis splendens</i>	showy locoweed
	Liverwort	<i>Riccardia latifrons</i>	liverwort
h1	Forb	<i>Castilleja raupii</i>	purple paintbrush
	Lichen	<i>Cladonia phyllophora</i>	–
	Moss	<i>Dicranum bonjeanii</i>	thin-rib curved-tail moss
	Forb	<i>Monotropa uniflora</i>	Indian-pipe
	Lichen	<i>Peltigera horizontalis</i>	–
	Shrub	<i>Rubus parviflorus</i>	thimbleberry
	Shrub	<i>Salix petiolaris</i>	basket willow
	Graminoid	<i>Scirpus cyperinus</i>	wool-grass
	Moss	<i>Sphagnum wulfianum</i>	peat moss
i1	Forb	<i>Chrysosplenium iowense</i>	golden saxifrage
	Lichen	<i>Cladonia cervicornis</i>	–
	Lichen	<i>Cladonia uncialis</i>	–
	Moss	<i>Conardia compacta</i>	–
	Forb	<i>Eriogonum ovalifolium</i>	silver-plant
	Forb	<i>Pyrola minor</i>	lesser wintergreen
	Moss	<i>Rhizomnium gracile</i>	–
i2	Lichen	<i>Bryoria furcellata</i>	old man's beard
	Liverwort	<i>Cephalozia connivens</i>	liverwort
	Lichen	<i>Cladonia carneola</i>	–
	Lichen	<i>Cladonia coccifera</i>	British solidier lichen
	Lichen	<i>Cladonia cristatella</i>	–
	Lichen	<i>Cladonia rei</i>	–
	Moss	<i>Sphagnum fimbriatum</i>	fringed bog moss
	Moss	<i>Sphagnum jensenii</i>	pendant branch peat moss

ELC Class	Type	Scientific Name	Common Name
j1	Graminoid	<i>Carex leptopoda</i>	taper-fruit short-scale sedge
	Lichen	<i>Cladonia coniocraea</i>	–
	Lichen	<i>Cladonia scabriuscula</i>	–
	Forb	<i>Petasites frigidus</i>	–
	Moss	<i>Plagiomnium ciliare</i>	–
	Moss	<i>Plagiomnium rostratum</i>	–
	Shrub	<i>Salix alaxensis</i>	Alaska willow
	Moss	<i>Splachnum luteum</i>	yellow collar moss
j2	Moss	<i>Campylium chrysophyllum</i>	–
	Lichen	<i>Chaenotheca trichialis</i>	–
	Liverwort	<i>Riccardia multifida</i>	liverwort
	Forb	<i>Smilacina racemosa</i>	false Solomon's-seal
	Moss	<i>Tomentypnum falcifolium</i>	golden moss
k1	Moss	<i>Calliergon cordifolium</i>	–
	Moss	<i>Calliergonella cuspidata</i>	–
	Graminoid	<i>Carex parryana</i>	Parry's sedge
	Graminoid	<i>Carex pauciflora</i>	few-flowered sedge
	Graminoid	<i>Carex pellita</i>	woolly sedge
	Lichen	<i>Cladonia fimbriata</i>	–
	Moss	<i>Distichium capillaceum</i>	–
	Liverwort	<i>Lophozia ventricosa</i>	liverwort
	Moss	<i>Plagiomnium drummondii</i>	–
	Moss	<i>Plagiothecium laetum</i>	–
	Moss	<i>Platydictya jungermannioides</i>	–
	k2	Forb	<i>Antennaria parvifolia</i>
Liverwort		<i>Blepharostoma trichophyllum</i>	liverwort
Moss		<i>Campylium radicale</i>	–
Forb		<i>Cardamine pratensis</i>	meadow bitter cress
Graminoid		<i>Carex atosquama</i>	dark-scaled sedge
Graminoid		<i>Carex bebbii</i>	Bebb's sedge
Moss		<i>Cratoneuron commutatum</i>	–
Moss		<i>Drepanocladus sendtneri</i>	brown moss
Moss		<i>Myurella tenerima</i>	–
Moss		<i>Paludella squarrosa</i>	–
Lichen		<i>Phaeophyscia orbicularis</i>	–
Forb		<i>Potentilla gracilis</i>	graceful cinquefoil
Lichen		<i>Rhizocarpon grande</i>	–
Liverwort		<i>Scapania paludicola</i>	liverwort
Lichen		<i>Usnea subfloridana</i>	old man's beard
k3		Graminoid	<i>Carex lacustris</i>
	Graminoid	<i>Carex viridula</i>	green sedge
	Moss	<i>Funaria hygrometrica</i>	cord moss
	Graminoid	<i>Glyceria striata</i>	fowl manna grass
	Forb	<i>Polygonum lapathifolium</i>	pale persicaria
	Forb	<i>Rumex orbiculatus</i>	water dock
l1	Moss	<i>Cratoneuron filicinum</i>	–
	Graminoid	<i>Eleocharis acicularis</i>	needle spike-rush
	Lichen	<i>Nodobryoria abbreviata</i>	old man's beard
	Forb	<i>Ranunculus aquatilis</i>	large-leaved white water crowfoot
	Forb	<i>Sagittaria cuneata</i>	arum-leaved arrowhead
	Forb	<i>Stellaria crassifolia</i>	fleshy stitchwort
	Forb	<i>Triglochin palustris</i>	slender arrow-grass

Unique species richness was ranked based on the total number of unique species (vascular or non-vascular) in a single ELC unit (Table I3-10), using the following criteria:

- very high >6
- high 5 – 6
- medium 3 – 4
- low 2
- very low 0 – 1

**Table I3-10: Ranking of Unique Species Richness**

ELC Class	N	Unique Vascular Species	Vascular Rank	Unique Non-Vascular Species	Non-Vascular Rank
a1	50	0	Very Low	0	Very Low
b1	55	4	Medium	0	Very Low
b2	51	1	Very Low	1	Very Low
b3	65	1	Very Low	1	Very Low
b4	27	0	Very Low	0	Very Low
c1	48	0	Very Low	0	Very Low
d1	55	1	Very Low	1	Very Low
d2	62	1	Very Low	2	Low
d3	17	1	Very Low	0	Very Low
e1	25	1	Very Low	0	Very Low
e2	20	0	Very Low	0	Very Low
e3	14	3	Medium	0	Very Low
f1	11	3	Medium	0	Very Low
f2	11	1	Very Low	0	Very Low
f3	8	0	Very Low	0	Very Low
g1	52	3	Medium	3	Medium
h1	76	5	High	4	Medium
i1	71	3	Medium	4	Medium
i2	48	0	Very Low	8	Very High
j1	130	3	Medium	5	High
j2	49	1	Very Low	4	Medium
k1	91	3	Medium	8	Very High
k2	125	5	High	10	Very High
k3	91	5	High	1	Very Low
l1	25	5	High	2	Low

Three ELC classes (i2, k1 and k2) had a very high unique non-vascular species rank, and one ELC unit (j1) had a high unique non-vascular species rank. Four ELC classes (h1, k2, k3 and l1) had a high unique vascular species rank.

### Overall Richness Ranking

The three measurements of species richness, (total richness, mean richness, and unique richness) were combined to determine a final ranking for each ELC unit. This overall ranking allowed richness classes to be mapped and compared at baseline and Project impact.



The overall ranking assumed all three measures to be equal, but assumed high ranks were more important (and weighted higher) than medium or low ranks. Individual measurement ranks were given weights of 1 (very low), 2 (low), 3 (medium) 4 (high) or 5 (very high) and then summed to form a richness score. Richness scores were ranked ([Table I3-11](#)) using the following criteria:

- high overall richness score of >9
- medium overall richness score of 6 – 9
- low overall richness score of <6

**Table I3-11: Overall Ranking of Plant Species Richness**

ELC Class	Vascular Plants					Non-Vascular Plants				
	Residual	Mean	Unique	Score	Overall	Residual	Mean	Unique	Score	Overall
a1	Very Low	Low	Very Low	4	Low	Low	Medium	Very Low	6	Medium
b1	Medium	Medium	Medium	9	Medium	Low	Medium	Very Low	6	Medium
b2	Low	Medium	Very Low	6	Medium	Very Low	Low	Very Low	4	Low
b3	Low	Medium	Very Low	6	Medium	Very Low	Low	Very Low	4	Low
b4	Low	Low	Very Low	5	Low	Low	Low	Very Low	5	Low
c1	Low	Low	Very Low	5	Low	Low	Medium	Very Low	6	Medium
d1	Very Low	Medium	Very Low	5	Low	Low	Low	Very Low	5	Low
d2	Very Low	Medium	Very Low	5	Low	Very Low	Low	Low	5	Low
d3	Medium	Medium	Very Low	7	Medium	Low	Low	Very Low	5	Low
e1	Medium	Medium	Very Low	7	Medium	Medium	Low	Very Low	6	Medium
e2	High	High	Very Low	9	Medium	Very Low	Low	Very Low	4	Low
e3	High	Medium	Medium	10	High	Medium	Medium	Very Low	7	Medium
f1	Medium	Medium	Medium	9	Medium	Low	Very Low	Very Low	4	Low
f2	Medium	Medium	Very Low	7	Medium	Medium	Low	Very Low	6	Medium
f3	Very High	Very High	Very Low	11	High	Medium	High	Very Low	8	Medium
g1	Medium	Low	Medium	8	Medium	High	Medium	Medium	10	High
h1	High	Medium	High	11	High	Medium	Medium	Medium	9	Medium
i1	Very Low	Low	Medium	6	Medium	High	Medium	Medium	10	High
i2	Very Low	Low	Very Low	4	Low	Very High	High	Very High	14	High
j1	Very Low	Low	Medium	6	Medium	Very Low	Medium	High	8	Medium
j2	Medium	Low	Very Low	6	Medium	High	Medium	Medium	10	High
k1	Medium	Medium	Medium	9	Medium	High	Medium	Very High	12	High
k2	High	Medium	High	11	High	High	Medium	Very High	12	High
k3	High	Low	High	10	High	Very Low	Low	Very Low	4	Low
l1	Very High	Medium	High	12	High	Low	Very Low	Low	5	Low

The majority of ELC classes have a medium overall rank for vascular species and a low overall rank for non-vascular as shown in [Table I3-12](#). One ELC unit (k2) received a high overall rank for both vascular and non-vascular species.

**Table I3-12: Species Richness Overall Rank Comparison Table**

Overall Rank		Vascular Plant Species Richness Rank		
		Low	Medium	High
Non-Vascular Plant Species Richness Rank	Low	b4, d1, d2	b2, b3, d3, e2, f1	k3, l1
	Medium	a1, c1	b1, e1, f2, j1	e3, f3, h1
	High	i2	g1, i1, j2, k1	k2

## **Baseline Analysis of Species Richness in the TLSA**

The baseline area and percent distribution of the ELC classes by species richness rank for vascular and non-vascular species was determined.

### **2.2 Rare Plant Species and Plant Communities**

#### **Rare Plant Species**

Rare plant species include all those species listed by the Alberta Conservation Information Management System (ACIMS) on the Rare Element Tracking List (ACIMS 2011). These species are provincially ranked on a scale from S1 (highest level of rarity) to S3 (lowest level of rarity) (Table I3-13). Species are also assigned a global “G” Rank, ranging from G1, indicating the species is at the highest level of risk of extinction worldwide to G5, where the species is considered secure on a worldwide scale. In addition, ACIMS maintains a “watch list” of species, which are not rare but information on their distribution in the province is lacking. Watch list species are typically ranked from S2-S4 (ACIMS 2011). The rare plant list used in this assessment was based on the statuses provided in ACIMS (2011) and the *Species at Risk Act* (SARA). The Alberta Wild Species General Status Listing (ASRD 2010), species assessed by Alberta's Endangered Species Conservation Committee (ESCC 2011) and Committee on the Status of Endangered Wildlife in Canada (Government of Canada 2011) were also included.

**Table I3-13: Explanation of Element Ranking System Used by ACIMS**

<b>Global Rank</b>	<b>Alberta Rank</b>	<b>Frequency/Distribution</b>	<b>Concerns/Comments</b>
G1	S1	5 or fewer occurrences or only a few remaining individuals	May be especially vulnerable to extirpation because of some factor of its biology
G2	S2	6 to 20 occurrences or with many individuals in fewer occurrences	
G3	S3	21 to 100 occurrences, may be rare and local throughout it's range, or in a restricted range (may be abundant in some locations)	
G4	S4	Typically >100 occurrences but may be fewer with many large populations, may be rare in parts of its range, especially peripherally	Apparently secure under present conditions
G5	S5	Typically >100 occurrences	Demonstrably secure

#### **Sample Sites**

For this analysis, two sets of data were employed to determine the presence of rare plant species in the TLSA and terrestrial regional study area (TRSA). First, a search of the ACIMS database was completed, providing all existing records of rare species occurring within the vicinity of the Project TLSA and TRSA. This search provided one new record of rare species. Secondly, a series of field surveys were completed throughout the TLSA. These surveys

included specific rare plant surveys as well as detailed vegetation surveys including a general search for rare species (see [Appendix I1](#) for detailed methods). All observed rare plants were collected or photographed and taxonomic interpretation was independently confirmed. A total of 400 sites were examined ([Table I3-14](#)).

**Table I3-14: Rare Plants Search Sites in the LSA**

ELC Class	Description	Project Survey Sites		
		Rare Plant	Detailed Vegetation	Total
a1	lichen Pj	22	10	32
b1	blueberry Pj-Aw	12	6	18
b2	blueberry Aw-Bw	4	2	6
b3	blueberry Aw-Sw	2	5	7
b4	blueberry Sw-Pj	4	1	5
c1	Labrador tea-mesic Pj-Sb	11	13	24
d1	low-bush cranberry Aw	2	4	6
d2	low bush cranberry Aw-Sw		1	1
e1	dogwood Pb-Aw		4	4
e2	dogwood Pb-Sw	1		1
e3	dogwood Sw	2	1	3
f2	horsetail Pb-Sw	3		3
f3	horsetail Sw	1	1	2
g1	Labrador tea-subhygric Sb-Pj	12	8	20
h1	Labrador tea/horsetail Sw-Sb	4	8	12
i1	treed bog	11	8	19
i2	shrubby bog	15	6	21
j1	treed poor fen	25	6	31
j2	shrubby poor fen	9	3	12
k1	treed rich fen	11	10	21
k2	shrubby rich fen	52	11	63
k3	graminoid rich fen	46	12	58
l1	graminoid marsh	3	3	6
NSH	shrubland/regen	16	9	25
	<b>Total</b>	<b>268</b>	<b>132</b>	<b>400</b>

## **Results**

All observed rare vascular and non-vascular plant species in the TLSA are listed by sample location in [Table I3-15](#). These species include those occurring on both the Tracking and Watch Lists (ACIMS 2011).

**Table I3-15: Observed Rare Plant Species by Survey Location in the TLSA**

Type	Scientific	Common	Rank		UTM East <sup>1</sup>	UTM North <sup>1</sup>	ACIMS	ASRD Status <sup>2</sup>
			S Rank	G Rank				
Forb	<i>Cardamine pratensis</i>	meadow bitter cress	S3	G5	549411	6335244	Watch	May Be At Risk
Graminoid	<i>Carex capitata</i>	capitate sedge	S3	G5	533004	6337618	Watch	Sensitive
Graminoid	<i>Carex lacustris</i>	lakeshore sedge	S2	G5	532909	6337572	Tracked	May Be At Risk
Graminoid	<i>Carex oligosperma</i>	few-fruited sedge	S3?	G5?	547478	6335358	Tracked	Sensitive
					542572	6325833		
					545320	6324874		
					545305	6324769		
					532909	6337572		
					525119	6353604		
					535685	6346371		
					538854	6348051		
					542126	6325255		
					547490	6323669		
					545311	6324894		
					542673	6322939		
					547785	6351744		
					549179	6323814		
					549754	6323362		
					544257	6338370		
535698	6346213							
550122	6322157							
538805	6348122							
549690	6323025							
546495	6332432							
535682	6346192							
533590	6352410							
535482	6351094							
Forb	<i>Chrysosplenium iowense</i>	golden saxifrage	S3?	G3?	522542	6352765	Tracked	Sensitive
					521744	6352804		
					527591	6354617		
Liverwort	<i>Conocephalum conicum</i>	liverwort	S2	G5	539236	6338860	Tracked	Not Listed
Forb	<i>Coptis trifolia</i>	goldthread	S3	G5	531822	6346351	Watch	Secure
					532838	6333246		
					522295	6351150		
					538457	6328495		
Forb	<i>Cypripedium acaule</i>	stemless lady's-slipper	S3	G5	538319	6325369	Tracked	Sensitive
					539014	6331100		
Fern/Allies	<i>Diphasiastrum sitchense</i>	ground-fir	S2	G5	548609	6337776	Tracked	May Be At Risk
					534391	6344742		
					547373	6323711		
Forb	<i>Nymphaea leibergii/tetragona</i> <sup>3</sup>	pygmy water-lily/ white water-lily	S1S2/ S1	G5/ G5	544430	6349520	Tracked	May Be At Risk
					550142	6323377		
Moss	<i>Pseudobryum cinclidioides</i>	moss	S2	G5	543081	6335681	Tracked	Undetermined
Liverwort	<i>Ricciocarpos natans</i>	liverwort	S2	G5	539735	6344225	Tracked	Not Listed
Liverwort	<i>Scapania paludicola</i>	liverwort	S2	G5	531127	6352750	Tracked	Not Listed
Moss	<i>Sphagnum compactum</i>	neat peat moss	S2	G5	536363	6339180	Tracked	Undetermined
Moss	<i>Sphagnum fallax</i>	peat moss	S2	G5	547577	6335198	Tracked	Undetermined
					531127	6352750		
Moss	<i>Sphagnum platyphyllum</i>	neat peat moss	S1	G5	531127	6352750	Tracked	Undetermined

<sup>1</sup>Grid Zone 12, NAD 83.

<sup>2</sup>Alberta Wild Species General Status Listing (ASRD 2010).

<sup>3</sup>No flowers at the time of observation, therefore, cannot be verified.

## Rare Plant Communities

Allen (2011) describes 36 documented rare plant communities for the Boreal Forest Region of Alberta. Twelve of these communities are forest/woodlands, five are shrublands, two are sparsely vegetated, fifteen are herbaceous, and two are aquatic. All of the sampled plots were screened for rare communities, however, based on required dominant species, none were identified from the collected field data.

## Rare Plant Potential Analysis

The number of sites in the TLSA in which rare (tracked) plant species were observed was used as the basis for ranking each ELC class (Table I3-16). Ranking was undertaken based on the total number of rare species observations by ELC class (Table I3-17). An observation was defined as any tracking list species at any site; where there was more than one species at a site, each was a separate observation.

**Table I3-16: Rare Plant Species Observations Among Sample Plots by ELC Unit**

Rank		Scientific	Common	ELC Class										
S Rank	G Rank			a1	c1	e3	g1	i1	i2	k2	k3	l1	NWF <sup>1</sup>	
S2	G5	<i>Carex lacustris</i>	lakeshore sedge	–	–	–	–	–	–	–	1	–	–	–
S3?	G5?	<i>Carex oligosperma</i>	few-fruited sedge	1	–	–	1	–	–	–	3	19	–	–
S3?	G3?	<i>Chrysosplenium iowense</i>	golden saxifrage	–	–	1	–	1	–	–	–	–	–	1
S2	G5	<i>Conocephalum conicum</i>	liverwort	–	–	–	–	–	–	–	1	–	–	–
S3	G5	<i>Cypripedium acaule</i>	stemless lady's-slipper	2	–	–	–	–	–	–	–	–	–	–
S2	G5	<i>Diphasiastrum sitchense</i>	ground-fir	–	3	–	–	–	–	–	–	–	–	–
S1S2	G5	<i>Nymphaea leibergii/teragona</i>	pygmy water-lily	–	–	–	–	–	–	–	–	1	1	–
S2	G5	<i>Pseudobryum cinclidioides</i>	moss	–	–	–	–	–	–	–	1	–	–	–
S2	G5	<i>Ricciocarpos natans</i>	liverwort	–	–	–	–	–	–	–	1	–	–	–
S2	G5	<i>Scapania paludicola</i>	liverwort	–	–	–	–	–	–	–	–	1	–	–
S2	G5	<i>Sphagnum compactum</i>	neat peat moss	–	–	–	1	–	–	–	–	–	–	–
S2	G5	<i>Sphagnum fallax</i>	peat moss	–	–	–	–	–	–	1	–	1	–	–
S1	G5	<i>Sphagnum platyphyllum</i>	neat peat moss	–	–	–	–	–	–	–	–	1	–	–
<i>Count of Species</i>				2	1	1	2	1	1	5	5	1	1	
<b>Total Observations</b>				<b>3</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>23</b>	<b>1</b>	<b>1</b>	

<sup>1</sup> Refers to flooded areas.

**Table I3-17: Rare Vascular Plant Species Potential Ranking by ELC Unit**

ELC Class	Telephone Lake Plots	Total Rare Species	Total Observations	Ratio	Potential
a1	32	2	3	0.09	Medium
b1	18	0	0	0.00	Low
b2	6	0	0	0.00	Low
b3	7	0	0	0.00	Low
b4	5	0	0	0.00	Low
c1	24	1	3	0.13	Medium
d1	6	0	0	0.00	Low
d2	1	0	0	0.00	Low
e1 (f1)*	4	0	0	0.00	Low
e2	1	0	0	0.00	Low
e3 (d3)*	3	1	1	0.33	High
f2	3	0	0	0.00	Low
f3	2	0	0	0.00	Low
g1	20	2	2	0.10	Medium
h1	12	0	0	0.00	Low
i1	19	1	1	0.05	Low
i2	21	1	1	0.05	Low
j1	31	0	0	0.00	Low
j2	12	0	0	0.00	Low
k1	21	0	0	0.00	Low
k2	63	5	7	0.11	Medium
k3	58	5	23	0.40	High
I1/open water	6	2	2	0.33	High
Shrubland/Regen	25	0	0	0.00	Low
<b>Total</b>	<b>400</b>	<b>20</b>	<b>43</b>	<b>0.11</b>	

\* Ranked as the most similar ELC Unit.

#### Ranking Method

- high ratio of sample sites with rare plant observations of  $\geq 33\%$
- medium ratio of sample sites with rare plant observations of 6 to 32%
- low ratio of sample sites with rare plant observations of 0 to 5%

The majority of ELC classes in the LSA have a low rare plant potential. Areas with high potential for rare plants include marshes (I1) and forested river terraces (e3).

#### **Baseline Analysis in the TLSA**

The baseline area and percent distribution of the ELC classes by rare plant potential rank was determined.

## 2.3 Non-native and Weed Species (TLSA)

Weeds are introduced or native species designated in the Alberta *Weed Control Act* (AARD 2010). The designations include noxious and prohibited noxious weeds. These are primarily agricultural pests, but also include species that may invade disturbed or natural lands. Weeds include both the live plants and their seeds. According to the act, an occupant of any land (or the land owner if the land is unoccupied) must control weeds. Specifically, prohibited noxious weeds must be destroyed to prevent the spread, growth, ripening or scattering of the seeds, and noxious weeds must be controlled to prevent the spread, growth, ripening or scattering of seeds.

Introduced species are those species not native to the Province of Alberta and are known to have established populations or occurrences outside of farms or gardens in Alberta. The list of introduced species was obtained from the Alberta Conservation Information Management System (ACIMS 2011) and was cross-referenced for origin in the Flora of Alberta (Moss 1983). A total of three non-native species (of which one is a listed weed species) were observed in the TLSA. [Table I3-18](#) provides a list of non-native and weed species observed during field surveys.

**Table I3-18: Non-native and Weed Species**

Weed Species		Provincial Weed Act Designation	Origin	Observed Location NAD 83 Grid Zone 12	
Scientific Name	Common Name			Easting	Northing
<i>Rorippa sylvestris</i>	creeping yellow cress	Not Listed	Introduced	533531	6333359
<i>Sonchus arvensis</i>	perennial sow-thistle	Noxious	Introduced	527591	6354617
<i>Taraxacum officinale</i>	common dandelion	Not Listed	Introduced	529542	6346281
				534319	6327869

### **Baseline Analysis in the TLSA**

There was no analysis for this indicator (i.e., weeds and non-native species).

## 3.0 FRAGMENTATION

### 3.1 Density of Linear Developments

#### **Introduction**

Total linear disturbance density, expressed as km/km<sup>2</sup>, is a measurement of the current level of human linear access development expressed as a ratio to the area of the TLSA or TRSA.

Linear disturbances allow increased human access to natural habitats, which affects harvesting and disturbance activities to the detriment of sensitive species. This may alter the habitat such that interior forest species are reduced in proportion to edge/clearing species (Nielsen *et al.*, 2006).

## **Methods**

GIS files of linear developments in the TLSA and TRSA were prepared from data provided by Cenovus, Alberta Base Features (AltaLIS 2011) and Alberta Vegetation Inventory. The length of linear access features was determined in GIS by summing the area of all linear developments using a standard buffer width of 1 m. The area was divided by the buffer width to get a linear measure in metres, and then converted to kilometres. The density of linear developments was calculated as total lengths divided by the total area of the TLSA or TRSA.

### **Baseline Analysis in the TLSA**

The baseline disturbance density was determined for the entire study area.

## **3.2 Density of Creek Crossings**

### **Introduction**

The density of creek crossings in the TLSA and TRSA, expressed as the number of crossings per length of watercourses, is another measurement of the current level of linear corridor crossings.

Species occupying watercourse habitat may be at risk due to changes in habitat caused by culverts and siltation from linear corridor crossings and increased access to anglers (Dane 1978, Furniss *et al.* 1991, Eaglen and Hubert 1993, Harper and Quigley 2000).

### **Methods**

Watercourses in the TLSA were identified in GIS. The location and number of intersections (i.e., watercourse crossings) between watercourses and linear features were calculated. Linear crossings were classed according to crossing type (roads, pipeline/utility right-of-way, seismic cutlines), and crossing density was determined by dividing the number of crossings by the total length of watercourses.

### **Baseline Analysis in the TLSA**

The baseline creek crossing density was determined for the entire study area.

## **3.3 Distribution of Natural Habitat Patches**

### **Introduction**

A patch is defined as a contiguous area (i.e., a polygon), which is composed entirely of natural habitat and bordered by anthropogenic disturbances. Patches by this definition do not include polygons of individual land cover classes or ecosite phases. Patch metrics are summary calculations describing the size and number of patches.



Fragmentation of contiguous habitat may reduce the suitability of habitat for native species requiring interior habitat (MacCrimmon and Marr-Laing 2000). Size of disturbed forest patches may be too small for some species requiring large territories of contiguous habitat.

## **Methods**

All anthropogenic disturbances were used to define patch boundaries. The study area border also acts as a patch boundary.

Patch metrics were calculated for the TLSA and TRSA using IAN (ver. 1.0.23), which is a raster image analysis software program (DeZonia and Mladenoff 2004). Patch metrics included area measurements (in hectares) of patch size including the mean, standard deviation, minimum and maximum and the total number of patches. Patches were also divided into size classes: <1 ha, 1 to 5 ha, 5 to 25 ha, 25 to 100 ha, 100 to 400 ha, and >400 ha.

## **Baseline Analysis in the TLSA**

The baseline patch numbers and patch sizes were calculated showing the distribution by patch size classes as fraction of total patches. In addition, a pair of histograms was developed to show the relative distribution of patch number and patch area within size classes.

### **3.4 Disturbance Edge to Natural Habitat Area Ratio**

#### **Introduction**

The anthropogenic edge to area ratio, expressed as  $\text{km}/\text{km}^2$ , is a measurement of the current level of human disturbance of areas adjacent to natural habitats. Although linear and small patch disturbances result in little direct habitat removal, the edge effects are often much greater, and these effects may reduce habitat quality of a comparatively large area. In addition, large disturbed areas have high anthropogenic edge that adds to the impact of the development by reducing habitat quality of adjacent areas.

Edge effects are typically most pronounced at the boundary between human-caused disturbances and natural habitats. Habitat edges have altered climatic conditions (e.g., increased wind penetration, increased temperature, and lower available moisture), which may result in differential growth conditions for native and non-native plants species. These effects may extend 30 to 100 m (or more) into the centre of the habitat. These changes allow non-native species, aggressive wildlife species and weedy vegetation species to invade into natural habitats, and may reduce the quality of habitat for interior habitat species (Oxley *et al.* 1974, Armor and Stevens 1976, Ranney 1977, Gates and Guysel 1978, Niemi and Hanowski 1984).

## **Methods**

The edge length shared between anthropogenic origin and natural origin classes (ELC in the TLSA and LCCs in the TRSA) were measured using IAN raster analysis software (DeZonia and Mladenoff 2004). These values were summed and divided by the total area of each class to provide the anthropogenic edge to area ratio.

## **Baseline Analysis in the TLSA**

The baseline anthropogenic edge to area ratio for each ELC was determined for the entire study area.

### **4.0 TRADITIONAL USE PLANTS**

#### **4.1 Traditional Use Plant Potential**

##### **Introduction**

The objective of this indicator was to assess and rank, on a low to high scale, the number of traditional use (TU) species that occur within ELC classes in the TLSA. These ranks were then used to map baseline TU plant conditions and quantitatively assess potential impacts to TU species as a result of Project development. Vegetation data collected as part of this Project was used in this analysis.

First Nations people have been harvesting a variety of plant species in the boreal forest for thousands of years (Marles *et al.* 2000). Until recently, knowledge of most of the plant species harvested for medicine, spiritual/ritual use, food, or other technological uses has not been documented, and has instead has been communicated orally between generations. Recent studies in the oil sands region have documented many of the species that were most important for First Nations people in this area.

##### **Study Objectives**

Our goal was to measure and rank the importance of each ELC class to support an assemblage of traditionally used species. Two general methods were used to summarize the data:

- first, the data was used to show the capability of habitat types to support the complete range of traditionally used species, and also to maintain unique or uncommon species; and
- second, the sites that potentially support the greatest berry production was assessed.

## **Plant Species Lists**

Two Aboriginal cultural groups live in this region, the Algonkian (*Nehinawewak*) represented by Cree, and Athapaskan, represented by Chipewyan (*Dene*) (Marles *et al.* 2000). A list was obtained from the True North Fort Hills Oil Sand Project, which was a compilation of plant species used by residents of Fort McKay (Cree), and included a description of their traditional uses (medicine, food, spiritual/ritual, tools and dyes) (Table I3-19). A second list was obtained from the Athabasca Chipewyan First Nation, and listed plants used as food (berries), trees, and medicines (Table I3-20).

Together, these lists contain 65 species (or taxonomic groups) of traditional importance. In this analysis, each TU species is regarded as equal in importance. That is, the analysis does not rank any TU species higher than any other species.

## **Vegetation Data**

Detailed vegetation plot data was measured at 132 sites (Table I3-21) within the Cenovus TLSA.

## **TU Species Capability**

Three measurements of species richness were used to assess capability of each ELC unit to support TU species:

- mean TU species richness;
- total TU species richness; and
- unique and uncommon TU species richness.

Mean richness is the mean number of TU species that occurred within sample plots. This value provides us with the expected number of TU species that should be found at any particular site. Total richness provides a count of all TU species that occurred in each ELC unit, among all plots sampled. Unique and uncommon richness is the count of all TU species occurring within only one to two ELC classes. Unique and uncommon species are important, because these species are at a greater risk of being impacted if the ELC class is disturbed by developments.

These three measurements were combined to assess the capability for each ELC class to support Potential TU species. Vegetation plot data was first reorganised to include only the TU plant species. Table I3-22 shows the number of occurrences of each TU plant species for each ecosite phase.

**Table I3-19: Traditional Uses of Plants by the Fort McKay People (True North 2000)**

Scientific Name	Common Name	Part of Plant Used	Traditional Uses				
			Medicinal	Dietary	Spiritual / Ritual	Utensil	Dyes
<b>Vascular Plants</b>							
<i>Abies balsamea</i>	balsam fir	Bark, resin, needles	x	–	–	–	–
<i>Achillea millefolium</i>	common yarrow	Whole plant	x	–	–	–	–
<i>Acorus americanus</i>	rat root	Rhizome	x	–	–	–	–
<i>Alnus crispa</i>	green alder	Wood	x	–	–	x	x
<i>Alnus tenuifolia</i>	river alder	Wood	x	–	–	x	x
<i>Amelanchier alnifolia</i>	saskatoon	Root, stem	x	x	–	x	–
<i>Aralia nudicaulis</i>	wild sarsaparilla	Root	x	–	–	–	–
<i>Arctostaphylos uva-ursi</i>	common bearberry	Leaves, fruit, stem, root	x	–	x	–	x
<i>Aster conspicuus</i>	showy aster		x	–	x	–	–
<i>Betula papyrifera</i>	paper birch	Wood, bark, leaves, sap	x	x	x	x	x
<i>Betula pumila</i>	bog birch	Roots	x	x	–	–	–
<i>Campanula rotundifolia</i>	harebell	Roots	x		–	–	–
<i>Cornus canadensis</i>	bunchberry	Fruit	–	x	–	–	–
<i>Cornus stolonifera</i>	red-osier dogwood	Bark, inner bark, leaves	x	–	x	–	x
<i>Corylus cornuta</i>	hazelnut	Fruit	–	x	–	–	–
<i>Equisetum</i> spp.	horsetail	Whole plant	x	–	–	x	–
<i>Fragaria virginiana</i>	wild strawberry	Fruit, root	x	x	–	–	–
<i>Galium boreale</i>	northern bedstraw	Root	–	–	–	–	x
<i>Galium triflorum</i>	sweet-scented bedstraw	Flower	–	–	x	x	
<i>Juniperus communis</i>	ground juniper	Wood, flower, needles, fruit, bark	x	–	–	–	–
<i>Larix laricina</i>	larch	Bark, gum	x	–	–	–	–
<i>Ledum groenlandicum</i>	Labrador tea	Leaves	x	x	–	–	–
<i>Lonicera caerulea</i>	fly honeysuckle		x	–	–	–	–
<i>Lonicera dioica</i>	twining honeysuckle		x	–	–	–	–
<i>Lonicera involucrata</i>	bracted honeysuckle		x	–	–	–	–
<i>Lycopodium annotinum</i>	stiff club moss	Spores	–	–	x	–	–
<i>Matricaria matricariodes</i>	pineappleweed		x	–	–	–	–
<i>Mentha arvensis</i>	wild mint	Whole plant	x	x	–	–	–
<i>Picea glauca</i>	white spruce	Wood, cone	x	–	–	x	–
<i>Picea mariana</i>	black spruce	Wood, resin	x	–	–	–	–
<i>Pinus banksiana</i>	Jack pine	Wood	x	–	–	x	–
<i>Plantago major</i>	common plantain	Leaves	x	–	–	–	–
<i>Polygala senega</i>	seneca-root	Root	x	–	–	–	–
<i>Populus balsamifera</i>	balsam poplar	Wood, bark	x	–	–	x	–
<i>Populus tremuloides</i>	trembling aspen	Wood, bark	x	–	–	x	–
<i>Prunus pensylvanica</i>	pin cherry			x	–	–	–
<i>Prunus virginiana</i>	chokecherry	Flower, bark, wood, roots	x	x	–	–	–
<i>Pyrola asarifolia</i>	common pink wintergreen		x	–	–	–	–
<i>Ribes hudsonianum</i>	wild black currant	Stem, bark, roots, leaves	x	x	–	–	–
<i>Ribes oxycanthoides</i>	gooseberry	Stem, bark, roots, leaves		x	–	–	–
<i>Rosa acicularis</i>	prickly rose	Stem, roots, rosehips	x	–	–	–	–
<i>Rubus chamaemorus</i>	cloudberry	Whole plant	x	x	–	–	–
<i>Rubus idaeus</i>	wild red raspberry	Fruit	x	x	–	–	–

Scientific Name	Common Name	Part of Plant Used	Traditional Uses				
			Medicinal	Dietary	Spiritual / Ritual	Utensil	Dyes
<i>Rubus pubescens</i>	dewberry	Fruit	x	x	–	–	–
<i>Rumex occidentalis</i>	western dock	Roots	–	–	–	–	x
<i>Sarracenia purpurea</i>	pitcher plant	Leaf	x	–	–	–	–
<i>Salix</i> spp.	willow	Whole plant	x	–	x	x	–
<i>Scirpus</i> spp.	bulrush	Roots, shoots	–	x	–	–	–
<i>Streptopus amplexifolius</i>	twisted stalk	Fruit	–	x	–	–	–
<i>Symphoricarpos albus</i>	snowberry	Bark	x	–	–	–	–
<i>Tanacetum vulgare</i>	common tansy			x	–	–	–
<i>Typha latifolia</i>	common cattail	Stem, flower, roots		x	–	–	–
<i>Urtica dioica</i>	common nettle		x	x	–	–	–
<i>Vaccinium</i> spp.	huckleberry	Fruit		x	–	–	–
<i>Vaccinium myrtilloides</i>	blueberry	Fruit, roots	x	x	–	–	–
<i>Vaccinium vitis-idaea</i>	bog cranberry	Fruit	–	x	–	–	–
<i>Viburnum edule</i>	low-bush cranberry	Fruit	x	–	–	–	–
<i>Viburnum opulus</i>	high-bush cranberry	Fruit	x	–	–	–	–
<b>Fungi, Lichens and Mosses</b>							
<i>Fomes officinalis</i>	bracket fungus	Fruiting body	x	–	–	x	–
<i>Fomes pinicola</i>	bracket fungus	Fruiting body	x	–	–	x	–
<i>Polyporus tuberaster</i>	tuckahoe fungus	Vegetative part	x	–	–	–	–
<i>Lycoperdon</i> spp.	puffball	Fruiting body	x	–	–	–	–
<i>Echinodontium tinctorium</i>	red touchwood fungus	Fruiting body	x	–	–	–	–
<i>Umbilicaria</i> spp.	rock tripe	Entire plant	–	x	–	–	–
<i>Sphagnum</i> spp.	sphagnum moss	Entire plant	–	–	–	x	–

**Table I3-20: Athabasca Chipewyan First Nation –  
 List of Traditional Use Plants (ACFN 2002)**

Scientific Name	Common Name
<b>Berries</b>	
<i>Amelanchier alnifolia</i>	saskatoon
<i>Fragaria virginiana</i>	strawberry
<i>Prunus pensylvanica</i>	pin cherry
<i>Prunus virginiana</i>	choke cherry
<i>Rubus idaeus</i>	raspberry
<i>Vaccinium myrtilloides</i>	blueberry
<i>Viburnum edule</i>	low-bush cranberry
<i>Viburnum opulus</i>	high-bush cranberry
<b>Trees</b>	
<i>Betula papyrifera</i>	birch
<i>Larix laricina</i>	tamarack
<i>Picea glauca</i>	white spruce
<i>Picea</i> spp.	spruce gum
<i>Pinus banksiana</i>	Jackpine
<i>Populus balsamifera</i>	poplar
<b>Medicinal Plants</b>	
<i>Acorus americanus</i>	rat root
<i>Amelanchier alnifolia</i>	saskatoon berries
<i>Artemisia frigida</i>	sage
<i>Hierochloe odorata</i>	sweetgrass
<i>Larix laricina</i>	tamarack bark
<i>Ledum groenlandicum</i>	Labrador tea (muskeg tea)
<i>Lycoperdon</i> spp.	dried puffballs
<i>Mentha arvensis</i>	mint
<i>Picea</i> spp.	spruce gum; spruce acorn
<i>Populus balsamifera</i>	poplar bark and buds
<i>Populus tremuloides</i>	aspen
<i>Prunus virginiana</i>	choke cherries
<i>Rosa acicularis</i>	rosehip
<i>Sarracenia purpurea</i>	pitcher plant
<i>Sorbus scopulina</i>	mountain ash

**Table I3-21: Vegetation Plots used in the  
 TU Plant Species Assessment**

ELC Class	Ecosite Phase Name	Detailed Vegetation Plot Number
a1	lichen Pj	10
b1	blueberry Pj-Aw	6
b2	blueberry Aw-Bw	2
b3	blueberry Aw-Sw	5
b4	blueberry Sw-Pj	1
c1	Labrador tea-mesic Pj-Sb	13
d1	low-bush cranberry Aw	4
d2	low bush cranberry Aw-Sw	1
e1	dogwood Pb-Aw	4
e3	dogwood Sw	1
f3	horsetail Sw	1
g1	Labrador tea-subhygric Sb-Pj	8
h1	Labrador tea/horsetail Sw-Sb	8
i1	treed bog	8
i2	shrubby bog	6
j1	treed poor fen	6
j2	shrubby poor fen	3
k1	treed rich fen	10
k2	shrubby rich fen	11
k3	graminoid rich fen	12
l1	graminoid marsh	3
NSH	shrubland/regen	9
<b>Total</b>		<b>132</b>

**Table I3-22: Potential TU Species Occurrence (Number of Observations Among Sample Plots) by ELC Unit**

Type	Scientific Name	Common Name	ELC Class																					
			a1	b1	b2	b3	b4	c1	d1	d2	e1	e3	f3	g1	h1	l1	i2	j1	j2	k1	k2	k3	l1	REG
Tree	<i>Betula papyrifera</i>	white birch	1	3	2	4	-	5	2	1	2	-	1	2	3	1	-	-	2	1	1	1	4	
Tree	<i>Larix laricina</i>	tamarack	-	-	-	-	-	-	-	-	-	-	-	-	2	1	6	2	8	4	1	1	2	
Tree	<i>Picea glauca</i>	white spruce	-	1	-	-	-	-	3	1	2	1	1	-	2	-	-	1	-	-	-	-	-	
Tree	<i>Picea mariana</i>	black spruce	2	5	1	5	1	13	1	1	3	1	-	8	7	8	5	5	3	8	4	1	-	6
Tree	<i>Pinus banksiana</i>	Jack pine	10	5	2	3	1	13	1	1	-	-	-	4	2	-	1	-	2	1	1	1	-	8
Tree	<i>Populus balsamifera</i>	balsam poplar	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1
Tree	<i>Populus tremuloides</i>	aspen	4	5	2	4	-	2	4	1	1	-	-	-	2	-	-	-	-	-	-	-	-	4
Shrub	<i>Alnus incana ssp tenuifolia</i>	river alder	-	-	-	1	-	1	-	-	4	1	1	1	3	-	-	-	-	-	1	-	-	2
Shrub	<i>Alnus viridis ssp crispa</i>	green alder	2	1	2	-	-	3	-	-	-	1	-	2	1	-	-	-	-	-	-	-	-	2
Shrub	<i>Amelanchier alnifolia</i>	saskatoon	-	1	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Shrub	<i>Arctostaphylos uva-ursi</i>	common bearberry	8	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Shrub	<i>Betula pumila</i>	dwarf birch	-	-	-	-	-	1	-	-	-	1	-	1	3	3	-	5	2	10	5	6	1	3
Shrub	<i>Ledum groenlandicum</i>	common Labrador tea	3	3	1	4	1	12	2	1	1	1	1	8	7	8	5	5	3	4	4	1	-	5
Shrub	<i>Lonicera caerulea</i>	fly honeysuckle	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	-	1	-	-	-	-
Shrub	<i>Lonicera dioica</i>	twining honeysuckle	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Shrub	<i>Prunus pensylvanica</i>	pin cherry	1	1	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2
Shrub	<i>Ribes hudsonianum</i>	northern black currant	-	-	-	-	-	-	-	-	2	1	1	-	2	-	-	1	-	1	-	-	-	-
Shrub	<i>Ribes oxycanthoides</i>	northern gooseberry	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-
Shrub	<i>Rosa acicularis</i>	prickly rose	3	2	2	1	-	3	4	1	2	1	1	1	3	-	-	-	-	-	-	-	-	2
Shrub	<i>Rubus chamaemorus</i>	cloudberry	-	-	-	-	-	-	-	-	-	-	-	2	2	7	5	3	3	2	2	-	-	-
Shrub	<i>Rubus idaeus</i>	wild red raspberry	1	-	-	-	-	-	2	1	4	-	1	-	1	-	-	-	-	-	-	-	-	2
Shrub	<i>Rubus pubescens</i>	dewberry	-	-	-	-	-	-	3	1	3	-	1	1	1	-	-	-	-	-	-	-	-	1
Shrub	<i>Salix spp.</i>	willow	1	3	1	3	1	10	3	1	4	2	2	5	8	7	-	9	2	8	7	2	2	13
Shrub	<i>Symphoricarpos albus</i>	snowberry	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shrub	<i>Vaccinium myrtilloides</i>	common blueberry	10	5	2	4	1	13	1	-	-	-	1	6	3	1	1	-	1	-	-	-	-	4
Shrub	<i>Vaccinium vitis-idaea</i>	bog cranberry	6	3	1	3	1	12	2	-	-	-	1	6	7	7	4	3	2	4	3	-	-	-
Shrub	<i>Viburnum edule</i>	low-bush cranberry	-	1	-	-	-	-	4	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Graminoid	<i>Typha latifolia</i>	common cattail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
Forb	<i>Achillea millefolium</i>	common yarrow	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	3
Forb	<i>Aralia nudicaulis</i>	wild sarsaparilla	-	-	1	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forb	<i>Aster conspicuus</i>	showy aster	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Type	Scientific Name	Common Name	ELC Class																					
			a1	b1	b2	b3	b4	c1	d1	d2	e1	e3	f3	g1	h1	l1	i2	j1	j2	k1	k2	k3	l1	REG
Forb	<i>Campanula rotundifolia</i>	harebell	2	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Forb	<i>Cornus canadensis</i>	bunchberry	4	4	2	5	1	9	4	1	4	1	1	3	4	-	-	-	-	1	-	-	-	2
Forb	<i>Fragaria spp.</i>	strawberry	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forb	<i>Galium boreale</i>	northern bedstraw	-	-	-	-	-	-	-	-	1	1	-	-	1	-	-	-	-	4	3	1	-	2
Forb	<i>Galium triflorum</i>	sweet-scented bedstraw	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-
Forb	<i>Mentha arvensis</i>	wild mint	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Forb	<i>Pyrola asarifolia</i>	common pink wintergreen	-	-	-	-	-	-	2	1	-	-	1	-	-	1	-	2	-	3	2	-	-	-
Forb	<i>Rumex occidentalis</i>	western dock	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	2	1	1
Forb	<i>Sarracenia purpurea</i>	pitcher-plant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Forb	<i>Urtica dioica</i>	common nettle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Fern/Allies	<i>Equisetum spp.</i>	horsetail	1	2	-	1	-	2	1	-	4	2	2	5	11	6	-	4	1	5	2	3	-	4
Fern/Allies	<i>Lycopodium annotinum</i>	stiff club-moss	1	-	1	-	-	3	2	1	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Moss	<i>Sphagnum spp.</i>	peat moss	-	-	-	-	-	-	-	-	-	1	1	5	7	14	15	7	5	10	17	10	-	-

**Note:** REG = shrubland/regeneration.

## Results

TU species that were unique or uncommon in the TLSA are:

- *Aster conspicuus* (1 ecosite phases)
- *Fragaria virginiana* (1 ecosite phases)
- *Mentha arvensis* (2 ecosite phases)
- *Sarracenia purpurea* (2 ecosite phases)
- *Symphoricarpos albus* (1 ecosite phases)
- *Typha latifolia* (2 ecosite phases)

TU species richness ranking categories are summarised in [Table I3-23](#). Overall TU plant species capability ranking is shown in [Table I3-24](#).

**Table I3-23: Ranges of TU Species Richness Values Used to Rank TU Capability**

Category (weight)*	Mean TU Plant Species Range	Total TU Plant Species Range	Uncommon TU Plant Species Range	Overall TU Plant Species Range
Low (1)	1.0 to 6.3	0 to 8.0	0	3 to 8
Medium (3)	6.4 to 12.7	9.0 to 17.0	1 to 2	9 to 16
High (7)	12.8 or more	18.0 or more	3 or more	17 to 21

\* weight = value applied to each rank to determine the overall score.

**Table I3-24: TU Plant Species Richness Results**

ELC Class	N	Mean Richness	Mean Ranking	Total Richness	Total Ranking	Unique Richness	Unique Ranking	Overall Score	Overall Ranking
a1	10	6.00	Low	17	Medium	0	Low	5	Low
b1	6	7.67	Medium	17	Medium	0	Low	7	Low
b2	2	11.00	Medium	15	Medium	0	Low	7	Low
b3	5	7.80	Medium	13	Medium	0	Low	7	Low
b4	1	8.00	Medium	8	Low	0	Low	5	Low
c1	13	8.00	Medium	17	Medium	0	Low	7	Low
d1	4	12.00	Medium	22	High	3	High	17	High
d2	1	17.00	High	17	Medium	0	Low	11	Medium
e1	4	11.75	Medium	20	High	0	Low	11	Medium
e3	1	19.00	High	17	Medium	0	Low	11	Medium
f3	1	19.00	High	17	Medium	0	Low	11	Medium
g1	8	7.88	Medium	19	High	0	Low	11	Medium
h1	8	10.38	Medium	24	High	0	Low	11	Medium
i1	8	8.25	Medium	13	Medium	0	Low	7	Low
i2	6	6.17	Low	8	Low	0	Low	3	Low
j1	6	8.50	Medium	12	Medium	0	Low	7	Low
j2	3	9.33	Medium	12	Medium	0	Low	7	Low
k1	10	7.50	Medium	20	High	2	Medium	13	Medium
k2	11	5.27	Low	16	Medium	0	Low	5	Low
k3	12	2.58	Low	13	Medium	1	Medium	7	Low
l1	3	3.00	Low	8	Low	2	Medium	5	Low
burned upland	4	8.00	Medium	14	Medium	0	Low	7	Low
shrubland/regenerating	1	10.00	Medium	8	Low	0	Low	5	Low

## **Baseline Analysis in the TLSA**

The baseline area and percent distribution of the ELC classes by overall potential TU rank was determined.

### **4.2 Availability of Berry-Producing Species**

In this analysis the following species were assessed as the potential berry harvest species (Table 13-25). The mean percent cover of all of the berry-producing species was calculated and ranked from high to low among ecosite phases.

**Table 13-25: Berry Harvest Species**

<b>Scientific Name</b>	<b>Common Name</b>
<i>Amelanchier alnifolia</i>	saskatoon
<i>Fragaria virginiana</i>	wild strawberry
<i>Oxycoccus microcarpus</i>	small bog cranberry
<i>Prunus pensylvanica</i>	pin cherry
<i>Prunus virginiana</i>	choke cherry
<i>Ribes hudsonianum</i>	northern black currant
<i>Ribes lacustre</i>	bristly black currant
<i>Ribes oxycanthoides</i>	northern gooseberry
<i>Ribes triste</i>	wild red currant
<i>Rubus arcticus</i>	dwarf raspberry
<i>Rubus chamaemorus</i>	cloudberry
<i>Rubus idaeus</i>	wild red raspberry
<i>Rubus pubescens</i>	dewberry
<i>Vaccinium caespitosum</i>	dwarf bilberry
<i>Vaccinium myrtilloides</i>	common blueberry
<i>Vaccinium vitis-idaea</i>	bog cranberry
<i>Viburnum edule</i>	low-bush cranberry

Berry cover was summed by ecosite phase ranked into low to high cover classes (Table 13-26).

- low: <15% berry species coverage
- medium: 15.1 to 30%
- high: >30%.

## **Baseline Analyses in the TLSA**

The baseline area and percent distribution of ELC by their berry cover rank was determined.

**Table I3-26: Berry Percent Cover by ELC Class**

Common Name	ELC Class																						
	a1	b1	b2	b3	b4	c1	d1	d2	e1	e3	f3	g1	h1	i1	i2	j1	j2	k1	k2	k3	l1	BU	REG
blueberry	18.3	6.5	29.3	6.2	33.5	18.6	<0.1	–	–	–	<0.1	3.0	2.2	0.1	0.1	–	5.1	–	–	–	–	25.8	–
bog cranberry	1.2	2.8	0.2	0.2	9.2	3.9	0.4	–	–	–	0.7	3.2	5.4	5.1	4.3	2.6	8.0	0.6	0.7	–	–	–	–
bristly black currant	–	–	–	–	–	–	–	–	0.4	0.0	2.0	–	–	–	–	–	–	–	–	–	–	–	–
cloudberry	–	–	–	–	–	–	–	–	–	–	–	0.4	0.3	11.4	6.2	3.0	6.2	0.1	0.4	–	–	–	–
dewberry	–	–	–	–	–	–	0.3	<0.1	1.6	–	0.3	0.1	<0.1	–	–	–	–	–	–	–	–	–	4.2
dwarf raspberry	–	–	–	–	–	–	–	–	0.3	0.3	1.5	<0.1	0.5	–	–	<0.1	–	1.8	0.1	–	–	–	3.2
low-bush cranberry	–	0.2	–	–	–	–	10.1	30.1	5.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
northern black currant	–	–	–	–	–	–	–	–	7.4	21.0	1.0	–	0.7	–	–	0.3	–	<0.1	–	–	–	–	–
northern gooseberry	–	–	–	–	–	–	–	–	5.7	5.0	1.3	–	–	–	–	–	–	–	–	–	–	–	–
pin cherry	0.1	0.5	12.5	<0.1	–	–	–	–	1.5	–	–	–	–	–	–	–	–	–	–	–	–	0.5	–
raspberry	0.2	–	–	–	–	–	0.3	0.7	8.6	–	<0.1	–	<0.1	–	–	–	–	–	–	–	–	0.1	5.3
saskatoon	–	2.9	–	–	–	–	0.4	5.7	–	–	–	<0.1	–	–	–	–	–	–	–	–	–	–	–
skunk currant	–	–	–	–	–	–	–	–	3.0	–	–	–	<0.1	–	–	–	–	–	–	–	–	–	–
small bog cranberry	–	–	–	–	–	–	–	–	–	–	–	<0.1	0.2	0.6	1.5	0.9	0.4	2.7	2.0	<0.1	–	–	–
strawberry	–	–	–	–	–	–	0.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
wild red currant	–	–	–	–	–	–	–	–	11.7	1.8	–	<0.1	<0.1	–	–	0.1	–	–	–	–	–	–	–
<b>Total</b>	<b>19.7</b>	<b>12.9</b>	<b>41.9</b>	<b>6.4</b>	<b>42.7</b>	<b>22.6</b>	<b>11.5</b>	<b>36.5</b>	<b>45.5</b>	<b>28.1</b>	<b>6.8</b>	<b>6.7</b>	<b>9.3</b>	<b>17.1</b>	<b>12.1</b>	<b>6.7</b>	<b>19.7</b>	<b>5.2</b>	<b>3.1</b>	<b>0.0</b>	<b>1.4</b>	<b>26.4</b>	<b>12.7</b>
<b>Rank</b>	Med	Low	High	Low	High	Med	Low	High	High	Med	Low	Low	Low	Med	Low	Low	Med	Low	Low	Low	Low	Med	Low

**Note:** BU = recent burn, REG = shrubland/regeneration.

## 5.0 LITERATURE CITED

- Athabasca Chipewyan First Nation (ACFN). 2002. *List of Traditional Berries, Trees, and Medicinal Plants*. 2002 ACFN Traditional Land Use and Occupancy Study. Unpublished.
- Alberta Agriculture and Rural Development (AARD). 2010. *Weed Control Act*. Alberta Queen's Printer. Edmonton, Alberta. Available at:  
[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/acts6156](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/acts6156)
- Alberta Conservation Information Management System (ACIMS). 2011. *List of Tracked and Watched Elements – May, 2011 version*. Alberta Tourism Parks and Recreation, Parks Division, Edmonton, Alberta.
- Alberta Sustainable Resource Development (ASRD). 2010. *General Status of Alberta Wild Species 2010*. Available at:  
<http://www.srd.alberta.ca/FishWildlife/SpeciesAtRisk/GeneralStatusOfAlbertaWildSpecies/GeneralStatusOfAlbertaWildSpecies2010/Default.aspx>
- Allen, L. 2011. *Alberta Conservation Information Management System Ecological Community Tracking List*. Alberta Tourism, Parks and Recreation. Edmonton, Alberta.
- AltaLIS. 2011. *Alberta Base Features*. Available at: [http://www.altalis.com/prod\\_base\\_base.html](http://www.altalis.com/prod_base_base.html)
- Armor, R.L. and P.L. Stevens. 1976. *Spread of Weeds from a Roadside into Sclerophyll Forests at Dartmouth, Australia*. *Weed Research* 16:111-118.
- Beckingham, J.D. and J.H. Archibald. 1996. *Field Guide to Ecosites of Northern Alberta*. Special Report 5. Northern Forestry Centre, Canadian Forest Service. Edmonton, AB.
- Dane, B.G. 1978. *A Review and Resolution of Fish Passage Problems at Culvert Sites in British Columbia*. Technical Report No. 810. Fisheries and Marine Service, Canada Department of the Environment. Technical Report No. 810. Ottawa, Ontario.
- DeZonia, B. and D. J. Mladenoff. 2004. *IAN 1.0.23*. Department of Forest Ecology & Management, University of Wisconsin. Madison, Wisconsin.
- Eaglen, G.S. and W.A. Hubert. 1993. *Impacts of Logging and Roads on Substrate and Trout in Streams of the Medicine Bow National Forest, Wyoming*. *North American Journal of Fisheries Management* 13: 844-846.
- Endangered Species Conservation Committee (ESCC). 2011. *Species Assessed by Alberta's Endangered Species Conservation Committee*. Available at:  
<http://www.srd.alberta.ca/FishWildlife/SpeciesAtRisk/LegalDesignationOfSpeciesAtRisk/EndangeredSpeciesConservationCommittee/Default.aspx>
- Environment Canada. 2002. *Species at Risk Act (SARA)*. Available at:  
[http://www.sararegistry.gc.ca/approach/act/default\\_e.cfm](http://www.sararegistry.gc.ca/approach/act/default_e.cfm)

- Furniss, M.J., T.D. Roelofs and C.S. Yee. 1991. *Road Construction and Maintenance*. American Fisheries Society Special Publication 19: 297-323.
- Gates, J.E. and L.W. Guysel. 1978. *Avian Nest Dispersion and Fledging Success in Field-Forest Ecotones*. Ecology 59: 871-883.
- Government of Canada. 2011. *Committee on the Status of Endangered Wildlife in Canada*. Available at: [http://www.cosewic.gc.ca/eng/sct6/index\\_e.cfm](http://www.cosewic.gc.ca/eng/sct6/index_e.cfm)
- Halsey, L. and D.H. Vitt. 1997. *Alberta Wetland Inventory Standards – Version 1.0*. In: *Alberta Vegetation Inventory Standards Manual*. (R. Nesby, ed.). Resource Data Division, Alberta Environmental Protection. Edmonton, Alberta.
- Harper, D.J. and J.T. Quigley. 2000. *No Net Loss of Fish Habitat: An Audit of Forest Road Crossings of Fish-Bearing Streams in British Columbia, 1996-1999*. Canadian Technical Report of Fisheries and Aquatic Sciences 2319: 43 pp.
- MacCrimmon, G. and T. Marr-Laing. 2000. *Patchwork Policy, Fragmented Forest 1. In-Situ, Oil Sands. Industrial Development and Ecological Integrity of Alberta's Boreal Forest*. Pembina Institute for Appropriate Development. Edmonton, Alberta.
- Marles, R.J., C. Clavelle, L. Monteleone, N. Tays and D. Burns. 2000. *Aboriginal Plant Use in Canada's Northwest Boreal Forest*. Natural Resources Canada-Canadian Forest Service. University of British Columbia Press. Vancouver, British Columbia.
- Moss, E.H. 1983. *Flora of Alberta*. 2<sup>nd</sup> ed. (Revised by J.G. Packer). University of Toronto Press. Toronto, Ontario.
- Nielsen, S.E., M.S. Boyce, and G.B. Stenhouse. 2006. *A Habitat-based Framework for Grizzly Bear Conservation in Alberta*. Biological Conservation 130:217–229.
- Niemi, G.J. and J.M. Hanowski. 1984. *Impacts of a Transmission Line on Bird Populations in the Red Lake Peatland, Northern Minnesota*. Auk 101: 487-498.
- Oxley, D.J., M.B. Fenton and G.R. Carmody. 1974. *The Impacts of Roads on Populations of Small Mammals*. Journal of Applied Ecology 11: 51–59.
- Ranney, J.W. 1977. *Forest Island Edges – Their Structure, Development, and Implication to Regional Forest Ecosystem Dynamics*. EDFB/IBP-77-1. Oak Ridge National Laboratory. Oak Ridge, Tennessee.
- Ranney, J.W. 1977. *Forest Island Edges – Their Structure, Development, and Implication to Regional Forest Ecosystem Dynamics*. EDFB/IBP-77-1. Oak Ridge National Laboratory. Oak Ridge, TN.
- Schneider, R. 2001. *Old-Growth Forests in Alberta: Ecology and Management*. Alberta Centre for Boreal Studies. Edmonton, Alberta.
- TrueNorth Energy L.P. 2002. *Fort Hills Oil Sands Project Environmental Impact Assessment*. Submitted to Alberta Environment, Edmonton AB and Alberta Energy and Utility Board. Calgary AB.

***Appendix I4***

***Breeding Bird Species Richness Analysis***

## APPENDIX I4: BREEDING BIRD SPECIES RICHNESS ANALYSIS TABLE OF CONTENTS

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This appendix is a report on bird species richness based on birds recorded in point call locations on the terrestrial Local study area (TLSA). All bird species observed at terrestrial Ecological Land Classification (ELC) unit call point locations were analyzed whether they were breeding birds (e.g., passerines) or species of other groups. Unidentified species were excluded from this analysis. Only species recorded within 100 m of plot centre were analyzed, since species from further away may not be within the same ELC unit.

## 1.0 FIELD DATA

Sixty-two call point locations were sampled in the TLSA in 2006. The number of call points per ELC unit is shown in [Table I4-1](#) along with the number of sites associated with regional data sets. Thirteen of these sites were located in habitat types near the boundary of two or more ELC units. Data from these sites were used to help determine total species richness and uniqueness, but were not ranked into richness categories at the end of this process. Eight of the ELC units in the TLSA (b3, b4, d3, e1, e2, f1, f2, g1) were not represented by sample points. Between 1 and 9 call points were measured in each sampled ELC unit. To increase the accuracy of bird species richness metrics, Cenovus TL ULC (Cenovus) has entered into data sharing agreements with several other oil sand companies and has obtained detailed vegetation plot data, resulting in an increased number of survey points for each ELC type. Data were obtained from the following baseline surveys:

- Birch Mountain Hammerstone Project (64 detailed plots);
- Husky Canada Sunrise Project (64 detailed plots);
- Syncrude Canada Aurora South Projects (64 detailed plots); and
- SynEnCo Northern Lights Project (199 detailed plots).

A summary of data measured in the TLSA area compared to the regional area appears at the end of this appendix.

## 2.0 TOTAL BIRD SPECIES RICHNESS

Total richness is the complete number of species among all sample locations of an ELC unit ([Table I4-2](#)). It provides the best estimate of alpha richness (richness within a class), but is highly influenced by sample size, up until the point where enough samples are collected that the number of new species observed per plot is minimized. Typically, 5 to 10 plots are required in each ELC unit before total richness numbers become meaningful.

**Table I4-1: Breeding Bird Survey Points in the  
 TLSA and in Other Regional Study Sites**

ELC Unit	Description	Cenovus	Other Regional Study Sites	Total Breeding Bird Survey Points
a1	lichen Pj	4	19	23
b1	blueberry Pj-Aw	5	23	28
b2	blueberry Aw-Bw	1	8	9
b3	blueberry Aw-Sw	0	12	12
b4	blueberry Sw-Pj	0	6	6
c1	Labrador tea-mesic Pj-Sb	2	24	26
d1	low-bush cranberry Aw	6	48	54
d2	low bush cranberry Aw-Sw	1	53	54
d3	low bush cranberry Sw	0	14	14
e1	dogwood Pb-Aw	0	1	1
e2	dogwood Pb-Sw	0	10	10
e3	dogwood Sw	1	13	14
f1	horsetail Pb-Aw	0	0	0
f2	horsetail Pb-Sw	0	2	2
f3	horsetail Sw	1	2	3
g1	Labrador tea-subhygric Sb-Pj	0	31	31
h1	Labrador tea/horsetail Sw-Sb	2	20	22
i1	treed bog	2	15	17
i2	shrubby bog	0	12	12
j1	treed poor fen	5	27	32
j2	shrubby poor fen	2	28	30
k1	treed rich fen	3	27	30
k2	shrubby rich fen	6	32	38
k3	graminoid rich fen	2	2	4
BURN	Burn	9	0	9
NEC	Ecotone	0	13	13
NLM	Lake Margin	7	0	7
<b>Total</b>		<b>59</b>	<b>442</b>	<b>501</b>

**Table I4-2: Total Breeding Bird Species by ELC Unit in the TLSA**

ELC Unit	Description	Sample Size	Total Richness	Ranking
a1	lichen Pj	21	26	Medium
b1	blueberry Pj-Aw	28	30	High
b2	blueberry Aw-Bw	9	14	Low
b3	blueberry Aw-Sw	12	22	Medium
b4	blueberry Sw-Pj	6	11	Low
c1	Labrador tea-mesic Pj-Sb	26	32	High
d1	low-bush cranberry Aw	54	32	High
d2	low bush cranberry Aw-Sw	54	39	High
d3	low bush cranberry Sw	14	24	Medium
e1	dogwood Pb-Aw	1	3	Very Low
e2	dogwood Pb-Sw	10	21	Medium
e3	dogwood Sw	14	27	Medium
f1	horsetail Pb-Aw	0	0	Nil
f2	horsetail Pb-Sw	2	10	Low
f3	horsetail Sw	3	6	Very Low
g1	Labrador tea-subhygric Sb-Pj	31	28	Medium
h1	Labrador tea/horsetail Sw-Sb	22	31	High
i1	treed bog	17	22	Medium
i2	shrubby bog	12	21	Medium
j1	treed poor fen	31	29	Medium
j2	shrubby poor fen	30	40	Very High
k1	treed rich fen	30	34	High
k2	shrubby rich fen	38	47	Very High
k3	graminoid rich fen	4	16	Low
NBL	Burn	9	29	Medium
NEC	Ecotone	13	21	Not Ranked
NLM	Lake Margin	7	26	Medium

Total species richness was ranked, using the following criteria:

- Nil 0 species
- Very Low  $\leq 8$  species
- Low 9 to 19 species
- Medium 20 to 29 species
- High 30 to 39 species
- Very High  $> 39$  species

### 3.0 BREEDING BIRD FREQUENCY OF OCCURRENCE

[Table I4-3](#) describes which ELC units have dominant breeding bird species associated with them; that is which ELC units have a particular breeding bird species occurring  $> 75\%$  of the time that ELC unit is sampled. Categorizing breeding bird species this way demonstrated that the number of dominant breeding bird species per ELC unit was too low to be meaningful in the ranking process, and was therefore excluded from the analysis.

### 4.0 MEAN SPECIES RICHNESS

Mean richness per plot ([Table I4-4](#)) is less biased than total richness, and can be calculated even if the number of samples is  $< 5$  to 10, although the confidence in the numbers will still increase as sample sizes increase. Mean species richness was ranked, using the following criteria:

- Very Low  $\leq 3.5$  species/plot
- Low 3.5 to 4.6 species/plot
- Medium 4.6 to 5.7 species/plot
- High 5.7 to 6.8 species/plot
- Very High  $> 6.8$  species/plot

**Table I4-3: Frequency of Occurrence of Dominant Breeding Bird Species by ELC Unit**

ELC Unit	Sample Size	Dominant (>75%)
a1	21	0
b1	28	0
b2	9	2
b3	12	1
b4	6	0
c1	26	2
d1	54	2
d2	54	2
d3	14	1
e1	1	3
e2	10	2
e3	14	1
f1	0	0
f2	2	2
f3	3	0
g1	31	1
h1	22	1
i1	17	0
i2	12	1
j1	31	0
j2	30	0
k1	30	0
k2	38	1
k3	4	0
Burn	9	1
NEC	13	1
NLM	7	1

**Table I4-4: Ranking of Mean Breeding Bird Species Richness by ELC Unit**

ELC Unit	Sample Size	Mean Richness	Ranking
a1	21	4.43	Low
b1	28	4.21	Low
b2	9	3.67	Low
b3	12	4.83	Medium
b4	6	3.33	Very Low
c1	26	5.31	Medium
d1	54	4.33	Low
d2	54	4.93	Medium
d3	14	4.93	Medium
e1	1	3.00	Very Low
e2	10	5.80	High
e3	14	6.36	High
f1	0	0.00	Not Ranked
f2	2	6.00	High
f3	3	3.00	Very Low
g1	31	4.06	Low
h1	22	5.64	Medium
i1	17	4.65	Medium
i2	12	5.83	High
j1	31	4.45	Low
j2	30	6.00	High
k1	30	5.23	Medium
k2	36	7.11	Very High
k3	4	5.00	Medium
Burn	9	7.78	Very High
NEC	13	4.31	Not Ranked
NLM	7	7.86	Very High

## 5.0 UNIQUE AND SENSITIVE SPECIES RICHNESS

Unique species are those species occurring only within a single ELC unit. These species are considered important, since significant area loss of one ELC unit could affect the distribution of bird species unique to that ELC unit. A total of 23 species in this study were unique to a single ELC unit. Of these species, seven are unique to the TLSA. Unique species were summarized ([Table I4-5](#)). Four federally listed and 18 provincially listed (ASRD 2010) species were documented in the TLSA including ([Table I4-5](#)).

Unique and sensitive species are important for the maintenance of species richness. They were summed and ranked, using the following criteria:

- Nil 0 species
- Very Low 1 to 2 species
- Low 3 to 4 species
- Medium 5 to 6 species
- High 7 to 8 species
- Very High 9 or more species

## 6.0 OVERALL RANKING OF BREEDING BIRD SPECIES RICHNESS

Overall breeding bird richness was ranked from low to high by summing the individual ranks for total richness ranking, mean richness ranking and unique and/or sensitive species ranking to produce a combined rank ([Table I4-6](#)). Ranking was done to allow quantitative comparison of the areas of breeding bird species richness classes, from baseline through Application Case. The ranking was determined by first converting each component rank to a numerical score. In this ranking, the scores given were: nil: 0, very low: 1, low: 2, medium: 3, high: 4 and very high: 5. Overall breeding bird richness was ranked, using the following criteria:

- Low total score 1 to 6
- Medium total score 7 to 10
- High total score 11 to 15

ELC units that occur within the TLSA but had no samples associated with them had final ranks estimated, with the criterion for this estimation provided in [Table I4-6](#). This only occurred for f1 ecosite phase. Only distinct ELC units were used in this analysis; that is no ecotones (e.g., NEC) were included.

## 7.0 DATA SUMMARY OF BREEDING BIRD CALL POINTS BY ELC UNIT

Data used to determine species richness rankings by ecosite phase are summarized in order of frequency of species observations in [Table I4-7](#).

**Table I4-5: Ranking of Unique and Sensitive Breeding Bird Species by ELC Unit**

ELC Unit	Sample Size	Unique Species <sup>1</sup>	No.	Sensitive Species <sup>1</sup>	Sample Size	Total Unique and Sensitive <sup>2</sup>	Ranking
a1	21	Common Nighthawk <sup>3,4</sup> Downy Woodpecker	2	Common Nighthawk	1	2	Very Low
b1	28		0	<b>Canada Warbler</b> <sup>3,4</sup> <b>Common Yellowthroat</b> <sup>4</sup> <b>Least Flycatcher</b> <sup>4</sup> Sora <sup>4</sup> Western Tanager <sup>4</sup>	5	5	Medium
b2	9		0	Cape May Warbler <sup>4</sup> Pileated Woodpecker <sup>4</sup>	2	2	Very Low
b3	12	Blackpoll Warbler Blue Jay	2	Black-Throated Green Warbler <sup>4</sup> <b>Cape May Warbler</b> Western Tanager	3	5	Medium
b4	6		0	Least Flycatcher Sandhill Crane <sup>4</sup>	2	2	Very Low
c1	26	Great Horned Owl	1	Black-throated Green Warbler <b>Least Flycatcher</b> Western Tanager Yellow-bellied Flycatcher <sup>4</sup>	4	5	Medium
d1	54	Black-capped Chickadee	1	<b>Canada Warbler</b> Cape May Warbler <b>Least Flycatcher</b> Western Tanager	4	5	Medium
d2	54	American Crow	1	Bay-breasted Warbler <sup>4</sup> Canada Warbler Cape May Warbler Least Flycatcher Pileated Woodpecker Western Tanager	6	7	High
d3	14		0	Cape May Warbler	1	1	Very Low
e1	1		0	Pileated Woodpecker	1	1	Very Low
e2	10	Tree Swallow	1	Bay-breasted Warbler Least Flycatcher Sora	3	4	Low
e3	14		0	Bay-breasted Warbler <b>Cape May Warbler</b> <b>Common Yellowthroat</b> Western Tanager Yellow-bellied Flycatcher	5	5	Medium
f1	0		0		0	0	Nil
f2	2		0	Least Flycatcher Western Tanager	2	2	Very Low
f3	3		0		0	0	Nil
g1	31		0	Black-backed Woodpecker <sup>4</sup> Black-throated Green Warbler Least Flycatcher Sora Yellow-bellied Flycatcher	5	5	Medium



ELC Unit	Sample Size	Unique Species <sup>1</sup>	No.	Sensitive Species <sup>1</sup>	Sample Size	Total Unique and Sensitive <sup>2</sup>	Ranking
h1	22		0	Canada Warbler <b>Cape May Warbler</b> Common Yellowthroat Least Flycatcher	4	4	Low
i1	17		0	Common Yellowthroat <b>Least Flycatcher</b>	2	2	Very Low
i2	12	Savannah Sparrow	1	Canada Warbler Least Flycatcher	2	3	Low
j1	31		0	Canada Warbler Cape May Warbler Common Yellowthroat <b>Least Flycatcher</b> Northern Harrier <sup>4</sup> Yellow-bellied Flycatcher	6	6	Medium
j2	30	Bohemian Waxwing Lesser Scaup <sup>4</sup> Ring-necked Duck	3	<b>Canada Warbler</b> Common Yellowthroat Lesser Scaup Sora	4	6	Medium
k1	30		0	Common Yellowthroat Rusty Blackbird <sup>3,4</sup> Sora Yellow-bellied Flycatcher	4	4	Low
k2	38	American Bittern Eastern Kingbird	2	American Bittern Canada Warbler <b>Common Yellowthroat</b> <b>Least Flycatcher</b> Northern Harrier Rusty Blackbird Sandhill Crane Sora Yellow-bellied Flycatcher	9	10	Very High
k3	4	<b>Solitary Sandpiper</b>	1	<b>Least Flycatcher</b> Sora	2	3	Low
Burn	2	<b>Pied-billed Grebe<sup>4</sup></b>	1	<b>Black-backed Woodpecker</b> <b>Common Yellowthroat</b> <b>Least Flycatcher</b> Pied-billed Grebe <b>Sandhill Crane</b>	5	5	Low
NEC	13	Great Gray Owl	1	Bay-breasted Warbler Black-backed Woodpecker Great Gray Owl Western Tanager	4	4	Not Ranked
NLM	7	<b>Lesser Yellowlegs</b> <b>American Wigeon</b> <b>Horned Grebe<sup>3,4</sup></b> <b>Mallard</b>	4	<b>Common Yellowthroat</b> <b>Horned Grebe</b> <b>Least Flycatcher</b>	3	6	Medium

<sup>1</sup> Species in bold were documented in the TLSA.

<sup>2</sup> Where the same species occurred in both lists it was counted only once.

<sup>3</sup> Species is federally listed SARA (2011) and/or COSEWIC (2011) (noted only on the first occurrence of the species in the table).

<sup>4</sup> Species is provincially listed under ASRD (2010) (noted only on the first occurrence of the species in the table).

**Table I4-6: Breeding Bird Species Richness Summary and Ranking<sup>1</sup>**

ELC Unit	Sample Size	Total Richness Rank	Mean Richness Rank	Unique and Sensitive Rank	Numeric Score	Combined Rank <sup>2</sup>	
a1	21	Medium	Low	Very Low	6	Low	
b1	28	High	Low	Medium	9	Medium	
b2	9	Low	Low	Very Low	5	Low	
b3	12	Medium	Medium	Medium	9	Medium	
b4	6	Low	Very Low	Very Low	4	Low	
c1	26	High	Medium	Medium	10	Medium	
d1	54	High	Low	Medium	9	Medium	
d2	54	High	Medium	High	11	High	
d3	14	Medium	Medium	Very Low	7	Low	
e1	1	Very Low	Very Low	Very Low	3	Low	
e2	10	Medium	High	Low	9	Medium	
e3	14	Medium	High	Medium	10	Medium	
f1	0	Based on most similar ELC unit (e1)					Low
f2	2	Low	High	Very Low	7	Medium	
f3	3	Very Low	Very Low	Nil	2	Low	
g1	31	Medium	Low	Medium	8	Medium	
h1	22	High	Medium	Low	9	Medium	
i1	17	Medium	Medium	Very Low	7	Medium	
i2	12	Medium	High	Low	9	Medium	
j1	31	Medium	Low	Medium	8	Medium	
j2	30	Very High	High	Medium	12	High	
k1	30	High	Medium	Low	9	Medium	
k2	36	Very High	Very High	Very High	15	High	
k3	4	Low	Medium	Low	7	Medium	
BURN	9	Medium	Very High	Low	10	Medium	
NLM	7	Medium	Very High	Medium	11	High	

<sup>1</sup> Rankings: nil = 0; very low = 1; low = 2; medium = 3; high = 4; very high = 5.

<sup>2</sup> Combined Rank; low total score 1 to 6; medium total score 7 to 10; high total score 11 to 15.

**Table I4-7: Breeding Bird Species Frequencies by ELC Unit**

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
a1	21 (4)	Chipping Sparrow	<i>Spizella passerina</i>	66.7 (75)
		Dark-eyed Junco	<i>Junco hyemalis</i>	57.1 (50)
		Tennessee Warbler	<i>Vermivora peregrina</i>	42.9 (25)
		Hermit Thrush	<i>Catharus guttatus</i>	42.9 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	38.1 (50)
		Gray Jay	<i>Perisoreus canadensis</i>	33.3 (50)
		Swainson's Thrush	<i>Catharus ustulatus</i>	23.8 (100)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	28.6 (75)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	19 (50)
		Ovenbird	<i>Seiurus aurocapillus</i>	9.5 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	9.5 (0)
		Alder Flycatcher	<i>Empidonax alnorum</i>	4.8 (25)
		Northern Flicker	<i>Colaptes auratus</i>	4.8 (25)
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	4.8 (25)
		Spotted Sandpiper	<i>Actitis macularia</i>	4.8 (25)
		Vesper Sparrow	<i>Poocetes gramineus</i>	4.8 (25)
		Black-and-white Warbler	<i>Mniotilta varia</i>	4.8 (0)
		<b>Common Nighthawk<sup>3,4</sup></b>	<b><i>Chordeiles minor<sup>3,4</sup></i></b>	<b>4.8 (0)</b>
		Common Snipe	<i>Gallinago gallinago</i>	4.8 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	4.8 (0)
		Downy Woodpecker	<i>Picoides pubescens</i>	4.8 (0)
Greater Yellowlegs	<i>Tringa melanoleuca</i>	4.8 (0)		
Red Crossbill	<i>Loxia curvirostra</i>	4.8 (0)		
Red-breasted Nuthatch	<i>Sitta canadensis</i>	4.8 (0)		
Red-eyed Vireo	<i>Vireo olivaceus</i>	4.8 (0)		
Wilson's Warbler	<i>Wilsonia pusilla</i>	4.8 (0)		
b1	28 (5)	Tennessee Warbler	<i>Vermivora peregrina</i>	60.7 (40)
		Ovenbird	<i>Seiurus aurocapillus</i>	46.4 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	42.9 (60)
		Hermit Thrush	<i>Catharus guttatus</i>	35.7 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	32.1 (20)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	25 (20)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	21.4 (60)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	21.4 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	14.3 (60)
		Boreal Chickadee	<i>Poecile hudsonica</i>	10.7 (0)
		Common Snipe	<i>Gallinago gallinago</i>	10.7 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	10.7 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	10.7 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>7.1 (40)</b>
		Dark-eyed Junco	<i>Junco hyemalis</i>	7.1 (20)
		Hairy Woodpecker	<i>Picoides villosus</i>	7.1 (20)
		<b>Olive-sided Flycatcher<sup>3,4</sup></b>	<b><i>Contopus cooperi<sup>3,4</sup></i></b>	<b>7.1 (20)</b>
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	7.1 (0)
		Alder Flycatcher	<i>Empidonax alnorum</i>	3.6 (20)
		American Robin	<i>Turdus migratorius</i>	3.6 (20)
		Blue-headed Vireo	<i>Vireo solitarius</i>	3.6 (20)
<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>	<b>3.6 (20)</b>		

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
b1 (cont'd)	28 (5) (cont'd)	<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>3.6 (20)</b>
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	3.6 (20)
		Common Loon	<i>Gavia immer</i>	3.6 (0)
		Magnolia Warbler	<i>Dendroica magnolia</i>	3.6 (0)
		<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>3.6 (0)</b>
		Warbling Vireo	<i>Vireo gilvus</i>	3.6 (0)
		<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>3.6 (0)</b>
		Wilson's Warbler	<i>Wilsonia pusilla</i>	3.6 (0)
b2	9 (1)	Ovenbird	<i>Seiurus aurocapillus</i>	77.8 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	88.9 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	44.4 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	33.3 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	22.2 (0)
		Alder Flycatcher	<i>Empidonax alorum</i>	11.1 (0)
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>11.1 (0)</b>
		Chipping Sparrow	<i>Spizella passerina</i>	11.1 (0)
		Common Loon	<i>Gavia immer</i>	11.1 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	11.1 (0)
		<b>Pileated Woodpecker<sup>4</sup></b>	<b><i>Dryocopus pileatus<sup>4</sup></i></b>	<b>11.1 (0)</b>
		Ruffed Grouse	<i>Bonasa umbellus</i>	11.1 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	11.1 (0)
White-throated Sparrow	<i>Zonotrichia albicollis</i>	11.1 (0)		
b3	12 (0)	Ovenbird	<i>Seiurus aurocapillus</i>	91.7 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	75 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	41.7 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	33.3 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	33.3 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	33.3 (0)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	33.3 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	16.7 (0)
		Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	16.7 (0)
		Blackpoll Warbler	<i>Dendroica striata</i>	8.3 (0)
		<b>Black-throated Green Warbler<sup>4</sup></b>	<b><i>Dendroica virens<sup>4</sup></i></b>	<b>8.3 (0)</b>
		Blue Jay	<i>Cyanocitta cristata</i>	8.3 (0)
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>8.3 (0)</b>
		Cedar Waxwing	<i>Bombycilla cedrorum</i>	8.3 (0)
		Common Loon	<i>Gavia immer</i>	8.3 (0)
		Common Snipe	<i>Gallinago gallinago</i>	8.3 (0)
		Greater Yellowlegs	<i>Tringa melanoleuca</i>	8.3 (0)
		Lincoln's Sparrow	<i>Melospiza lincolnii</i>	8.3 (0)
		Northern Flicker	<i>Colaptes auratus</i>	8.3 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	8.3 (0)
<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>8.3 (0)</b>		
Yellow-rumped Warbler	<i>Dendroica coronata</i>	8.3 (0)		
b4	6 (0)	Tennessee Warbler	<i>Vermivora peregrina</i>	66.7 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	50 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	50 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	33.3 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	33.3 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	16.7 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	16.7 (0)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
b4 (cont'd)	6 (0) (cont'd)	<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>16.7 (0)</b>
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	16.7 (0)
		<b>Sandhill Crane<sup>4</sup></b>	<b><i>Grus canadensis<sup>4</sup></i></b>	<b>16.7 (0)</b>
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	16.7 (0)
c1	26 (2)	Ruby-crowned Kinglet	<i>Regulus calendula</i>	80.8 (100)
		Tennessee Warbler	<i>Vermivora peregrina</i>	76.9 (100)
		Ovenbird	<i>Seiurus aurocapillus</i>	46.2 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	34.6 (50)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	34.6 (50)
		Hermit Thrush	<i>Catharus guttatus</i>	34.6 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	30.8 (0)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	26.9 (50)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>23.1 (50)</b>
		Gray Jay	<i>Perisoreus canadensis</i>	19.2 (50)
		Swainson's Thrush	<i>Catharus ustulatus</i>	15.4 (50)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	11.5 (0)
		Blue-headed Vireo	<i>Vireo solitarius</i>	7.7 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	7.7 (0)
		Magnolia Warbler	<i>Dendroica magnolia</i>	7.7 (0)
		Winter Wren	<i>Troglodytes troglodytes</i>	7.7 (0)
		<b>Yellow-bellied Flycatcher<sup>4</sup></b>	<b><i>Empidonax flaviventris<sup>4</sup></i></b>	<b>7.7 (0)</b>
		Yellow Warbler	<i>Dendroica petechia</i>	3.8 (50)
		Alder Flycatcher	<i>Empidonax alnorum</i>	3.8 (0)
		<b>Black-throated Green Warbler<sup>4</sup></b>	<b><i>Dendroica virens<sup>4</sup></i></b>	<b>3.8 (0)</b>
		Great Horned Owl	<i>Bubo virginianus</i>	3.8 (0)
		Greater Yellowlegs	<i>Tringa melanoleuca</i>	3.8 (0)
		Northern Flicker	<i>Colaptes auratus</i>	3.8 (0)
		Orange-crowned Warbler	<i>Vermivora celata</i>	3.8 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	3.8 (0)
		Pine Siskin	<i>Carduelis pinus</i>	3.8 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	3.8 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	3.8 (0)
		Spotted Sandpiper	<i>Actitis macularia</i>	3.8 (0)
		<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>3.8 (0)</b>
Wilson's Warbler	<i>Wilsonia pusilla</i>	3.8 (0)		
Woodpecker species	<i>Woodpecker species</i>	3.8 (0)		
d1	54 (6)	Ovenbird	<i>Seiurus aurocapillus</i>	88.9 (66.7)
		Tennessee Warbler	<i>Vermivora peregrina</i>	79.6 (83.3)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	37 (50)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	33.3 (50)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	25.9 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	24.1 (50)
		Hermit Thrush	<i>Catharus guttatus</i>	24.1 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>16.7 (50)</b>
		Gray Jay	<i>Perisoreus canadensis</i>	11.1 (33.3)
		Black-and-white Warbler	<i>Mniotilta varia</i>	11.1 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	9.3 (50)
		Winter Wren	<i>Troglodytes troglodytes</i>	9.3 (50)
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	9.3 (33.3)
		Ruffed Grouse	<i>Bonasa umbellus</i>	9.3 (16.7)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	5.6 (16.7)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
d1 (cont'd)	54 (6) (cont'd)	Blue-headed Vireo	<i>Vireo solitarius</i>	5.6 (0)
		Hairy Woodpecker	<i>Picoides villosus</i>	3.7 (0)
		Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	3.7 (0)
		Boreal Chickadee	<i>Poecile hudsonica</i>	1.9 (16.7)
		<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>	<b>1.9 (16.7)</b>
		American Robin	<i>Turdus migratorius</i>	1.9 (0)
		Black-capped Chickadee	<i>Poecile atricapilla</i>	1.9 (0)
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>1.9 (0)</b>
		Common Raven	<i>Corvus corax</i>	1.9 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	1.9 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	1.9 (0)
		Northern Flicker	<i>Colaptes auratus</i>	1.9 (0)
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	1.9 (0)
		Red Crossbill	<i>Loxia curvirostra</i>	1.9 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	1.9 (0)
		Swamp Sparrow	<i>Melospiza georgiana</i>	1.9 (0)
		<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>1.9 (0)</b>
d2	54 (1)	Ovenbird	<i>Seiurus aurocapillus</i>	81.5 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	81.5 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	44.4 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	38.9 (100)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	22.2 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	20.4 (100)
		Chipping Sparrow	<i>Spizella passerina</i>	20.4 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	18.5 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	18.5 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	14.8 (0)
		American Robin	<i>Turdus migratorius</i>	9.3 (0)
		Blue-headed Vireo	<i>Vireo solitarius</i>	9.3 (0)
		Golden-crowned Kinglet	<i>Regulus satrapa</i>	9.3 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>9.3 (0)</b>
		Spotted Sandpiper	<i>Actitis macularia</i>	7.4 (0)
		<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>7.4 (0)</b>
		Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	5.6 (100)
		Boreal Chickadee	<i>Poecile hudsonica</i>	5.6 (0)
		Common Snipe	<i>Gallinago gallinago</i>	5.6 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	5.6 (0)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	5.6 (0)
		<b>Bay-breasted Warbler<sup>4</sup></b>	<b><i>Dendroica castanea<sup>4</sup></i></b>	<b>3.7 (0)</b>
		Black-and-white Warbler	<i>Mniotilta varia</i>	3.7 (0)
		<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>	<b>3.7 (0)</b>
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>3.7 (0)</b>
		Dark-eyed Junco	<i>Junco hyemalis</i>	3.7 (0)
		Northern Flicker	<i>Colaptes auratus</i>	3.7 (0)
		<b>Pileated Woodpecker<sup>4</sup></b>	<b><i>Dryocopus pileatus<sup>4</sup></i></b>	<b>3.7 (0)</b>
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	3.7 (0)
		Winter Wren	<i>Troglodytes troglodytes</i>	3.7 (0)
		Yellow Warbler	<i>Dendroica petechia</i>	3.7 (0)
		American Crow	<i>Corvus brachyrhynchos</i>	1.9 (0)
		Cedar Waxwing	<i>Bombycilla cedrorum</i>	1.9 (0)
		Common Loon	<i>Gavia immer</i>	1.9 (0)
		Orange-crowned Warbler	<i>Vermivora celata</i>	1.9 (0)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
d2 (cont'd)	54 (1) (cont'd)	Philadelphia Vireo	<i>Vireo philadelphicus</i>	1.9 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	1.9 (0)
		Swamp Sparrow	<i>Melospiza georgiana</i>	1.9 (0)
		White-winged Crossbill	<i>Loxia leucoptera</i>	1.9 (0)
d3	14 (0)	Tennessee Warbler	<i>Vermivora peregrina</i>	100 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	50 (0)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	50 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	42.9 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	28.6 (0)
		Alder Flycatcher	<i>Empidonax alnorum</i>	21.4 (0)
		Golden-crowned Kinglet	<i>Regulus satrapa</i>	21.4 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	21.4 (0)
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>14.3 (0)</b>
		Chipping Sparrow	<i>Spizella passerina</i>	14.3 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	14.3 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	14.3 (0)
		Magnolia Warbler	<i>Dendroica magnolia</i>	14.3 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	14.3 (0)
		Black-and-white Warbler	<i>Mniotilta varia</i>	7.1 (0)
		Common Raven	<i>Corvus corax</i>	7.1 (0)
		Lincoln's Sparrow	<i>Melospiza lincolni</i>	7.1 (0)
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>7.1 (0)</b>
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	7.1 (0)
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	7.1 (0)
		Spotted Sandpiper	<i>Actitis macularia</i>	7.1 (0)
		Wilson's Warbler	<i>Wilsonia pusilla</i>	7.1 (0)
		Winter Wren	<i>Troglodytes troglodytes</i>	7.1 (0)
Yellow-rumped Warbler	<i>Dendroica coronata</i>	7.1 (0)		
e1	1 (0)	Ovenbird	<i>Seiurus aurocapillus</i>	100 (0)
		<b>Pileated Woodpecker<sup>4</sup></b>	<b><i>Dryocopus pileatus<sup>4</sup></i></b>	<b>100 (0)</b>
		Ruffed Grouse	<i>Bonasa umbellus</i>	100 (0)
e2	10 (0)	Tennessee Warbler	<i>Vermivora peregrina</i>	100 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	80 (0)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	60 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	40 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>40 (0)</b>
		Swainson's Thrush	<i>Catharus ustulatus</i>	40 (0)
		Black-and-white Warbler	<i>Mniotilta varia</i>	30 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	30 (0)
		Warbling Vireo	<i>Vireo gilvus</i>	30 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	20 (0)
		American Robin	<i>Turdus migratorius</i>	10 (0)
		<b>Bay-breasted Warbler<sup>4</sup></b>	<b><i>Dendroica castanea<sup>4</sup></i></b>	<b>10 (0)</b>
		Connecticut Warbler	<i>Oporornis agilis</i>	10 (0)
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	10 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	10 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	10 (0)
		<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>10 (0)</b>
		Tree Swallow	<i>Tachycineta bicolor</i>	10 (0)
		Wilson's Warbler	<i>Wilsonia pusilla</i>	10 (0)
		Yellow Warbler	<i>Dendroica petechia</i>	10 (0)
Yellow-rumped Warbler	<i>Dendroica coronata</i>	10 (0)		

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
e3	14 (1)	Tennessee Warbler	<i>Vermivora peregrina</i>	92.9 (100)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	57.1 (100)
		Chipping Sparrow	<i>Spizella passerina</i>	50 (100)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	50 (100)
		Swainson's Thrush	<i>Catharus ustulatus</i>	35.7 (100)
		Golden-crowned Kinglet	<i>Regulus satrapa</i>	35.7 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	28.6 (100)
		Hermit Thrush	<i>Catharus guttatus</i>	28.6 (0)
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>21.4 (100)</b>
		Winter Wren	<i>Troglodytes troglodytes</i>	21.4 (100)
		<b>Bay-breasted Warbler<sup>4</sup></b>	<b><i>Dendroica castanea<sup>4</sup></i></b>	<b>21.4 (0)</b>
		Boreal Chickadee	<i>Poecile hudsonica</i>	21.4 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	21.4 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	21.4 (0)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>14.3 (100)</b>
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	14.3 (100)
		Alder Flycatcher	<i>Empidonax alnorum</i>	14.3 (0)
		Black-and-white Warbler	<i>Mniotilta varia</i>	14.3 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	14.3 (0)
		American Robin	<i>Turdus migratorius</i>	7.1 (0)
		Blue-headed Vireo	<i>Vireo solitarius</i>	7.1 (0)
		Clay-colored Sparrow	<i>Spizella pallida</i>	7.1 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	7.1 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	7.1 (0)
		Spotted Sandpiper	<i>Actitis macularia</i>	7.1 (0)
		<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>7.1 (0)</b>
<b>Yellow-bellied Flycatcher<sup>4</sup></b>	<b><i>Empidonax flaviventris<sup>4</sup></i></b>	<b>7.1 (0)</b>		
f2	2 (0)	Ruby-crowned Kinglet	<i>Regulus calendula</i>	100 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	100 (0)
		Boreal Chickadee	<i>Poecile hudsonica</i>	50 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	50 (0)
		Golden-crowned Kinglet	<i>Regulus satrapa</i>	50 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>50 (0)</b>
		Red-eyed Vireo	<i>Vireo olivaceus</i>	50 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	50 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	50 (0)
		<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>	<b>50 (0)</b>
f3	3 (1)	Gray Jay	<i>Perisoreus canadensis</i>	66.7 (100)
		Dark-eyed Junco	<i>Junco hyemalis</i>	66.7 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	66.7 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	33.3 (100)
		Boreal Chickadee	<i>Poecile hudsonica</i>	33.3 (0)
		Ruffed Grouse	<i>Bonasa umbellus</i>	33.3 (0)
g1	31 (0)	Ruby-crowned Kinglet	<i>Regulus calendula</i>	77.4 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	71 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	32.3 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	32.3 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	25.8 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	25.8 (0)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	22.6 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	19.4 (0)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	16.1 (0)



ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
g1 (cont'd)	31 (0) (cont'd)	Boreal Chickadee	<i>Poecile hudsonica</i>	9.7 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>9.7 (0)</b>
		Alder Flycatcher	<i>Empidonax alnorum</i>	6.5 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	6.5 (0)
		<b>Yellow-bellied Flycatcher<sup>4</sup></b>	<b><i>Empidonax flaviventris<sup>4</sup></i></b>	<b>6.5 (0)</b>
		American Robin	<i>Turdus migratorius</i>	3.2 (0)
		<b>Black-backed Woodpecker<sup>4</sup></b>	<b><i>Picoides arcticus<sup>4</sup></i></b>	<b>3.2 (0)</b>
		<b>Black-throated Green Warbler<sup>4</sup></b>	<b><i>Dendroica virens<sup>4</sup></i></b>	<b>3.2 (0)</b>
		Clay-colored Sparrow	<i>Spizella pallida</i>	3.2 (0)
		Common Raven	<i>Corvus corax</i>	3.2 (0)
		Common Snipe	<i>Gallinago gallinago</i>	3.2 (0)
		Hairy Woodpecker	<i>Picoides villosus</i>	3.2 (0)
		Orange-crowned Warbler	<i>Vermivora celata</i>	3.2 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	3.2 (0)
		Pine Siskin	<i>Carduelis pinus</i>	3.2 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	3.2 (0)
		<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>3.2 (0)</b>
		Spotted Sandpiper	<i>Actitis macularia</i>	3.2 (0)
		<b>Western Wood-Pewee<sup>4</sup></b>	<b><i>Contopus sordidulus<sup>4</sup></i></b>	<b>3.2 (0)</b>
		h1	22 (2)	Tennessee Warbler
Swainson's Thrush	<i>Catharus ustulatus</i>			68.2 (100)
Ruby-crowned Kinglet	<i>Regulus calendula</i>			45.5 (0)
White-throated Sparrow	<i>Zonotrichia albicollis</i>			45.5 (0)
Chipping Sparrow	<i>Spizella passerina</i>			27.3 (0)
Winter Wren	<i>Troglodytes troglodytes</i>			22.7 (50)
Ovenbird	<i>Seiurus aurocapillus</i>			22.7 (0)
Alder Flycatcher	<i>Empidonax alnorum</i>			18.2 (0)
Dark-eyed Junco	<i>Junco hyemalis</i>			18.2 (0)
Gray Jay	<i>Perisoreus canadensis</i>			18.2 (0)
Hermit Thrush	<i>Catharus guttatus</i>			18.2 (0)
Connecticut Warbler	<i>Oporornis agilis</i>			13.6 (0)
Spotted Sandpiper	<i>Actitis macularia</i>			13.6 (0)
<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>			<b>9.1 (100)</b>
Yellow-rumped Warbler	<i>Dendroica coronata</i>			9.1 (50)
Boreal Chickadee	<i>Poecile hudsonica</i>			9.1 (0)
Clay-colored Sparrow	<i>Spizella pallida</i>			9.1 (0)
<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>			<b>9.1 (0)</b>
Golden-crowned Kinglet	<i>Regulus satrapa</i>			9.1 (0)
Hairy Woodpecker	<i>Picoides villosus</i>			9.1 (0)
<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>			<b>9.1 (0)</b>
Magnolia Warbler	<i>Dendroica magnolia</i>			9.1 (0)
Red-breasted Nuthatch	<i>Sitta canadensis</i>			9.1 (0)
Red-eyed Vireo	<i>Vireo olivaceus</i>			9.1 (0)
American Robin	<i>Turdus migratorius</i>			4.5 (0)
Black-and-white Warbler	<i>Mniotilta varia</i>			4.5 (0)
<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>			<b>4.5 (0)</b>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>			4.5 (0)
Northern Flicker	<i>Colaptes auratus</i>			4.5 (0)
<b>Olive-sided Flycatcher<sup>3,4</sup></b>	<b><i>Contopus cooperi<sup>3,4</sup></i></b>			<b>4.5 (0)</b>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>			4.5 (0)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
i1	17 (2)	Ruby-crowned Kinglet	<i>Regulus calendula</i>	70.6 (100)
		Chipping Sparrow	<i>Spizella passerina</i>	58.8 (50)
		Dark-eyed Junco	<i>Junco hyemalis</i>	52.9 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	47.1 (0)
		Tennessee Warbler	<i>Vermivora peregrina</i>	47.1 (0)
		Swainson's Thrush	<i>Catharus ustulatus</i>	29.4 (50)
		Gray Jay	<i>Perisoreus canadensis</i>	29.4 (0)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	17.6 (50)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>11.8 (50)</b>
		Spotted Sandpiper	<i>Actitis macularia</i>	11.8 (50)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	11.8 (50)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>11.8 (0)</b>
		Ovenbird	<i>Seiurus aurocapillus</i>	11.8 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	5.9 (50)
		Winter Wren	<i>Troglodytes troglodytes</i>	5.9 (50)
		Alder Flycatcher	<i>Empidonax alnorum</i>	5.9 (0)
		Blue-headed Vireo	<i>Vireo solitarius</i>	5.9 (0)
		Magnolia Warbler	<i>Dendroica magnolia</i>	5.9 (0)
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>5.9 (0)</b>
		Orange-crowned Warbler	<i>Vermivora celata</i>	5.9 (0)
Song Sparrow	<i>Melospiza melodia</i>	5.9 (0)		
Swamp Sparrow	<i>Melospiza georgiana</i>	5.9 (0)		
i2	12 (0)	Tennessee Warbler	<i>Vermivora peregrina</i>	91.7 (0)
		Dark-eyed Junco	<i>Junco hyemalis</i>	75 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	50 (0)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	50 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	41.7 (0)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	41.7 (0)
		Spotted Sandpiper	<i>Actitis macularia</i>	41.7 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	33.3 (0)
		Alder Flycatcher	<i>Empidonax alnorum</i>	16.7 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	16.7 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	16.7 (0)
		Pine Siskin	<i>Carduelis pinus</i>	16.7 (0)
		Yellow Warbler	<i>Dendroica petechia</i>	16.7 (0)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	16.7 (0)
		<b>Canada Warbler<sup>3, 4</sup></b>	<b><i>Wilsonia canadensis<sup>3, 4</sup></i></b>	<b>8.3 (0)</b>
		Common Loon	<i>Gavia immer</i>	8.3 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>8.3 (0)</b>
		Lincoln's Sparrow	<i>Melospiza lincolni</i>	8.3 (0)
		Mourning Warbler	<i>Oporornis philadelphia</i>	8.3 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	8.3 (0)
Savannah Sparrow	<i>Passerculus sandwichensis</i>	8.3 (0)		
j1	31 (5)	Ruby-crowned Kinglet	<i>Regulus calendula</i>	61.3 (40)
		Tennessee Warbler	<i>Vermivora peregrina</i>	48.4 (40)
		Dark-eyed Junco	<i>Junco hyemalis</i>	48.4 (20)
		Chipping Sparrow	<i>Spizella passerina</i>	41.9 (60)
		Gray Jay	<i>Perisoreus canadensis</i>	32.3 (20)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	29 (20)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	22.6 (60)
		Swainson's Thrush	<i>Catharus ustulatus</i>	22.6 (20)
		Boreal Chickadee	<i>Poecile hudsonica</i>	19.4 (0)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
j1 (cont'd)	31 (5) (cont'd)	Greater Yellowlegs	<i>Tringa melanoleuca</i>	12.9 (0)
		Winter Wren	<i>Troglodytes troglodytes</i>	12.9 (0)
		<b>Yellow-bellied Flycatcher<sup>4</sup></b>	<b><i>Empidonax flaviventris<sup>4</sup></i></b>	<b>12.9 (0)</b>
		Alder Flycatcher	<i>Empidonax alnorum</i>	9.7 (20)
		<b>Cape May Warbler<sup>4</sup></b>	<b><i>Dendroica tigrina<sup>4</sup></i></b>	<b>9.7 (0)</b>
		Palm Warbler	<i>Dendroica palmarum</i>	9.7 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	6.5 (20)
		Hermit Thrush	<i>Catharus guttatus</i>	6.5 (0)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>3.2 (20)</b>
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	3.2 (20)
		<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>	<b>3.2 (0)</b>
		Common Loon	<i>Gavia immer</i>	3.2 (0)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>3.2 (0)</b>
		Golden-crowned Kinglet	<i>Regulus satrapa</i>	3.2 (0)
		Hairy Woodpecker	<i>Picoides villosus</i>	3.2 (0)
		<b>Northern Harrier<sup>4</sup></b>	<b><i>Circus cyaneus<sup>4</sup></i></b>	<b>3.2 (0)</b>
		Red-eyed Vireo	<i>Vireo olivaceus</i>	3.2 (0)
		Spotted Sandpiper	<i>Actitis macularia</i>	3.2 (0)
		White-winged Crossbill	<i>Loxia leucoptera</i>	3.2 (0)
Yellow Warbler	<i>Dendroica petechia</i>	3.2 (0)		
j2	30 (2)	Tennessee Warbler	<i>Vermivora peregrina</i>	73.3 (100)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	73.3 (50)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	60 (100)
		Chipping Sparrow	<i>Spizella passerina</i>	53.3 (150)
		Dark-eyed Junco	<i>Junco hyemalis</i>	43.3 (50)
		Alder Flycatcher	<i>Empidonax alnorum</i>	33.3 (0)
		Gray Jay	<i>Perisoreus canadensis</i>	26.7 (100)
		Swainson's Thrush	<i>Catharus ustulatus</i>	23.3 (50)
		Hermit Thrush	<i>Catharus guttatus</i>	23.3 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	20 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	16.7 (0)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	10 (50)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	10 (0)
		Spotted Sandpiper	<i>Actitis macularia</i>	10 (0)
		Swamp Sparrow	<i>Melospiza georgiana</i>	10 (0)
		Yellow Warbler	<i>Dendroica petechia</i>	10 (0)
		<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>	<b>6.7 (50)</b>
		Connecticut Warbler	<i>Oporornis agilis</i>	6.7 (50)
		Boreal Chickadee	<i>Poecile hudsonica</i>	6.7 (0)
		Greater Yellowlegs	<i>Tringa melanoleuca</i>	6.7 (0)
		Lincoln's Sparrow	<i>Melospiza lincolnii</i>	6.7 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	6.7 (0)
		Wilson's Warbler	<i>Wilsonia pusilla</i>	6.7 (0)
		Blue-headed Vireo	<i>Vireo solitarius</i>	3.3 (0)
		Bohemian Waxwing	<i>Bombycilla garrulus</i>	3.3 (0)
		Bonaparte's Gull	<i>Larus philadelphia</i>	3.3 (0)
		Bufflehead	<i>Bucephala albeola</i>	3.3 (0)
		Common Snipe	<i>Gallinago gallinago</i>	3.3 (0)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>3.3 (0)</b>
		Golden-crowned Kinglet	<i>Regulus satrapa</i>	3.3 (0)
		<b>Lesser Scaup<sup>4</sup></b>	<b><i>Aythya affinis<sup>4</sup></i></b>	<b>3.3 (0)</b>
		Magnolia Warbler	<i>Dendroica magnolia</i>	3.3 (0)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
j2 (cont'd)	30 (2) (cont'd)	Mourning Warbler	<i>Oporornis philadelphia</i>	3.3 (0)
		Northern Flicker	<i>Colaptes auratus</i>	3.3 (0)
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>3.3 (0)</b>
		Ring-necked Duck	<i>Aythya collaris</i>	3.3 (0)
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	3.3 (0)
		<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>3.3 (0)</b>
		Warbling Vireo	<i>Vireo gilvus</i>	3.3 (0)
		Woodpecker species	<i>Woodpecker species</i>	3.3 (0)
k1	30 (3)	Tennessee Warbler	<i>Vermivora peregrina</i>	73.3 (33.3)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	56.7 (100)
		Chipping Sparrow	<i>Spizella passerina</i>	43.3 (100)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	36.7 (33.3)
		Gray Jay	<i>Perisoreus canadensis</i>	26.7 (33.3)
		Swainson's Thrush	<i>Catharus ustulatus</i>	26.7 (0)
		Greater Yellowlegs	<i>Tringa melanoleuca</i>	20 (33.3)
		Dark-eyed Junco	<i>Junco hyemalis</i>	20 (0)
		Palm Warbler	<i>Dendroica palmarum</i>	20 (0)
		Common Snipe	<i>Gallinago gallinago</i>	16.7 (33.3)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	16.7 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	13.3 (66.7)
		Alder Flycatcher	<i>Empidonax alnorum</i>	13.3 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	13.3 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	13.3 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	13.3 (0)
		<b>Yellow-bellied Flycatcher<sup>4</sup></b>	<b><i>Empidonax flaviventris<sup>4</sup></i></b>	<b>13.3 (0)</b>
		Lincoln's Sparrow	<i>Melospiza lincolni</i>	10 (33.3)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>10 (0)</b>
		Clay-colored Sparrow	<i>Spizella pallida</i>	6.7 (33.3)
		Winter Wren	<i>Troglodytes troglodytes</i>	6.7 (33.3)
		Blue-headed Vireo	<i>Vireo solitarius</i>	6.7 (0)
		Boreal Chickadee	<i>Poecile hudsonica</i>	6.7 (0)
		<b>Rusty Blackbird<sup>3, 4</sup></b>	<b><i>Euphagus carolinus<sup>3, 4</sup></i></b>	<b>6.7 (0)</b>
		American Robin	<i>Turdus migratorius</i>	3.3 (0)
		Black-and-white Warbler	<i>Mniotilta varia</i>	3.3 (0)
		Bonaparte's Gull	<i>Larus philadelphia</i>	3.3 (0)
		Magnolia Warbler	<i>Dendroica magnolia</i>	3.3 (0)
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>3.3 (0)</b>
		Ruffed Grouse	<i>Bonasa umbellus</i>	3.3 (0)
		Song Sparrow	<i>Melospiza melodia</i>	3.3 (0)
		<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>3.3 (0)</b>
		<b>Western Wood-Pewee<sup>4</sup></b>	<b><i>Contopus sordidulus<sup>4</sup></i></b>	<b>3.3 (0)</b>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	3.3 (0)		
k2	38 (6)	Tennessee Warbler	<i>Vermivora peregrina</i>	83.3 (75)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	63.9 (100)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	55.6 (100)
		Alder Flycatcher	<i>Empidonax alnorum</i>	55.6 (75)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>36.1 (50)</b>
		Dark-eyed Junco	<i>Junco hyemalis</i>	33.3 (25)
		Swainson's Thrush	<i>Catharus ustulatus</i>	33.3 (0)
		Chipping Sparrow	<i>Spizella passerina</i>	30.6 (50)
		Gray Jay	<i>Perisoreus canadensis</i>	22.2 (25)
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>13.9 (25)</b>

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
k2 (cont'd)	38 (6) (cont'd)	Black-and-white Warbler	<i>Mniotilta varia</i>	11.1 (25)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>11.1 (25)</b>
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	11.1 (50)
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	11.1 (75)
		Blue-headed Vireo	<i>Vireo solitarius</i>	19.4 (0)
		Common Snipe	<i>Gallinago gallinago</i>	16.7 (0)
		Swamp Sparrow	<i>Melospiza georgiana</i>	16.7 (0)
		Hermit Thrush	<i>Catharus guttatus</i>	13.9 (0)
		Mourning Warbler	<i>Oporornis philadelphia</i>	13.9 (0)
		Red-eyed Vireo	<i>Vireo olivaceus</i>	13.9 (0)
		Yellow Warbler	<i>Dendroica petechia</i>	13.9 (0)
		Connecticut Warbler	<i>Oporornis agilis</i>	11.1 (0)
		Greater Yellowlegs	<i>Tringa melanoleuca</i>	11.1 (0)
		<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>11.1 (0)</b>
		Boreal Chickadee	<i>Poecile hudsonica</i>	8.3 (0)
		<b>Canada Warbler<sup>3,4</sup></b>	<b><i>Wilsonia canadensis<sup>3,4</sup></i></b>	<b>8.3 (0)</b>
		Palm Warbler	<i>Dendroica palmarum</i>	8.3 (0)
		Le Conte's Sparrow	<i>Ammodramus leconteii</i>	5.6 (0)
		Lincoln's Sparrow	<i>Melospiza lincolnii</i>	5.6 (0)
		Ovenbird	<i>Seiurus aurocapillus</i>	5.6 (0)
		<b>Sandhill Crane<sup>4</sup></b>	<b><i>Grus canadensis<sup>4</sup></i></b>	<b>5.6 (0)</b>
		Spotted Sandpiper	<i>Actitis macularia</i>	5.6 (0)
		Winter Wren	<i>Troglodytes troglodytes</i>	5.6 (0)
		American Robin	<i>Turdus migratorius</i>	2.8 (25)
		<b>Western Wood-Pewee<sup>4</sup></b>	<b><i>Contopus sordidulus<sup>4</sup></i></b>	<b>2.8 (25)</b>
		<b>American Bittern<sup>4</sup></b>	<b><i>Botaurus lentiginosus<sup>4</sup></i></b>	<b>2.8 (0)</b>
		Bonaparte's Gull	<i>Larus philadelphia</i>	2.8 (0)
		Clay-colored Sparrow	<i>Spizella pallida</i>	2.8 (0)
		Eastern Kingbird	<i>Tyrannus tyrannus</i>	2.8 (0)
		Northern Flicker	<i>Colaptes auratus</i>	2.8 (0)
		<b>Northern Harrier<sup>4</sup></b>	<b><i>Circus cyaneus<sup>4</sup></i></b>	<b>2.8 (0)</b>
		Philadelphia Vireo	<i>Vireo philadelphicus</i>	2.8 (0)
		Pine Siskin	<i>Carduelis pinus</i>	2.8 (0)
		Red-breasted Nuthatch	<i>Sitta canadensis</i>	2.8 (0)
<b>Rusty Blackbird<sup>3,4</sup></b>	<b><i>Euphagus carolinus<sup>3,4</sup></i></b>	<b>2.8 (0)</b>		
Vesper Sparrow	<i>Pooecetes gramineus</i>	2.8 (0)		
<b>Yellow-bellied Flycatcher<sup>4</sup></b>	<b><i>Empidonax flaviventris<sup>4</sup></i></b>	<b>2.8 (0)</b>		
k3	4 (2)	Chipping Sparrow	<i>Spizella passerina</i>	50 (100)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	50 (100)
		Alder Flycatcher	<i>Empidonax alorum</i>	50 (50)
		Common Snipe	<i>Gallinago gallinago</i>	50 (50)
		Dark-eyed Junco	<i>Junco hyemalis</i>	25 (50)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>25 (50)</b>
		Mourning Warbler	<i>Oporornis philadelphia</i>	25 (50)
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	25 (50)
		<b>Olive-sided Flycatcher<sup>3,4</sup></b>	<b><i>Contopus cooperi<sup>3,4</sup></i></b>	<b>25 (50)</b>
		Solitary Sandpiper	<i>Tringa solitaria</i>	25 (50)
		Swainson's Thrush	<i>Catharus ustulatus</i>	25 (50)
		Tennessee Warbler	<i>Vermivora peregrina</i>	25 (50)
		White-throated Sparrow	<i>Zonotrichia albicollis</i>	25 (50)
		Palm Warbler	<i>Dendroica palmarum</i>	25 (0)

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
k3 (cont'd)	4 (2) (cont'd)	<b>Sora<sup>4</sup></b>	<b><i>Porzana carolina<sup>4</sup></i></b>	<b>25 (0)</b>
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	25 (0)
Burn	9 (9)	White-throated Sparrow	<i>Zonotrichia albicollis</i>	100 (100)
		Chipping Sparrow	<i>Spizella passerina</i>	77.8 (77.8)
		Swainson's Thrush	<i>Catharus ustulatus</i>	77.8 (77.8)
		Alder Flycatcher	<i>Empidonax alhorum</i>	55.6 (55.6)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	55.6 (55.6)
		Gray Jay	<i>Perisoreus canadensis</i>	44.4 (44.4)
		Spotted Sandpiper	<i>Actitis macularia</i>	44.4 (44.4)
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>33.3 (33.3)</b>
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	33.3 (33.3)
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>22.2 (22.2)</b>
		Red-winged Blackbird	<i>Agelaius phoeniceus</i>	22.2 (22.2)
		Tennessee Warbler	<i>Vermivora peregrina</i>	22.2 (22.2)
		American Robin	<i>Turdus migratorius</i>	11.1 (11.1)
		<b>Black-backed Woodpecker<sup>4</sup></b>	<b><i>Picoides arcticus<sup>4</sup></i></b>	<b>11.1 (11.1)</b>
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>11.1 (11.1)</b>
		Connecticut Warbler	<i>Oporornis agilis</i>	11.1 (11.1)
		Dark-eyed Junco	<i>Junco hyemalis</i>	11.1 (11.1)
		Lincoln's Sparrow	<i>Melospiza lincolni</i>	11.1 (11.1)
		Mourning Warbler	<i>Oporornis philadelphia</i>	11.1 (11.1)
		Northern Flicker	<i>Colaptes auratus</i>	11.1 (11.1)
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	11.1 (11.1)
		<b>Pied-billed Grebe<sup>4</sup></b>	<b><i>Podilymbus podiceps<sup>4</sup></i></b>	<b>11.1 (11.1)</b>
		Red-eyed Vireo	<i>Vireo olivaceus</i>	11.1 (11.1)
		Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	11.1 (11.1)
		<b>Sandhill Crane<sup>4</sup></b>	<b><i>Grus canadensis<sup>4</sup></i></b>	<b>11.1 (11.1)</b>
		Song Sparrow	<i>Melospiza melodia</i>	11.1 (11.1)
		Vesper Sparrow	<i>Poecetes gramineus</i>	11.1 (11.1)
		<b>Western Wood-Pewee<sup>4</sup></b>	<b><i>Contopus sordidulus<sup>4</sup></i></b>	<b>11.1 (11.1)</b>
		Winter Wren	<i>Troglodytes troglodytes</i>	11.1 (11.1)
		NEC	13 (0)	Tennessee Warbler
Ruby-crowned Kinglet	<i>Regulus calendula</i>			38.5 (0)
White-throated Sparrow	<i>Zonotrichia albicollis</i>			38.5 (0)
Chipping Sparrow	<i>Spizella passerina</i>			30.8 (0)
Gray Jay	<i>Perisoreus canadensis</i>			30.8 (0)
Ovenbird	<i>Seiurus aurocapillus</i>			30.8 (0)
Yellow-rumped Warbler	<i>Dendroica coronata</i>			23.1 (0)
Alder Flycatcher	<i>Empidonax alhorum</i>			15.4 (0)
American Robin	<i>Turdus migratorius</i>			15.4 (0)
Boreal Chickadee	<i>Poecile hudsonica</i>			15.4 (0)
Hermit Thrush	<i>Catharus guttatus</i>			15.4 (0)
Swainson's Thrush	<i>Catharus ustulatus</i>			15.4 (0)
<b>Bay-breasted Warbler<sup>4</sup></b>	<b><i>Dendroica castanea<sup>4</sup></i></b>			<b>7.7 (0)</b>
<b>Black-backed Woodpecker<sup>4</sup></b>	<b><i>Picoides arcticus<sup>4</sup></i></b>			<b>7.7 (0)</b>
Dark-eyed Junco	<i>Junco hyemalis</i>			7.7 (0)
Great Gray Owl	<i>Strix nebulosa</i>			7.7 (0)
Red-eyed Vireo	<i>Vireo olivaceus</i>			7.7 (0)
Ruffed Grouse	<i>Bonasa umbellus</i>			7.7 (0)
Swamp Sparrow	<i>Melospiza georgiana</i>			7.7 (0)
<b>Western Tanager<sup>4</sup></b>	<b><i>Piranga ludoviciana<sup>4</sup></i></b>			<b>7.7 (0)</b>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	7.7 (0)		

ELC Unit	Sample Size <sup>1</sup>	Common Name	Scientific Name	Frequency <sup>2</sup>
NLM	7 (7)	White-throated Sparrow	<i>Zonotrichia albicollis</i>	85.7 (85.7)
		Swainson's Thrush	<i>Catharus ustulatus</i>	71.4 (71.4)
		Chipping Sparrow	<i>Spizella passerina</i>	57.1 (57.1)
		Ruby-crowned Kinglet	<i>Regulus calendula</i>	57.1 (57.1)
		Alder Flycatcher	<i>Empidonax alnorum</i>	42.9 (42.9)
		Bufflehead	<i>Bucephala albeola</i>	42.9 (42.9)
		Dark-eyed Junco	<i>Junco hyemalis</i>	42.9 (42.9)
		Spotted Sandpiper	<i>Actitis macularia</i>	42.9 (42.9)
		Common Snipe	<i>Gallinago gallinago</i>	28.6 (28.6)
		<b>Common Yellowthroat<sup>4</sup></b>	<b><i>Geothlypis trichas<sup>4</sup></i></b>	<b>28.6 (28.6)</b>
		<b>Olive-sided Flycatcher<sup>3, 4</sup></b>	<b><i>Contopus cooperi<sup>3, 4</sup></i></b>	<b>28.6 (28.6)</b>
		Red-eyed Vireo	<i>Vireo olivaceus</i>	28.6 (28.6)
		Song Sparrow	<i>Melospiza melodia</i>	28.6 (28.6)
		Yellow-rumped Warbler	<i>Dendroica coronata</i>	28.6 (28.6)
		American Wigeon	<i>Anas americana</i>	14.3 (14.3)
		Gray Jay	<i>Perisoreus canadensis</i>	14.3 (14.3)
		<b>Horned Grebe<sup>3, 4</sup></b>	<b><i>Podiceps auritus<sup>3, 4</sup></i></b>	<b>14.3 (14.3)</b>
		<b>Least Flycatcher<sup>4</sup></b>	<b><i>Empidonax minimus<sup>4</sup></i></b>	<b>14.3 (14.3)</b>
		Lesser Yellowlegs	<i>Tringa flavipes</i>	14.3 (14.3)
		Lincoln's Sparrow	<i>Melospiza lincolnii</i>	14.3 (14.3)
		Mallard	<i>Anas platyrhynchos</i>	14.3 (14.3)
		Northern Waterthrush	<i>Seiurus noveboracensis</i>	14.3 (14.3)
		Red-winged Blackbird	<i>Agelaius phoeniceus</i>	14.3 (14.3)
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	14.3 (14.3)		
Tennessee Warbler	<i>Vermivora peregrina</i>	14.3 (14.3)		
<b>Western Wood-Pewee<sup>4</sup></b>	<b><i>Contopus sordidulus<sup>4</sup></i></b>	<b>14.3 (14.3)</b>		

<sup>1</sup> Regional and (TLSA) number of sample sites with species present.

<sup>2</sup> Regional and (TLSA) species frequency.

<sup>3</sup> Species is federally listed SARA (2011) and/or COSEWIC (2011).

<sup>4</sup> Species is provincially listed under ASRD (2010).

## 8.0 LITERATURE CITED

Alberta Sustainable Resource Development (ASRD). 2010. *Alberta Wild Species General Status Listing – 2010*. Edmonton, Alberta. Available at:  
<http://www.srd.alberta.ca/FishWildlife/SpeciesAtRisk/GeneralStatusOfAlbertaWildSpecies/GeneralStatusOfAlbertaWildSpecies2010/documents/SAR-AlbertaWildSpecies-GeneralStatusList-2010.pdf>.