Environmental Impact Statement and Natural Environment Level 1 and 2 Technical Report

For Proposed Category 3, Class A Pit (Above Water)

Part Lot 80, Concession 1, W.P.R. (West of the Penetanguishene Road)
And Part of the Original Road Allowance Between Lots 80 and 81 W.P.R.,
Geographic Township of Tiny, County of Simcoe

Prepared for

Cedarhurst Quarries & Crushing Limited
3300 King Vaughan Townline
Post Office Box #250
King City, Ontario
L7B 1B2

By

The Lindsay Environmental Services Group

David Bell, B.Sc., MSc.
DBell Environmental Services

Barry Snider, B.Sc., MSc.
Snider's Ecological Services

And
Paul Nichol, B.Sc.
Ecosystems

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1. Introduction

Cedarhurst Quarries and Crushing Limited presently operates a pit (Teedon Pit) on the south half of Lot 80 and north half of Lot 79, Concession 1, West of the Penetanguishene Road (WPR), Township of Tiny, Simcoe County. The company is applying for an aggregate license on the north half of Lot 80, Concession 1 and part of the original road allowance between Lots 80 and 81 WPR. The study area includes the proposed license area (42.6 ha) and 120 metre adjacent lands. The property is located just north of Waverley on the west side of Darby Road (Fig. 1).

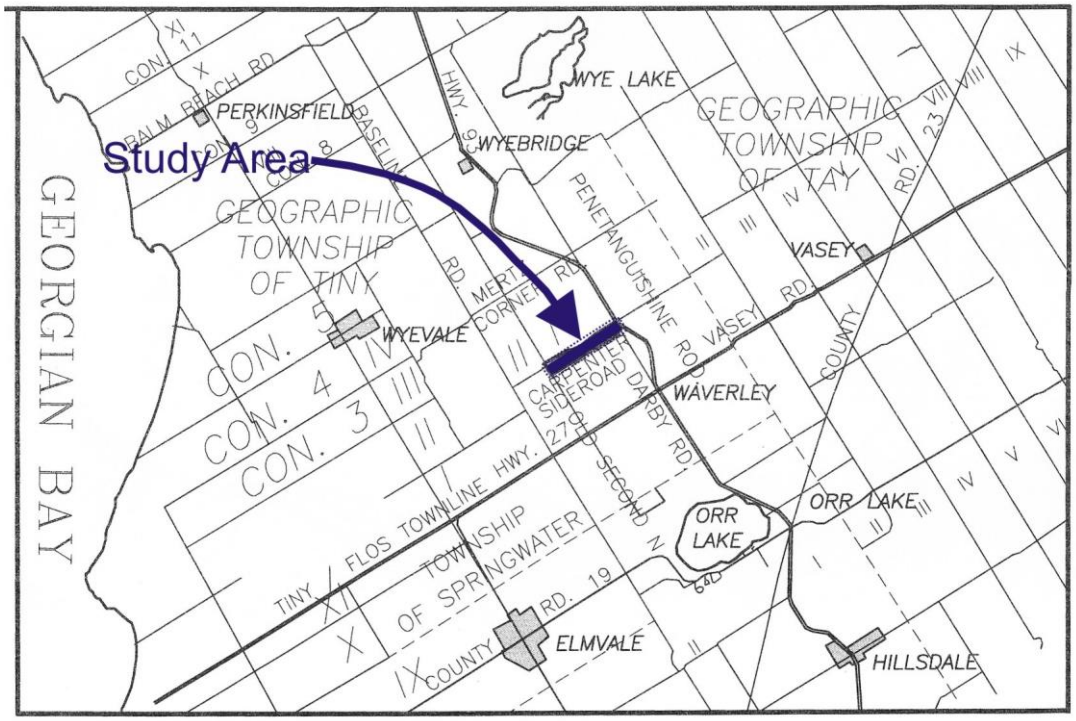

Figure 1: Map Showing Study Area Location.

This review follows the Provincial Standards (MNR, 2006) for a Category 3, Class A (above water) pit license application under the Aggregate Resources Act. The Provincial Standards requires a Natural Environment Level 1 Technical Report to determinine whether any of the following features exist on or within 120 metres of the site:

- Significant Areas of Natural and Scientific Interest
- Significant Portions of the Habitat of Endangered or Threatened Species

- Significant Wetlands
- Fish Habitat
- Significant Woodlands (S. and E. of the Canadian Shield)
- Significant Valleylands (S. and E. of the Canadian Shield)
- Significant Wildlife Habitat

Where the Level 1 Report identifies any of the above features on or within 120 m of the proposed licensed area, a Level 2 Report is required to determine whether there will be any negative impacts on the natural features or ecological functions for which the area is identified and any proposed preventative, mitigative or remedial measures.

The County of Simcoe Official Plan (Aug 2007) identifies the requirement for an EIS (Environmental Impact Statement) for any development or site alteration in the Greenlands Designation (Section 3.7.5). Appendix 1 – Environmental Impact Statements (EIS) of the Official Plan provides direction concerning the EIS process and content. A portion of the property is in the Greenlands Designation.

The Township of Tiny Official Plan (2001) states, " The development of any use in the Environmental Protection Two overlay designation that requires an approval pursuant to the Planning Act may be subject to the preparation of an Environmental Impact Study (EIS) in accordance with Section C6 (Requirements for an Environmental Impact Study) of this Plan". Most of the property is identified as Significant Woodlands and is in the Environmental Protection Two Designation.

The requirements for these studies are very similar and will be covered in this report. This is consistent with the approached used by Craig (2006) for the Sarjeant Waverley Pit # 2, which is located to the southwest of the proposed license property.

The initial Environmental Impact Statement and Natural Environment Level 1 and 2 Technical Report dated Sept 30, 2011 was circulated to the Township of Tiny, Planning Department for review. It was then circulated to the Severn Sound Environmental Association (SSEA) to complete a peer review. This document includes the revisions agreed to by the owner (K. J.

Beamish Construction Co. /Cedarhurst Quarries & Crushing Limited), the Township of Tiny and the SSEA.

2. Methodology

2.1. Review of Existing Information

Background information concerning natural environment features and designations was obtained from a number of sources including:

- Ontario Natural Heritage Information Centre (NHIC) Biodiversity Explorer (www.nhic.mnr.gov.on.ca/nhic.cfm) on-line spatial query.
- Ontario Ministry of Natural Resources website Species at Risk in Ontario (SARO) List (www.mnr.on.ca)
- Ontario Ministry of Natural Resources – digital data for forest cover maps,
- Atlas of the Breeding Birds of Ontario 2001 – 2005 (ABBO) (www.birdsontario.org/atlas).
- The Official Plan of the County of Simcoe (Aug. 2007) from the municipality website including Schedule 5.1 – Land Use, Schedule 5.2.1 – High Potential Mineral Aggregate Resources, Schedule 5.2.2 – Evaluated Wetlands, Schedule 5.2.3 – Areas of Natural and Scientific Interest (ANSI), Schedule 5.2.4 – Agricultural Land Classification Canada Land Inventory Soil Mapping, and Schedule 5.4 – Natural Heritage System.
- The Official Plan of the Township Of Tiny (2001) from the municipality website including Schedule A – Land Use and Schedule B - Natural Feature.
- Soils Survey of Simcoe County, Report No. 29 of the Ontario Soil Survey (Hoffman, Wicklund and Richards, 1962).
- Sarjeant Waverley Pit information aobtained from http://sarjeants.com/html/divisions/property/waverley.php.

2.2. Field Studies

David Bell conducted site visits on March 22, June 11, and October 6, 2010 and May 20, 2011. Field visits were timed to maximize opportunities to identify as many species as possible. The property was covered in a grid pattern to ensure all areas were inventoried. Field observations were used to identify the various species of flora and fauna, habitat features, topography, soils

and land use observed on the property and in the adjacent lands. The habitat was classified to the ecosite and vegetation type level using the following manual: Lee et al. 1998. Ecological Land Classification for Southern Ontario. First Application and its Application. SCSS Field Guide FG-02. pp225.

The field inventory is not intended to provide an exhaustive flora and fauna inventory. It is intended to provide sufficient information to establish the floristic quality, ecosite, vegetation community, common species and threatened and endangered species. Fauna were identified through direct observations and indirect observations such as tracks, calls, burrows, nests, scats, etc. The data were collected to assist with identifying significant features on the property and in developing mitigation strategies.

3. Proposed Development

The proposed license area is 42.6 ha. The proposed south licensed boundary adjacent to the Teedon Pit will not be fenced. The west licensed boundary will be fenced with 1.2 m high post and page wire fencing prior to pit operations commencing. The north licensed boundary will not be fenced due to the large forested area which abuts the whole north boundary. The east licensed boundary will be fenced with 1.2 m high post and page wire fencing prior to pit operations commencing. All unfenced boundaries will be clearly marked with steel t-bar painted orange and where possible placed at 30 m intervals.

The proposed extraction area is 30.0 ha and excludes 10.6 ha of mature maple forest in the west and 2.0 ha at the east near several residences. The intent is to retain all existing tree cover until the site is immediately ready for extraction as described in the phasing shown on the site plan. Trees will be cut no more than 90 m ahead of extraction operations and no less than 5 m at any time. Tree cutting will only occur between September 1 and April 15 in any year. In any year that cutting is to occur between February 1 and April 15, a qualified biologist will first conduct site visits to screen for active nests of early nesting bird species. For any nests found, the standards, guidelines and best management practices in, “Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (OMNR, 2010a), or its successor, will be followed. Suitable trees will be harvested for saw logs and /or fuelwood. Topsoil and overburden will be stripped in advance of aggregate extraction, placed in stockpiles within the

area of extraction (temporarily or until used for rehabilitation) and placed in berm locations along the north, east and south limits of extraction. Completed portions of the berm will be seeded with a mix that will allow for natural sucession. Secondary growth generated through natural succession shall be maintained on the berms until the berm material is required for rehabilitation. Thereafter, these areas shall be reseeded and reforested. All topsoil and overburden will be used on site for progressive and final rehabilitation. Erosion and sediment control will be undertaken at the time the pit operations are implemented to ensure that any surface water runoff from disturbed areas does not carry silt off of the disturbed area to the surface water drainage course identified on the site plans.

Portable crushing and screening plants will be operated on the licensed property periodically. Aggregate based materials including reclaimed concrete and asphalt may be imported onto the site and temporarily stockpiled for processing, stockpiled again and transported off site to jobs or for sale. Pit run and /or processed aggregates and topsoil may be brought on site, stockpiled, processed and transported off site to jobs or for sale.

The pit will be excavated, operated and rehabilitated using a 3 phase concept as described on page 2 of the site plans. Extraction will commence along the south boundary adjacent to the Teedon Pit and proceed northward, westward and eastward. Material will be excavated to the floor limits identified in the site plans and/or to a minimum of 1.5 m above the water table. Additional details regarding the process are in the site plans.

Progressive and final rehabilitation will be conducted as identified in the operational phasing notes on page 2 of the site plans. Within 2 years after complete extraction, the distrurbed area will be rehabilitated. The objective of final rehabilitation is to restore forest in all of Phases except for 3.4 ha (the existing old field area) along the southern boundary that will be restored to farmland (Appendix 12). In addition to the tree planting on the Sibthorpe site (26.6 ha) and the tree planting as part of the existing rehabilitation plant on the Teedon (22.9 ha), additional tree planting (4.9 ha) is proposed on the adjacent Teedon Pit (Aggregate License #3670). Prior to pit operations commencing, a tree planting agreement shall be finalized with the Township of Tiny. This agreement shall apply to the planting of trees on Blocks 1 – 5, to be identified on the site plan for the Teedon Pit. Establishment of the planting blocks will be subject to a site plan

amendment on the Teedon Pit site plans. No pit operations are to take place on the Sibthorpe licensed property until such time that the site plan amendment for the Teedon Pit is approved. After rehabilitation is complete the surface drainage within the rehabilitated area will be similar to existing conditions.

4. Existing Conditions

4.1 Current Land Use

The proposed license area of 42.6 ha is mostly forested (92 %) but includes an old-field area (3.4 ha) in the centre of the property. There is a large mature hardwood woodlot at the west end of the property; a number of scotch pine, red pine, white pine and white spruce plantations of various ages in the centre and east end of the property; and a low poplar dominated deciduous stand between the plantation stands. There is a residence on the property at the east end outside of the proposed licensed area (Fig. 2). Also, there are several residences to the east of the proposed licensed area in the 120 m adjacent lands.

The study area is within the County of Simcoe Greenlands designation Tiny-Tay Peninsula 4 (TTP4), Wye River Valley (Appendix 1). A portion of the property is also in the Sand and Gravel resources Designation (Shedule 5.2.1 – High Potential Mineral Aggregate Resources).

The study area is within the Township of Tiny Environmental Protection II Designation and is identified as Significant Woodlands (Appendix 2). A portion of the property is also in the Mineral Aggregate Resources II Designation (Shedule A – Land Use).

4.2 Adjacent Land Use

The adjacent lands are a similar mix of habitats as on site as well as some active farmland, an active pit and several residences (Fig. 2).

4.3 Physiography

The study area is primarily an ice-contact stratified drift deposit with the west end falling on a glaciolacustrine plain. The aggregate deposit consists primarily of sand with less than 35%

gravel. The property is highest (295+ m) along the southern boundary in the central section of the property. The land slopes gradually to the north, east and west. Further to the west the land drops rapidly from 286 m to 253 m and levels out to a gradual slope to the western boundary. Further to the east the land drops rapidly from 290 m to 260 m and levels off into a valley (258 m). The land then rises rapidly to a secondary hump (278+ m) along the southern boundary near the east end and then slopes down to the eastern boundary.

The soils vary over the property and include Atherley clay in the west end; Sargent gravely sandy loam in the extreme northwest corner and east end; and Vasey sandy loam in the central portion (Hoffman, Wicklund and Richards, 1962). The Atherley series consists of clay or silty clay and are the result of soil eroded down from surrounding slopes to the east. The Sargent series consists of sandy or gravely soils and are remains of beach areas from former lakes. The Vasey series are sandy soils developed on material derived from limestone mixed with varying amounts of granite. The open porous nature of the soils and rolling topography provide good drainage. The Vasey soils are on the highest areas of the property. No organic soils were identified on the property. The Agricultural Land Classifications for the property include “Class 1, 2 and 3” and Class 5, 6 and 7” soil (Schedule 5.2.4, The County of Simcoe Official Plan, 2007).

4.4 Surface Water

Surface drainage is westward (39 %), northward (36 %) and eastward (25%). A defined seasonal surface flow runs north from the existing licensed property, across the central section of the property and into a small pond near the property boundary (Fig. 2). The channel is poorly defined and continues north through the property and then enters the property to the north. The surface flow channel continues east under Hwy 93 and then north for over 1 km and enters a wetland area. A permanent stream exits this wetland as a tributary of the Wye River. No permanent streams were identified on the property. A second small dug pond is located along the north boundary in the northeast corner of the property (Fig. 2). This pond has no inflow or outflow.

4.5 Groundwater

The water table is estimated to vary from 236.0 m in the west portion of the licensed property to 254 m on the central portion and to 252 m in the east (Alpha Environmental Services, 2010). This supports the observation of no significant discharge areas on the property.

4.6 Greenlands

The study area is within the County of Simcoe Greenlands designation Tiny-Tay Peninsula 4 (TTP4), Wye River Valley (Schedule 5.4) and includes the entire Wye River Valley and adjacent lands (Appendix 1). Much of the central and upper parts of the Wye River flow through open agricultural land with discontinuous riparian woodland. The functions, attributes, linkages and status designations within TTP4 are listed in, "Development of a Natural Heritage System for the County of Simcoe" (Gartner Lee Limited, 1996) (Table 1).

Table 1: County of Simcoe Greenlands designation Tiny-Tay Peninsula 4, Wye River Valley functions, attributes, linkages and status designations.

Tiny Tay Peninsula		TTP4
Terrain Functions	Recharge	
	Discharge	X
	Flood Storage	X
	Conveyance	X
Vegetation Functions	Erosion Protection	X
	Temperature Control	X
	Water Quality Enhancement	X
	Aquatic Habitat	X
	Terrestrial Habitat	X
Attributes	Coldwater Habitat	X
	Warmwater Habitat	X
	Fish Spawning	X
	Deer Concentrations	
	Waterfowl Concentrations	X
	Provincially Rare Animals	X
	Provincially Rare Plants	X
	Uncommon Vegetation	X
Linkages	Large Core Areas	
	Number of Links	2

	Aquatic	X
	Riperian/Lowland	X
	Upland	
	Narrow link in Agriculture	X
	Linkage Beyond Simcoe	
	Restoration Opportunity	
Status Designations	Provincial ANSI	
	Regional ANSI	
	Site of Interest	
	ESA	
	Provincially Significant Wetlands	2
	Locally Significant Wetlands	1
	Provincial Parks/Conservation Areas	X

TTP4 Wye River Valley

The study area is located in the southern section of the unit in the Wye River Valley sub-watershed. Gartner Lee Limited (1996) recognized that the boundaries were approximate and may change as a result of site-specific studies.

4.6.1 Terrain Functions

Discharge, flood storage and conveyance are considered important in TTP4 (Table 1). Seasonal discharge occurs in ELC08 (FOD3-1) located in the central section of the property. Flow from the licenced property to the south crosses the proposed licensed property, flows into the property to the north and ultimately into a tributary of the Wye River (>1000 m from the site). Since discharge is seasonal and extremely low, there will be no impact on this function.

Flood storage and conveyance are more associated with the flood plain of the Wye River and its tributaries. Since the only flow on the property is seasonal surface flow and the property is a substantial distance (>1000m) from a permanent tributary, activities on the site should not impact either function.

4.6.2 Vegetation Functions

Erosion protection, temperature control, water quality enhancement, aquatic habitat and terrestrial habitat have been identified as significant in TTP4 (Table 1). Vegetation cover helps to reduce erosion, maintain cool water temperatures in streams in summer, reduce nutrients and sediment flow to streams in streams and other waterbodies and provide habitat for aquatic organisms (Gartner Lee Limited, 1996). Since the first four functions are most important to maintaining water quality and the property is a substantial distance from a permanent tributary, activities on the site should not significantly impact these functions.

Vegetation provides terrestrial habitat. The forest cover on this property has been identified as "Significant Woodland" (see Section 4.13) by the County of Simcoe and Township of Tiny. It also contains forest interior bird habitat, which is considered candidate "Significant Wildlife Habitat" (see Section 4.14).

4.6.3 Attributes

Coldwater habitat, warmwater habitat, fish spawning, deer concentrations, waterfowl concentrations, provincially rare animals, provincially rare plants, and uncommon vegetation are attributes identified in TTP4. The first three are fish habitat. Since fish habitat does not exist on the property, these attributes will not be impacted. No deer concentration areas were identified on the property based on Schedule B of the Township (Appendix 2), of Tiny Official Plan. This was supported by field observations. Therefore, this attribute will not be impacted. Similar with waterfowl concentrations, none were identified on the property and this attribute will not be impacted. For Provincially rare species and uncommon species see Sections 4.7.3, 4.8 and 4.10.

4.6.4 Linkage

Linkages or corridors between natural areas provide opportunities for secure movement of animals and dispersal of plants that enhance the long term, ecological viability of the region (Gartner Lee Limited, 1996). No links or corridors were identified within the study area based on of the County of Simcoe Official Plan, Schedule 5.4, Natural Heritage System (Appendix 1), and the Official Plan, Schedule B, of the Township, of Tiny (Appendix 2). No linkage values will be impacted by this proposal.

4.6.5 Status Designations

Provincially significant wetlands, locally significant wetlands, Provincial Parks/Conservation Areas were identified in TTP4. None are located in or near the study area; therefore, not impacted by this proposal.

4.7 Ecological Land Classification For Southern Ontario and Vegetation.

The Ecological Land Classification for Southern Ontario (ELC) is a comprehensive and consistent approach for ecosystem description, inventory and interpretation. It provides methods for identifying and mapping valuable natural heritage features and areas. The Ecosite is a mappable landscape unit that reflects a consistent set of environmental factors (e.g. geology and soils) resulting in specific plant communities. Grouping plant communities that are most similar, based on the plant species composition, generates the vegetation types. Naming the vegetation types normally includes the names of the species that dominate the plant community. Table 2 contains the ELC summary to vegetation type and Figure 2 shows the ELC ecosites and vegetation types identified in the study area.

System	Class	Series	Ecosite	Veg. Type
Terrestrial				
	Cultural			
		Cultural Meadow		
			Mineral Cultural Meadow Ecosite	
				Dry Moist Old Field Meadow Type
		Plantation		
			Coniferous Plantations	
				Red Pine Coniferous Plantation Type
				Red Pine Coniferous Plantation Type
				Red Pine Coniferous Plantation Type
				Red Pine Coniferous Plantation Type
				Scotch Pine Coniferous Plantation Type
				Scotch Pine Coniferous Plantation Type
				White Pine Coniferous Plantation Type
				White Spruce - European Larch Coniferous Plantation Type
				White Spruce - European Larch Coniferous Plantation Type
				White Spruce - European Larch Coniferous Plantation Type
	Forest			
		Deciduous Forest		
			Dry - Fresh Sugar Maple Deciduous Forest Ecosite	
				Dry - Fresh Sugar Maple - Oak Deciduous Forest Type
				Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type
				Dry - Fresh Sugar Maple Deciduous Forest Type
			Fresh - Moist Poplar - Sassafras Deciduous Forest Ecosite	
				Fresh - Moist Poplar - Deciduous Forest Type
		Mixed Forest		
			Fresh - Moist White Cedar - Hardwood Mixed Forest Ecosite	
				Fresh - Moist White Cedar - Hardwood Mixed Forest

Table 2: Ecological Land Classification (ELC) Summary to Vegetation Type

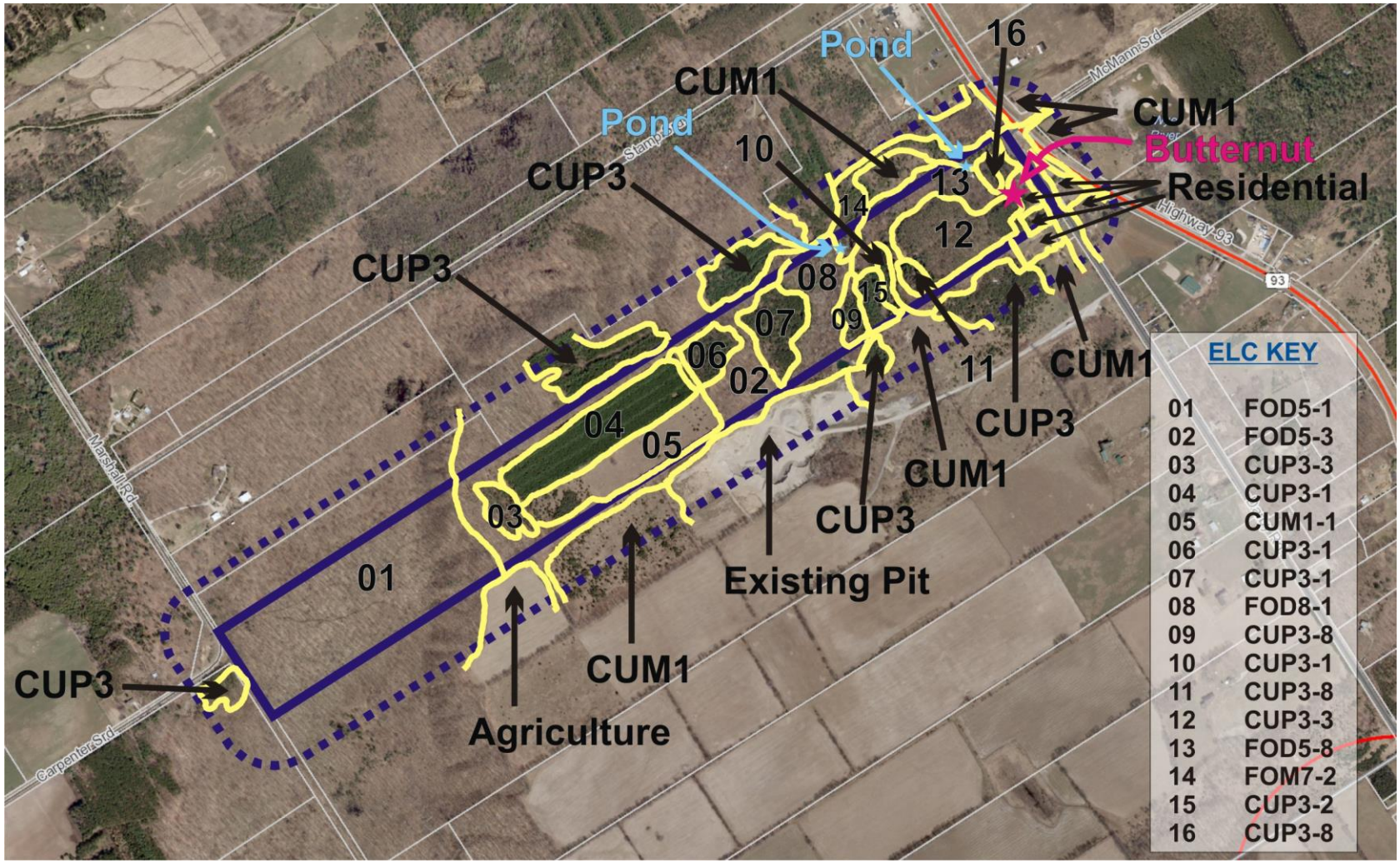

Figure 2: Air Photo Showing ELC Ecosites and Vegetation Types on Site.

4.7.1 ELC Ecosites and Vegetation Types

This property is covered with deciduous and mixed forest, cultural meadow and conifer plantation communities (Fig. 2) with descriptions below.

ELC01

FOD5: Dry- Fresh Sugar Maple Deciduous Forest Ecosite.

FOD5-1: Dry- Fresh Sugar Maple Deciduous Forest Type (Fig. 3).

This vegetation type is dominated almost entirely by sugar maple. The site is moderately dry to fresh with sandy loam soils. It is a relatively mature stand located in the western third of the property and into the 120 m adjacent lands to the north, south and west (Fig. 2). The stand has been selectively logged on a regular basis and sugar maple saplings and seedlings dominate the understory.

Figure 3: Photograph of FOD5-1 Vegetation Type.

ELC02

FOD5: Dry - Fresh Sugar Maple – Oak Deciduous Forest Ecosite.

FOD5-3: Dry - Fresh Sugar Maple – Oak Deciduous Forest Type (Fig. 4).

This vegetation type is dominated by sugar maple with red oak. The site is moderately dry to fresh with sandy loam soils. This stand contains mature red oak and younger sugar maples.

It is located to the east of ELC 1 on the slope of the old Georgian Bay shoreline and up on top of the hill. It also extends into the 120 m adjacent lands to the north, south and west (Fig. 2).

Figure 4: Photograph of FOD5-3 Vegetation Type.

ELC03 and ELC12

CUP3: Coniferous Plantations.

CUP3-3: Scotch Pine Coniferous Plantation Type (Fig. 5).

This type is a plantation dominated by scotch pine. These are dry sites with sandy loam soils. ELC03 is just east of ELC02. It appears to be 25 + yrs old with many of the scotch pines dead or dying. There is significant regeneration of sugar maple, black cherry, ironwood and basswood. ELC12 is in the east end of the property and is an older scotch pine plantation (35-40 yrs old) with significant regeneration of white ash, black cherry and sugar maple (Fig. 2). These are heavily managed, or disturbed sites.

Figure 5: Photograph of CUP3-3 Vegetation Type.

ELC04, ELC06, ELC07 and ELC10

CUP3: Coniferous Plantations.

CUP3-1: Red Pine Coniferous Plantation Type (Fig. 6).

This type is a plantation dominated by red pine. These are dry sites with sandy loam soils. ELC04 is in the central section of the property to the north of ELC05 (Fig. 2). It appears to be 15 - 20 yrs. old, dominated by red pine with a few rows of white pine and little ground cover due to the thick canopy. ELC06 and ELC07 are to the east of ELC04 and appear to be 30+ yrs. old. There is little understory and some regeneration of sugar maple, white ash and trembling aspen. ELC10 is further east and is 35 - 40 yrs old (Fig. 2). These are heavily managed, or disturbed sites.

Figure 6: Photograph of CUP3-1 Vegetation Type.

ELC05

CUM1: Mineral Cultural Meadow Ecosite.

CUM1-1: Dry- Moist Old Field Meadow Type (Fig. 7).

This type is the result of early land clearing and at one time was probably maintained by grazing or other agricultural activities. No recent grazing was obvious. It contains a high number of invasive introduced species. ELC05 is immediately south of ELC04 (Fig. 2). This ELC has significant regeneration of scotch pine at the western end and white ash in the east end and along the south edge of the field.

Figure 7: Photograph of CUM1-1 Vegetation Type.

ELC08

FOD3: Dry - Fresh Poplar – White Birch Deciduous Forest Ecosite.

FOD3-1: Dry - Fresh Poplar Deciduous Forest Type (Fig. 8).

Trembling aspen dominates with a variety of other hardwoods including sugar maple, red maple, red oak, black cherry, white elm, white ash and white birch. This is the wettest portion of the site with sandy loam soils. ELC08 is east of ELC07 (Fig. 2). Surface drainage from the pit to the south drains through the site and into ELC 14. Water appears to flow only during the spring and wet periods.

Figure 8: Photograph of FOD3-1 Vegetation Type

ELC09, ELC11 and ELC16

CUP3: Coniferous Plantations.

CUP3-8: White Spruce – European Larch Coniferous Plantation Type (Fig. 9).

This type is a plantation dominated by white spruce. These are dry sites with sandy loam soils. ELC09 is in the central section of the property to the east of ELC08 Fig. 2). It appears to be 30 + yrs. old, with little ground cover. ELC11 and ELC16 are small ELCs in the eastern portion of the property and are older plantations 40 + yrs. There is little understory and some regeneration of trembling aspen, black cherry and white ash (Fig. 2). These are heavily managed, or disturbed sites.

Figure 9: Photograph of CUP3-8 Vegetation Type

ELC13

FOD5: Dry- Fresh Sugar Maple Deciduous Forest Ecosite.

FOD5-8: Dry- Fresh Sugar Maple – White Ash Deciduous Forest Type (Fig. 10). Sugar maple and white ash dominate with white birch, trembling aspen, black cherry, red oak, basswood, ironwood and beech in this vegetation type. This site is moderately dry to fresh with sandy loam soils. These are heavily managed, or disturbed sites. ELC13 is located in the eastern third of the property and into the 120 m adjacent lands (Fig. 2).

Figure 10: Photograph of FOD5-8 Vegetation Type.

ELC14

FOM7: Fresh – Moist White Cedar - Hardwood Mixed Forest Ecosite.

FOM7-2: Fresh – Moist White Cedar - Hardwood Mixed Forest Type (Fig. 11). White cedar dominates with white birch, trembling aspen, white ash and hemlock. It is found on the moist end of the moisture regime. This type is found in the east end of the property and in the 120 m to the north. Flow from ELC08 drains into this community and into a small shallow pond (20 m diameter and < 1 foot deep) then north into the 120 m adjacent lands (Fig. 2). The flow continues through the property to the north and ultimately into a branch of the Wye River.

Figure 11: Photograph of FOM7-2 Vegetation Type.

ELC15

CUP3: Coniferous Plantations.

CUP3-2: White Pine Coniferous Plantation Type (Fig. 12).

This type is a plantation dominated by white pine. This is a dry site with sandy loam soils. ELC15 is in the central section of the property between ELC09 and ELC10. It appears to be 30 + yrs. old, with little ground cover (Fig. 2). This is a heavily managed or disturbed site.

Figure 12: Photograph of CUP3-2 Vegetation Type.

The 120 m adjacent land has similar ELCs as described on site. It also has an agricultural field, existing pit, and areas of scotch pine regeneration along the south side. There are several residences at the east end (Fig. 2).

4.7.2 Flora Inventory by Area and ELC Vegetation Type

A list of flora by area and vegetation type is included in Appendix 3. The scientific and common names used for the flora in this report are consistent with those used in the Floristic Quality Assessment (Oldham, Bakowsky and Sutherland, 1995). This list is not intended to be an exhaustive inventory of plant species present in each vegetation community. It is intended to provide sufficient information to establish the floristic quality, ecosite, vegetation community, common species and threatened and endangered species.

4.7.3 Floristic Quality Assessment by Area and ELC Vegetation Type

The Floristic Quality Assessment summary by area and ELC vegetation type is included in Appendix 4. Most of the vegetation types have 7 – 28 % non-native species. Ten of the 16 ELC communities are plantations and many of these are older stands and native species have begun to re-establish. ELC05 is a cultural meadow and has the highest number of non-native species (43%) present probably due to the disturbances related to previous

agricultural activities. Even the forested ELCs have higher numbers of non-native species likely resulting from logging activities and access trail and road construction.

The Mean Coefficient of Conservatism scores for ELC05 is 1.6 confirming that the taxa in this area are tolerant of disturbances. The Mean Coefficient of Conservatism scores for the remaining of the ELCs are between 2.6 and 4.1. This suggests that many of the taxa are typically associated with a specific plant community, but are tolerant of moderate disturbances.

Total Weediness Scores also indicates the conclusion from the Mean Coefficient of Conservatism Scores that ELC05 is a highly disturbed area having a score of -59. The other areas had scores ranging from -2 to –23. The conclusion would be that these areas are low to moderately disturbed. However, many of the ELC communities with the lowest scores are plantations that would be considered moderately to highly disturbed sites. The scores reflect the fact that these communities have low numbers of species present due to the thick canopy.

Mean Wetness Scores varied from –0.5 to 3.3 for each area. All of the ELC types are upland sites. ELC08 is the wettest with a score of –0.5. Although this type scored < 0 which would place it in the wetland section of the ELC System, however, it is not a wetland as defined in the Ontario Wetland Evaluation System, Southern Manual (OMNR, 1993).

All of the flora species identified on site except for one butternut tree are listed as S5 or S4 species meaning that all the identified species are considered common or abundant and secure within the province (Table 3 and Appendix 3 and 8).

4.8 Fauna Species Lists by Area and ELC Vegetation Type

The list of fauna species by area and ELC vegetation type is included in Appendix 5. The avian fauna listed by area and ELC vegetation type, does not necessarily mply that they were breeding in that vegetation type. Some species were migrating through and others were observed flying over while the observer was in a specific area.

In addition to on-site observations, the list of birds identified in the Atlas of Breeding Birds of Ontario (2001-2005) for square 17NK94 is included in Appendix 6. The site is located in this square. Four SARO species have been reported as possible, probable and confirmed breeding within this square. The species reported are whip-poor-will (THR), common nighthawk (SC), bobolink (THR), and golden-winged warbler (SC). None was observed or heard during site visits. The OBBA squares are 10 km by 10 km and many listed species would not be found in the study area.

All other species of fauna identified on site or within the 120 m adjacent lands are listed as S4 or S5 meaning they are considered common or abundant and secure within the province (Table 3 and Appendix 5).

4.9 Significant Areas of Natural and Scientific Interest

The Township of Tiny Schedule B Natural Features map (Appendix 2) did not identify any Provincially Significant ANSIs on site or in the 120 m adjacent lands.

4.10 Significant Portions of the Habitat of Endangered or Threatened Species

Information obtained from the NHIC website showed individual occurrences associated with the site for all species that are Endangered, Threatened, and of Special Concern including (S1 – S3 species). Information associated with seven 1km squares in the area of the site is included in Appendix 7. Three of the four species are wetland species and suitable habitat is not present on site. The fourth species is the five-lined skink, an S3 species of Special Concern. This species will be discussed in Section 4.14 concerning Significant Wildlife Habitat.

During site visits, a search was completed specifically for threatened and endangered species whose ranges overlap the study area (Table 4). None of the following species were observed in field investigations:

- Whip-poor-will has been listed as possibly breeding in the area, but not listed in the NHIC database or observed during field visits. Habitat is marginal and most of the more open habitat (3.9 ha) is close to the existing pit to the south.

- Spotted turtle was not listed in the NHIC database or observed during field visits. Habitat is marginal as the two ponds are small, very shallow and contain little suitable habitat.
- Bobolink has been listed as confirmed breeding in the area, but not listed in the NHIC database or observed during field visits. Habitat is marginal as the only suitable habitat (ELC05, CUM1-1) is small (3.9 ha) and being invaded with small trees and shrubs.
- Suitable habitat exists on site for eastern hog-nose snake. However, eastern hog-nose snake was not listed in the NHIC database or observed during field visits.
- One butternut tree was located in the east end of the site (general location see Fig. 2, georeferenced: 17 T 0592212 4945347). The young tree was 2 m tall (Fig 13). The butternut health assessment conducted on October 6, 2010 identified the tree as being retainable due to the absence of cankers on the bole and 100% live crown.
- No American ginseng was found on site. The preferred habitat of ginseng is relatively undisturbed and mature deciduous forests. Mature deciduous forest is present on the west third of the site, but this area has been periodically logged which may partially explain the absence.
- The Eastern cougar extremely rare in southern Ontario and not seen during site visits.
- Habitat suitable for grey fox exists on the site. However, grey fox are a more southern species and very few sightings have been recorded in Ontario in recent years. Therefore, it is highly unlikely they exist in the area.
- Habitat suitable for hooded warbler exists on the site. This species was not listed as breeding in the OBBA, not listed in the NHIC database or observed during field visits.

Figure 13: Photograph of Butternut Tree.

Table 3: Kingdom Summaries by Rarity Ranking

Animalia	**No. of Unique Species Identified:**	**40**			
			Rank	**No.**	**%**
			S4	**1**	**2.5**
			S4B	**10**	**25.0**
			S5	**17**	**42.5**
			S5B	**12**	**30.0**
Plantae	**No. of Unique Species Identified:**	**171**			
			Rank	**No.**	**%**
			S3?	**1**	**0.6**
			S4	**8**	**4.7**
			S4?	**1**	**0.6**
			S5	**118**	**69.0**
			SNA	**43**	**25.1**

Table 4: Species at Risk in Ontario (SARO) List with Ranges Overlapping the Site and with Suitable Habitat Present, 2010.

Scientific Name	Common Name	MNR Status	S-Rank	Significance Category *	Habitat	Suitable Habitat on Site	Comments Related to the Presence on the Sibthorpe Pit Site
Asio flammeus	Short-eared Owl	SC	S2N/S4B	SWH	Grasslands, marshes and tundra.	Yes, marginal	No element occurrence in NHIC database. Species not listed in this square (17NK94) in ABBO. Not observed on site. Suitable habitat only 3.9 ha .
Caprimlugus vociferus	Whip-poor-will	THR	S4B	SHTES	Mix of open and forested areas such as savannahs, open woodlands or openings in more mature deciduous, coniferous and mixed forests.	Yes	No element occurrence in NHIC database. Species listed in this square (17NK94) in ABBO as possibly breeding. Not observed on site.
Chordeiles minor	Common Nighthawk	SC	S4B	SWH	Open areas with little or no ground cover.	Yes, marginal	No element occurrence in NHIC database. Species listed in this square (17NK94) in ABBO as possibly breeding. Not observed on site. Suitable habitat only 3.9 ha with heavy ground cover.
Clemmys guttata	Spotted Turtle	END	S3	SHTES	Ponds, marshes and bogs with abundant vegetation.	Yes, marginal	No element occurrence in NHIC database. Not observed on site. Ponds provide little if any habitat.
Danaus plexippus	Monarch Butterfly	SC	S2N/S4B	SWH	Meadows and open areas with milkweed.	Yes	No element occurrence in NHIC database. Habitat not significant because not within 5 km of lake Ontario (SWHG).
Dendroica cerulea	Cerulean Warbler	SC	S3B	SWH	Large tracts of relatively undisturbed mature semi-open deciduous forest.	Yes	No element occurrence in NHIC database. Species not listed in this square (17NK94) in ABBO. Not observed on site.
Dolichonyx oryzivorus	Bobolink	THR	S4B	SHTES	Open grassy fields, especially hay fields.	Yes, marginal	No element occurrence in NHIC database. Species listed in this square (17NK94) in ABBO as confirmed breeding. Not observed on site. Suitable habitat only 3.9 ha.
Heterodon platirhinos	Eastern Hog-nose Snake	THR	S3	SHTES	Open woodlands, brushland, forest edge and disturbed sites	Yes	No element occurrence in NHIC database. Not observed.
Juglans cinerea	Butternut	END	S3	SHTES	Deciduous forests on rich,	Yes	No element occurrence in NHIC database.

	tree				moist and well-drained soil.		One tree found on site (17 T 0592212 4945347). Assessed as retainable.
Lampropeltis triangulum	Milksnake	SC	S3	SWH	Old fields and farm buildings	Yes	No element occurrence in NHIC database. Not observed.
Panax quinquefolius	American Ginseng	END	S2	SHTES	Rich, moist, undisturbed and relatively mature deciduous woods	Yes	No element occurrence in NHIC database. Not observed. Woodlot actively managed.
Pieris virginiensis	West Virginia White	SC	S3	SWH	Moist deciduous woods.	Yes	No element occurrence in NHIC database. Not observed. Species rare.
Plestiodon fasciatus	Common Five-lined Skink	SC	S3	SWH	Rocky outcrops in mixed coniferous or deciduous forest	Yes, marginal	Reported as an element occurrence in NHIC database. Not observed. No rocky outcrops on property.
Puma concolor	Eastern Cougar	END	S1	SHTES	Cougars in southern Ontario are considered to be escaped pets.	Yes	Not observed. Status is uncertain
Thamnophis sauritus	Eastern Ribbon Snake	SC	S3	SWH	Usually close to water, especially in marshes.	Yes, marginal	No element occurrence in NHIC database. Not observed.
Urocyon cinereoargenteus	Grey Fox	THR	SNA	SHTES	Deciduous forests and marshes	Yes	No element occurrence in NHIC database. Not observed. Vary rare.
Vermivora chrysoptera	Golden-winged Warbler	SC	S4B	SWH	Early successional vegetation, primarily on field edges and utility right-of-ways.	Yes	No element occurrence in NHIC database. Species listed in this square (17NK94) in ABBO as possibly breeding. Not observed on site.
Wilsonia canadensis	Canada Warbler	SC	S4B	SWH	Wet forest types with dense shrubs and understory.	Yes, marginal	No element occurrence in NHIC database. Species listed in this square (17NK94) in ABBO as probably breeding. Not observed on site.
Wilsonia citrina	Hooded Warbler	THR	S3B	SHTES	Interiors of large upland tracts of mature deciduous and mixed forests.	Yes	No element occurrence in NHIC database. Species not listed in this square (17NK94) in ABBO. Not observed on site.

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* SWH – Significant Wildlife Habitat of Special Concern and S1 – S3 Species and Communities
SHTES – Significant Habitat of Threatened and Endangered Species (S1 and S2).

4.11 Significant Wetlands

No provincially significant wetlands were identified on the site or in the 120m adjacent lands based on information from Appendix 2, and site visits.

4.12 Fish Habitat

The Official Plan of the Township of Tiny, Schedule B (Appendix 2) shows a watercourse and pond on site. Flowing water was observed on October 6, 2010 and May 20, 2011. No flow was observed on June 11, 2010. During the spring and wet periods, water exits the dug pond and surrounding land on the licensed property to the south. It crossing the site in a poorly defined channel with some flow concentrated in ATV tracks that crossed the site and into a small pond near the property boundary (Fig. 2). The pond (20 m diameter) was very shallow (< 0.5 m) with a leaf-covered bottom and a top layer of silt deposited from the surface runoff. The flow continues north onto the adjacent property, then east across Hwy 93 and then north for over 1 km and enters a wetland area. No permanent streams were identified on the property. A second dug pond (10 m diameter) was found in the northeast corner (Fig. 2). This pond has no inflow or outflow. No fish were observed in the seasonal surface flow or the two ponds. Neither pond nor the seasonal flow was considered to be fish habitat.

4.13 Significant Woodlands and Valleylands (S. and E. of the Canadian Shield)

Significant woodlots in this section of Simcoe County are defined as being > 40 ha and/or containing trees > 100 years old (Gartner Lee Limited, 1996). The site is in the Greenland unit Tiny-Tay Peninsula 4 (TTP4), Wye River Valley (Gartner Lee Limited, 1996 and Appendix 1). One ecological function provided by the woodland is forest interior bird habitat. The Township of Tiny has identified Significant Woodlands in the study area (Appendix 2). It has been identified as significant due to the size of the contiguous woodland stand, age of the trees and presence of interior bird habitat.

The only forest on the proposed licensed property that meets the criteria related to age of trees and interior bird habitat as described in OMNR, 2009 draft is in ELC01 which is 13 ha and has

sugar maple trees > 100 years old (most of ELC01 has been excluded from the extraction area). The remaining forest is relatively small stands of plantations and secondary growth with numerous openings in the canopy.

Impacts of the proposed pit on the woodland will be discussed in Section 5.5.

No valleylands are present in the study area (Appendix 2).

4.14 Significant Wildlife Habitat

In the Official Plan of the Township of Tiny significant wildlife habitat or "areas" are listed in Schedule B (Appendix 2). The only significant wildlife habitats identified are Deer Wintering Areas. Appendix 2 identified a Deer Wintering Area to the north of the site just beyond the 120 m adjacent lands. Deer activity was observed on site; however, no suitable wintering habitat was found.

The Official Plan also states that, "As new information becomes available, other significant wildlife areas may become known. This new information will be considered at the time a development application is submitted and when the Official Plan is reviewed".

The Significant Wildlife Habitat Guidelines (SWHTG), (OMNR, 2000) and the Natural Heritage Reference Manual 2nd edition (OMNR, 2010) were used to identify candidate significant wildlife habitat based on the ELC Ecosites identified in the study area. In particular, the SWHTG (OMNR 2009 draft) for Ecoregion 6E were followed and compared to the features found in the study area. Appendix 9 outlines the 10 candidate Significant Wildlife Habitats that relate to the ecosites found within the study area. The criteria provided in the SWHTG to confirm if the habitat is considered to be significant was applied to all identified candidate significant wildlife habitat features.

Area-Sensitive Bird Breeding Habitat is described as large mature (>60 yrs old) natural forest (non-plantation) stands or woodlots >30 ha and with >10 ha interior habitat assuming 100m buffer to edge of forest. This type of habitat (FOD5) is present on the west third of the property (13 ha). Impacts on the Area-Sensitive Bird Breeding Habitat will be discussed in Section 5.7.2.

Old Growth Forest is relatively undisturbed forests with dominant tree species > 100 years old. ELC01 (FOD5-1) does contain > 100-year-old trees, but the forest has been logged and actively

managed and therefore not considered to be Old Growth. The selective logging has reduced the occurrences of native interior forest flora and no significant plant species or communities were identified.

Amphibian Breeding Habitat (Woodland) was identified on site. During site visits in 2010, one spring peeper (ELC01, FOD5-1) and one wood frog (ELC08, FOD8-1) were observed. On May 20, 2011, numerous green and leopard frogs were observed in the dug pond on the existing licensed property (Teedon Pit) and the shallow pond near the northern boundary. Also, one tree frog was heard. No frogs were observed in the second dug pond in the northeast corner. The required presence of 1 or more breeding populations of **listed species** was not found for the area to be considered as significant wildlife habitat (SWTH 2009 draft).

Butterfly Migratory Route/Stopover Habitat must be located within 5 km of Lake Ontario, therefore, candidate habitat on site is not considered to be significant.

Raptor Wintering Habitat is present on site; however, the requirement for 1 or more Short-eared Owls or 2 or more of the listed species and 10 or more individuals using the site annually for a minimum of 20 days is highly unlikely to occur on this site. Therefore, it is not considered to be significant.

Songbird Migratory Stopover Areas must be located within 5 km of Lake Ontario, therefore, suitable habitat on site is not considered to be significant.

Woodland Raptor Nesting Habitat is described as natural or conifer plantations forest stands > 10 ha. Although suitable habitat is present on site, no raptors were seen or heard and no stick nests were observed during site visits. Therefore, the confirmation criteria of the presence of 1 or more active nests of listed species required for the area to be considered as significant wildlife habitat (SWTH 2009draft) was not met.

Open Country Bird Breeding habitat is indicated by the ELC01 (CUM1-1) designation, however the habitat (3.4 ha) did not meet the contiguous size requirement or have the required number of special indicator species to be considered as significant wildlife habitat (SWTH 2009draft).

Colonial-Nesting Bird Breeding Habitat is not present on site and cliff swallows and bank swallows were not observed on site.

Waterfowl Stopover and Staging Areas (i.e. fields flooded in spring) are not present on this site.

Habitat of Special Concern, S1-S3 and SH Species and Communities are candidate Significant Wildlife Habitat. Table 4 lists five bird, three reptile and two insect species that are in this category and have suitable habitat on site; although, the habitat is of marginal quality for 5 of the species identified. The only element occurrence identified by the NHIC was for the five-lined skink. Although it has been identified in the squares for this site, the habitat is marginal and not considered significant, as it does not contain the open rocky outcrops that skinks prefer (Seburn, 2010). None of the 10 species were observed on site.

Field investigations did not identify any hibernacula or rare vegetation communities (as listed in the SWHTG 2009 draft) such as prairie or alvar habitat. All natural vegetation types were common.

Additional information was collected during site visits associated with the wildlife habitat. Appendix 10 identifies habitat disturbances by ELC area. The information supports the view that the site is moderately to highly disturbed. Appendix 11 identifies wildlife habitat features by ELC area. The features identified are typical of this type of habitat.

5 Natural Environment and Impact Assessment

5.1 Significant Areas of Natural and Scientific Interest (ANSI)

No ANSIs are present on the property or in the 120 m adjacent lands.

5.2 Significant Portions of the Habitat of Endangered or Threatened Species

One butternut tree was found on the property. It is in the east end ofthe site, (georeferenced: 17 T 0592212 4945347). The tree was assessed as being retainable. The butternut tree is outside of the extraction area and will be protected. No other endangered or threatened species where found on the property or in the 120 m adjacent lands.

5.3 Significant Wetlands

No Provincially Signficant Wetlands are present on the property or in the 120 m adjacent lands.

5.4 Fish Habitat

No fish habitat is present on the property or in the 120 m adjacent lands. The closest permanent stream is a tributary of the Wye River and is located over 1000 m from the proposed licensed property.

5.5 Significant Woodlands

As discussed in Section 4.13, the County of Simcoe has identified a section of Greenlands designation on the property named Tiny-Tay Peninsula 4 (TTP4), Wye River Valley (large area of woodlands). The Township of Tiny has also identified this area as Significant Woodland on site and in the 120 m adjacent lands. Most of the proposed licensed property is part of a 353.7 ha woodland (part of TTP 4), (Grace and Associates, 2011). The woodland has been identified as significant due to the size of the contiguous woodland stand, the presence of trees > 100 years in some areas and the presence of interior bird habitat. The best forest habitat on the proposed licensed property is ELC01 (FOD5-1) which is located in the west end of the property. It is a 13 ha stand of even-aged second-growth hard maple. Almost all of the trees in the main canopy are about 110 years old. It has been logged in the past with evidence of recent logging which took place three and eight years ago. The significance of this stand is reduced due to the selective logging that has occurred through the years. The selective logging has reduced the occurrences of native interior forest flora and no significant plant species or communities were identified (All flora species are listed as S4 and S5 meaning that all are considered common or abundant and secure within the province). The majority of this stand will be excluded from the extraction area and protected.

Most of the remaining forest, approximately 26.6 ha, on the proposed licensed property is small plantations of various species and ages and stands of young secondary growth. These stands do not have the attributes to be considered significant. Also, this 353.7 ha woodland is isolated with no linkages to other woodlands. Impacts to the woodlands will be discussed in Section 5.7.2.

5.6 Significant Wildlife Habitat

The following candidate Significant Wildlife Habitat has been identified on the property: Area-Sensitive Bird Breeding Habitat (interior forest bird habitat). The only forest stand on

the licensed property that meets the criteria is ELC01 (FOD5-1) which is 13 ha, has trees > 100 years of age and interior bird habitat. This habitat is part of the Significant Woodlands listed above. The forested habitat in the remainder of the property is mainly plantation forest and secondary growth with many open areas and lack of a closed canopy and does not meet the definition of "Area-sensetive Breeding Bird Habitat" (Interior forest bird habitat). Impacts to the significant wildlife habitat will be discussed in Section 5.7.2.

5.7 Greenlands

Schedule 5.4 Natural Heritage System of the Simcoe County Official Plan indicates that the proposed license area is in the Greenlands designation Tiny-Tay Peninsula TTP4, Wye River Valley (Appendix 1). The original mapping was completed at a scale of 1:125,000 (Gartner Lee Limited, 1996). It was also recognized by Gartner Lee that the Greenlands boundaries may shift as detailed site specific information becomes available. The existing boundary is not accurate and needs to be changed to more accurately identify the forest edge.

5.7.1 Terrain Functions

The following three functions are considered important in TTP4: discharge, flood storage and conveyance. Although discharge has been identified within TTP4, no groundwater discharge was observed on the property and the surface flow dried up during dry periods. The Letter of Opinion/Hydrogeological assessment (Alpha Environmental Services Inc, 2010) indicates that the water table is estimated to vary from 236.0 meters a.s.l. in the west portion of the proposed licensed property to 254 meters a.s.l. in the central portion and to 252 meters a.s.l. in the east portion. These levels are below the existing ground level which supports the field observations of no groundwater discharge areas on the proposed licensed property. The final pit floor will be maintained a minimum of 1.5 m above the water table to protect the ground water.

Flood storage and conveyance are more associated with the flood plain of the Wye River and its tributaries. The closest permanent tributary is over 1000 m to the north east of the site. The property contributes little to these functions and will have minimal impact on these functions. The existing surface drainage through the site will be maintained with suitable sediment control to ensure sediments do not leave the site.

5.7.2 Vegetation Functions

The following five functions were identified as being important in TTP4: erosion protection, temperature control, water quality enhancement, aquatic habitat and terrestrial habitat. Vegetation can reduce erosion, maintain cool water temperatures in watercources during summer, reduce nutrients and sediments loading to watercources and provide habitat for aquatic organisms (Gartner Lee Limited, 1996). The first four functions are mainly associated with aquatic habitats and fisheries. The closest permanent aquatic habitat is over 1000 m northeast of the site. Therefore, pit operations should not impact these functions.

Vegetation also provides terrestrial habitat. The terrestrial habitat on the proposed licensed property is part of the 353.7 ha woodland (part of TTP4) that is considered "Significant Woodlands". The "Significant Woodlands" also include sections that are considered forest interior bird habitat identified by Gartner Lee Limited (1996) as an important component of terrestrial habitat in the Greenlands of Simcoe County.

Forest interior habitat is usually defined as habitat more than 100 m from the edge of the woodlands (OMNR, 2009). It normally consists of mature hardwoods and may include some mature conifers. The canopy closure is usually > 60 percent. For a woodland to be considered "Area-sensitive Bird Breeding Habitat" (significant wildlife habitat) it must be a mature (>60 years old) natural forest (non-plantation) stand of 30 ha or more in size and with at least 10 ha of interior habitat assuming a 100m buffer at the edge of the forest (OMNR, 2009). Also, for the area to be considered significant wildlife habitat the presence of nesting or breeding pairs of 3 or more of the listed bird species must be confirmed (OMNR, 2009). Although nesting and breeding was not confirmed, during the present study, calling males of three of the listed species (ovenbird, scarlet tanager and yellow-bellied sapsucker) were heard during the site visits.

Environment Canada (2004) recommends that a watershed should have 30% forest cover to support forest interior bird species and have at least one 200 ha forest unit to support 80 percent of expected interior and interior edge bird species.

Craig (2006) included a forest cover analysis conducted by the Severn Sound Environmental Association in a report for the Sarjeant Waverley Pit #2 Site south and west of the site. The analysis included the proposed licensed area and identified interior forest habitat on the site and in the 120 m adjacent lands. Craig (2006) concluded that the loss of forest cover (30.2 ha or 0.4 % of forest habitat in the watershed) and loss of interior bird habitat (21.8 ha or about 1.7 % in the watershed) was not significant within the Wye River watershed. Craig (2006) further stated, "Forest habitats will remain above the minimums as recommended by Environment Canada, 2004 throughout the watershed and will continue to provide adequate habitat for forest birds". Craig (2006) used the 200m from edge criteria as recommended by Environment Canada (2004). It was also noted that largest forest patch (699 ha) in the watershed would not be impacted and the woodland TTP4 is isolated with no linkages to other woodlands.

Grace and Associates completed a similar forest cover analysis using the most recent forest cover information from OMNR. Some of the areas are different from the previous analysis, which is probably due to the different base data. Also, 100 m from edge criteria was used to be consistent with the Significant Wildlife Habitat Guidelines (SWHTG), (OMNR, 2000) and the Natural Heritage Reference Manual 2nd edition (OMNR, 2010b).

Table 5 and Fig. 14 show the existing forest cover for the area surrounding the proposed licensed area. This woodlot is approximately 353.7 ha in size and has 86.6 ha of interior bird habitat. There are three licensed pits in the area where forest cover and interior bird habitat will be lost. These include the Teedon Pit with a proposed loss of 16.2 ha of forest cover and 9.1 ha of interior bird habitat and Sarjeant's Waverley Pit # 1 and Pit # 2 with a proposed loss of forest cover (29.0 ha) and interior bird habitat (21.4 ha) (Fig. 15 and Table 5). Fig. 16 and Table 5 show the additional forest cover (26.6 ha) and interior bird habitat (5.3 ha) that would be lost with the proposed application.

Similar to the conclusions from the analysis for the Sarjeant Pit#2 (Craig, 2006), with the additional loss of forest cover as a result of the proposed Sibthorpe Pit, the Wye River watershed would continue to have more than the minimum forest habitats (as recommended by Environment Canada, 2004) to support all forest interior bird species found in Simcoe County. Data from OMNR indicates that 7205.7 ha (33.8 %) of the watershed are forest habitat and approximately 1959.0 ha (9.2 %) are forest interior habitat and the largest patch is 444.5 ha (Table 6). After development, forest habitat will be 7133.9 ha or 33.4 % of the watershed and interior bird habitat will be 1923.2 ha or 9.0 % of the watershed. Therefore, the loss of forest habitat and interior bird habitat in the watershed will be 0.3 % and 0.2 %, respectively. The loss of forest habitats related to this application will not significantly reduce the total forest habitat or the interior bird habitats within the Wye River watershed. Forest habitats will remain above the minimums throughout the Wye River watershed and provide adequate habitat for forest birds.

Although forest habitat will be lost with the proposed development in the short-term, it will not occur all at once. The majority of the woodland ELC01 (FOD5-1) which contains the, “Area sensitive bird habitat”, will be excluded from the extraction area and protected. After extraction the areas will be planted as soon as possible with trees as described in the Tree Planting Perscription (Appendix 12). The Tree Planting Perscription identifies approximately 26.6 ha that will be planted as part of the rehabilitation plan (Fig. 16). The existing rehabilitation plan for the Teedon Pit calls for the planting of trees on approximately 22.9 ha. The rehabilitation plan for the Sibthorpe site includes the planting of trees on approximately 26.6 ha and an additional 4.9 ha of trees to be planted in the eastern section of the Teedon site. A tree planting agreement for the additional 4.9 ha will be finalized with the Township of Tiny prior to pit operations commencing on the Sibthorpe Pit. More area on the Sibthorpe and Teedon sites will be planted with trees (54.4 ha) than the area of forest that will be removed for extraction (42.8 ha).

Figure 14: Existing Forest Cover on Sibthorpe Proposed Licensed Pit and Surrounding Area, July 2011

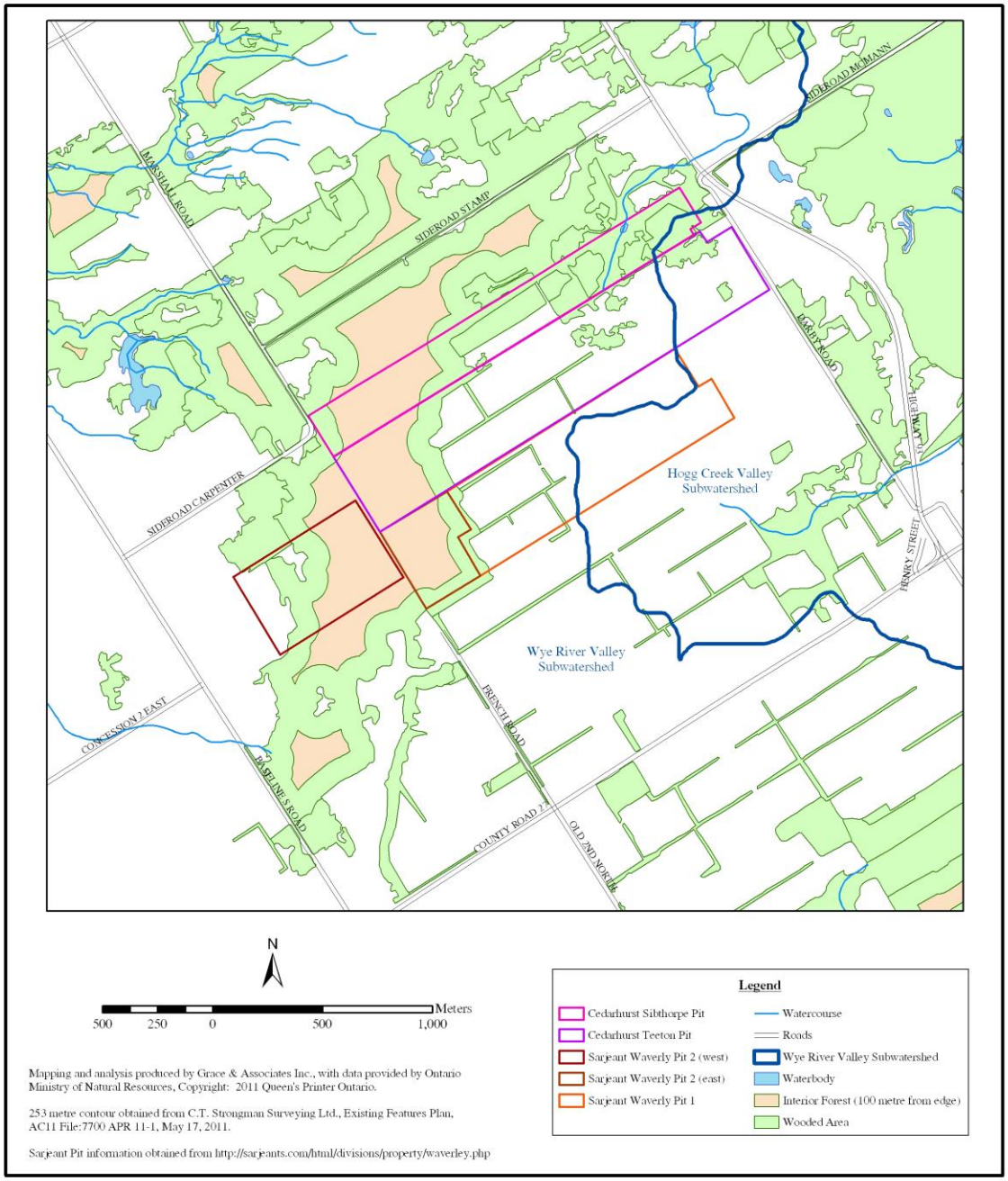

Figure 15: Forest Cover After Existing Teedon Licensed Pit and the Sarjeant's Licensed Pits are Developed

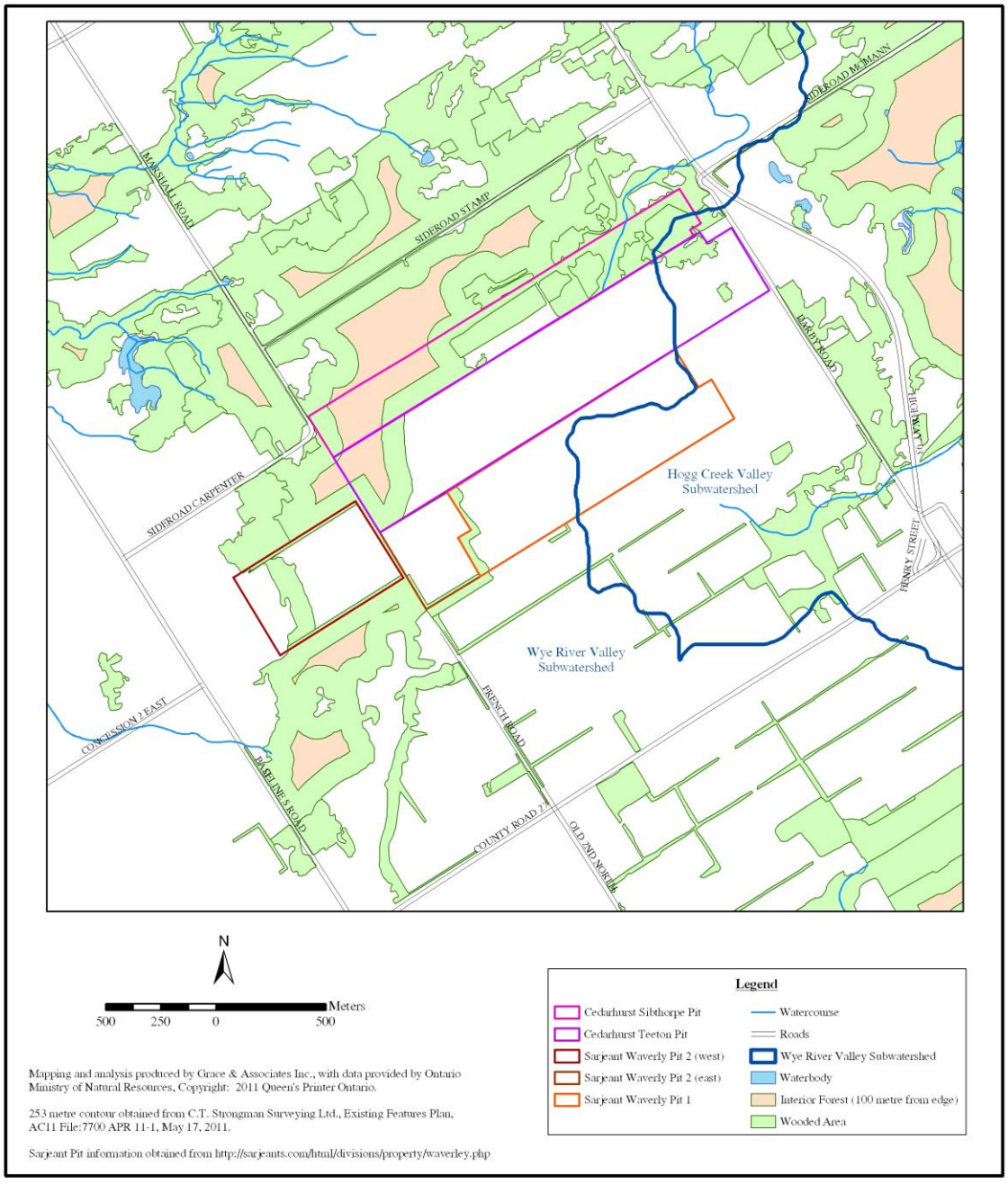

Figure 16: Forest Cover After Existing Licensed Pits and Sibthorpe Proposed Licensed Pit are Developed

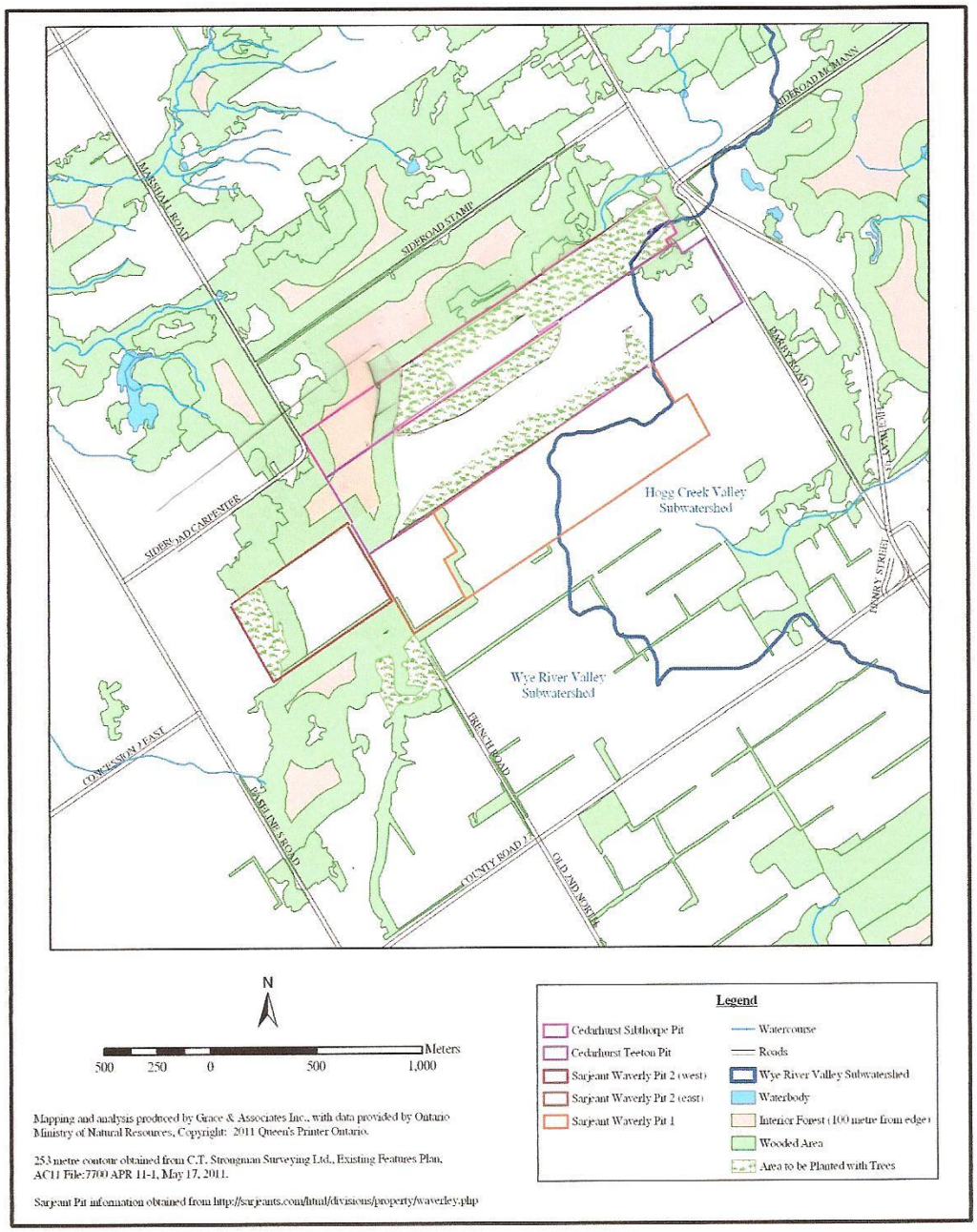

Table 5: Forest Habitat on Proposed Sibthorpe Pit and Surrounding Area, 2011. *

	Total Forest Cover (ha)	Interior Habitat (ha) 100 m from Edge
Existing Conditions		
Sibthorpe Pit (Proposed Licensed Property)	39.2	10.8
Teedon Pit (Existing Licensed Property)	25.9	13.2
Sarjeant Waverley Pit 1 and 2 (Existing Licensed Property)	37.1	21.4
Total	**102.2**	**45.4**
After Development of Existing Licensed and Proposed Licensed Pits		
Sibthorpe Pit (Proposed Licensed Property)	12.6	5.5
Teedon Pit (Existing Licensed Property)	9.7	4.1
Sarjeant Waverley Pit 1 and 2 (Existing Licensed Property)	8.1	0.0
Total	**30.4**	**9.6**
Reduction in Forest Cover Between Existing and Proposed		
Sibthorpe Pit (Proposed Licensed Property)	26.6	5.3
Teedon Pit (Existing Licensed Property)	16.2	9.1
Sarjeant Waverley Pit 1 and 2 (Existing Licensed Property)	29.0	21.4
Total	**71.8**	**35.8**
Proposed Tree Planting to restore Forest Cover on the Sites		
Sibthorpe Pit (Proposed Licensed Property)	26.6	
Teedon Pit (Existing Licensed Property)	22.9 +4.9 27.8	
Sarjeant's Waverley Pit 1 and 2 (Existing Licensed Property) (not all of the area to be planted is shown in Fig. 16)	26.3	
Total	**80.7**	

Mapping and analysis produced by Grace & Associates Inc., with data provided by Ontario Ministry of Natural Resources, Copyright: 2011 Queen's Printer Ontario.

253 metre contour obtained from C.T. Strongman Surveying Ltd., Existing Features Plan, AC11 File: 7700 APR 11-1, May 17, 2011.

Sarjeant Pit information obtained from http://sarjeants.com/html/divisions/property/waverley.php

Table 6: Forest Cover In the Wye River Watershed, 2011. *

	Wye River Watershed	
Total Watershed Area (ha)	21343.5	
Size of Largest Patch (ha)	444.5 (2.1 %)	
Woodland Associated with Teedon, Sibthorpe and Sarjeant's Sites (ha)	102.2 (0.5%)	
	Forest Cover (ha)	**Forest Cover (ha) > 100 m from Edge**
Wye River Watershed (Existing Conditions)	7205.7 (33.8 %)	1959.0 (9.2 %)
Wye River Watershed (After Development)	7133.9 (33.4%)	1923.2(9.0 %)
Wye River Watershed (Reduction)	71.8 (0.3 %)	35.8 (0.2%)
Wye River Watershed (Tree Planting Rehabilitation)	80.7 (0.4%)	

Mapping and analysis produced by Grace & Associates Inc., with data provided by Ontario Ministry of Natural Resources, Copyright: 2011 Queen's Printer Ontario.

253 metre contour obtained from C.T. Strongman Surveying Ltd., Existing Features Plan, AC11 File: 7700 APR 11-1, May 17, 2011.

Sarjeant Pit information obtained from http://sarjeants.com/html/divisions/property/waverley.php

A number of mitigation measures will be implemented to try to reduce impacts of the design and operation of the pit. These measures will be discussed in Section 6.2 and 6.3.

5.7.3 Attributes

The following seven attributes have been identified as important in TTP4: coldwater habitat, warmwater habitat, fish spawning, waterfowl concentrations, provincially rare animals, provincially rare plants, and uncommon vegetation. As discussed above, none of these occur within the study area. Therefore, none of these attributes will be impacted by the proposal.

5.7.4 Linkages

Linkages or connecting links are the corridors of habitat that provide opportunities for wildlife movement and enhance the long-term ecological viability of a region (Gartner Lee Limited, 1996). No Potential Greenland Linkages (Schedule 5.1) or Linkages (Schedule 5.4) are identified in the County of Simcoe Official Plan on the proposed licence property or in the 120 m adjacent lands. Also, no Potential Natural Corridors (Schedule B) are identified in the Township of Tiny Official Plan on the proposed licence property or in the 120 m adjacent lands. Therefore, no identified potential linkages will be impacted by the proposal.

The following three linkage values are also listed in Table 1: aquatic, riparian/lowland and restoration opportunity. No aquatic or riparian/lowland habitats exist on the proposed licensed area and the nearest habitat is over 1000 m from the site. Also, restoration opportunity refers to those areas referred to as potential linkages or natural corridors and none occur on the licensed property or in the 120 m adjacent lands. Therefore, no linkage values listed in the Garnter Lee Limited report will be impacted by this proposal.

Although no significant likages have been identified on the proposed licenced area, the forest cover on site does provide natural corridors for the movement of fauna and flora through the site to adjacent properties. Mitigation measures to maintain and restore the forest habitat and natural corridors on site are identified in Section 6.0.

5.7.5 Status Designation

The three status designations are identified as being important in TTP4: Provincially Significant Wetlands, Locally Significant Wetlands and Provincial Park/Conservation Areas. None of these status designations are identified within the study area and, therefore, will not be impacted by the proposal.

6 Natural Environment Impact Prevention and Mitigation

6.1 Significant Portions of the Habitat of Endangered or Threatened Species

One butternut tree was found on the property. It is in the east end of the site, (georeferenced: 17 T 0592212 4945347). The tree was assessed as being retainable. The butternut tree is outside of the extraction area and will be protected.

6.2 Significant Woodlands

The following measures will be implemented:

- The majority of ELC01 (10.6 ha) will be excluded from the extraction area and protected.
- The forest areas will be cleared as described in the site plan prior to excavation activities. Rehabilitation will be progressive so areas where extraction is complete will be sloped, topsoil applied, then seeded and planted with trees to ensure the forests cover is re-established as quickly as possible as directed in the attached Tree Planting Prescription (Appendix 12).
- Commercially valuable trees will be progressively harvested up until land clearing.
- Approximately 26.6 ha of the Sibthorpe property will be rehabilitated to forest cover as directed in the attached Tree Planting Prescription (Appendix 12). The

existing rehabilitation plan for the Teedon Pit calls for the planting of trees on approximately 22.9 ha. The rehabilitation of the Sibthorpe site includes an additional 4.9 ha of trees to be planted in the eastern section of the Teedon site. A tree planting agreement for the additional 4.9 ha will be finalized with the Township of Tiny prior to pit operations commencing on the Sibthorpe Pit.

6.3 Significant Wildlife Habitat

The measures identified in Section 6.2 will assist with reducing the impact of this loss.

6.4 Greenlands

6.4.2 Terrain Functions

To protect the groundwater in the area, the following mitigation is recommended:

- The pit floor will be a minimum of 1.5 m above the water table.
- Fuel tanks, re-fuelling area(s), equipment maintenance and cleaning area(s) will be installed in accordance with Ontario Ministry of Environment guidelines and will be located more than 50 m from the limit of extraction.
- A Spills Response Plan will be prepared, implemented and enforced.
- All surface water from disturbed areas will remain on site and permitted to infiltrate into the ground or be properly treated to ensure sediment does not leave the site.

6.4.3 Vegetation Functions

- The measures identified in Section 6.2 will assist with reducing the impact of this loss.

6.4.4 Linkages

The following measures will be implemented to maintain or re-establish corridors:

- Those sections of the woodlands that will not be cleared in the near future will be left to allow natural succession to continue.
- The forest areas will be cleared as described in the site plan prior to excavation activities. Rehabilitation will be progressive so areas where extraction is

complete will be sloped, topsoil applied, then seeded and planted with trees to ensure the forests cover is re-established as quickly as possible as directed in the attached Tree Planting Prescription (Appendix 12).

7 Rehabilitation

Progressive and final rehabilitation will be conducted as identified in the operational phasing notes on page 2 of the site plans (Operational Plans). Within 2 years after complete extraction, the distrurbed area will be rehabilitated. The objective of final rehabilitation is to restore forest to 26.6 ha of the property and farm land (3.4 ha) in the central portion. After rehabilitation is complete the surface drainage within the rehabilitated area will be similar to existing conditions. The following rehabilitation is proposed as part of the rehabilitation plan:

- Extraction will occur at a rate depending on the supply and demand.
- On site, restoration to forest habitat will begin immediately, where possible, after an area is depleted of aggregate material as identified in the site plans.
- Existing topsoil will be retained on site for rehabilitation to provide a seed bank source of native species for re-establishment.
- All berms and stockpiles will be seeded with grass and legume mixtures to create short-term wildlife habitat and prevent erosion and dust from leaving the site.

8 Conclusion

This report provides Natural Heritage information to fulfill the requirements of a Natural Heritage report to support an application under the Aggregate Resources Act and an Environmental Impact Statement (Study) as required by the County of Simcoe Official Plan for a development proposal in Greenlands unit TTP 4 and the Township of Tiny Official Plan for development in areas identified as Environmental Protection II.

No significant Areas of Natural and Scientific Interest, Provincially Significant Wetlands, Fish Habitat or Significant Valleylands (S. and E. of the Canadian Shield) are found in the study area.

The only Threatened and Endangered species found was a butternut tree that is located in the extreme east end of the property. This tree is not in the area of extraction and will be retained.

Significant Woodlands are present (Greenland unit TTP4 and Environmental Protection II). The majority of the most sensitive woodlands will be protected and left to allow natural succession to continue. The less sensitive forest areas will be cleared as described in the site plans prior to excavation activities. Rehabilitation will be progressive so areas where extraction is complete will be sloped, topsoil applied, then seeded and planted with trees to ensure the forests cover is re-established as quickly as possible as directed in the attached Tree Planting Prescription (Appendix 12).

Parts of the Significant Woodlands are also considered Candidate Significant Wildlife Habitat: Area-Sensitive Bird Breeding Habitat (interior forest bird habitat). These woodlands will be protected and left to allow natural succession to continue. The forest areas will be cleared as described in the site plan prior to excavation activities. Rehabilitation will be progressive so areas where extraction is complete will be sloped, topsoil applied, then seeded and planted with trees to ensure the forests cover is re-established as quickly as possible as directed in the attached Tree Planting Prescription (Appendix 12).

9 References

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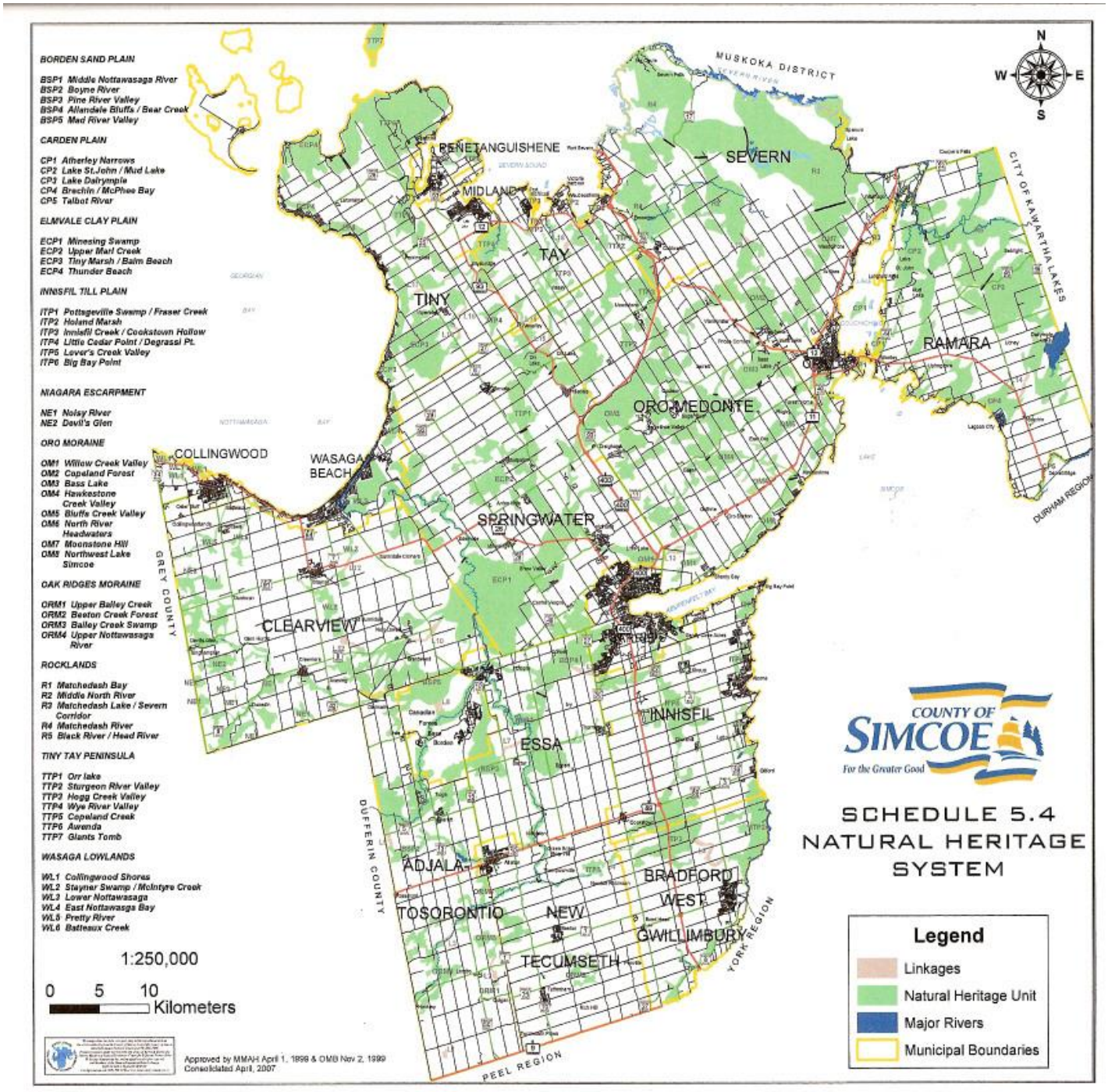
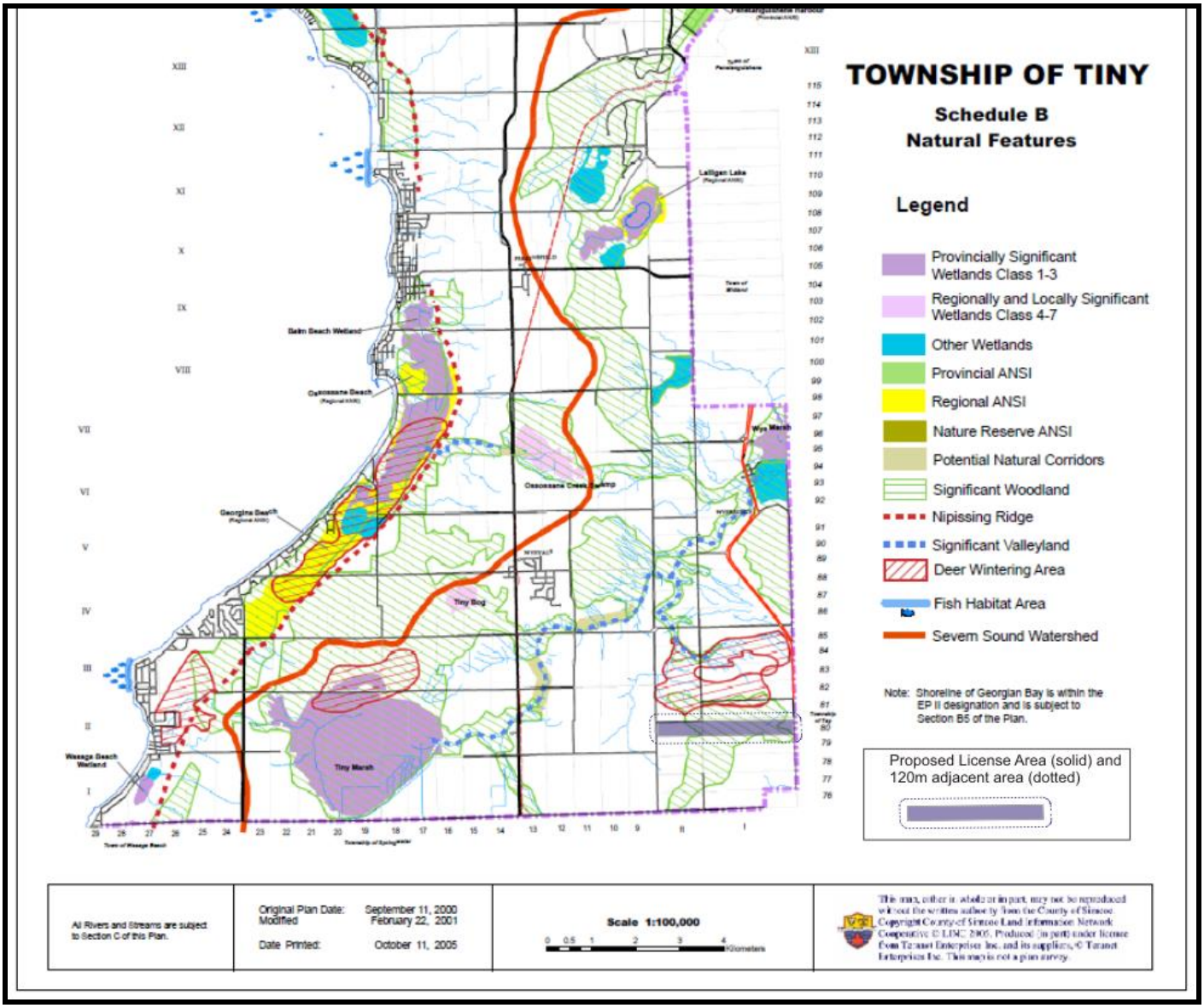
10 Appendices

1. County of Simcoe Official Plan, Schedule 5.4, Natural Heritage System.



2. Township of Tiny Official Plan, Schedule B, Natural Features.



3. Floristic Quality Assessment

The Floristic Quality Assessment Methodology is based on the method of Wilhelm and Ladd (1988), adapted for Southern Ontario by Oldham, Bakowsky and Sutherland 1995 (Ontario Ministry of Natural Resources). G-rankings and S-rankings provided by OMNR Natural Heritage Information Centre May 2010. Ecological land classification descriptions from Ecological Land Classification Field Guide FG-02 1998 (Lee et al). Output and summary data derived from MS Access. The database application was first developed by Paul Nichol of Ecosystems in 1999 and last modified in 2010. Rankings are intended to provide a general overview of relative provincial (Srank) and global (Grank) ranking status and may not reflect current status and/or be inaccurate.

Map Reference: *01* ***ELC community:*** *FOD5-1*
Dry - Fresh Sugar Maple Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Allium tricoccum	WILD LEEK;RAMPS	Liliaceae	N Forb		7	FACU+	2	S5	G5
Ambrosia artemisiifolia	COMMON RAGWEED	Asteraceae	N Forb		0	FACU	3	S5	G5
Apocynum	SPREADING DOGBANE	Apocynaceae	N Forb		3	UPL	5	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Carex arctata	SEDGE	Cyperaceae	N Sedge		5	UPL	5	S5	G5?
Carex rosea	WOOD SEDGE	Cyperaceae	N Sedge		5	UPL	5	S5	G5
Caulophyllum thalictroides	BLUE COHOSH	Berberidaceae	N Forb		6	UPL	5	S5	G4G5
CERASTIUM FONTANUM	MOUSE-EAR CHICKWEED	Caryophyllaceae	A Forb	-1		FACU	3	SNA	GNR
CIRSIUM ARVENSE	CANADIAN-THISTLE	Asteraceae	A Forb	-1		FACU	3	SNA	GNR
Clinopodium vulgare	WILD BASIL	Lamiaceae	N Forb		4	UPL	5	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Corylus cornuta	BEAKED HAZELNUT	Betulaceae	N Shrub		5	UPL	5	S5	G5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris intermedia	GLANDULAR or EVERGREEN WOODFERN	Dryopteridaceae	N Fern		5	FAC	0	S5	G5
Dryopteris marginalis	MARGINAL WOODFERN	Dryopteridaceae	N Fern		5	FACU	3	S5	G5
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Fraxinus pennsylvanica	RED ASH	Oleaceae	N Tree		3	FACW	-3	S5	G5
Galium triflorum	FRAGRANT BEDSTRAW	Rubiaceae	N Forb		4	FACU+	2	S5	G5
GERANIUM ROBERTIANUM	HERB ROBERT	Geraniaceae	A Forb	-2		UPL	5	SNA	G5
Hepatica acutiloba	SHARP-LOBED HEPATICA	Ranunculaceae	N Forb		6	UPL	5	S5	G5T5
Hydrophyllum virginianum	VIRGINIA WATERLEAF	Hydrophyllaceae	N Forb		6	FACW-	-2	S5	G5
HYPERICUM PERFORATUM	COMMON ST. JOHN'S-WORT	Clusiaceae	A Forb	-3		UPL	5	SNA	GNR
Lonicera canadensis	AMERICAN FLY HONEYSUCKLE	Caprifoliaceae	N Shrub		6	FACU	3	S5	G5

Map Reference: *01* ***ELC community:*** *FOD5-1*
Dry - Fresh Sugar Maple Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
Maianthemum racemosum	FALSE SPIKENARD	Liliaceae	N Forb		4	FACU	3	S5	G5
NEPETA CATARIA	CATNIP	Lamiaceae	A Forb	-2		FAC-	1	SNA	GNR
Oryzopsis asperifolia	ROUGH-LEAVED RICE-	Poaceae	N Grass		6	UPL	5	S5	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Oxalis stricta	YELLOW WOOD-SORREL	Oxalidaceae	N Forb		0	FACU	3	S5	G5
Parthenocissus inserta	THICKET CREEPER	Vitaceae	N Vine		3	FACU	3	S5	G5
PLANTAGO	ENGLISH PLANTAIN;RIBGRASS	Plantaginaceae	A Forb	-1		FAC	0	SNA	G5
PLANTAGO MAJOR	COMMON PLANTAIN	Plantaginaceae	A Forb	-1		FAC+	-1	SNA	G5
Potentilla norvegica	ROUGH CINQUEFOIL	Rosaceae	N Forb		0	FAC	0	S5	G5
Prenanthes altissima	TALL WHITE LETTUCE	Asteraceae	N Forb		5	FACU	3	S5	G5?
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Prunus virginiana	CHOKE CHERRY	Rosaceae	N Shrub		2	FAC-	1	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RANUNCULUS ACRIS	TALL or COMMON BUTTERCUP	Ranunculaceae	A Forb	-2		FACW-	-2	SNA	G5
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rhus typhina	STAGHORN SUMAC	Anacardiaceae	N Tree		1	UPL	5	S5	G5
Ribes americanum	WILD BLACK CURRANT	Grossulariaceae	N Shrub		4	FACW	-3	S5	G5
Ribes cynosbati	PRICKLY or WILD GOOSEBERRY	Grossulariaceae	N Shrub		4	UPL	5	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Rubus occidentalis	BLACK RASPBERRY	Rosaceae	N Shrub		2	UPL	5	S5	G5
Sambucus racemosa	RED-BERRIED ELDER	Caprifoliaceae	N Shrub		5	FACU+	2	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
TARAXACUM	COMMON DANDELION	Asteraceae	A Forb	-2		FACU	3	SNA	G5
Thalictrum dioicum	EARLY MEADOW-RUE	Ranunculaceae	N Forb		5	FACU+	2	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Trillium grandiflorum	COMMON TRILLIUM	Liliaceae	N Forb		5	UPL	5	S5	G5
Tsuga canadensis	HEMLOCK	Pinaceae	N Tree		7	FACU	3	S5	G4G5
Uvularia grandiflora	LARGE-FLOWERED BELLWORT	Liliaceae	N Forb		6	UPL	5	S5	G5
VERBASCUM THAPSUS	COMMON MULLEIN	Scrophulariaceae	A Forb	-2		UPL	5	SNA	GNR
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Viola canadensis	CANADA VIOLET	Violaceae	N Forb		6	UPL	5	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
62	49	79	13	21

Total Weediness Score: -23

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Mean Wetness: 2.7

Map Reference: *02* ***ELC community:*** *FOD5-3*
Dry - Fresh Sugar Maple - Oak Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer rubrum	RED MAPLE	Aceraceae	N Tree		4	FAC	0	S5	G5
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Carex gracillima	SEDGE	Cyperaceae	N Sedge		4	FACU	3	S5	G5
Carex rosea	WOOD SEDGE	Cyperaceae	N Sedge		5	UPL	5	S5	G5
CHENOPODIUM ALBUM	LAMB'S QUARTERS;"PIGWEED"	Chenopodiaceae	A Forb	-1		FAC-	1	SNA	G5
Conopholis americana	SQUAWROOT	Orobanchaceae	N Forb		9	UPL	5	S4?	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Corylus cornuta	BEAKED HAZELNUT	Betulaceae	N Shrub		5	UPL	5	S5	G5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
Desmodium canadense	SHOWY TICK-TREFOIL	Fabaceae	N Forb		5	FAC-	1	S4	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris intermedia	GLANDULAR or EVERGREEN WOODFERN	Dryopteridaceae	N Fern		5	FAC	0	S5	G5
Dryopteris marginalis	MARGINAL WOODFERN	Dryopteridaceae	N Fern		5	FACU	3	S5	G5
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Equisetum pratense	MEADOW-HORSETAIL	Equisetaceae	N Fern		8	FACW	-3	S5	G5
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
HIERACIUM CAESPITOSUM	KING-DEVIL	Asteraceae	A Forb	-2		UPL	5	SNA	GNR
Lonicera canadensis	AMERICAN FLY HONEYSUCKLE	Caprifoliaceae	N Shrub		6	FACU	3	S5	G5
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
Maianthemum racemosum	FALSE SPIKENARD	Liliaceae	N Forb		4	FACU	3	S5	G5
MALUS PUMILA	APPLE	Rosaceae	A Tree	-1		UPL	5	SNA	G5
MELILOTUS ALBA	WHITE SWEET-CLOVER	Fabaceae	A Forb	-3		FACU	3	SNA	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunella vulgaris ssp. lanceolata	HEAL-ALL	Lamiaceae	N Forb		5	UPL	5	S5	G5T5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
Rhus radicans ssp. negundo	POISON-IVY	Anacardiaceae	N Vine		5	FAC+	-1	S5	G5T5
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Sambucus racemosa	RED-BERRIED ELDER	Caprifoliaceae	N Shrub		5	FACU+	2	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solanum ptycanthum	BLACK NIGHTSHADE		N Forb		3	UPL	5		
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Tsuga canadensis	HEMLOCK	Pinaceae	N Tree		7	FACU	3	S5	G4G5
TUSSILAGO FARFARA	COLTSFOOT	Asteraceae	A Forb	-2		FACU	3	SNA	GNR
VERBASCUM THAPSUS	COMMON MULLEIN	Scrophulariaceae	A Forb	-2		UPL	5	SNA	GNR
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Map Reference: *02* ***ELC community:*** *FOD5-3*
Dry - Fresh Sugar Maple - Oak Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
43	34	79	9	21

Mean Coefficient of Conservatism

Natives only:	5
Natives and Non-	4

Total Weediness Score: -17 ***Mean Wetness:*** 2.5

Map Reference: *03* ***ELC community:*** *CUP3-3*
Scotch Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Aster novae-angliae	NEW ENGLAND ASTER	Asteraceae	N Forb		2	FACW	-3	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Caulophyllum thalictroides	BLUE COHOSH	Berberidaceae	N Forb		6	UPL	5	S5	G4G5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
Desmodium canadense	SHOWY TICK-TREFOIL	Fabaceae	N Forb		5	FAC-	1	S4	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris intermedia	GLANDULAR or EVERGREEN WOODFERN	Dryopteridaceae	N Fern		5	FAC	0	S5	G5
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fragaria virginiana	WILD STRAWBERRY	Rosaceae	N Forb		2	FAC-	1	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
Maianthemum racemosum	FALSE SPIKENARD	Liliaceae	N Forb		4	FACU	3	S5	G5
MALUS PUMILA	APPLE	Rosaceae	A Tree	-1		UPL	5	SNA	G5
MEDICAGO LUPULINA	BLACK MEDICK	Fabaceae	A Forb	-1		FAC-	1	SNA	GNR
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Parthenocissus inserta	THICKET CREEPER	Vitaceae	N Vine		3	FACU	3	S5	G5
PINUS SYLVESTRIS	SCOTS or SCOTCH PINE	Pinaceae	A Tree	-3		UPL	5	SNA	GNR
Potentilla norvegica	ROUGH CINQUEFOIL	Rosaceae	N Forb		0	FAC	0	S5	G5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Prunus virginiana	CHOKE CHERRY	Rosaceae	N Shrub		2	FAC-	1	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rhus typhina	STAGHORN SUMAC	Anacardiaceae	N Tree		1	UPL	5	S5	G5
Ribes cynosbati	PRICKLY or WILD GOOSEBERRY	Grossulariaceae	N Shrub		4	UPL	5	S5	G5
Rubus occidentalis	BLACK RASPBERRY	Rosaceae	N Shrub		2	UPL	5	S5	G5

Map Reference: *03* ***ELC community:*** *CUP3-3*
Scotch Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Sambucus racemosa	RED-BERRIED ELDER	Caprifoliaceae	N Shrub		5	FACU+	2	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
31	27	87	4	13

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Total Weediness Score: -7

Mean Wetness: 2.4

Map Reference: *04* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Erigeron strigosus	DAISY FLEABANE	Asteraceae	N Forb		0	FAC-	1	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Pinus resinosa	RED PINE	Pinaceae	N Tree		8	FACU	3	S5	G5
Pinus strobus	WHITE PINE	Pinaceae	N Tree		4	FACU	3	S5	G5
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Solidago altissima	TALL GOLDENROD	Asteraceae	N Forb		1	FACU	3	S5	G5
Solidago gigantea	LATE GOLDENROD	Asteraceae	N Forb		4	FACW	-3	S5	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
11	10	91	1	9

Mean Coefficient of Conservatism

Natives only:	3
Natives and Non-	3

Total Weediness Score: -2

Mean Wetness: 1.9

Map Reference: *05* ***ELC community:*** *CUM1-1*
Dry Moist Old Field Meadow Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Agrimonia gryposepala	TALL AGRIMONY	Rosaceae	N Forb		2	FACU+	2	S5	G5
Ambrosia artemisiifolia	COMMON RAGWEED	Asteraceae	N Forb		0	FACU	3	S5	G5
Anemone virginiana	THIMBLEWEED	Ranunculaceae	N Forb		4	UPL	5	S5	G5
Apocynum	SPREADING DOGBANE	Apocynaceae	N Forb		3	UPL	5	S5	G5
Asclepias syriaca	COMMON MILKWEED	Asclepiadaceae	N Forb		0	UPL	5	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Aster ericoides	HEATH ASTER	Asteraceae	N Forb		4	FACU-	4	S5	G5
Aster lanceolatus	EASTERN LINED ASTER	Asteraceae	N Forb		3	FACW	-3	S5	G5
Aster novae-angliae	NEW ENGLAND ASTER	Asteraceae	N Forb		2	FACW	-3	S5	G5
BROMUS INERMIS SSP. INERMIS	HUNGARIAN BROME;SMOOTH BROME	Poaceae	A Grass	-3		UPL	5	SNA	GNR
CERASTIUM FONTANUM	MOUSE-EAR CHICKWEED	Caryophyllaceae	A Forb	-1		FACU	3	SNA	GNR
CHRYSANTHEMUM LEUCANTHEMUM	OX-EYE DAISY	Asteraceae	A Forb	-1		UPL	5	SNA	GNR
Clinopodium vulgare	WILD BASIL	Lamiaceae	N Forb		4	UPL	5	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Cornus stolonifera	RED-OSIER DOGWOOD	Cornaceae	N Shrub		2	FACW	-3	S5	G5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
DACTYLIS GLOMERATA	ORCHARD GRASS	Poaceae	A Grass	-1		FACU	3	SNA	GNR
Danthonia spicata	POVERTY GRASS;OATGRASS	Poaceae	N Grass		5	UPL	5	S5	G5
DAUCUS CAROTA	WILD CARROT;QUEEN-ANNE'S-LACE	Apiaceae	A Forb	-2		UPL	5	SNA	GNR
Desmodium canadense	SHOWY TICK-TREFOIL	Fabaceae	N Forb		5	FAC-	1	S4	G5
ECHIUM VULGARE	VIPER'S BUGLOSS	Boraginaceae	A Forb	-2		UPL	5	SNA	GNR
Euthamia graminifolia	GRASS-LEAVED	Asteraceae	N Forb		2	FACW-	-2	S5	G5
Fragaria virginiana	WILD STRAWBERRY	Rosaceae	N Forb		2	FAC-	1	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
GERANIUM ROBERTIANUM	HERB ROBERT	Geraniaceae	A Forb	-2		UPL	5	SNA	G5
HIERACIUM AURANTIACUM	ORANGE HAWKWEED	Asteraceae	A Forb	-2		UPL	5	SNA	GNR
HIERACIUM CAESPITOSUM	KING-DEVIL	Asteraceae	A Forb	-2		UPL	5	SNA	GNR
HIERACIUM PILOSELLA	MOUSE-EAR HAWKWEED	Asteraceae	A Forb	-1		UPL	5	SNA	GNR
HYPERICUM PERFORATUM	COMMON ST. JOHN'S-WORT	Clusiaceae	A Forb	-3		UPL	5	SNA	GNR
Juniperus communis	COMMON or GROUND JUNIPER	Cupressaceae	N Shrub		4	FACU	3	S5	G5
LONICERA TATARICA	SMOOTH TARTARIAN HONEYSUCKLE	Caprifoliaceae	A Shrub	-3		FACU	3	SNA	GNR
LOTUS CORNICULATA	BIRDFOOT TREFOIL	Fabaceae	A Forb	-2		FAC-	1	SNA	GNR
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
MALUS PUMILA	APPLE	Rosaceae	A Tree	-1		UPL	5	SNA	G5
MEDICAGO LUPULINA	BLACK MEDICK	Fabaceae	A Forb	-1		FAC-	1	SNA	GNR
MEDICAGO SATIVA	ALFALFA	Fabaceae	A Forb	-1		UPL	5	SNA	GNR
MELILOTUS ALBA	WHITE SWEET-CLOVER	Fabaceae	A Forb	-3		FACU	3	SNA	G5

Map Reference: *05* ***ELC community:*** *CUM1-1*
Dry Moist Old Field Meadow Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Oenothera biennis	COMMON EVENING-PRIMROSE	Onagraceae	N Forb		0	FACU	3	S5	G5
Parthenocissus inserta	THICKET CREEPER	Vitaceae	N Vine		3	FACU	3	S5	G5
PHLEUM PRATENSE	TIMOTHY	Poaceae	A Grass	-1		FACU	3	SNA	GNR
Physalis heterophylla	CLAMMY GROUND-CHERRY	Solanaceae	N Forb		3	UPL	5	S4	G5
PINUS SYLVESTRIS	SCOTS or SCOTCH PINE	Pinaceae	A Tree	-3		UPL	5	SNA	GNR
PLANTAGO	ENGLISH PLANTAIN;RIBGRASS	Plantaginaceae	A Forb	-1		FAC	0	SNA	G5
PLANTAGO MAJOR	COMMON PLANTAIN	Plantaginaceae	A Forb	-1		FAC+	-1	SNA	G5
Poa compressa	CANADA BLUEGRASS	Poaceae	N Grass		0	FACU+	2	SNA	GNR
Polygonum lapathifolium	NODDING SMARTWEED	Polygonaceae	N Forb		2	FACW+	-4	S5	G5
POTENTILLA RECTA	ROUGH-FRUITED CINQUEFOIL	Rosaceae	A Forb	-2		UPL	5	SNA	GNR
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RANUNCULUS ACRIS	TALL or COMMON BUTTERCUP	Ranunculaceae	A Forb	-2		FACW-	-2	SNA	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rhus typhina	STAGHORN SUMAC	Anacardiaceae	N Tree		1	UPL	5	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Rubus occidentalis	BLACK RASPBERRY	Rosaceae	N Shrub		2	UPL	5	S5	G5
RUMEX ACETOSELLA	SHEEP or RED SORREL	Polygonaceae	A Forb	-2		FAC	0	SNA	GNR
SILENE VULGARIS	BLADDER CAMPION	Caryophyllaceae	A Forb	-1		UPL	5	SNA	GNR
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solidago altissima	TALL GOLDENROD	Asteraceae	N Forb		1	FACU	3	S5	G5
Solidago canadensis	CANADA GOLDENROD	Asteraceae	N Forb		1	FACU	3	S5	G5
Solidago gigantea	LATE GOLDENROD	Asteraceae	N Forb		4	FACW	-3	S5	G5
Solidago nemoralis	OLD-FIELD GOLDENROD	Asteraceae	N Forb		2	UPL	5	S5	G5
Solidago rugosa	ROUGH GOLDENROD	Asteraceae	N Forb		4	FAC+	-1	S5	G5
TARAXACUM	COMMON DANDELION	Asteraceae	A Forb	-2		FACU	3	SNA	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
TRAGOPOGON DUBIUS	GOAT'S BEARD	Asteraceae	A Forb	-1		UPL	5	SNA	GNR
TRIFOLIUM PRATENSE	RED CLOVER	Fabaceae	A Forb	-2		FACU+	2	SNA	GNR
Ulmus americana	WHITE or AMERICAN ELM	Ulmaceae	N Tree		3	FACW-	-2	S5	G5?
VERBASCUM THAPSUS	COMMON MULLEIN	Scrophulariaceae	A Forb	-2		UPL	5	SNA	GNR
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Viburnum lentago	NANNYBERRY;SHEEPBERRY	Caprifoliaceae	N Shrub		4	FAC+	-1	S5	G5
VICIA CRACCA	BIRD VETCH	Fabaceae	A Forb	-1		UPL	5	SNA	GNR
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Map Reference: *05* ***ELC community:*** *CUM1-1*
Dry Moist Old Field Meadow Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
76	43	57	33	43

Total Weediness Score: -59

Mean Coefficient of Conservatism

Natives only:	3
Natives and Non-	2

Mean Wetness: 2.5

Map Reference: *06* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris marginalis	MARGINAL WOODFERN	Dryopteridaceae	N Fern		5	FACU	3	S5	G5
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
Monotropa hypopithys	PINESAP	Monotropaceae	N Forb		6	UPL	5	S4	G5
Pinus resinosa	RED PINE	Pinaceae	N Tree		8	FACU	3	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prenanthes alba	WHITE LETTUCE;RATTLESNAKE-ROOT	Asteraceae	N Forb		6	FACU	3	S5	G5
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5

Map Reference: *06* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
15	13	87	2	13

Mean Coefficient of Conservatism

Natives only:	5
Natives and Non-	4

Total Weediness Score: -4 ***Mean Wetness:*** 2.7

Map Reference: *07* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Asclepias syriaca	COMMON MILKWEED	Asclepiadaceae	N Forb		0	UPL	5	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Athyrium filix-femina	LADY FERN	Dryopteridaceae	N Fern		4	FAC	0	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris intermedia	GLANDULAR or EVERGREEN WOODFERN	Dryopteridaceae	N Fern		5	FAC	0	S5	G5
Dryopteris marginalis	MARGINAL WOODFERN	Dryopteridaceae	N Fern		5	FACU	3	S5	G5
Equisetum pratense	MEADOW-HORSETAIL	Equisetaceae	N Fern		8	FACW	-3	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Gymnocarpium dryopteris	OAK FERN	Dryopteridaceae	N Fern		7	FAC	0	S5	G5
HYPERICUM PERFORATUM	COMMON ST. JOHN'S-WORT	Clusiaceae	A Forb	-3		UPL	5	SNA	GNR
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
Pinus resinosa	RED PINE	Pinaceae	N Tree		8	FACU	3	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
SILENE VULGARIS	BLADDER CAMPION	Caryophyllaceae	A Forb	-1		UPL	5	SNA	GNR
Sisyrinchium montanum	MOUNTAIN BLUE-EYED-GRASS	Iridaceae	N Forb		4	FAC+	-1	S5	G5
Solidago gigantea	LATE GOLDENROD	Asteraceae	N Forb		4	FACW	-3	S5	G5
TARAXACUM	COMMON DANDELION	Asteraceae	A Forb	-2		FACU	3	SNA	G5
VERBASCUM THAPSUS	COMMON MULLEIN	Scrophulariaceae	A Forb	-2		UPL	5	SNA	GNR
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Map Reference: *07* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
25	19	76	6	24

Total Weediness Score: -13

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Mean Wetness: 1.5

Map Reference: *08* ***ELC community:*** *FOD8-1*
Fresh - Moist Poplar - Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Abies balsamea	BALSAM FIR	Pinaceae	N Tree		5	FACW	-3	S5	G5
Acer rubrum	RED MAPLE	Aceraceae	N Tree		4	FAC	0	S5	G5
Acer saccharinum	SILVER MAPLE	Aceraceae	N Tree		5	FACW	-3	S5	G5
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Adiantum pedatum	MAIDENHAIR FERN	Pteridaceae	N Fern		7	FAC-	1	S5	G5
Agrimonia gryposepala	TALL AGRIMONY	Rosaceae	N Forb		2	FACU+	2	S5	G5
Aralia nudicaulis	WILD SARSAPARILLA	Araliaceae	N Forb		4	FACU	3	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Athyrium filix-femina	LADY FERN	Dryopteridaceae	N Fern		4	FAC	0	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Carex bebbii	SEDGE	Cyperaceae	N Sedge		3	OBL	-5	S5	G5
Carex gracillima	SEDGE	Cyperaceae	N Sedge		4	FACU	3	S5	G5
Carex hystericina	SEDGE	Cyperaceae	N Sedge		5	OBL	-5	S5	G5
Carex vulpinoidea	SEDGE	Cyperaceae	N Sedge		3	OBL	-5	S5	G5
Clematis virginiana	VIRGIN'S BOWER	Ranunculaceae	N Vine		3	FAC	0	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Corylus cornuta	BEAKED HAZELNUT	Betulaceae	N Shrub		5	UPL	5	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris cristata	CRESTED SHIELD FERN;WOODFERN	Dryopteridaceae	N Fern		7	OBL	-5	S5	G5
Equisetum pratense	MEADOW-HORSETAIL	Equisetaceae	N Fern		8	FACW	-3	S5	G5
Equisetum sylvaticum	WOODLAND HORSETAIL	Equisetaceae	N Fern		7	FACW	-3	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Fraxinus nigra	BLACK ASH	Oleaceae	N Tree		7	FACW+	-4	S5	G5
Fraxinus pennsylvanica	RED ASH	Oleaceae	N Tree		3	FACW	-3	S5	G5
Galium palustre	MARSH BEDSTRAW	Rubiaceae	N Forb		5	OBL	-5	S5	G5
Geranium bicknellii	NORTHERN CRANE'S-BILL	Geraniaceae	N Forb		5	UPL	5	S4	G5
Impatiens capensis	SPOTTED TOUCH-ME-NOT	Balsaminaceae	N Forb		4	FACW	-3	S5	G5
Laportea canadensis	WOOD NETTLE	Urticaceae	N Forb		6	FACW	-3	S5	G5
Lycopus uniflorus	NORTHERN BUGLE WEED	Lamiaceae	N Forb		5	OBL	-5	S5	G5

Map Reference: *08* ***ELC community:*** *FOD8-1*
Fresh - Moist Poplar - Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Matteuccia struthiopteris	OSTRICH FERN	Dryopteridaceae	N Fern		5	FACW	-3	S5	G5
Mitchella repens	PARTRIDGE BERRY	Rubiaceae	N Shrub		6	FACU+	2	S5	G5
Mitella nuda	NAKED MITERWORT	Saxifragaceae	N Forb		6	FACW	-3	S5	G5
Onoclea sensibilis	SENSITIVE FERN	Dryopteridaceae	N Fern		4	FACW	-3	S5	G5
Osmunda regalis	ROYAL FERN	Osmundaceae	N Fern		7	OBL	-5	S5	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Parthenocissus inserta	THICKET CREEPER	Vitaceae	N Vine		3	FACU	3	S5	G5
Populus balsamifera	BALSAM POPLAR;HACKMATACK	Salicaceae	N Tree		4	FACW	-3	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunella vulgaris ssp. lanceolata	HEAL-ALL	Lamiaceae	N Forb		5	UPL	5	S5	G5T5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RANUNCULUS ACRIS	TALL or COMMON BUTTERCUP	Ranunculaceae	A Forb	-2		FACW-	-2	SNA	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Ribes cynosbati	PRICKLY or WILD GOOSEBERRY	Grossulariaceae	N Shrub		4	UPL	5	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Rubus pubescens	DWARF RASPBERRY	Rosaceae	N Forb		4	FACW+	-4	S5	G5
Sium suave	WATER-PARSNIP	Apiaceae	N Forb		4	OBL	-5	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solanum ptycanthum	BLACK NIGHTSHADE		N Forb		3	UPL	5		
Solidago rugosa	ROUGH GOLDENROD	Asteraceae	N Forb		4	FAC+	-1	S5	G5
Thuja occidentalis	ARBOR VITAE	Cupressaceae	N Tree		4	FACW	-3	S5	G5
Ulmus americana	WHITE or AMERICAN ELM	Ulmaceae	N Tree		3	FACW-	-2	S5	G5?
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
56	52	93	4	7

Total Weediness Score: -9

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	4

Mean Wetness: -0.5

Map Reference: *09* ***ELC community:*** *CUP3-8*
White Spruce - European Larch Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Carex arctata	SEDGE	Cyperaceae	N Sedge		5	UPL	5	S5	G5?
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris intermedia	GLANDULAR or EVERGREEN WOODFERN	Dryopteridaceae	N Fern		5	FAC	0	S5	G5
Equisetum arvense	COMMON or FIELD HORSETAIL	Equisetaceae	N Fern		0	FAC	0	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Mitchella repens	PARTRIDGE BERRY	Rubiaceae	N Shrub		6	FACU+	2	S5	G5
Parthenocissus inserta	THICKET CREEPER	Vitaceae	N Vine		3	FACU	3	S5	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
Solidago gigantea	LATE GOLDENROD	Asteraceae	N Forb		4	FACW	-3	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Trientalis borealis	STARFLOWER	Primulaceae	N Forb		6	FAC+	-1	S5	G5
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
19	17	89	2	11

Total Weediness Score: -5

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Mean Wetness: 1.4

Map Reference: *10* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer rubrum	RED MAPLE	Aceraceae	N Tree		4	FAC	0	S5	G5
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Agrimonia gryposepala	TALL AGRIMONY	Rosaceae	N Forb		2	FACU+	2	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Clinopodium vulgare	WILD BASIL	Lamiaceae	N Forb		4	UPL	5	S5	G5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
Desmodium nudiflorum	NAKED TICK-TREFOIL	Fabaceae	N Forb		7	UPL	5	S4	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR

Map Reference: *10* ***ELC community:*** *CUP3-1*
Red Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fragaria virginiana	WILD STRAWBERRY	Rosaceae	N Forb		2	FAC-	1	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Monotropa hypopithys	PINESAP	Monotropaceae	N Forb		6	UPL	5	S4	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
Pinus resinosa	RED PINE	Pinaceae	N Tree		8	FACU	3	S5	G5
Pinus strobus	WHITE PINE	Pinaceae	N Tree		4	FACU	3	S5	G5
PINUS SYLVESTRIS	SCOTS or SCOTCH PINE	Pinaceae	A Tree	-3		UPL	5	SNA	GNR
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
ROSA CENTIFOLIA	CABBAGE ROSE	Rosaceae	A Shrub	-1		UPL	5	SNA	GNR
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solidago rugosa	ROUGH GOLDENROD	Asteraceae	N Forb		4	FAC+	-1	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
25	21	84	4	16

Total Weediness Score: -8

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Mean Wetness: 2.6

Map Reference: *11* ***ELC community:*** *CUP3-8*
White Spruce - European Larch Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Anemone virginiana	THIMBLEWEED	Ranunculaceae	N Forb		4	UPL	5	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Aster novae-angliae	NEW ENGLAND ASTER	Asteraceae	N Forb		2	FACW	-3	S5	G5
Carex Sp.	Sedge - Carex Sp.								
Circaea lutetiana	ENCHANTER'S-NIGHTSHADE	Onagraceae	N Forb		3	FACU	3	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5

Map Reference: *11* ***ELC community:*** *CUP3-8*
White Spruce - European Larch Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
GERANIUM ROBERTIANUM	HERB ROBERT	Geraniaceae	A Forb	-2		UPL	5	SNA	G5
Maianthemum racemosum	FALSE SPIKENARD	Liliaceae	N Forb		4	FACU	3	S5	G5
Onoclea sensibilis	SENSITIVE FERN	Dryopteridaceae	N Fern		4	FACW	-3	S5	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
Pinus resinosa	RED PINE	Pinaceae	N Tree		8	FACU	3	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunella vulgaris ssp. lanceolata	HEAL-ALL	Lamiaceae	N Forb		5	UPL	5	S5	G5T5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Ribes cynosbati	PRICKLY or WILD GOOSEBERRY	Grossulariaceae	N Shrub		4	UPL	5	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solidago caesia	BLUE-STEMMED GOLDENROD	Asteraceae	N Forb		5	FACU	3	S5	G5
Solidago rugosa	ROUGH GOLDENROD	Asteraceae	N Forb		4	FAC+	-1	S5	G5
SONCHUS OLERACEUS	COMMON SOW THISTLE	Asteraceae	A Forb	-1		FACU	3	SNA	GNR
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
28	25	89	3	11

Total Weediness Score: -5

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	4

Mean Wetness: 2.0

Map Reference: *12* ***ELC community:*** *CUP3-3*
Scotch Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer rubrum	RED MAPLE	Aceraceae	N Tree		4	FAC	0	S5	G5
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Ambrosia artemisiifolia	COMMON RAGWEED	Asteraceae	N Forb		0	FACU	3	S5	G5
Aralia nudicaulis	WILD SARSAPARILLA	Araliaceae	N Forb		4	FACU	3	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Carex Sp.	Sedge - Carex Sp.								
CIRSIUM VULGARE	BULL-THISTLE	Asteraceae	A Forb	-1		FACU-	4	SNA	GNR
Clinopodium vulgare	WILD BASIL	Lamiaceae	N Forb		4	UPL	5	S5	G5

Map Reference: *12* ***ELC community:*** *CUP3-3*
Scotch Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris marginalis	MARGINAL WOODFERN	Dryopteridaceae	N Fern		5	FACU	3	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
GERANIUM ROBERTIANUM	HERB ROBERT	Geraniaceae	A Forb	-2		UPL	5	SNA	G5
HYPERICUM PERFORATUM	COMMON ST. JOHN'S-WORT	Clusiaceae	A Forb	-3		UPL	5	SNA	GNR
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
PINUS SYLVESTRIS	SCOTS or SCOTCH PINE	Pinaceae	A Tree	-3		UPL	5	SNA	GNR
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Rubus occidentalis	BLACK RASPBERRY	Rosaceae	N Shrub		2	UPL	5	S5	G5
Sambucus racemosa	RED-BERRIED ELDER	Caprifoliaceae	N Shrub		5	FACU+	2	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solanum ptycanthum	BLACK NIGHTSHADE		N Forb		3	UPL	5		
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Trientalis borealis	STARFLOWER	Primulaceae	N Forb		6	FAC+	-1	S5	G5
TRIFOLIUM PRATENSE	RED CLOVER	Fabaceae	A Forb	-2		FACU+	2	SNA	GNR
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
29	21	72	8	28

Total Weediness Score: -18

Mean Coefficient of Conservatism

Natives only:	3
Natives and Non-	3

Mean Wetness: 2.1

Map Reference: *13* ***ELC community:*** *FOD5-8*
Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer rubrum	RED MAPLE	Aceraceae	N Tree		4	FAC	0	S5	G5
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Actaea pachypoda	WHITE BANEBERRY;DOLL'S-EYES	Ranunculaceae	N Forb		6	UPL	5	S5	G5
Agrimonia gryposepala	TALL AGRIMONY	Rosaceae	N Forb		2	FACU+	2	S5	G5

Map Reference: *13* ***ELC community:*** *FOD5-8*
Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Anemone virginiana	THIMBLEWEED	Ranunculaceae	N Forb		4	UPL	5	S5	G5
Aralia nudicaulis	WILD SARSAPARILLA	Araliaceae	N Forb		4	FACU	3	S5	G5
Aster ciliolatus	NORTHERN HEART-LEAVED ASTER	Asteraceae	N Forb		6	FACU-	4	S5	G5
Aster lanceolatus	EASTERN LINED ASTER	Asteraceae	N Forb		3	FACW	-3	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Aster macrophyllus	BIG-LEAVED ASTER	Asteraceae	N Forb		5	UPL	5	S5	G5
Aster novae-angliae	NEW ENGLAND ASTER	Asteraceae	N Forb		2	FACW	-3	S5	G5
Athyrium filix-femina	LADY FERN	Dryopteridaceae	N Fern		4	FAC	0	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Circaea lutetiana	ENCHANTER'S-NIGHTSHADE	Onagraceae	N Forb		3	FACU	3	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Cornus stolonifera	RED-OSIER DOGWOOD	Cornaceae	N Shrub		2	FACW	-3	S5	G5
Crataegus flabellata	HAWTHORN	Rosaceae	N Tree		4	UPL	5	S4	G4
Diervilla lonicera	BUSH HONEYSUCKLE	Caprifoliaceae	N Shrub		5	UPL	5	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
Dryopteris intermedia	GLANDULAR or EVERGREEN WOODFERN	Dryopteridaceae	N Fern		5	FAC	0	S5	G5
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Equisetum pratense	MEADOW-HORSETAIL	Equisetaceae	N Fern		8	FACW	-3	S5	G5
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
GERANIUM ROBERTIANUM	HERB ROBERT	Geraniaceae	A Forb	-2		UPL	5	SNA	G5
HYPERICUM PERFORATUM	COMMON ST. JOHN'S-WORT	Clusiaceae	A Forb	-3		UPL	5	SNA	GNR
Juglans cinerea	BUTTERNUT	Juglandaceae	N Tree		6	FACU+	2	S3?	G4
Juniperus communis	COMMON or GROUND JUNIPER	Cupressaceae	N Shrub		4	FACU	3	S5	G5
Lonicera canadensis	AMERICAN FLY HONEYSUCKLE	Caprifoliaceae	N Shrub		6	FACU	3	S5	G5
Lonicera dioica	RED HONEYSUCKLE	Caprifoliaceae	N Vine		5	FACU	3	S5	G5
Maianthemum canadense	CANADA MAYFLOWER;LILY-OF-THE-	Liliaceae	N Forb		5	FAC	0	S5	G5
MALUS PUMILA	APPLE	Rosaceae	A Tree	-1		UPL	5	SNA	G5
Mitchella repens	PARTRIDGE BERRY	Rubiaceae	N Shrub		6	FACU+	2	S5	G5
Onoclea sensibilis	SENSITIVE FERN	Dryopteridaceae	N Fern		4	FACW	-3	S5	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
PINUS SYLVESTRIS	SCOTS or SCOTCH PINE	Pinaceae	A Tree	-3		UPL	5	SNA	GNR
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rhus typhina	STAGHORN SUMAC	Anacardiaceae	N Tree		1	UPL	5	S5	G5
Ribes cynosbati	PRICKLY or WILD GOOSEBERRY	Grossulariaceae	N Shrub		4	UPL	5	S5	G5
Rosa acicularis	WILD ROSE	Rosaceae	N Shrub		7	FACU	3	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5

Map Reference: *13* ***ELC community:*** *FOD5-8*
Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Sambucus racemosa	RED-BERRIED ELDER	Caprifoliaceae	N Shrub		5	FACU+	2	S5	G5
Smilax hispida	BRISTLY GREEN-BRIER	Smilacaceae	N Vine		6	FAC	0	S4	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Solidago altissima	TALL GOLDENROD	Asteraceae	N Forb		1	FACU	3	S5	G5
Solidago caesia	BLUE-STEMMED GOLDENROD	Asteraceae	N Forb		5	FACU	3	S5	G5
Solidago rugosa	ROUGH GOLDENROD	Asteraceae	N Forb		4	FAC+	-1	S5	G5
Thuja occidentalis	ARBOR VITAE	Cupressaceae	N Tree		4	FACW	-3	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
TRIFOLIUM PRATENSE	RED CLOVER	Fabaceae	A Forb	-2		FACU+	2	SNA	GNR
Tsuga canadensis	HEMLOCK	Pinaceae	N Tree		7	FACU	3	S5	G4G5
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5
Viburnum acerifolium	MAPLE-LEAVED ARROW-WOOD	Caprifoliaceae	N Shrub		6	UPL	5	S5	G5
Viburnum lentago	NANNYBERRY;SHEEPBERRY	Caprifoliaceae	N Shrub		4	FAC+	-1	S5	G5
Vitis riparia	RIVERBANK GRAPE	Vitaceae	N Vine		0	FACW-	-2	S5	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
61	52	85	9	15

Total Weediness Score: -20

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	4

Mean Wetness: 1.9

Map Reference: *14* ***ELC community:*** *FOM7-2*
Fresh - Moist White Cedar - Hardwood Mixed Forest

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer rubrum	RED MAPLE	Aceraceae	N Tree		4	FAC	0	S5	G5
Acer saccharinum	SILVER MAPLE	Aceraceae	N Tree		5	FACW	-3	S5	G5
Agrimonia gryposepala	TALL AGRIMONY	Rosaceae	N Forb		2	FACU+	2	S5	G5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Aster umbellatus	TALL FLAT-TOP WHITE ASTER	Asteraceae	N Forb		6	FACW	-3	SNA	G5
Athyrium filix-femina	LADY FERN	Dryopteridaceae	N Fern		4	FAC	0	S5	G5
Betula alleghaniensis	YELLOW BIRCH	Betulaceae	N Tree		6	FAC	0	S5	G5
Betula papyrifera	PAPER BIRCH	Betulaceae	N Tree		2	FACU+	2	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Cornus stolonifera	RED-OSIER DOGWOOD	Cornaceae	N Shrub		2	FACW	-3	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5

Map Reference: *14* ***ELC community:*** *FOM7-2*
Fresh - Moist White Cedar - Hardwood Mixed Forest

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Equisetum pratense	MEADOW-HORSETAIL	Equisetaceae	N Fern		8	FACW	-3	S5	G5
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Fraxinus nigra	BLACK ASH	Oleaceae	N Tree		7	FACW+	-4	S5	G5
Lemna minor	SMALL DUCKWEED	Lemnaceae	N Forb		2	OBL	-5	S5	G5
MALUS PUMILA	APPLE	Rosaceae	A Tree	-1		UPL	5	SNA	G5
Onoclea sensibilis	SENSITIVE FERN	Dryopteridaceae	N Fern		4	FACW	-3	S5	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
PINUS SYLVESTRIS	SCOTS or SCOTCH PINE	Pinaceae	A Tree	-3		UPL	5	SNA	GNR
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
Rubus idaeus	WILD RED RASPBERRY	Rosaceae	N Shrub		0	FACW-	-2	S5	G5
Thuja occidentalis	ARBOR VITAE	Cupressaceae	N Tree		4	FACW	-3	S5	G5
Tilia americana	LINDEN;BASSWOOD	Tiliaceae	N Tree		4	FACU	3	S5	G5
Tsuga canadensis	HEMLOCK	Pinaceae	N Tree		7	FACU	3	S5	G4G5
Ulmus americana	WHITE or AMERICAN ELM	Ulmaceae	N Tree		3	FACW-	-2	S5	G5?
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
31	27	87	4	13

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Total Weediness Score: -8

Mean Wetness: 0.5

Map Reference: *15* ***ELC community:*** *CUP3-2*
White Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Fagus grandifolia	AMERICAN BEECH	Fagaceae	N Tree		6	FACU	3	S4	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
Pinus strobus	WHITE PINE	Pinaceae	N Tree		4	FACU	3	S5	G5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5

Map Reference: *15* ***ELC community:*** *CUP3-2*
White Pine Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
7	6	86	1	14

Total Weediness Score: -2

Mean Coefficient of Conservatism

Natives only:	5
Natives and Non-	4

Mean Wetness: 3.3

Map Reference: *16* ***ELC community:*** *CUP3-8*
White Spruce - European Larch Coniferous Plantation Type

Scientific Name:	Common Name:	Family:	Physiog.	Weed	C	Wetness	W	SRANK	GRANK
Acer saccharum ssp.	SUGAR MAPLE;HARD MAPLE	Aceraceae	N Tree		4	FACU	3	S5	G5T5
Aster lateriflorus	SIDE-FLOWERING ASTER	Asteraceae	N Forb		3	FACW-	-2	S5	G5
Cornus alternifolia	ALTERNATE-LEAVED DOGWOOD	Cornaceae	N Tree		6	UPL	5	S5	G5
Dryopteris carthusiana	SPINULOSE WOODFERN	Dryopteridaceae	N Fern		5	FACW-	-2	S5	G5
EPIPACTIS HELLEBORINE	HELLEBORINE	Orchidaceae	A Forb	-2		UPL	5	SNA	GNR
Equisetum pratense	MEADOW-HORSETAIL	Equisetaceae	N Fern		8	FACW	-3	S5	G5
Fraxinus americana	WHITE ASH	Oleaceae	N Tree		4	FACU	3	S5	G5
GERANIUM ROBERTIANUM	HERB ROBERT	Geraniaceae	A Forb	-2		UPL	5	SNA	G5
Ostrya virginiana	IRONWOOD;HOP	Betulaceae	N Tree		4	FACU-	4	S5	G5
Picea glauca	WHITE SPRUCE	Pinaceae	N Tree		6	FACU	3	S5	G5
Populus tremuloides	QUAKING ASPEN	Salicaceae	N Tree		2	FAC	0	S5	G5
Prunella vulgaris ssp. lanceolata	HEAL-ALL	Lamiaceae	N Forb		5	UPL	5	S5	G5T5
Prunus serotina	WILD BLACK CHERRY	Rosaceae	N Tree		3	FACU	3	S5	G5
Quercus rubra	RED OAK	Fagaceae	N Tree		6	FACU	3	S5	G5
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	Rhamnaceae	A Shrub	-3		FAC+	-1	SNA	GNR
Rhus radicans ssp. rydbergii	POISON-IVY	Anacardiaceae	N Vine		0	FAC	0	S5	G5
Rubus allegheniensis	COMMON BLACKBERRY	Rosaceae	N Shrub		2	FACU+	2	S5	G5
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	Solanaceae	A Vine	-2		FAC	0	SNA	GNR
Ulmus americana	WHITE or AMERICAN ELM	Ulmaceae	N Tree		3	FACW-	-2	S5	G5?
VERONICA OFFICINALIS	COMMON SPEEDWELL	Scrophulariaceae	A Forb	-2		UPL	5	SNA	G5

Floristic Quality Summary*

Species Counts

Total:	Native:	(%)	Non-Native	(%)
20	15	75	5	25

Total Weediness Score: -11

Mean Coefficient of Conservatism

Natives only:	4
Natives and Non-	3

Mean Wetness: 1.8

***Summary excludes plants identified only to genus**

4. Floristic Quality Summary by Area and ELC Vegetation Type

Map Reference and ELC Community	Species Counts					Mean Coeff. Cons.		Total Weediness	Mean Wetness
	Total	Native:	(%)	Non-Native	(%)	Natives only	Natives and Non-Natives		
01 FOD5-1	62	49	79	13	21	4.1	3.3	-23	2.7
02 FOD5-3	43	34	79	9	21	4.6	3.6	-17	2.5
03 CUP3-3	31	27	87	4	13	3.6	3.1	-7	2.4
04 CUP3-1	11	10	91	1	9	2.9	2.6	-2	1.9
05 CUM1-1	76	43	57	33	43	2.8	1.6	-59	2.5
06 CUP3-1	15	13	87	2	13	4.7	4.1	-4	2.7
07 CUP3-1	25	19	76	6	24	4.2	3.2	-13	1.5
08 FOD8-1	56	52	93	4	7	4.2	3.9	-9	-0.5
09 CUP3-8	19	17	89	2	11	3.6	3.2	-5	1.4
10 CUP3-1	25	21	84	4	16	4.1	3.5	-8	2.6
11 CUP3-8	28	25	86	3	11	3.9	3.5	-5	2.0
12 CUP3-3	29	21	70	8	28	3.5	2.5	-18	2.1
13 FOD5-8	61	52	85	9	15	4.1	3.5	-20	1.9
14 FOM7-2	31	27	87	4	13	3.9	3.4	-8	0.5
15 CUP3-2	7	6	86	1	14	4.5	3.9	-2	3.3
16 CUP3-8	20	15	75	5	25	4.1	3.1	-11	1.8

***Summary excludes plants identified only to genus**

5. Fauna Inventory by Area and ELC Vegetation Type

Map Reference: 01 ***ELC community: FOD5-1***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Amphibians				
Hylidae				
	Pseudacris crucifer / (Wied-Neuwied, 1838)	Spring Peeper	S5 / 24/10/1988	G5 / 13/11/2001
Birds				
Cardinalidae				
	Pheucticus ludovicianus / (Linnaeus,	Rose-breasted Grosbeak	S4B / 13/02/2009	G5 / 03/12/1996
Columbidae				
	Zenaida macroura / (Linnaeus, 1758)	Mourning Dove	S5 / 13/02/2009	G5 / 27/11/1996
Corvidae				
	Corvus brachyrhynchos / Brehm, 1822	American Crow	S5B / 04/12/1995	G5 / 02/12/1996
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Fringillidae				
	Carduelis tristis / (Linnaeus, 1758)	American Goldfinch	S5B / 12/12/1995	G5 / 04/12/1996
Icteridae				
	Molothrus ater / (Boddaert, 1783)	Brown-headed Cowbird	S4B / 13/02/2009	G5 / 04/12/1996
Parulidae				
	Seiurus aurocapilla / (Linnaeus, 1766)	Ovenbird	S4B / 13/02/2009	G5 / 03/12/1996
Phasianidae				
	Meleagris gallopavo / Linnaeus, 1758	Wild Turkey	S5 / 16/10/1997	G5 / 25/11/1996
Picidae				
	Colaptes auratus / (Linnaeus, 1758)	Northern Flicker	S4B / 13/02/2009	G5 / 02/12/1996
	Dryocopus pileatus / (Linnaeus, 1758)	Pileated Woodpecker	S5 / 13/02/2009	G5 / 02/12/1996
	Sphyrapicus varius / (Linnaeus, 1766)	Yellow-bellied Sapsucker	S5B / 04/12/1995	G5 / 02/12/1996
Sittidae				
	Sitta carolinensis / Latham, 1790	White-breasted Nuthatch	S5 / 05/12/1995	G5 / 02/12/1996
Thraupidae				
	Piranga olivacea / (Gmelin, 1789)	Scarlet Tanager	S4B / 13/02/2009	G5 / 03/12/1996
Turdidae				
	Catharus guttatus / (Pallas, 1811)	Hermit Thrush	S5B / 05/12/1995	G5 / 03/12/1996
	Turdus migratorius / Linnaeus, 1766	American Robin	S5B / 05/12/1995	G5 / 03/12/1996
Tyrannidae				
	Contopus virens / (Linnaeus, 1766)	Eastern Wood-pewee	S4B / 13/02/2009	G5 / 02/12/1996
	Empidonax minimus / (Baird and Baird, 1843)	Least Flycatcher	S4B / 13/02/2009	G5 / 02/12/1996
	Myiarchus crinitus / (Linnaeus, 1758)	Great Crested Flycatcher	S4B / 13/02/2009	G5 / 02/12/1996
Vireonidae				
	Vireo olivaceus / (Linnaeus, 1766)	Red-eyed Vireo	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996
Procyonidae				
	Procyon lotor / (Linnaeus, 1758)	Northern Raccoon	S5 / 13/12/1995	G5 / 18/11/1996

Sciuridae				
	Tamias striatus / (Linnaeus, 1758)	Eastern Chipmunk	S5 / 12/12/1995	G5 / 06/11/1996
	Tamiasciurus hudsonicus / (Erxleben, 1777)	Red Squirrel	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 02 ***ELC community: FOD5-3***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Corvidae				
	Corvus brachyrhynchos / Brehm, 1822	American Crow	S5B / 04/12/1995	G5 / 02/12/1996
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Paridae				
	Poecile atricapillus / (Linnaeus, 1766)	Black-capped Chickadee	S5 / 04/12/1995	G5 / 02/12/1996
Picidae				
	Colaptes auratus / (Linnaeus, 1758)	Northern Flicker	S4B / 13/02/2009	G5 / 02/12/1996
Regulidae				
	Regulus calendula / (Linnaeus, 1766)	Ruby-crowned Kinglet	S4B / 13/02/2009	G5 / 03/12/1996
	Regulus satrapa / Lichtenstein, 1823	Golden-crowned Kinglet	S5B / 05/12/1995	G5 / 03/12/1996
Turdidae				
	Turdus migratorius / Linnaeus, 1766	American Robin	S5B / 05/12/1995	G5 / 03/12/1996
Vireonidae				
	Vireo olivaceus / (Linnaeus, 1766)	Red-eyed Vireo	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 03 ***ELC community: CUP3-3***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Columbidae				
	Zenaida macroura / (Linnaeus, 1758)	Mourning Dove	S5 / 13/02/2009	G5 / 27/11/1996
Vireonidae				
	Vireo olivaceus / (Linnaeus, 1766)	Red-eyed Vireo	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Canidae				
	Vulpes vulpes / (Linnaeus, 1758)	Red Fox	S5 / 13/12/1995	G5 / 15/11/1996
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 04 ***ELC community: CUP3-1***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Mammals				
Sciuridae				
	Tamiasciurus hudsonicus / (Erxleben, 1777)	Red Squirrel	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 05 ***ELC community: CUM1-1***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Bombycillidae				
	Bombycilla cedrorum / Vieillot, 1808	Cedar Waxwing	S5B / 05/12/1995	G5 / 03/12/1996
Corvidae				
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Emberizidae				
	Junco hyemalis / (Linnaeus, 1758)	Dark-eyed Junco	S5B / 12/12/1995	G5 / 04/12/1996
	Melospiza melodia / (Wilson, 1810)	Song Sparrow	S5B / 12/12/1995	G5 / 04/12/1996
	Spizella passerina / (Bechstein, 1798)	Chipping Sparrow	S5B / 07/12/1995	G5 / 04/12/1996
	Spizella pusilla / (Wilson, 1810)	Field Sparrow	S4B / 13/02/2009	G5 / 04/12/1996
Turdidae				
	Turdus migratorius / Linnaeus, 1766	American Robin	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Canidae				
	Canis latrans / Say, 1823	Coyote	S5 / 13/12/1995	G5 / 15/11/1996
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 06 ***ELC community: CUP3-1***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Corvidae				
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Paridae				
	Poecile atricapillus / (Linnaeus, 1766)	Black-capped Chickadee	S5 / 04/12/1995	G5 / 02/12/1996
Picidae				
	Picoides pubescens / (Linnaeus, 1766)	Downy Woodpecker	S5 / 04/12/1995	G5 / 02/12/1996
Regulidae				
	Regulus calendula / (Linnaeus, 1766)	Ruby-crowned Kinglet	S4B / 13/02/2009	G5 / 03/12/1996
	Regulus satrapa / Lichtenstein, 1823	Golden-crowned Kinglet	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996
Sciuridae				
	Tamias striatus / (Linnaeus, 1758)	Eastern Chipmunk	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 07 ***ELC community: CUP3-1***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Paridae				
	Poecile atricapillus / (Linnaeus, 1766)	Black-capped Chickadee	S5 / 04/12/1995	G5 / 02/12/1996
Troglodytidae				
	Troglodytes aedon / Vieillot, 1809	House Wren	S5B / 05/12/1995	G5 / 03/12/1996

Tyrannidae				
	Contopus virens / (Linnaeus, 1766)	Eastern Wood-pewee	S4B / 13/02/2009	G5 / 02/12/1996
Vireonidae				
	Vireo olivaceus / (Linnaeus, 1766)	Red-eyed Vireo	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996
Sciuridae				
	Tamiasciurus hudsonicus / (Erxleben, 1777)	Red Squirrel	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 08 ***ELC community: FOD8-1***

	Scientific Name / Author	**Common Name**	**Srank / Date**	**Grank / Date**
Amphibians				
Ranidae				
	Rana sylvatica / LeConte, 1825	Wood Frog	S5 / 19/10/1994	G5 / 27/11/2001
Birds				
Paridae				
	Poecile atricapillus / (Linnaeus, 1766)	Black-capped Chickadee	S5 / 04/12/1995	G5 / 02/12/1996
Picidae				
	Sphyrapicus varius / (Linnaeus, 1766)	Yellow-bellied Sapsucker	S5B / 04/12/1995	G5 / 02/12/1996
Tyrannidae				
	Myiarchus crinitus / (Linnaeus, 1758)	Great Crested Flycatcher	S4B / 13/02/2009	G5 / 02/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 09 ***ELC community: CUP3-8***

	Scientific Name / Author	**Common Name**	**Srank / Date**	**Grank / Date**
Birds				
Corvidae				
	Corvus brachyrhynchos / Brehm, 1822	American Crow	S5B / 04/12/1995	G5 / 02/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 10 ***ELC community: CUP3-1***

	Scientific Name / Author	**Common Name**	**Srank / Date**	**Grank / Date**
Birds				
Picidae				
	Picoides villosus / (Linnaeus, 1766)	Hairy Woodpecker	S5 / 04/12/1995	G5 / 02/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Sciuridae				
	Tamias striatus / (Linnaeus, 1758)	Eastern Chipmunk	S5 / 12/12/1995	G5 / 06/11/1996
	Tamiasciurus hudsonicus / (Erxleben, 1777)	Red Squirrel	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 11 ***ELC community: CUP3-8***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 12 ***ELC community: CUP3-3***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996
Sciuridae				
	Tamiasciurus hudsonicus / (Erxleben, 1777)	Red Squirrel	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 13 ***ELC community: FOD5-8***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Corvidae				
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Phasianidae				
	Bonasa umbellus / (Linnaeus, 1766)	Ruffed Grouse	S4 / 01/12/1995	G5 / 25/11/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 14 ***ELC community: FOM7-2***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Corvidae				
	Corvus brachyrhynchos / Brehm, 1822	American Crow	S5B / 04/12/1995	G5 / 02/12/1996
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Turdidae				
	Turdus migratorius / Linnaeus, 1766	American Robin	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

Map Reference: 15 ***ELC community: CUP3-2***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Regulidae				
	Regulus calendula / (Linnaeus, 1766)	Ruby-crowned Kinglet	S4B / 13/02/2009	G5 / 03/12/1996
	Regulus satrapa / Lichtenstein, 1823	Golden-crowned Kinglet	S5B / 05/12/1995	G5 / 03/12/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996
Sciuridae				
	Sciurus carolinensis / Gmelin, 1788	Eastern Gray Squirrel	S5 / 12/12/1995	G5 / 06/11/1996
	Tamiasciurus hudsonicus / (Erxleben, 1777)	Red Squirrel	S5 / 12/12/1995	G5 / 06/11/1996

Map Reference: 16 ***ELC community: CUP3-8***

	Scientific Name / Author	Common Name	Srank / Date	Grank / Date
Birds				
Corvidae				
	Corvus brachyrhynchos / Brehm, 1822	American Crow	S5B / 04/12/1995	G5 / 02/12/1996
	Cyanocitta cristata / (Linnaeus, 1758)	Blue Jay	S5 / 04/12/1995	G5 / 02/12/1996
Phasianidae				
	Bonasa umbellus / (Linnaeus, 1766)	Ruffed Grouse	S4 / 01/12/1995	G5 / 25/11/1996
Mammals				
Cervidae				
	Odocoileus virginianus / (Zimmermann, 1780)	White-tailed Deer	S5 / 13/12/1995	G5 / 19/11/1996

6. *Atlas of the Breeding Bird of Ontario Species List for Square 17NK94, Simcoe County 2001-2005.*

Species	Breeding Evidence	Species	Breeding Evidence
Double-crested Cormorant	Possible	Barn Swallow	Confirmed
American Bittern	Possible	Black-capped Chickadee	Confirmed
Great Blue Heron	Possible	Red-breasted Nuthatch	Probable
Green Heron	Probable	White-breasted Nuthatch	Confirmed
Turkey Vulture	Confirmed	Brown Creeper	Possible
Canada Goose	Confirmed	House Wren	Confirmed
Trumpeter Swan	Possible	Winter Wren	Probable
Wood Duck		Sedge Wren	Possible
Mallard	Probable	Marsh Wren	Probable
Blue-winged Teal	Possible	Eastern Bluebird	Confirmed
Osprey	Probable	Veery	Confirmed
Northern Harrier	Possible	Swainson's Thrush	Probable
Sharp-shinned Hawk	Probable	Hermit Thrush	Probable
Cooper's Hawk	Confirmed	Wood Thrush	Confirmed
Northern Goshawk	Confirmed	American Robin	Confirmed
Red-shouldered Hawk	Probable	Gray Catbird	Probable
Broad-winged Hawk	Probable	Northern Mockingbird	Possible
Red-tailed Hawk	Confirmed	Brown Thrasher	Probable
American Kestrel	Possible	European Starling	Confirmed
Ruffed Grouse	Confirmed	Cedar Waxwing	Probable
Wild Turkey	Confirmed	Golden-winged Warbler	Possible
Sandhill Crane	Probable	Nashville Warbler	Probable
Killdeer	Confirmed	Northern Parula Warbler	Possible
Spotted Sandpiper	Possible	Yellow Warbler	Confirmed
Upland Sandpiper	Confirmed	Chestnut-sided Warbler	Probable
Wilson's Snipe	Probable	Magnolia Warbler	Possible
American Woodcock	Probable	Black-throated Blue Warbler	Probable
Rock Dove	Probable	Yellow-rumped Warbler	Probable
Mourning Dove	Confirmed	Black-throated Green Warbler	Confirmed
Black-billed Cuckoo	Confirmed	Blackburnian Warbler	Possible
Yellow-billed Cuckoo	Probable	Pine Warbler	Probable
Great Horned Owl	Possible	Bay-breasted Warbler	Observed
Barred Owl	Probable	Black and White Warbler	Probable
	Possible	American Redstart	Probable
Northern Saw-whet Owl	Possible	Ovenbird	Confirmed
Common Nighthawk	Possible	Northern Waterthrush	Possible

Species	Breeding Evidence	Species	Breeding Evidence
Whip-poor-will	Possible	Probable	Probable
Ruby-throated Hummingbird	Probable	Common Yellowthroat	Probable
Belted Kingfisher	Probable	Canada Warbler	Probable
Yellow-bellied Sapsucker	Confirmed	Scarlet Tanager	Probable
Downy Woodpecker	Confirmed	Eastern Towhee	Probable
Hairy Woodpecker	Confirmed	Chipping Sparrow	Confirmed
Northern Flicker	Confirmed	Field Sparrow	Probable
Pileated Woodpecker	Probable	Vesper Sparrow	Probable
Eastern Wood-Pewee	Probable	Savannah Sparrow	Confirmed
Yellow-bellied Flycatcher	Observed	Grasshopper Sparrow	Probable
Alder Flycatcher	Probable	Song Sparrow	Confirmed
Willow Flycatcher	Possible	Swamp Sparrow	Confirmed
Least Flycatcher	Probable	White-throated Sparrow	Probable
Eastern Phoebe	Confirmed	Dark-eyed Junco	Probable
Great Crested Flycatcher	Probable	Northern Cardinal	Probable
Eastern Kingbird	Confirmed	Rose-breasted Grosbeak	Confirmed
Yellow-throated Vireo	Possible	Indigo Bunting	Probable
Blue-headed Vireo	Probable	Bobolink	Probable
Warbling Vireo	Confirmed	Red-winged Blackbird	Confirmed
Red-eyed Vireo	Confirmed	Eastern Meadowlark	Probable
Blue Jay	Confirmed	Common Grackle	Probable
American Crow	Confirmed	Brown-headed Cowbird	Confirmed
Common Raven	Probable	Baltimore Oriole	Confirmed
Horned Lark	Possible	Purple Finch	Probable
Tree Swallow	Confirmed	House Finch	Confirmed
Northern Rough-winged Swallow	Possible	American Goldfinch	Confirmed
Cliff Swallow	Possible	House Sparrow	Probable
		Red-winged Blackbird	Confirmed

7. MNR Natural Heritage Information Centre Biodiversity Explorer Species at Risk Review, Dec. 7th 2010.

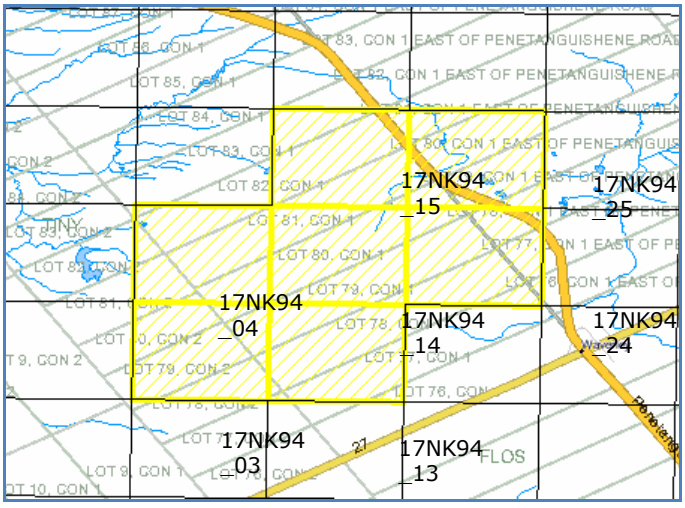
One KM squares were searched within and surrounding the study area for the following taxon groups:

[All Mammals]
[All Birds]
[All Reptiles and Turtles]
[All Amphibians]
[All Fish]
[All Invertebrates (Non-insects)]
[All Invertebrates (Insects)]
[All Vascular Plants]
[All Mosses, Liverworts and Hornworts]
[All Lichens]

Within these taxon groups and the areas defined in Fig 17 below the following status' were searched:

Ontario (S-rank):	S1 , S2 , S3
Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status:	Endangered , Threatened
Species At Risk in Ontario (SARO) Status:	Endangered Regulated , Endangered , Threatened , Special Concern
Canada General Status:	
Ontario General Status:	At Risk , May Be At Risk , Sensitive

Figure 17: Taxon Search Area for Species at Risk



The results of the spatial analysis are given in the table below.

# of EOs	Unique Identifier (Element ID)	Spatial boundary layer	Spatial boundary feature	Taxonomic Group	Family	Scientific Name	English Name	French Name	G-rank	S-rank	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status	Species At Risk in Ontario (SARO) Status	Canada General Status	Ontario General Status
1	17150	1KM Squares	17NK94_04	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield population)		G5T4	S3	SC	SC		
1	17150	1KM Squares	17NK94_24	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield population)		G5T4	S3	SC	SC		
1	17150	1KM Squares	17NK94_25	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield population)		G5T4	S3	SC	SC		
1	17150	1KM Squares	17NK94_03	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield population)		G5T4	S3	SC	SC		
1	17150	1KM Squares	17NK94_15	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield population)		G5T4	S3	SC	SC		
1	17150	1KM Squares	17NK94_13	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield population)		G5T4	S3	SC	SC		
1	17150	1KM Squares	17NK94_14	Reptiles and Turtles	Scincidae	Plestiodon fasciatus pop. 2	Common Five-lined Skink (Southern Shield		G5T4	S3	SC	SC		

# of EOs	Unique Identifier (Element ID)	Spatial boundary layer	Spatial boundary feature	Taxonomic Group	Family	Scientific Name	English Name	French Name	G-rank	S-rank	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status	Species At Risk in Ontario (SARO) Status	Canada General Status	Ontario General Status
							population)							
1	23172	1KM Squares	17NK94_14	Moncotyledons	Cyperaceae	Carex folliculata	Northern Long Sedge		G4G5	S3				
1	23172	1KM Squares	17NK94_03	Moncotyledons	Cyperaceae	Carex folliculata	Northern Long Sedge		G4G5	S3				
1	23172	1KM Squares	17NK94_15	Moncotyledons	Cyperaceae	Carex folliculata	Northern Long Sedge		G4G5	S3				
1	23172	1KM Squares	17NK94_04	Moncotyledons	Cyperaceae	Carex folliculata	Northern Long Sedge		G4G5	S3				
1	23580	1KM Squares	17NK94_13	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	23580	1KM Squares	17NK94_15	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	23580	1KM Squares	17NK94_03	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	23580	1KM Squares	17NK94_24	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	23580	1KM Squares	17NK94_04	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	23580	1KM Squares	17NK94_14	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	23580	1KM Squares	17NK94_25	Moncotyledons	Cyperaceae	Eleocharis rostellata	Beaked Spike-rush		G5	S3				
1	63500	1KM Squares	17NK94_04	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				
1	63500	1KM Squares	17NK94_13	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				
1	63500	1KM Squares	17NK94_03	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				
1	63500	1KM Squares	17NK94_15	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				
1	63500	1KM Squares	17NK94_24	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				
1	63500	1KM Squares	17NK94_14	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				
1	63500	1KM Squares	17NK94_25	Dicotyledons	Nelumbonaceae	Nelumbo lutea	American Lotus		G4	S2				

8. Detailed Species Rarity

Grouped by Rounded Provincial S-Rank, ranking data provided by NHIC May 2010

Animalia

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
S4	**1**	**2.5**					
			Bonasa umbellus	Ruffed Grouse	2	G5 / 25/11/1996	S4 / 01/12/1995
S4B	**10**	**25.0**					
			Colaptes auratus	Northern Flicker	2	G5 / 02/12/1996	S4B / 13/02/2009
			Contopus virens	Eastern Wood-pewee	2	G5 / 02/12/1996	S4B / 13/02/2009
			Empidonax minimus	Least Flycatcher	1	G5 / 02/12/1996	S4B / 13/02/2009
			Molothrus ater	Brown-headed Cowbird	1	G5 / 04/12/1996	S4B / 13/02/2009
			Myiarchus crinitus	Great Crested Flycatcher	2	G5 / 02/12/1996	S4B / 13/02/2009
			Pheucticus ludovicianus	Rose-breasted Grosbeak	1	G5 / 03/12/1996	S4B / 13/02/2009
			Piranga olivacea	Scarlet Tanager	1	G5 / 03/12/1996	S4B / 13/02/2009
			Regulus calendula	Ruby-crowned Kinglet	3	G5 / 03/12/1996	S4B / 13/02/2009
			Seiurus aurocapilla	Ovenbird	1	G5 / 03/12/1996	S4B / 13/02/2009
			Spizella pusilla	Field Sparrow	1	G5 / 04/12/1996	S4B / 13/02/2009
S5	**17**	**42.5**					
			Canis latrans	Coyote	1	G5 / 15/11/1996	S5 / 13/12/1995
			Cyanocitta cristata	Blue Jay	7	G5 / 02/12/1996	S5 / 04/12/1995
			Dryocopus pileatus	Pileated Woodpecker	1	G5 / 02/12/1996	S5 / 13/02/2009
			Meleagris gallopavo	Wild Turkey	1	G5 / 25/11/1996	S5 / 16/10/1997
			Odocoileus virginianus	White-tailed Deer	15	G5 / 19/11/1996	S5 / 13/12/1995
			Picoides pubescens	Downy Woodpecker	1	G5 / 02/12/1996	S5 / 04/12/1995
			Picoides villosus	Hairy Woodpecker	1	G5 / 02/12/1996	S5 / 04/12/1995
			Poecile atricapillus	Black-capped Chickadee	4	G5 / 02/12/1996	S5 / 04/12/1995
			Procyon lotor	Northern Raccoon	1	G5 / 18/11/1996	S5 / 13/12/1995
			Pseudacris crucifer	Spring Peeper	1	G5 / 13/11/2001	S5 / 24/10/1988

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
			Rana sylvatica	Wood Frog	1	G5 / 27/11/2001	S5 / 19/10/1994
			Sciurus carolinensis	Eastern Gray Squirrel	1	G5 / 06/11/1996	S5 / 12/12/1995
			Sitta carolinensis	White-breasted Nuthatch	1	G5 / 02/12/1996	S5 / 05/12/1995
			Tamias striatus	Eastern Chipmunk	3	G5 / 06/11/1996	S5 / 12/12/1995
			Tamiasciurus hudsonicus	Red Squirrel	6	G5 / 06/11/1996	S5 / 12/12/1995
			Vulpes vulpes	Red Fox	1	G5 / 15/11/1996	S5 / 13/12/1995
			Zenaida macroura	Mourning Dove	2	G5 / 27/11/1996	S5 / 13/02/2009
S5B	**12**	**30.0**					
			Bombycilla cedrorum	Cedar Waxwing	1	G5 / 03/12/1996	S5B / 05/12/1995
			Carduelis tristis	American Goldfinch	1	G5 / 04/12/1996	S5B / 12/12/1995
			Catharus guttatus	Hermit Thrush	1	G5 / 03/12/1996	S5B / 05/12/1995
			Corvus brachyrhynchos	American Crow	5	G5 / 02/12/1996	S5B / 04/12/1995
			Junco hyemalis	Dark-eyed Junco	1	G5 / 04/12/1996	S5B / 12/12/1995
			Melospiza melodia	Song Sparrow	1	G5 / 04/12/1996	S5B / 12/12/1995
			Regulus satrapa	Golden-crowned Kinglet	3	G5 / 03/12/1996	S5B / 05/12/1995
			Sphyrapicus varius	Yellow-bellied Sapsucker	2	G5 / 02/12/1996	S5B / 04/12/1995
			Spizella passerina	Chipping Sparrow	1	G5 / 04/12/1996	S5B / 07/12/1995
			Troglodytes aedon	House Wren	1	G5 / 03/12/1996	S5B / 05/12/1995
			Turdus migratorius	American Robin	4	G5 / 03/12/1996	S5B / 05/12/1995
			Vireo olivaceus	Red-eyed Vireo	4	G5 / 03/12/1996	S5B / 05/12/1995
Animalia			**Total Number of Species**		**40**		
Plantae							
S3?	**1**	**0.6**					
			Juglans cinerea	Butternut	1	G4 / 13/10/2006	S3? / 19/01/2009
S4	**8**	**4.7**					
			Crataegus flabellata	New England Hawthorn	7	G4 / 06/12/1995	S4 / 19/12/2003
			Desmodium canadense	Showy Tick-trefoil	3	G5 / 24/04/1984	S4 / 19/12/1995
			Desmodium nudiflorum	Bare-stemmed Tick-treefoil	1	G5 / 24/04/1984	S4 / 19/12/1995
			Fagus grandifolia	American Beech	7	G5 / 11/10/1983	S4 / 16/08/2004
			Geranium bicknellii	Bicknell Northern Crane's-bill	1	G5 / 16/04/1984	S4 / 19/12/1995
			Monotropa hypopithys	American Pinesap	2	G5 / 19/01/1984	S4 / 19/12/1995
			Physalis heterophylla	Clammy Ground-cherry	1	G5 / 18/06/1984	S4 / 19/12/1995
			Smilax tamnoides	Hispid Greenbrier	1	G5 / 08/04/1986	S4 / 19/12/1995
S4?	**1**	**0.6**					

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
			Conopholis americana	Squaw-root	1	G5 / 29/02/1984	S4? / 19/12/1995
S5	118	69.0					
			Abies balsamea	Balsam Fir	1	G5 / 03/11/1983	S5 / 19/12/1995
			Acer rubrum	Red Maple	6	G5 / 09/02/1984	S5 / 01/01/1995
			Acer saccharinum	Silver Maple	2	G5 / 09/02/1984	S5 / 01/01/1995
			Acer saccharum var. saccharum	Sugar Maple	15	G5T5 / 16/09/1999	S5 / 01/01/1995
			Actaea pachypoda	White Baneberry	7	G5 / 09/02/1984	S5 / 19/12/1995
			Adiantum pedatum	Northern Maidenhair-fern	1	G5 / 03/11/1983	S5 / 26/03/1997
			Agrimonia gryposepala	Tall Hairy Groovebur	5	G5 / 09/02/1984	S5 / 19/12/1995
			Allium tricoccum	Small White Leek	1	G5 / 06/04/2006	S5 / 19/12/1995
			Ambrosia artemisiifolia	Annual Ragweed	3	G5 / 02/06/1989	S5 / 19/12/1995
			Anemone virginiana	Virginia Anemone	3	G5 / 09/02/1984	S5 / 19/12/1995
			Apocynum androsaemifolium	Spreading Dogbane	2	G5 / 13/05/1988	S5 / 19/12/1995
			Aralia nudicaulis	Wild Sarsaparilla	3	G5 / 31/01/2000	S5 / 19/12/1995
			Asclepias syriaca	Kansas Milkweed	2	G5 / 09/02/1984	S5 / 19/12/1995
			Athyrium filix-femina	Ladyfern	4	G5 / 09/02/1984	S5 / 19/12/1995
			Betula alleghaniensis	Yellow Birch	1	G5 / 14/02/1984	S5 / 19/12/1995
			Betula papyrifera	Paper Birch	8	G5 / 19/09/1983	S5 / 19/12/1995
			Carex arctata	Black Sedge	2	G5? / 02/10/1984	S5 / 19/12/1995
			Carex bebbii	Bebb's Sedge	1	G5 / 06/06/1984	S5 / 19/12/1995
			Carex gracillima	Graceful Sedge	2	G5 / 29/02/1984	S5 / 19/12/1995
			Carex hystericina	Porcupine Sedge	1	G5 / 29/02/1984	S5 / 19/12/1995
			Carex rosea	Rosy Sedge	2	G5 / 29/02/1984	S5 / 19/12/1995
			Carex vulpinoidea	Fox Sedge	1	G5 / 29/02/1984	S5 / 19/12/1995
			Caulophyllum thalictroides		2	G4G5 / 27/01/2000	S5 / 01/07/1998
			Circaea lutetiana	Southern Broadleaf Enchanter's Nightshade	2	G5 / 29/02/1984	S5 / 19/12/1995
			Clematis virginiana	Virginia Virgin-bower	1	G5 / 29/02/1984	S5 / 19/12/1995
			Clinopodium vulgare	Field Basil	4	G5 / 29/11/1999	S5 / 19/12/1995
			Cornus alternifolia	Alternate-leaf Dogwood	8	G5 / 08/09/1983	S5 / 19/12/1995
			Cornus sericea	Red-osier Dogwood	3	G5 / 29/02/1984	S5 / 19/12/1995
			Corylus cornuta	Beaked Hazelnut	3	G5 / 29/02/1984	S5 / 19/12/1995
			Danthonia spicata	Poverty Oatgrass	1	G5 / 24/04/1984	S5 / 19/12/1995
			Diervilla lonicera	Northern Bush-honeysuckle	1	G5 / 16/03/1984	S5 / 19/12/1995
			Dryopteris carthusiana	Spinulose Shield Fern	13	G5 / 18/11/1986	S5 / 19/12/1995
			Dryopteris cristata	Crested Shield-fern	1	G5 / 19/02/1986	S5 / 19/12/1995
			Dryopteris intermedia	Evergreen Woodfern	6	G5 / 18/11/1986	S5 / 19/12/1995

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
			Dryopteris marginalis	Marginal Wood-fern	5	G5 / 24/04/1984	S5 / 19/12/1995
			Equisetum arvense	Field Horsetail	1	G5 / 24/04/1984	S5 / 19/12/1995
			Equisetum pratense	Meadow Horsetail	6	G5 / 22/06/1990	S5 / 19/12/1995
			Equisetum sylvaticum	Woodland Horsetail	1	G5 / 24/04/1984	S5 / 19/12/1995
			Erigeron strigosus	Daisy Fleabane	1	G5 / 24/04/1984	S5 / 19/12/1995
			Eurybia macrophylla	Large-leaf Wood-aster	1	G5 / 09/02/1984	S5 / 19/12/1995
			Euthamia graminifolia	Flat-top Fragrant-golden-rod	1	G5 / 24/04/1984	S5 / 19/12/1995
			Fragaria virginiana	Virginia Strawberry	3	G5 / 16/05/1984	S5 / 19/12/1995
			Fraxinus americana	White Ash	16	G5 / 16/05/1984	S5 / 19/12/1995
			Fraxinus nigra	Black Ash	2	G5 / 16/05/1984	S5 / 19/12/1995
			Fraxinus pennsylvanica	Green Ash	2	G5 / 16/05/1984	S5 / 19/12/1995
			Galium palustre	Marsh Bedstraw	1	G5 / 22/03/1994	S5 / 19/12/1995
			Galium triflorum	Sweet-scent Bedstraw	1	G5 / 16/05/1984	S5 / 19/12/1995
			Gymnocarpium dryopteris	Oak Fern	1	G5 / 23/05/1986	S5 / 19/12/1995
			Hepatica nobilis var. acuta	Liverleaf	1	G5T5 / 09/05/1991	S5 / 19/12/1995
			Hydrophyllum virginianum	John's Cabbage	1	G5 / 15/03/1984	S5 / 19/12/1995
			Impatiens capensis	Spotted Jewel-weed	1	G5 / 02/05/1988	S5 / 19/12/1995
			Juniperus communis	Ground Juniper	2	G5 / 06/09/1983	S5 / 19/12/1995
			Laportea canadensis	Wood Nettle	1	G5 / 06/06/1984	S5 / 19/12/1995
			Lemna minor	Lesser Duckweed	1	G5 / 07/06/1984	S5 / 19/12/1995
			Lonicera canadensis	American Fly-honeysuckle	3	G5 / 16/04/1984	S5 / 19/12/1995
			Lonicera dioica	Mountain Honeysuckle	1	G5 / 07/06/1984	S5 / 19/12/1995
			Lycopus uniflorus	Northern Bugleweed	1	G5 / 07/06/1984	S5 / 19/12/1995
			Maianthemum canadense	Wild-lily-of-the-valley	8	G5 / 07/06/1984	S5 / 19/12/1995
			Maianthemum racemosum		4	G5 / 07/03/1990	S5 / 19/12/1995
			Matteuccia struthiopteris	Ostrich Fern	1	G5 / 08/06/1984	S5 / 19/12/1995
			Mitchella repens	Partridge-berry	3	G5 / 11/10/1983	S5 / 19/12/1995
			Mitella nuda	Naked Bishop's-cap	1	G5 / 08/06/1984	S5 / 19/12/1995
			Oenothera biennis	Common Evening-primrose	1	G5 / 11/06/1984	S5 / 19/12/1995
			Onoclea sensibilis	Sensitive Fern	4	G5 / 19/01/1984	S5 / 19/12/1995
			Oryzopsis asperifolia	White-grained Mountain-ricegrass	1	G5 / 11/06/1984	S5 / 19/12/1995
			Osmunda regalis	Royal Fern	1	G5 / 11/06/1984	S5 / 19/12/1995
			Ostrya virginiana	Eastern Hop-hornbeam	8	G5 / 11/06/1984	S5 / 19/12/1995
			Oxalis stricta	Upright Yellow Wood-sorrel	1	G5 / 11/06/1984	S5 / 19/12/1995
			Parthenocissus vitacea	Virginia Creeper	5	G5 / 06/06/2000	S5 / 20/09/2000
			Picea glauca	White Spruce	7	G5 / 15/10/1984	S5 / 19/12/1995

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
			Pinus resinosa	Red Pine	5	G5 / 19/09/1983	S5 / 19/12/1995
			Pinus strobus	Eastern White Pine	3	G5 / 25/06/1984	S5 / 19/12/1995
			Polygonum lapathifolium	Dock-leaf Smartweed	1	G5 / 25/06/1984	S5 / 19/12/1995
			Populus balsamifera	Balsam Poplar	1	G5 / 06/09/1983	S5 / 19/12/1995
			Populus tremuloides	Trembling Aspen	9	G5 / 25/06/1984	S5 / 19/12/1995
			Potentilla norvegica	Norwegian Cinquefoil	2	G5 / 25/06/1984	S5 / 19/12/1995
			Prenanthes alba	White Rattlesnake-root	1	G5 / 25/06/1984	S5 / 19/12/1995
			Prenanthes altissima	Tall Rattlesnake-root	1	G5? / 29/03/1984	S5 / 19/12/1995
			Prunella vulgaris ssp. lanceolata	Self-heal	4	G5T5 / 01/01/2001	S5 / 19/12/1995
			Prunus serotina	Wild Black Cherry	14	G5 / 28/08/1984	S5 / 19/12/1995
			Prunus virginiana	Choke Cherry	2	G5 / 11/10/1983	S5 / 19/12/1995
			Quercus rubra	Northern Red Oak	10	G5 / 29/08/1984	S5 / 19/12/1995
			Rhus typhina	Staghorn Sumac	4	G5 / 28/02/1984	S5 / 01/01/1995
			Ribes americanum	Wild Black Currant	1	G5 / 24/02/1984	S5 / 19/12/1995
			Ribes cynosbati	Prickly Gooseberry	5	G5 / 11/10/1983	S5 / 19/12/1995
			Rosa acicularis	Prickly Rose	1	G5 / 29/08/1984	S5 / 19/12/1995
			Rubus allegheniensis	Allegheny Blackberry	9	G5 / 11/10/1983	S5 / 19/12/1995
			Rubus idaeus	Common Red Raspberry	7	G5 / 20/12/1984	S5 / 19/12/1995
			Rubus occidentalis	Black Raspberry	4	G5 / 29/08/1984	S5 / 19/12/1995
			Rubus pubescens	Catherinettes Berry	1	G5 / 23/12/1994	S5 / 19/12/1995
			Sambucus racemosa	European Red Elder	5	G5 / 06/09/1984	S5 / 19/12/1995
			Sisyrinchium montanum	Strict Blue-eyed-grass	1	G5 / 06/09/1984	S5 / 19/12/1995
			Sium suave	Hemlock Water-parsnip	1	G5 / 06/09/1984	S5 / 19/12/1995
			Solidago altissima	Tall Goldenrod	3	G5 / 16/03/2007	S5 / 01/07/1998
			Solidago caesia	Bluestem Goldenrod	2	G5 / 22/10/2000	S5 / 19/12/1995
			Solidago canadensis	Canada Goldenrod	1	G5 / 16/03/2007	S5 / 19/12/1995
			Solidago gigantea	Smooth Goldenrod	4	G5 / 06/09/1984	S5 / 19/12/1995
			Solidago nemoralis	Field Goldenrod	1	G5 / 06/09/1984	S5 / 19/12/1995
			Solidago rugosa	Rough-leaf Goldenrod	5	G5 / 06/09/1984	S5 / 19/12/1995
			Symphyotrichum ciliolatum	Lindley's Aster	7	G5 / 05/04/1985	S5 / 19/12/1995
			Symphyotrichum ericoides	White Heath Aster	1	G5 / 09/02/1984	S5 / 19/12/1995
			Symphyotrichum lanceolatum	Panicled Aster	2	G5 / 08/07/1993	S5 / 19/12/1995
			Symphyotrichum lateriflorum	Starved Aster	8	G5 / 04/08/1988	S5 / 19/12/1995
			Symphyotrichum novae-angliae	New England Aster	4	G5 / 09/02/1984	S5 / 19/12/1995
			Thalictrum dioicum	Early Meadowrue	1	G5 / 06/09/1984	S5 / 19/12/1995
			Thuja occidentalis	Eastern White Cedar	3	G5 / 06/09/1983	S5 / 19/12/1995

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
			Tilia americana	American Basswood	11	G5 / 06/09/1984	S5 / 19/12/1995
			Toxicodendron radicans ssp. negundo	Poison Ivy	1	G5T5 / 11/11/1999	S5 / 21/06/1996
			Toxicodendron rydbergii	Poison Ivy	13	G5 / 06/09/1984	S5 / 21/06/1996
			Trientalis borealis	Northern Starflower	2	G5 / 06/09/1984	S5 / 19/12/1995
			Trillium grandiflorum	White Trillium	1	G5 / 06/09/1984	S5 / 19/12/1995
			Tsuga canadensis	Eastern Hemlock	4	G4G5 / 01/10/2002	S5 / 19/12/1995
			Ulmus americana	American Elm	4	G5? / 12/09/1983	S5 / 19/12/1995
			Uvularia grandiflora	Large-flowered Bellwort	1	G5 / 06/09/1984	S5 / 19/12/1995
			Viburnum acerifolium	Maple-leaf Viburnum	1	G5 / 30/09/1983	S5 / 19/12/1995
			Viburnum lentago	Nannyberry	2	G5 / 14/02/1984	S5 / 19/12/1995
			Viola canadensis	Canada Violet	1	G5 / 03/10/1984	S5 / 19/12/1995
			Vitis riparia	Riverbank Grape	9	G5 / 03/10/1984	S5 / 19/12/1995
SNA	**43**	**25.1**					
			Bromus inermis	Awnless Brome	1	GNR / 16/03/1993	SNA / 19/12/1995
			Cerastium fontanum	Common Mouse-ear Chickweed	2	GNR / 22/03/1994	SNA / 19/12/1995
			Chenopodium album	White Goosefoot	1	G5 / 22/03/1994	SNA / 19/12/1995
			Cirsium arvense	Canada Thistle	1	GNR / 22/03/1994	SNA / 19/12/1995
			Cirsium vulgare	Bull Thistle	1	GNR / 08/09/2002	SNA / 19/12/1995
			Dactylis glomerata	Orchard Grass	1	GNR / 22/03/1994	SNA / 19/12/1995
			Daucus carota	Wild Carrot	1	GNR / 22/03/1994	SNA / 19/12/1995
			Echium vulgare	Common Viper's-bugloss	1	GNR / 22/03/1994	SNA / 19/12/1995
			Epipactis helleborine	Eastern Helleborine	8	GNR / 22/03/1994	SNA / 19/12/1995
			Frangula alnus	Glossy Buckthorn	7	GNR / 15/02/1993	SNA / 19/12/1995
			Geranium robertianum	Herb-robert	6	G5 / 16/04/1984	SNA / 19/12/1995
			Hieracium aurantiacum	Orange Hawkweed	1	GNR / 22/03/1994	SNA / 19/12/1995
			Hieracium caespitosum		2	GNR / 22/03/1994	SNA / 30/03/1998
			Hieracium pilosella	Mouseear	1	GNR / 22/03/1994	SNA / 19/12/1995
			Hypericum perforatum	A St. John's-wort	5	GNR / 22/03/1994	SNA / 19/12/1995
			Leucanthemum vulgare	Oxeye Daisy	1	GNR / 22/03/1994	SNA / 19/12/1995
			Lonicera tatarica	Tartarian Honeysuckle	1	GNR / 26/06/2006	SNA / 19/12/1995
			Lotus corniculatus	Birds-foot Trefoil	1	GNR / 22/03/1994	SNA / 19/12/1995
			Malus pumila	Common Apple	5	G5 / 22/03/1994	SNA / 19/12/1995
			Medicago lupulina	Black Medic	2	GNR / 22/03/1994	SNA / 19/12/1995
			Medicago sativa	Alfalfa	1	GNR / 22/03/1994	SNA / 19/12/1995
			Melilotus albus	White Sweet Clover	2	G5 / 28/08/1996	SNA / 19/12/1995

Rank	No.	%	Sci. Name	Common Name	Community Occurrences	Global Rank / Date	Provincial Rank /Date
			Nepeta cataria	Catnip	1	GNR / 22/03/1994	SNA / 19/12/1995
			Phleum pratense	Meadow Timothy	1	GNR / 22/03/1994	SNA / 19/12/1995
			Pinus sylvestris	Scotch Pine	6	GNR / 22/03/1994	SNA / 19/12/1995
			Plantago lanceolata	English Plantain	2	G5 / 22/03/1994	SNA / 19/12/1995
			Plantago major	Nipple-seed Plantain	2	G5 / 22/03/1994	SNA / 19/12/1995
			Poa compressa	Canada Bluegrass	1	GNR / 22/03/1994	SNA / 26/11/2001
			Potentilla recta	Sulphur Cinquefoil	1	GNR / 22/03/1994	SNA / 19/12/1995
			Ranunculus acris	Tall Butter-cup	3	G5 / 25/07/1995	SNA / 19/12/1995
			Rosa centifolia	Cabbage Rose	1	GNR / 22/03/1994	SNA / 26/03/1997
			Rumex acetosella	Sheep Sorrel	1	GNR / 22/03/1994	SNA / 19/12/1995
			Silene vulgaris	Maiden's Tears	2	GNR / 22/03/1994	SNA / 19/12/1995
			Solanum dulcamara	Climbing Nightshade	9	GNR / 22/03/1994	SNA / 19/12/1995
			Sonchus oleraceus	Common Sowthistle	1	GNR / 22/03/1994	SNA / 19/12/1995
			Symphyotrichum subulatum	Annual Salt-marsh Aster	1	G5 / 09/02/1984	SNA / 19/12/1995
			Taraxacum officinale	Brown-seed Dandelion	3	G5 / 20/10/1994	SNA / 19/12/1995
			Tragopogon dubius	Meadow Goat's-beard	1	GNR / 22/03/1994	SNA / 19/12/1995
			Trifolium pratense	Red Clover	3	GNR / 22/03/1994	SNA / 19/12/1995
			Tussilago farfara	Colt's Foot	1	GNR / 22/03/1994	SNA / 19/12/1995
			Verbascum thapsus	Great Mullein	4	GNR / 22/03/1994	SNA / 19/12/1995
			Veronica officinalis	Gypsy-weed	13	G5 / 06/09/1984	SNA / 19/12/1995
			Vicia cracca	Tufted Vetch	1	GNR / 22/03/1994	SNA / 19/12/1995
Plantae			**Total Number of Species**		**171**		

9. Candidate SWH Relating to ELC Ecosites and Series

Area **ELC community**

01 FOD5-1

	Habitat	Confirmed SWH
Series: FOD		
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)		
Area-Sensitive Bird Breeding	-Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix, -Interior forest habitat is at least 100 m	All mature (>60 years old) natural forest (non-plantation) stands 30 ha or greater in size and with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.Í Studies confirm: -Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Í -Note: any site with breeding Cerulean Warblers is to be considered SWH.Í Conduct field investigations of the most likely looking areas in spring and early summer when birds are singing and defending their territories. -SWHDSS cxlix Index #34 provides
Rare Vegetation Communities		
Old-Growth Forest	Old-growth forests tend to be relatively undisturbed, structurally complex, and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity	-No minimum size to siteÍ -Determine ELC Vegetation Type for forest stand lxxviii -If dominant trees species of ELC Vegetation Type are >100 years old, then stand is Significant Wildlife Habitat.Í -Human activity within the stand must be minimal, old growth characteristics require a relatively undisturbed forest stand.
Seasonal Concentration Areas		
Amphibian Breeding Habitat (Woodland)	Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians. -The woodland and the wetland, lake, or pond would be the Candidate SWH; some small wetlands may not be mapped and may be important breeding pools for amphibians. -The wetland breeding pools may be permanent, seasonal, ephemeral, large or small in size, and could be located within or adjacent to the woodland. lxxii -Woodlands with permanent ponds or those containing water in most years until	Studies confirm; -Presence of a wetland, lake, or pond within or adjacent (within 120m) to a woodland (no minimum size).clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx -Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses) lxxi. -A study to determine this SWH will be required during the spring when amphibians are migrating or are concentrated around suitable breeding habitat within the woodland.
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

	their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	considered significant.Í -SWHDSS cxlix Index #16 provides development effects and mitigation measures.
Raptor Wintering Area	-The habitat provides a combination of fields and woodlands that provide roosting, foraging, and resting habitats	-Raptor Wintering sites need to be > 20ha cxlvii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi Studies confirm the use of these habitats by: -1 or more Short-eared Owls or; -2 or more of listed spp. and 10 or more individuals.Í -To be significant a site must be used annually for a minimum of 20 days by the above
Songbird Migratory Stopover	-Woodlots located on peninsulas or points or oriented in north to south direction along the shore and located within 5km of Lake Ontario cxlviii.	-Woodlots need to be >10 haÍ in size and within 5 km iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv of Lake Ontario. Studies confirm: -Use of the woodlot by 35Í or more migratory bird species. This number of migrant bird species is considered above average and significant. -Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques; observation records and/or mist netting (permits required) are good methods to
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

Area	**ELC community**
02	FOD5-3

	Habitat	**Confirmed SWH**
Series: FOD		
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)		
Area-Sensitive Bird Breeding	-Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix, -Interior forest habitat is at least 100 m	All mature (>60 years old) natural forest (non-plantation) stands 30 ha or greater in size and with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.Í Studies confirm: -Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Í -Note: any site with breeding Cerulean Warblers is to be considered SWH.Í Conduct field investigations of the most likely looking areas in spring and early summer when birds are singing and defending their territories. -SWHDSS cxlix Index #34 provides
Rare Vegetation Communities		
Old-Growth Forest	Old-growth forests tend to be relatively undisturbed, structurally complex, and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity	-No minimum size to siteÍ -Determine ELC Vegetation Type for forest stand lxxviii -If dominant trees species of ELC Vegetation Type are >100 years old, then stand is Significant Wildlife Habitat.Í -Human activity within the stand must be minimal, old growth characteristics require a relatively undisturbed forest stand.
Seasonal Concentration Areas		
Amphibian Breeding Habitat (Woodland)	Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are	Studies confirm; -Presence of a wetland, lake, or pond within or adjacent (within 120m) to a woodland (no

	more likely to be used due to reduced risk to migrating amphibians. -The woodland and the wetland, lake, or pond would be the Candidate SWH; some small wetlands may not be mapped and may be important breeding pools for amphibians. -The wetland breeding pools may be permanent, seasonal, ephemeral, large or small in size, and could be located within or adjacent to the woodland. lxxii -Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as	minimum size).clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx -Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses) lxxi. -A study to determine this SWH will be required during the spring when amphibians are migrating or are concentrated around suitable breeding habitat within the woodland. -SWHDSS cxlix Index #14 provides development effects and mitigation measures.
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be
Raptor Wintering Area	-The habitat provides a combination of fields and woodlands that provide roosting, foraging, and resting habitats	-Raptor Wintering sites need to be > 20ha cxlvii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi Studies confirm the use of these habitats by: -1 or more Short-eared Owls or; -2 or more of listed spp. and 10 or more individuals.Í -To be significant a site must be used annually for a minimum of 20 days by the above
Songbird Migratory Stopover	-Woodlots located on peninsulas or points or oriented in north to south direction along the shore and located within 5km of Lake Ontario cxlviii.	-Woodlots need to be >10 haÍ in size and within 5 km iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv of Lake Ontario. Studies confirm: -Use of the woodlot by 35Í or more migratory bird species. This number of migrant bird species is considered above average and significant. -Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques; observation records and/or mist netting (permits required) are good methods to
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

Area	ELC community
03	CUP3-3

	Habitat	Confirmed SWH
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

	Habitat	Confirmed SWH
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	ELC community
04	CUP3-1

	Habitat	Confirmed SWH
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a

	areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of the yard by deer during winter.	typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

	Habitat	**Confirmed SWH**
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	**ELC community**
05	CUM1-1

	Habitat	**Confirmed SWH**
Ecosite: CUM1		
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)		
Open Country Bird Breeding	-Large grassland areas (includes natural and cultural fields and meadows) >30 ha. clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix, -Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields, or pasturelands that are at least 5 years old. -The Indicator bird species are area	Grassland 30 ha or larger in size, not Class 1or 2 agricultural lands, and not being actively used for farming (i.e., no row-cropping in the last 5 years)Í Studies confirm: -Presence of nesting or breeding of 2 or more Indicator or special concern species and at least 1 of the common species.Í -Note: a field with breeding Short-eared Owl is to be considered a Significant Wildlife Habitat. -Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. -SWHDSS cxlix Index #32 provides

Seasonal Concentration Areas

Colonial-Nesting Bird Breeding Habitat	-Any exposed soil banks, undisturbed or naturally eroding for 10 years or more. -Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, or soil or aggregate stockpiles. -Does not include an active Mineral	Studies confirming: -Presence of 1 or more nesting sites with 8 or more Cliff Swallow pairs or 100Í Bank Swallow pairs during the spring breeding season. -Anecdotal information from the landowner or adjacent landowners may be good information for determining occurrence. -SWHDSS cxlix Index #4 provides development effects and mitigation measures.
Waterfowl Stopover and Staging Areas (Terrestrial)	Fields with sheet water during Spring (mid-March to May). -Fields flooded during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl.	-Studies carried out and verified presence of an annual concentration of any listed species: -Aggregation of 100Í or more of listed species required. -Annual use of habitat is documented from information sources or field studies (annual can be based on study or determined anecdotally). -Agricultural fields with waste grains are commonly used by waterfowl; these are not considered SWH, except when used by Tundra Swans during the spring migration and

	Habitat	**Confirmed SWH**
Series: CUM		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be
Raptor Wintering Area	-The habitat provides a combination of fields and woodlands that provide roosting, foraging, and resting habitats	-Raptor Wintering sites need to be > 20ha cxlvii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi Studies confirm the use of these habitats by: -1 or more Short-eared Owls or; -2 or more of listed spp. and 10 or more individuals.Í -To be significant a site must be used annually for a minimum of 20 days by the above

Area	**ELC community**
06	CUP3-1

	Habitat	**Confirmed SWH**
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix,

	usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of the yard by deer during winter.	lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting
	Habitat	**Confirmed SWH**
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be
Area **ELC community**		
07 CUP3-1		
	Habitat	**Confirmed SWH**
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		

Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

	Habitat	**Confirmed SWH**
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	**ELC community**
08	FOD8-1

	Habitat	**Confirmed SWH**
Series: FOD		
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)		
Area-Sensitive Bird Breeding	-Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix, -Interior forest habitat is at least 100 m	All mature (>60 years old) natural forest (non-plantation) stands 30 ha or greater in size and with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.Í Studies confirm: -Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Í -Note: any site with breeding Cerulean Warblers is to be considered SWH.Í Conduct field investigations of the most likely looking areas in spring and early summer when birds are singing and defending their territories. -SWHDSS cxlix Index #34 provides
Rare Vegetation Communities		
Old-Growth Forest	Old-growth forests tend to be relatively undisturbed, structurally complex, and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity	-No minimum size to siteÍ -Determine ELC Vegetation Type for forest stand lxxviii -If dominant trees species of ELC Vegetation Type are >100 years old, then stand is Significant Wildlife Habitat.Í -Human activity within the stand must be minimal, old growth characteristics require a relatively undisturbed forest stand.
Seasonal Concentration Areas		
Amphibian Breeding Habitat (Woodland)	Breeding pools within the woodland or the shortest distance from forest habitat	Studies confirm; -Presence of a wetland, lake, or pond within

	are more significant because they are more likely to be used due to reduced risk to migrating amphibians. -The woodland and the wetland, lake, or pond would be the Candidate SWH; some small wetlands may not be mapped and may be important breeding pools for amphibians. -The wetland breeding pools may be permanent, seasonal, ephemeral, large or small in size, and could be located within or adjacent to the woodland. lxxii -Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as	or adjacent (within 120m) to a woodland (no minimum size).clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx -Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses) lxxi. -A study to determine this SWH will be required during the spring when amphibians are migrating or are concentrated around suitable breeding habitat within the woodland. -SWHDSS cxlix Index #14 provides
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be
Raptor Wintering Area	-The habitat provides a combination of fields and woodlands that provide roosting, foraging, and resting habitats	-Raptor Wintering sites need to be > 20ha cxlvii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi Studies confirm the use of these habitats by: -1 or more Short-eared Owls or; -2 or more of listed spp. and 10 or more individuals.Í -To be significant a site must be used annually for a minimum of 20 days by the above
Songbird Migratory Stopover	-Woodlots located on peninsulas or points or oriented in north to south direction along the shore and located within 5km of Lake Ontario cxlviii.	-Woodlots need to be >10 haÍ in size and within 5 km iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv of Lake Ontario. Studies confirm: -Use of the woodlot by 35Í or more migratory bird species. This number of migrant bird species is considered above average and significant. -Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques; observation records and/or mist netting (permits required) are good methods to
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

Area	ELC community
09	CUP3-8

Habitat	Confirmed SWH
Ecosite: CUP3	
Seasonal Concentration Areas	
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

Habitat	Confirmed SWH
Series: CUP	
Seasonal Concentration Areas	
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	ELC community
10	CUP3-1

Habitat	Confirmed SWH
Ecosite: CUP3	
Seasonal Concentration Areas	
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a

	areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of the yard by deer during winter.	typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

	Habitat	**Confirmed SWH**
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	**ELC community**
11	CUP3-8

	Habitat	**Confirmed SWH**
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a

		core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

	Habitat	**Confirmed SWH**
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	**ELC community**
12	CUP3-3

	Habitat	**Confirmed SWH**
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
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	again, or a new nest will be in close	calls can help to find raptor nests by eliciting calling responses from courting or nesting hawks or owls.

	Habitat	**Confirmed SWH**
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	**ELC community**
13	FOD5-8

	Habitat	**Confirmed SWH**
Series: FOD		
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)		
Area-Sensitive Bird Breeding	-Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix, -Interior forest habitat is at least 100 m	All mature (>60 years old) natural forest (non-plantation) stands 30 ha or greater in size and with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.Í Studies confirm: -Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Í -Note: any site with breeding Cerulean Warblers is to be considered SWH.Í Conduct field investigations of the most likely looking areas in spring and early summer when birds are singing and defending their territories. -SWHDSS cxlix Index #34 provides
Rare Vegetation Communities		
Old-Growth Forest	Old-growth forests tend to be relatively undisturbed, structurally complex, and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity	-No minimum size to siteÍ -Determine ELC Vegetation Type for forest stand lxxviii -If dominant trees species of ELC Vegetation Type are >100 years old, then stand is Significant Wildlife Habitat.Í -Human activity within the stand must be minimal, old growth characteristics require a relatively undisturbed forest stand.
Seasonal Concentration Areas		
Amphibian Breeding Habitat (Woodland)	Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians. -The woodland and the wetland, lake, or pond would be the Candidate SWH; some small wetlands may not be mapped	Studies confirm; -Presence of a wetland, lake, or pond within or adjacent (within 120m) to a woodland (no minimum size).clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx -Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses) lxxi.

	and may be important breeding pools for amphibians. -The wetland breeding pools may be permanent, seasonal, ephemeral, large or small in size, and could be located within or adjacent to the woodland. lxxii -Woodlands with permanent ponds or those containing water in most years until	-A study to determine this SWH will be required during the spring when amphibians are migrating or are concentrated around suitable breeding habitat within the woodland. -SWHDSS cxlix Index #14 provides development effects and mitigation measures.
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be
Raptor Wintering Area	-The habitat provides a combination of fields and woodlands that provide roosting, foraging, and resting habitats	-Raptor Wintering sites need to be > 20ha cxlvii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi Studies confirm the use of these habitats by: -1 or more Short-eared Owls or; -2 or more of listed spp. and 10 or more individuals.Í -To be significant a site must be used annually for a minimum of 20 days by the above
Songbird Migratory Stopover	-Woodlots located on peninsulas or points or oriented in north to south direction along the shore and located within 5km of Lake Ontario cxlviii.	-Woodlots need to be >10 haÍ in size and within 5 km iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv of Lake Ontario. Studies confirm: -Use of the woodlot by 35Í or more migratory bird species. This number of migrant bird species is considered above average and significant. -Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques; observation records and/or mist netting (permits required) are good methods to
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

Area	**ELC community**
14	FOM7-2

	Habitat	**Confirmed SWH**
Series: FOM		
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)		
Area-Sensitive Bird Breeding	-Habitats where interior forest breeding	All mature (>60 years old) natural forest (non-

	birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix, -Interior forest habitat is at least 100 m from forest edge habitat. clxiv	plantation) stands 30 ha or greater in size and with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.Í Studies confirm: -Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Í -Note: any site with breeding Cerulean Warblers is to be considered SWH.Í Conduct field investigations of the most likely looking areas in spring and early summer when birds are singing and defending their territories. -SWHDSS cxlix Index #34 provides
Rare Vegetation Communities		
Old-Growth Forest	Old-growth forests tend to be relatively undisturbed, structurally complex, and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity	-No minimum size to siteÍ -Determine ELC Vegetation Type for forest stand lxxviii -If dominant trees species of ELC Vegetation Type are >100 years old, then stand is Significant Wildlife Habitat.Í -Human activity within the stand must be minimal, old growth characteristics require a relatively undisturbed forest stand.
Seasonal Concentration Areas		
Amphibian Breeding Habitat (Woodland)	Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians. -The woodland and the wetland, lake, or pond would be the Candidate SWH; some small wetlands may not be mapped and may be important breeding pools for amphibians. -The wetland breeding pools may be permanent, seasonal, ephemeral, large or small in size, and could be located within or adjacent to the woodland. lxxii -Woodlands with permanent ponds or those containing water in most years until	Studies confirm; -Presence of a wetland, lake, or pond within or adjacent (within 120m) to a woodland (no minimum size).clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx -Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses) lxxi. -A study to determine this SWH will be required during the spring when amphibians are migrating or are concentrated around suitable breeding habitat within the woodland.
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario.	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

	The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, -Staging areas usually provide protection from the elements and are often spits of	considered significant.Í
Raptor Wintering Area	-The habitat provides a combination of fields and woodlands that provide roosting, foraging, and resting habitats	-SWHDSS cxlix Index #16 provides -Raptor Wintering sites need to be > 20ha cxlvii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi Studies confirm the use of these habitats by: -1 or more Short-eared Owls or; -2 or more of listed spp. and 10 or more individuals.Í -To be significant a site must be used annually for a minimum of 20 days by the above
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Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

Area	**ELC community**
15	CUP3-2

	Habitat	**Confirmed SWH**
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
Specialized Habitat for Wildlife		
Woodland Raptor Nesting	-Nests typically in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. -In undisturbed sites, nests may be used	-All natural or conifer plantation forest stands >10 ha in size. lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii Studies confirm; -Presence of 1 or more active nests from species list. -Conduct field investigations from mid-March to the end of May. The use of tape recorded calls can help to find raptor nests by eliciting calling responses from courting or nesting

	Habitat	Confirmed SWH
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS Forest: FOCFOD FOMCUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed. -Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. -Staging areas usually provide protection from the elements and are often spits of	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii. -MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be

Area	ELC community
16	CUP3-8

	Habitat	Confirmed SWH
Ecosite: CUP3		
Seasonal Concentration Areas		
Deer Wintering Areas	-Core wintering areas of mainly coniferous trees (pines, hemlock, cedar, spruce) with Conifer canopy cover of more than 60%cxciv; may also include areas of deciduous forest. -Land surrounding the core area is usually agriculture, or mixed or deciduous forest. However, a core deer yarding area is predominantly woodland habitat with minor components of cultural lands.cxciv -traditionally used by deer -absence of barriers to migration to and from the yard itself; barriers cut off access to the yard and will impair use of	No studies required: -Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Í -Deer Yards are mapped by OMNR District offices. Locations of Core or Stratum 1 Deer yards considered significant by OMNR will be provided to municipalities. -Field investigations that record deer tracks in winter to confirm use (can be done from a vehicle or aircraft). This is best done in a series of winters to establish the boundary of a core Stratum 1 yard in an "average" winter.
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	Habitat	Confirmed SWH
Series: CUP		
Seasonal Concentration Areas		
Butterfly Migratory Route/Stopover Areas	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUMCUT CUS	-A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. -Studies will confirm the presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)xliii. MUD is based on the number of days a site is used by Monarchs, multiplied

Forest:
FOCFOD
FOMCUP

Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.
-Butterfly stopover areas are rare habitats located within 5 km of Lake Ontario. The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi.
-Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance by the number of individuals using the site. Numbers of butterflies can range from 100-500/dayxxxvii, significant variation can occur between years and multiple years of sampling should occur xl, xlii.
-MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be considered significant.Í
-SWHDSS cxlix Index #16 provides development effects and mitigation measures.

10. Human Disturbances

Area	ELC community	Disturbance	Date	Notes
01	Dry - Fresh Sugar Maple Deciduous Forest Type			
		Roads	06/10/2010	
		Logging	11/06/2010	
02	Dry - Fresh Sugar Maple - Oak Deciduous Forest Type			
		Roads	06/10/2010	
		Other	06/10/2010	
		Logging	06/10/2010	
05	Dry Moist Old Field Meadow Type			
		Trails	11/06/2010	
06	Red Pine Coniferous Plantation Type			
		Roads	06/10/2010	
07	Red Pine Coniferous Plantation Type			
		Roads	11/06/2010	
08	Fresh - Moist Poplar - Deciduous Forest Type			
		Trails	11/06/2010	
10	Red Pine Coniferous Plantation Type			
		Other	06/10/2010	
		Trails	11/06/2010	
11	White Spruce - European Larch Coniferous Plantation Type			
		Roads	06/10/2010	
12	Scotch Pine Coniferous Plantation Type			
		Roads	06/10/2010	
13	Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type			
		Roads	06/10/2010	
		Trails	06/10/2010	
		Other	06/10/2010	
14	Fresh - Moist White Cedar - Hardwood Mixed Forest			
		Earth displacement	06/10/2010	

11. Wildlife Habitat Features

Area		Feature	Obs. Date	Notes
01	Dry - Fresh Sugar Maple Deciduous Forest Type			
		Downed Woody Debris	11/06/2010	Fallen logs and old tops from logging are present
		Cavity tree(s)	11/06/2010	Some cavity trees exist.
		Forest edge	11/06/2010	The south-eastern corner borders the agricultural field.
		Old Growth /Mature Stands	11/06/2010	Majority of 01 is a mature forest (dbh 60 CM) that has been selectively logged.
02	Dry - Fresh Sugar Maple - Oak Deciduous Forest Type			
		Cavity tree(s)	06/10/2010	Some of the old treeas along the fence rows have cavities.
		Second Growth	11/06/2010	Significant regeneration of Sugar Maple and white ash
		Forest edge	06/10/2010	Borders CUM1 communities
		Downed Woody Debris	06/10/2010	
		Second Growth	06/10/2010	Borders pine plantation and has some areas with regeneration of young hard maple, white ask, ironwood, basswood and red oak.
03	Scotch Pine Coniferous Plantation Type			
		Forest edge	11/06/2010	Borders CUM1-1
		Second Growth	11/06/2010	Significant regeneration of hard maple, white ash, black cherry, ironwood and
04	Red Pine Coniferous Plantation Type			
		Forest edge	06/10/2010	Bordered by CUM1-1.
05	Dry Moist Old Field Meadow Type			
		Forest edge	11/06/2010	Red Pine plantation to north and deciduous forest to west and east.
		Second Growth	11/06/2010	Scots Pine regeneration from old plantation in west end of field and ash regeneration throughout remainder of old field
06	Red Pine Coniferous Plantation Type			
		Second Growth	06/10/2010	Hardwoods are beginning to grow in stand
		Downed Woody Debris	06/10/2010	
07	Red Pine Coniferous Plantation Type			
		Downed Woody Debris	11/06/2010	Some fallen trees

Area Obs.	Date			Feature Notes
08	Fresh - Moist Poplar - Deciduous Forest Type			
		Vernal Pool	11/06/2010	Shallow pond (1 ft.) close to northern property boundary. Bottom was silt covered leaves. No fish, turtles or frogs present. Appears to dry up in
		Seeps	11/06/2010	One seep area present with sedges and grasses. No stream bed present but overland flow from south.
10	Red Pine Coniferous Plantation Type			
		Downed Woody Debris	06/10/2010	Some fallen trees in older section of stand.
		Forest edge	11/06/2010	Plantation borders CUM1.
11	White Spruce - European Larch Coniferous Plantation Type			
		Downed Woody Debris	06/10/2010	
12	Scotch Pine Coniferous Plantation Type			
		Second Growth	06/10/2010	Hardwoods are growing up in stand.
		Downed Woody Debris	06/10/2010	Some of the pine trees have died and fallen
13	Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type			
		Forest edge	06/10/2010	Borders CUM1.
		Downed Woody Debris	15/10/2010	Some of the plantation pine trees are dead or dying and have fallen down.
14	Fresh - Moist White Cedar - Hardwood Mixed Forest			
		Downed Woody Debris	15/10/2010	
		Vernal Pond	15/10/2010	
15	White Pine Coniferous Plantation Type			
		Forest edge	15/10/2010	Borders CUM1.

12. Tree Planting Prescription

TREE PLANTING PRESCRIPTION
FOR PART OF LOT 80, CONCESSION 1, W.P.R.,
TINY TWP., SIMCOE COUNTY

OWNERSHIP: This prescription was prepared for the property owner, Cedarhurst Quarries and Crushing Limited, at the request of aggregate consultant, Dennis Simmons of P.O. Box 41, Irondale, Ontario, K0M 1X0. Mr. Simmons acts as Cedarhurst's property manager.

LOCATION: Known as the Sibthorpe tract, the property is located just off Highway 93 about 15 km south of Midland. This prescription applies to the area designated for tree planting on the C.T. Strongman rehabilitation plan dated May 18, 2011. The total area to be extracted and rehabilitated in three phases is 30.0 ha with 26.6 ha to be planted with trees.

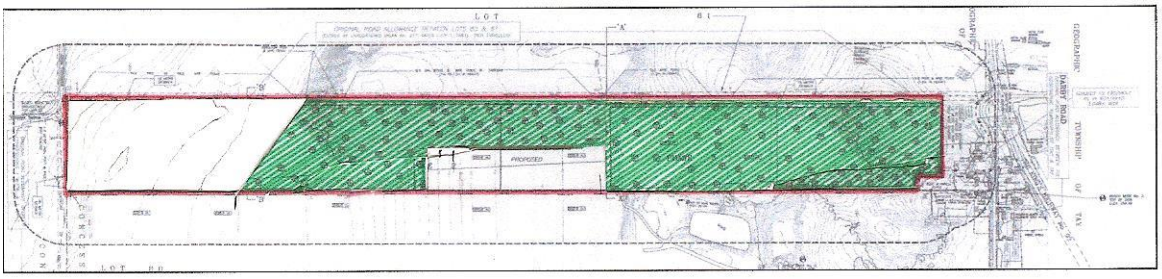

Figure 1: The Sibthorpe pit is shown here outlined in red and the areas to be planted are shown in green. For complete map details, please refer to the C.T. Strongman rehabilitation plan dated May 18, 2011.

To reach the property, go northwest from Waverley on Highway 93 for 2.2 km to Darby Road. Turn left onto Darby Road, at which point you will be at the northeast corner of the property.

OBJECTIVES OF MANAGEMENT: The property was purchased as a source of aggregate supply and application has been made for licencing under the Aggregate Resources Act. The property except for the western 10.6 ha and eastern 2.0 ha will eventually be cleared for extraction and rehabilitated by sloping and shaping the pit floor and sides, returning the stockpiled topsoil to the surface and seeding with herbaceous vegetation. The goal of tree planting following pit rehabilitation is to establish a natural self-sustaining forest.

This goal will require decades to achieve. Afforestation usually requires the planting of a nurse crop first, as late-successional species are unable to establish under harsh, open conditions like these.

Red pine has been used as a nurse crop in Simcoe County more than any other species because it's very hardy, it can establish on a wide range of sites, it is largely pest- and problem-free and there is a market for its thinnings. On silty, well-drained sands and where there is a natural seed source nearby, white ash and hard maple can be expected to

invade the understory after the nurse crop has grown up and site conditions have moderated.[1] The last stage in the process is for associated natural ground vegetation to move back onto the site. All this is possible without further intervention, but only on suitable sites and where there is a nearby seed source.

ASSESSMENT METHODS: The author visited the site on May 20, 2011 and returned on May 26 to examine the pit face on the adjoining property to the south (the Teedon Pit). The assessment consisted of a field assessment of the soil conditions at the surface and, on the adjoining property, at various levels of the subsurface. The soils were examined visually and categorized according to parent material, texture and drainage.

SITE DESCRIPTION: These four compartments are situated on a former Lake Algonquin shoreline that is perched 50 metres above the surrounding landscape. It appears that the soils were transported here during the last ice age as a moraine, before being re-worked by wave action as post-glacial Lake Algonquin receded toward the present-day shoreline.

The property lies only 15 km southwest of the Shield boundary and most of the parent material appears to have originated on the Shield, as evidenced by the preponderance of granite and gneiss among the stone content. Visually, the gravel content includes a minor limestone component as well, which has the potential to reduce the lifespan of red pine on this site.[2]

The surface soil is deep, well-drained, silty sand with a variable content of gravel and cobbles. Soils like these are suitable for growing red and white pine and have a natural successional trend toward hard maple and white ash.

However the subsurface is quite different in character, as evidenced by the extraction area on the Teedon Pit to the immediate south (see Figure 2). There, the surface is also a silty fine sand but the pit face shows various stratified layers of silt-free medium sand, silt-free coarse sand and coarse sand with gravel and cobbles. Soils like these can be very dry. They are not suited to planting with white pine and the successional trend is not toward maple and ash. This is especially true on upper slopes and slopes with a southerly aspect, which are subjected to even greater drying forces. Extraction is not planned within 2 metres of the water table and soil conditions are expected to remain well-drained or excessively well-drained after extraction.

[1] On suitable sites, this usually happens after the first thinning at age 25-35 years, or when natural tree mortality occurs among the nurse trees.
[2] In this case, this is a desirable attribute as it can speed the succession to natural hardwoods.

Figure 2: The pit face on the adjacent Teedon property showing the various layers of sands and gravel. This same pattern is expected to occur under the adjoining Sibthorpe property.

PRESCRIPTION: The prescription is for tree planting with a nurse crop, and for the planting to include one or more secondary species as a seed source for the succeeding stand. Because the soil conditions and their severity aren't known exactly at this time, it isn't possible to be definitive about the details. It will be necessary to re-examine the pit and refine this prescription after extraction is complete and the conditions are known more precisely.

Conifers are generally recommended as a nurse crop over hardwoods because of their better ability to cope with open, hot, dry and nutrient-impoverished conditions. Red pine would be a good choice for those parts of the rehabilitated area with a well-drained fine sand or a silty sand in the rooting zone. The limestone content, while minor, will serve to shorten the lifespan of red pine and hasten the natural succession to a more natural forest. Jack pine is hardier than red pine and it may be necessary to use jack pine on any surface areas of coarse sand, or even on a silt-free medium sand. Jack pine is outside its natural range in this area, which will help shorten its natural lifespan too. Neither species will reproduce to any degree in situations like this, limiting their presence to one generation.

White spruce, white cedar and white pine are not expected to be suitable. Conditions are expected to be too hot and dry for spruce and cedar, and white pine has weevil problems when planted in the open. Scots pine is not recommended at all. While it is the hardiest of the local pines and the best self-reproducer, is not a native species and it has the undesirable habit of spreading, including outside the planted area.

For best survival, tree planting should not occur until the area has been successfully stabilized and re-vegetated. The herbaceous growth is not expected to be highly competitive immediately following rehabilitation and site preparation is not expected to be necessary before planting.

For best survival under harsh conditions, large bareroot stock should be used[3] and planting should be deep.[4] The planting may be done by hand or machine, depending on the size of the area to be planted at any one time and the stone content in the soil.

Machine planting is, by necessity, done in rows, and row planting has the added advantage of facilitating the first thinning in situations where commercial thinning is possible. The rows should be laid out with this in mind, avoiding broken-up patterns and running up-slope where possible, to avoid equipment lean and the logging damage that can result from it.

Predicting future markets or a future owner's actions is never certain, and it's possible that commercial thinning may not occur, or may not occur on time. For this reason, wider-than-normal tree spacing is recommended, which will facilitate the seeding-in of the successional stand. A target spacing of 2.4 metres between rows and of 2.1 to 2.4 metres within rows would be suitable, amounting to ≈1,600-1,900 trees/ha.

Some thought must be given to the successional stand at the time of planting. Oak is an important species for wildlife and adding a 10% red oak component to the planted trees is recommended.[5] This will provide a seed source that will allow oak to form part of the succeeding stand too.

[3] For red pine, 3-0 bareroot stock would be a good choice. Red pine reforestation stock is available from Somerville Nurseries in nearby Alliston.
[4] Deep planting aids in tree survival on dry sites. Trees should be planted deeper than the natural root collar but with the first whorl of branches showing above ground.
[5] Red oak is a xeric species and can tolerate dry sites better than maple and ash.

Succession to hardwoods is less likely to occur if the final soil is silt-free and rapidly drained. In that case, adding a 10% white pine component to the planted trees will allow white pine to form the succeeding stand. If the soil conditions are highly variable and the outcome is uncertain, adding both an oak and white pine component is the best bet.

FOLLOW-UP AFTER PLANTING:

Survival assessments and refill: The plantation should be assessed for survival in its first and second years after planting.[6] Refill planting should be considered if survival at that time is less than 60%. If the assessment finds herbaceous competition to be greater than expected, a tending treatment may be necessary.

Pest management: Red-headed pine sawfly (*Neodiprion lecontei*) is the most common defoliator of red pine but it is relatively easy to control. The plantation should be monitored for infestations up to about age 10, after which outbreaks are less damaging (and more difficult to control). The caterpillars feed in visible colonies, where they can be sprayed with a backpack sprayer using a contact insecticide such as malathion.[7]
Commercial thinnings: At about age 30, a forestry professional should be consulted over the need and over opportunities to thin the plantation. The purpose of commercial thinnings is to maintain tree health and growth among the nurse crop and to encourage natural regeneration to invade the understory.

Peter Hynard, RPF
August 10, 2011

[6] There is little point in refilling after age two, as the refilled trees are unlikely to catch up with the original plantings from that point on.
[7] Under Ontario law, this would require application by a licensed pesticide applicator.

11 Qualifications

Lindsay Environmental Services Group

Paul Nichol
Barry Snider
Dave Bell

In order to keep up with the growth in Environmental Services, Paul Nichol of Ecosystems initiated a strategic alliance with Snider's Ecological Services and DA Bell Environmental Services in 2006. Since that time we have collaborated on a growing number of environmental projects. This is an informal association of three separate, independent companies, collaborating on a project to project basis under the name *Lindsay Environmental Services Group*.

Each of us has extensive education and experience in the environmental field. Collectively our expertise is vast, spanning a total in excess of 90 years. Added to our collective previous experience in diverse capacities as MNR employees, as consultants our clients have included all levels of government, NGO's and the public sector.

The following page provides highlights of our individual qualifications including education and experience.

Paul Nichol, B.Sc.

- B.Sc. Honours Fisheries Biology University of Guelph,1983

Principal, Ecosystems
1996-Present
- Specializing in environmental and information management services

Ontario Ministry of Natural Resources
1987-1996
- Various positions including Fish Hatchery Technician, Hatchery Development Biologist, Resource Technician and Area Biologist

Spring Valley Trout Hatchery Ltd.
1984-1986
- Hatchery Technician, Assistant Manager

David Bell, B.Sc., M.Sc.

- M.Sc. Zoology, University of Guelph, 1977
- B.Sc. Honours Zoology, University of Guelph, 1973

Principal, DBell Environmental Services
2006-Present
- Specializing in aquatic, wetland and terrestrial ecosystems

Ontario Ministry of Natural Resources
1979-2004
- Various positions including Regional Fisheries Biologist, Senior Aquatic Biologist, Area Biologist, Wetlands Biologist, District Biologist, Fish and Wildlife Supervisor

Barry Snider, B.Sc., M.Sc.

- M.Sc. Lakehead University, 1985
- B.Sc. Honours zoology, University of Guelph, 1970

Principal, Snider's Ecological Services - 1999 to present
1999-Present
- Specializing in environmental consulting

Ontario Ministry of Natural Resources
1973-1999
- Various positions including District Biologist, Environmental Biologist and Management Biologist

Min. Natural Resources, North East State, Nigeria
1971-1973
- Field Biologist Gashaka Park