

We are committed to providing [accessible customer service](#).

If you need accessible formats or communications supports, please [contact us](#).

Nous tenons à améliorer [l'accessibilité des services à la clientèle](#).

Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez [nous contacter](#).

**Environmental Baseline Study (EBS)  
Work Performed on Claim Nos. 140706, 242100  
& 229938, East Gabbro Project  
Part Lots 9, 10 & 11, Concessions 3, 4 & 5 (Methuen)  
Township of Havelock-Belmont-Methuen,  
County of Peterborough**

**Prepared For:**

Mr. Matt Anderson  
Trigan Resources Inc.  
c/o Oakridge Golf Course  
General Delivery  
Ashburn, Ontario  
L9L 2A7  
Project #: 22-3112

**January 2023**



**ORE**

**Oakridge Environmental Ltd.**

Environmental and Hydrogeological Services

January 10, 2023

Trigan Resources Inc.  
c/o Oakridge Golf Course  
General Delivery  
Ashburn, Ontario  
L9L 2A7

**Attention: Mr. Matt Anderson**

Re: Environmental Baseline Study (EBS) Update  
Work Performed on Claim Nos. 140706, 242100 & 229938, East Gabbro Project  
Part Lots 9, 10 & 11, Concessions 3, 4 & 5 (Methuen)  
Township of Havelock-Belmont-Methuen, County of Peterborough  
ORE File No. 22-3112

---

Dear Mr. Anderson:

Oakridge Environmental Ltd. is pleased to present this Environmental Baseline Study (EBS) Update covering conditions on the above referenced mining claims. This report is intended to be submitted as part of the annual assessment requirements and builds upon previous submissions for the claim group.

Our report presents information pertaining to the natural environment features located within the claims and provides general recommendations with respect to future investigations and constraints that may affect mining activities. As such, the information provided herein should be considered in association with any future development plans for the site.

Should you have any questions, please contact our office at any time.

Yours truly,  
**Oakridge Environmental Limited**



Rob West, HBSoc. CSEB  
Senior Environmental Scientist

# Table of Contents

	<u>Page No.</u>
1.0	Introduction . . . . . 1
1.1	General . . . . . 1
1.2	Site Description and Access . . . . . 2
2.0	Scope of Work . . . . . 3
3.0	Previous Work . . . . . 4
4.0	Physical Setting . . . . . 4
4.1	Topography and Drainage . . . . . 4
4.2	Geological Setting . . . . . 5
5.0	Information Resources . . . . . 6
5.1	Ontario Breeding Bird Atlas . . . . . 6
5.2	Natural Heritage Information Centre (NHIC) . . . . . 7
5.3	eBird . . . . . 9
5.4	iNaturalist Database . . . . . 9
5.5	Fish ON-Line . . . . . 9
5.6	Land Information Ontario (LIO) Database . . . . . 10
5.7	Ontario Watershed Information Tool (OWIT) . . . . . 13
5.8	Species at Risk Range Map . . . . . 13
6.0	Bio-physical Findings . . . . . 14
6.1	Field Methodologies . . . . . 14
6.1.1	General . . . . . 14
6.1.2	Vegetation . . . . . 14
6.1.3	Wetland Delineation . . . . . 15
6.1.4	Watercourse Assessment . . . . . 16
6.1.5	Species at Risk . . . . . 16
6.1.6	Bat Surveys . . . . . 16
6.2	Preliminary Vegetation Communities . . . . . 20
6.3	Wildlife Assessment / SAR Presence . . . . . 25
6.3.1	Bats . . . . . 25
6.3.2	Other Mammals . . . . . 26
6.3.3	Herptiles . . . . . 26
6.3.4	Fish and Mussel Habitat . . . . . 28
6.3.5	Vascular Plants and Lichens . . . . . 29
6.3.6	Avifauna . . . . . 29
7.0	Conclusions & Recommendations . . . . . 31
Statement of Qualifications	
Selected References	

## Figures

<b>Figure 1</b>	General Location
<b>Figure 2</b>	Claim Map
<b>Figure 3</b>	Topography and Drainage
<b>Figure 4</b>	Bedrock Geology
<b>Figure 5</b>	Surficial Geology
<b>Figure 6</b>	Ontario Watershed Information Tool (OWIT) Mapping
<b>Figure 7</b>	Vegetation Communities

## Appendices

<b>Appendix A</b>	OBBA Data
<b>Appendix B</b>	Species Descriptions
<b>Appendix C</b>	NHIC Data
<b>Appendix D</b>	eBird Data
<b>Appendix E</b>	Species at Risk Range Map Results
<b>Appendix F</b>	Species List

**Environmental Baseline Study (EBS) Update**  
**Work Performed on Claim Nos. 140706, 242100 & 229938**  
**East Gabbro Project**  
**Part of Lots 9, 10 & 11, Concessions 3, 4 & 5 (Methuen)**  
**Township of Havelock-Belmont-Methuen**  
**County of Peterborough**

## **1.0 Introduction**

### **1.1 General**

Oakridge Environmental Ltd. is pleased to present this Environmental Baseline Study (EBS) Update. This report includes field and desk-top work completed to update mapping and background information resources for Legacy Claim No. 1240157, that was completed as part of an original Environmental Baseline Study referenced below:

*Environmental Baseline Study (EBS), Claim No. 1240157 (East Gabbro Project), Lot 10, Concession 4, (Methuen), Township of Havelock-Belmont-Methuen, County of Peterborough*

The legacy claim was converted to Claim Unit Nos. 140706, 242100, 229938, 129222, 288534, 296627, 296626, 336902, 296628 and 129223. The claim group is herein collectively known as the “East Gabbro” claim group.

As the converted claim units encompasses additional lands, an update report was completed for the 2021 assessment period that primarily focussed on updating the published background resources for the claim group and assessing potential Significant Wildlife Habitat (SWH) related to bat species. This report builds upon the recommendations and data provided in our previous report referenced below:

*Environmental Baseline Study (EBS) Update, Claim Nos. 140706, 242100, 229938, 129222, 288534, 296627, 296626, 336902, 296628 & 129223 (East Gabbro Project), Part of Lots 9, 10 & 11, Concession 3, 4 & 5 (Methuen), Township of Havelock-Belmont-Methuen, County of Peterborough (January 7, 2022).*

Although this report provides updates to the available published background information, the focus of this EBS Update is to provide an in-depth assessment of the vegetation communities within Claim Nos. 140706, 242100 & 229938. This report also provides a summary of preliminary inspections conducted during the typical breeding season for the presence of potential Species at Risk (SAR) and Significant Wildlife Habitat (SWH).

The Claims are situated in the Township of Havelock-Belmont-Methuen (Methuen), County of Peterborough (Figure 1) and are held by:



Trigan Resources Inc.  
35 Lauren Rd  
Port Perry, ON, L9L 2A7  
Attn. Mr. Matt Anderson

It is intended that this EBS update be submitted for assessment purposes.

Trigan Resources Inc. owns a large block of Mining Claims in the former Methuen Township within which the subject claims are centrally located, as illustrated by Figure 2. The claim group covers a large body of metagabbro and related rocks that are under exploration for several target commodities.

Similar to the above-referenced reports, this study also attempts to identify data gaps and to provide recommendations to guide more detailed, future studies (especially of the more “sensitive” areas).

The work outlined herein was completed by the following individuals:

Mr. Rob West, Senior Environmental Scientist, Peterborough, Ontario,

assisted by,

Mr. Matt Susac, GIS/Environmental Technician, Peterborough, Ontario.

## 1.2 Site Description and Access

The East Gabbro claim group consists of 10 units, covering a total area of approximately 229.7 ha (567.7 acres). This represents a substantial increase over the legacy claim area (No. 1240157), which comprised 85.4 ha (211.6 acres). The study area for the current assessment covers approximately 68.9 ha (16.8 acres), occupying the northern portion of the claim group. The locations of the current claim group, study area and the legacy claim are illustrated on Figure 2.

To access the claim group from Peterborough, at Highway 115, continue eastward to the intersection of Highway 115 and Highway 7 (Figure 1). Proceed onto Highway 7 eastward to the intersection of County Road 46, in Havelock, Ontario. Follow County Road 46 (northbound) approximately 26.7 km to Fire Route 68. Fire Route 68 continues to the west, through Claim Nos. 29938 and 242100, providing access to the claim group.

The majority of the claim group is located within a large expanse of Crown lands situated south of West Twin Lake, southeast of Blue Lake and east of Sams Lake (Figure 2). Although the legacy claim had been located entirely within the general use Crown lands

that comprised Lot 10, Concession 4 (Methuen), the claim group now encompasses several private parcels along the shore of West Twin Lake and within Lot 10, Concession 3 (Methuen). Public access to the Crown lands is available via a series of All Terrain Vehicle (ATV) trails. Where access was not granted, private property was inspected from the property boundary and/or was interpreted from aerial photographs.

Wetlands, varying in size and composition, are scattered throughout the subject claims, among the undulating bedrock ridges, outcrops and subcrops. The upland areas of the claim group are dominated by relatively mature deciduous forest with an open forest floor and extensive canopy, representing potential maternity roosting habitat for most bat species in Ontario. The majority of the claim group remains untouched, with minimal tree harvesting. ATV trails and private development occur along the shore of West Twin Lake.

## 2.0 Scope of Work

In conducting this EBS, the following tasks have been completed:

- Background data regarding the subject Claims have been updated from previous reports and recently released data have been compiled and reviewed.
- The Claims were attended for the purpose of conducting detailed inspections. These included an early morning breeding assessment, delineation and mapping of various vegetation communities and other ecological/hydrological features utilizing a mapping-grade differential Global Positioning System (dGPS) and air photo interpretation.
- Lists of floral and faunal species have been prepared for the site. The mapping of on-site vegetation communities has been expanded. Those communities have been classified under the Ecological Land Classification (ELC) for Southern Ontario. On-site soils data were collected within each ELC community via manual auger and classified under the Field Manual for Describing Soils in Ontario (2009).
- Wetlands and other aquatic environments were mapped and delineated using the industry standard Ontario Wetland Evaluation System (OWES) protocol.
- Species at Risk (SAR) surveys were completed to identify individual species, with emphasis on potential SAR habitat. Surveys were conducted to identify potential habitat and presence of individuals.
- Key Natural Heritage Features (KNHF) and Hydrologically Sensitive Features (HSF) identified on the site (and as indicated by available mapping) were examined and their boundaries defined.

- This report was prepared outlining our findings, conclusions and recommendations with respect to potential constraints and data gaps.

### **3.0 Previous Work**

Previous work on the subject Claims has included geological mapping and an initial environmental baseline study. The geological mapping focussed on determination of the northern limits of the gabbro body and confirmation of the continuity of favourable gabbro south of the northern contact (Phipps, 2008).

The initial environmental baseline study (ORE, 2016) focussed on the legacy claim area, identifying key hydrological features (i.e. wetlands) and adjusting the boundaries of these features based on observations in the field. An update to the EBS (ORE, 2022) was completed during the 2021 assessment period to incorporate the additional lands added as a result of the migration from the legacy claim to the current claim units. No Species at Risk (SAR) were observed during the previous environmental baseline inspections.

### **4.0 Physical Setting**

#### **4.1 Topography and Drainage**

The claim group lies within Ecoregion 5E in the southern portion of the Canadian Shield. The site consists of typical Canadian Shield terrain, comprised of undulating bedrock outcrops and pockets of predominantly granular soils. Small vernal ponds/pools and isolated pocket wetlands occur between the elevated rock ridges.

The claim group is generally dominated by bedrock outcrop and subcrop ridges. Upland areas that contain overburden cover, tend to be comprised of sandy soils that promote infiltration. Most low-lying areas are dominated by wetlands, typically containing recent silty organic deposits and/or bedrock substrates that are less permeable, slowing infiltration.

Public topographic mapping suggests the maximum local relief within the survey area is somewhat subdued, at approximately 15 m with the average relief typically being less than 5 m (Figure 3). Imagery obtained through the South Central Ontario Orthophotography Project (SCOOP) suggests a similar range of variation from 264 masl at lake level to 280 masl (i.e., 16 m) in the southwestern-most portion of the claim group. When subjected to a contouring algorithm, the imagery provides many circular contours that appear to define bedrock outcrop and subcrop areas that are not otherwise shown on the published mapping.



As would be expected, the topography is essentially dominated by the bedrock structure. As the claim group occurs on the northern-most part of the gabbro body, the claim group area generally slopes to the north-northwest, dictating the regional drainage pattern. Drainage is complex within the claim group, with surface flows split between Sams Lake to the west, West Twin Lake to the north and Oak Lake to the south. Available mapping indicates that outflow from Blue Lake (in the northwest of the claim group) flows into West Twin Lake, despite being located less than 200 m from a wetland associated with Sams Lake.

## 4.2 Geological Setting

The claim group is situated within the southern part of the Canadian Shield, within the Grenville structural province. The bedrock in this area is dominated by two large metamorphosed anorthositic gabbro and dioritic bodies referred to locally as the "East and West Gabbros". The subject claim is situated largely within the "East Gabbro" body. Figure 4 presents a map of the regional bedrock features.

Bedrock exposures within the claim group are numerous, especially along the edge and in the middle of the water bodies within the claim group. These rocks are typically competent, non-porous, and exhibit fairly wide spacing of joint sets and fractures. Most outcrop surfaces are quite undulatory, although relatively smooth, presumably the result of glacial erosion.

As outlined by Phipps (2008), the claim group covers a portion of the northern part of the East Gabbro (Figure 4) where it is in contact with mainly gneissic arenaceous metasediments (paragneisses). The gabbro is typically a medium grained, grey, mesocratic rock consisting mainly of plagioclase with lesser amounts of mafic minerals (augite and/or hornblende). Near the surface, weathering of this rock imparts a pinkish hue to the plagioclase, misleadingly giving it the appearance of a more leucocratic acidic rock.

The contact between the gabbro and the country rock metasediments is diffuse. In the contact area, inclusions of metasediments become common and the gabbro is notably finer grained. Compositional differences in the gabbro, especially in the contact zone, are present due to contamination of the gabbroic magma by absorbed metasediments.

The northern contact of the East Gabbro was traced southwesterly from the northeast corner of the west half of the claim group. Gneissic metasediments with conformable granitic and gabbroic zones occur northwest of the contact, and gabbro occurs southeast of the contact. The majority of the claim group is underlain by gabbro with Claim Nos. 140706 and 129222 appearing to occur entirely north of the contact.

From the geological mapping (Figure 4), an interpreted fault line appears to bisect the gabbro body. However, there does not appear to be any horizontal offset in the gabbro body itself. As this feature is mapped to occur in Claim No. 336902 but outside the legacy claim, previous in-the-field observations/mapping are unavailable and could be a target for future geological investigations.

The surficial geology and physiography of the claim group area is dominated by areas of outcrop and thin deposits of till and granular outwash (Figure 5). There are no significant granular landforms or valley type features of note in the area.

The claims lie close to the northernmost boundary of the area inundated by glacial Lake Iroquois, as defined by Muller and Prest (1985). As such, a thin and discontinuous mantle of granular sediments is expected to be ubiquitous in the area.

The dominant surficial sediment type consists of oxidized, fine, silty sand and minor gravel deposits derived from ancient outwash or perhaps from a brief period of inundation and settling. The deeper troughs between ridges typically host wetland deposits consisting of peat and muck.

## 5.0 Information Resources

### 5.1 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) is an organization comprised mainly of volunteers who monitor birds across selected regions of Ontario. Birds are recorded to occur within defined 10 km<sup>2</sup> areas denoted as “regional squares”. Two versions of the Atlas have been published, with the 2<sup>nd</sup> edition comprising the most recent data. A third version is currently in development.

Data from the OBBA are used as an indicator or tool to assist in identifying important species and/or habitats that may occur in the area of the claims, prior to conducting surveys. The atlas also helps to define the timing necessary for the bird surveys (e.g., morning or evening) and the season in which to detect them.

The claim group occurs within *two* 10 km<sup>2</sup> areas, mapped as 18TTQ64 and 18TTQ74, Region 16, Peterborough. The maps and summary sheets for this atlas area are provided in Appendix A.

From our review of the information, significant breeding species that could potentially be associated with habitats in the claim group, include the following:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status*</u>
Common Nighthawk	<i>Chordeiles minor</i>	Special Concern
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Threatened
Black Tern	<i>Chlidonias niger</i>	Special Concern
Least Bittern	<i>Ixobrychus exilis</i>	Threatened
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Special Concern
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Special Concern
Eastern Wood-Pewee	<i>Contopus virens</i>	Special Concern
Barn Swallow	<i>Hirundo rustica</i>	Threatened
Bank Swallow	<i>Riparia riparia</i>	Threatened
Wood Thrush	<i>Hylocichla mustelina</i>	Special Concern
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	Special Concern
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Special Concern
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Special Concern
Canada Warbler	<i>Cardellina canadensis</i>	Special Concern

\*Status according to Species at Risk Ontario (SARO). Status may differ from the federal Species at Risk Act (SARA) registry.

Brief descriptions of each of the listed species and associated preferred habitats are included in Appendix B. The site inspections included a review of potential SAR habitat and targeted searches for the listed species.

## 5.2 Natural Heritage Information Centre (NHIC)

The NHIC is an online database managed by the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNR). Within the database, Ontario has been divided into a grid consisting of a series of 1 km<sup>2</sup> areas or *regional squares*, each given a unique identifier (similar to the OBBA, described above). The squares can be searched for historical *Species at Risk* (SAR) occurrences, rare *Plant Communities* and for *Areas of Natural and Scientific Interest* (ANSI).

The subject claims span multiple NHIC squares (Appendix C). The NHIC squares include: 18TQ6947, 18TQ6946, 18TQ6945, 18TQ7047, 18TQ7046, 18TQ7045, 18TQ7147, 18TQ7146 and 18TQ7145. The extent of the NHIC search and a summary sheet have been included in Appendix C.

Based on our review, the following natural areas were determined to be located within the 1 km squares:

- Wildlife Concentration Area - Colonial Waterbird Nesting Area
- Natural Area - Oak Lake Wetland
- Wildlife Concentration Area - Mixed Wader Nesting Colony

Several SAR and rare species occurrences were noted to include the following:

Atlas I.D.	Common Name	Scientific Name	SARO Status
18TQ6947, 18TQ7047, 18TQ7046, 18TQ7147 and 18TQ7146	Wood Thrush	<i>Hylocichla mustelina</i>	Special Concern*
18TQ7047	Common Nighthawk	<i>Chordeiles minor</i>	Special Concern*
18TQ7047, 18TQ7147 and 18TQ7146	Western Chorus Frog - Great Lakes/St. Lawrence - Canadian Shield Population	<i>Pseudacris maculata</i>	Not at Risk*
18TQ7147	Common Five-lined Skink (Southern Canadian Shield)	<i>Plestiodon fasciatus</i>	Special Concern
18TQ7047	Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern*
18TQ7047, 18TQ714 and 18TQ7146,	Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Threatened*
18TQ7147	Restricted Species		Threatened
18TQ7146 and 18TQ7145	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	Not at Risk*
18TQ7146 and 18TQ7145	Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	Special Concern*
18TQ7146	Canada Warbler	<i>Cardellina canadensis</i>	Special Concern*
18TQ7146 and 18TQ7145	Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened*
18TQ6947	Houghton's Flatsedge	<i>Cyperus houghtonii</i>	Not at Risk

\*listed SARA species.

Descriptions of each species listed and the habitats typically associated with each species above are presented in Appendix B. Preliminary inspections (i.e., point count locations) were included in this study to assess the potential presence/absence of the listed avifauna and amphibians. Prior to any detailed (targeted) SAR inspections, as part of future investigations, local Ministry of the Environment, Conservation and Parks (MECP) staff should be contacted to determine the nature of the restricted species listed above, in addition to any other significant species that may be known to utilize the area.

### **5.3 eBird**

The eBird website consists of a database whereby citizen-science individuals provide site level birding data for locations known as “hot-spots”. The bird species data are entered into the database and can be updated by individuals who consistently return to the website.

The nearest eBird hotspots occur approximately 6 km to the west, in an area referred to as the “Nephton Ridge”. Due to the distance from the study area, the data associated with this hotspot is not expected to be overly relevant. Regardless, the species list from this location is presented in Appendix D.

### **5.4 iNaturalist Database**

ORE staff conducted a search of the iNaturalist website database to determine if this database has any significant species occurrences in the vicinity of the current study area.

The database query revealed the following records:

- Midland Painted Turtle, reported approximately 60 m east of the study area on June 8, 2022.
- Blandings Turtle, reported approximately 600 m southeast of the claim group in May 2022.
- Snapping Turtle, reported in the northeastern portion of the study area on June 1, 2019. Other sightings have also been reported within 1 km of the study area.
- Common Nighthawk, reported approximately 500 m north of the study area on June 29, 2017.

A map of the search area and list of species are included in Appendix E. General species descriptions are included in Appendix B.

### **5.5 Fish ON-Line**

The province maintains an online database intended to help guide game fishing activities by including information regarding fish species likely to occur, observed species and regulations pertaining to specific waterbodies. The nearest dataset occurs at West Twin Lake, in the northern portion of the study area. The province lists the following species as occurring in the lake:

- Brown Bullhead;
- Largemouth Bass;
- Muskellunge;
- Pumpkinseed;
- Smallmouth Bass;
- White Sucker, and
- Yellow Perch.

In addition, Fish ON-Line provides the following additional data for game fish in Oak Lake, located approximately 2 km south of the claim group:

- Walleye, and
- Rock Bass (reported by public).

Cold water species (i.e., trout) are not listed and have not been reported by the public to occur within either lake. As a result, it is unlikely that any of the wetlands or watercourses within the claim group represent important spawning habitat for these species.

No SAR are listed by Fish ON-Line, however, any larger lakes with a diverse population of game fish could potentially be suitable for smaller SAR (i.e., non-game fish). Future investigations could include targeted fisheries inspections/trapping to determine the presence/absence of SAR fish species.

## 5.6 Land Information Ontario (LIO) Database

The MNDMNR's Land Information Ontario (LIO) database was referenced to provide background information on the site. LIO data provide geographic information on Ontario's road network, wetlands, water bodies, wooded areas, parks, and protected areas, among other features. Although previous EBS reports included LIO data, the databases are updated from time-to-time. As a result, a summary of LIO data available for the features within the subject property is presented below.

The LIO database recognizes seventy-three (73) Unevaluated Wetland segments that occur fully or partially within the claim group (Figure 3)<sup>1</sup>. This represents a small increase from the seventy-one (71) Unevaluated Wetland segments identified in our previous EBS update. Unfortunately, it's not entirely clear which features may have been updated.

---

<sup>1</sup> The LIO database subdivides larger contiguous wetlands based on the type interpreted from satellite imagery. Many of the mapped wetlands in the claim group are contiguous features or are hydrologically connected by lakes and/or watercourses.



The wetlands in the LIO dataset are designated as “Swamp”, “Marsh” and “Unknown”. These features have a combined total area of 85.2 ha, equivalent to approximately 37% of the total area of the claim group and is unchanged from our previous EBS update. Wetlands completely within the claim group are identified by LIO to range from 0.1 ha to 15 ha in area. LIO data suggest there is a Provincially Significant Wetland (PSW) located proximal to the claim group, referred to as the Oak Lake Wetland, located approximately 500 m south. A headwater area of an unnamed watercourse that flows into the wetland is also mapped to occur immediately south of the claim group.

Unchanged from the previous EBS update, LIO includes Five (5) woodland tracts (polygons) within the claim group, measuring 127.3 ha in total (55% of the total area). The woodlands within the claim group are classified by the MNDMNR as *Non-sensitive*.

The LIO mapping suggests the claim group contains 21.8 ha of open water communities, slightly below the 22.3 ha identified in the previous EBS update. Presumably, some of the open water areas may have been reclassified as wetland, as our previous assessment had identified that these features often overlap. The open water communities also contain portions of Sams Lake, Blue Lake and West Twin Lake.

Unchanged from our previous assessment, a total of eighteen (18) building symbols occur within the claim group, mostly representing development along the shoreline of West Twin Lake. The building symbols within the LIO data set represent residences and outbuildings (e.g., garages, sheds, farm structures, etc).

Our previous assessment reported on an older version of the Southern Ontario Land Resource Information System (SOLRIS, v. 2.0). SOLRIS has since been updated to a new version (v. 3.0). A side-by-side comparison of the landforms within the claim group is provided below:

<b>Landform</b>	<b>% of Claim Group SOLRIS v. 2.0</b>	<b>% of Claim Group SOLRIS v. 3.0</b>
Coniferous Forest	23.8	0.0
Mixed Forest	23.8	2.9
Deciduous Forest	12.1	57.4
Marsh	16.1	13.9
Swamp	10.9	2.6 (Treed) 9.0 (Thicket)
Clear Open Water	7.2	7.0
Undifferentiated	2.8	0.1

<b>Landform</b>	<b>% of Claim Group SOLRIS v. 2.0</b>	<b>% of Claim Group SOLRIS v. 3.0</b>
Sparsely Forested	2.3	1.4
Treed Upland	0.5	N/A
Community / Infrastructure	0.5	N/A
Open Bedrock	N/A	0.1
Fen	N/A	1.9
Transportation	N/A	1.9
Built-Up Area - Pervious	N/A	1.8

The SOLRIS v. 3.0 data presented above provides some refinements to the interpreted vegetation communities over the previous version, likely as a result of improvements in imagery acquisitions (i.e., satellite and aerial photography). However, the data continues to have a minimum mapping unit (MMU) of 0.5 ha, which does not provide sufficient definition for the purpose of delineating potential constraints. As a result, site inspections are required to verify the presence, type and spatial extent of any of the above-listed landforms.

LIO also provides data related to assessing potential Significant Wildlife Habitat (SWH) through several databases. The “Wildlife Area Values” dataset was examined for the occurrence of the important wildlife areas tracked by the province.

The nearest mapped wildlife area is a Stratum 1 White-tailed Deer Yard, located approximately 5 km northwest of the study area. This corresponds to the location of an existing Game Preserve. Stratum 1 Deer Yards consist of habitat that are crucial to the survival of deer populations, as they provide cover during the harsh winter months. Although not mapped, Stratum 1 Deer Yards typically have associated habitats referred to as “Stratum 2 White-tailed Deer Wintering Areas”. The Stratum 2 areas are typically a continuation of the forested habitats found in Stratum 1, but may contain less desirable features. In this respect, despite being well separated from the mapped Stratum 1 Deer Yard, future refinements to these data could encompass areas closer to the claim group. Future assessments should have regard for any updates to this mapping.

Other LIO layers were also examined, including “Wildlife Values Sites”, which identified Osprey (*Pandion haliaetus*) nesting sites within 5 km of the subject claims.

Site inspections were conducted to confirm and update (where necessary) the above

information. Results from the site inspections are presented in the following sections.

## **5.7 Ontario Watershed Information Tool (OWIT)**

The MNDMNRF has replaced the Ontario Flow Assessment Tool (OFAT) with a newly branded Ontario Watershed Information Tool (OWIT), which assists the evaluation of Ontario watersheds. Although both tools use data derived from the LIO database to interpret watershed characteristics, the hydrology models and stream flow statistics that were included with OFAT have since been removed.

Regardless, the watershed information provided by OWIT is unchanged from the data presented in our previous EBS update. Figure 6 shows the general drainage patterns and the three (3) local subwatersheds (within the Trent-Crowe tertiary watershed) in which the claim group occurs. A brief discussion of each subwatershed is presented below.

As illustrated by Figure 6, surface water flows are split between subwatersheds for Sams Lake to the west, West Twin Lake to the north and Oak Lake to the south. Sams Lake outlets to the southwest and the flows eventually enter Kasshabog Lake. West Twin Lake flows out to the east, with flows eventually directed through Otter Creek and into Belmont Lake. Although the claim group is far removed from the shores of Oak Lake, many small tributaries and unevaluated wetlands occur within the claim group that eventually flow into the Oak Lake Provincially Significant Wetland and then into Oak Lake, approximately 2.2 km south of the claim group.

## **5.8 Species at Risk Range Map**

A database of range maps for Species at Risk (SAR) is maintained by Environment Canada and provides geospatial information to help direct which SAR may occur within a given study area. Although the focus of the database is on SAR, other tracked species are also included. It is possible that these tracked species may eventually be added to the list of SAR. A total of 37 tracked species are listed to have a range that includes the subject claims. The list of species have been presented in Appendix E.

The current field inspections included targeted searches for the above-mentioned SAR and whether suitable habitat was present (Appendix E).

## 6.0 Bio-physical Findings

### 6.1 Field Methodologies

#### 6.1.1 General

For this study, ORE staff conducted site inspections on the following dates:

<u>Date of Inspection</u>	<u>Survey Time</u>	<u>Temp. °C</u>	<u>Beaufort (Wind) Scale</u>	<u>Conditions</u>
May 26, 2022	10 AM to 1 PM	23.0	3 - Gentle Breeze	Variable cloud cover, no precipitation
September 9, 2022	9 AM to 2 PM	16.0	1 - Light Air	Partly cloudy (35%), no precipitation
December 13, 2022	10:30 AM to 3:30 PM	-8.0	2 - Light Breeze	10% cloud cover, occasional snow cover

The above inspections were conducted primarily to delineate vegetation communities, including an inspection during “leaf-off” conditions to examine neighbouring private property by using binoculars and to identify areas with good quality bat snags. In addition, point-count locations were established in the Summer of 2022 to identify avian and amphibians by sight and call. The locations of notable features were determined using a mapping-grade differential GPS system.

#### 6.1.2 Vegetation

A preliminary characterization of the various vegetation communities was completed as part of the 2016 assessment work on the legacy claim, generally based on the methodologies included in the *Ecological Land Classification (ELC) - First Approximation and Its Applications* (1998) as part of a preliminary mapping exercise. The classification of each vegetation community was determined in accordance with the draft catalogue issued in 2008 (which provides more vegetation community classifications than the 1998 version). The draft 2008 guide also provides the classification coding included in the 1998 ELC manual for cross-reference purposes. For consistency, assessments of the vegetation communities on the additional lands covered by the current claim group were assessed using the same methodology.

Prior to conducting the site inspections, aerial photography of the subject Claims were analysed to roughly delineate communities based on recognizable vegetation differences.

Dominant vegetation types were recorded and boundaries of the various communities were mapped onto the aerial photograph. A differential Global Positioning System (dGPS) unit was utilized to delineate the changeover between vegetation communities to refine the air photo mapping. Soil characteristics were defined using the methods outlined in the *Field Manual for Describing Soils in Ontario* (2009).

In addition to identifying and mapping the ELC communities, ORE staff assessed each vegetation community from the perspective of whether they are provincially rare (S-ranks in the NHIC database), are hydrologically sensitive, and/or whether they are suitable habitat for any Ontario Species at Risk.

### 6.1.3 Wetland Delineation

The on-site wetlands were identified and delineated using criteria from the MNDMNR's Ontario Wetland Evaluation System (OWES), 2013 3<sup>rd</sup> Edition. The OWES provides protocols for evaluators to delineate wetland boundaries, determine vegetation communities, determine locations for seeps and springs, and ascertain drainage patterns.

The classification and delineation of wetlands must include consideration of various factors:

- Area of ground covered by vegetation;
- Proportion of hydrophytic vegetation (determined using the 50/50 Upland to Wetland Vegetation Rule);
- Presence of hydric mineral and organic substrates (determined using the protocols from the Ontario Ecological Land Classification, 1998), and
- Topography.

Considering the above factors, the wetland boundaries were determined and mapped using a combination of air photo interpretation and a mapping grade dGPS. In addition, Land Information Ontario's (LIO) database was queried to establish historical wetland boundaries within and surrounding the subject Claims. Those boundaries were confirmed and updated using protocols described in the OWES.

ORE staff did not fully evaluate the wetlands according to the OWES, but rather mapped the wetland boundaries while determining the general wetland vegetation types present.

#### 6.1.4 Watercourse Assessment

LIO data suggests that there are three (3) main watercourses associated with the subject claims. ORE staff attended each watercourse within the current study area to characterize the general conditions and to confirm their locations using a mapping grade dGPS unit. Inspections were completed to identify whether the watercourses were dry or wet, establish a flow direction and determine whether the flows are permanent or intermittent. Drainage channels and streams between wetlands were also mapped using a mapping grade dGPS unit.

#### 6.1.5 Species at Risk

Inspections were completed to determine the presence of any Species at Risk (SAR) as well as potential SAR habitat. Depending on the species' federal or provincial status, required protection/mitigation measures vary. Background information was gathered from a review of various databases, including OBBA, NHIC, eBird and iNaturalist to determine the historical presence of any SAR proximal to the claims. Bird Survey (i.e., point-count) Locations were established (Figure 7) to inventory avifauna and amphibians by sight and sound.

ORE staff listened throughout the morning period for SAR birds. Once the morning avian chorus levels lowered, ORE staff broadcasted the call of several candidate SAR birds listed in the databases where the habitat of the species was present. A cellular telephone utilizing the iBird Pro App and small external speakers were used to broadcast the calls for confirmatory purposes. The call of the SAR avian being broadcasted will sometimes elicit a song/call note response or draw the species in close enough to identify visually. Some SAR species have a very low tone/quieter call compared to other species and can sometimes be overwhelmed during the chorus period.

ORE staff also completed wandering transects to search for the species and/or their habitat identified in the queries. Wetlands were also scanned using binoculars for avifauna, mammals and basking turtles and amphibians. ORE staff inspected the shorelines for mixed wader colonizing bird species as per the NHIC occurrence information. Detailed acoustic surveys were completed to observe bat populations and a snag survey was undertaken to assess the quality of habitat for bat species.

#### 6.1.6 Bat Surveys

The Ministry of the Environment, Conservation and Parks (MECP) currently lists three (3) myotis and one (1) perimyotis species of bat as Endangered. The SAR bats are listed below:



<u>Common Name</u>	<u>Scientific Name</u>
Eastern Small-Footed Myotis	<i>Myotis leibii</i>
Little Brown Myotis	<i>Myotis lucifugus</i>
Northern Myotis	<i>Myotis septentrionalis</i>
Tri-coloured Bat	<i>Perimyotis subflavus</i>

A recovery strategy was established by the province for Eastern Small-Footed Myotis in 2017 and followed with a recovery strategy for Little Brown Myotis, Northern Myotis and Tri-coloured Bat in 2019. These recovery strategies are generally in line with federal strategies adopted in 2015. Prior to the recovery strategies, detailed studies regarding bat populations were often isolated to wind power projects through the use of the *Bat and Bat Habitats: Guidelines for Wind Power Projects* (MNDMNR, 2011) and general considerations for habitat were considered in reference to the *Significant Wildlife Habitat Technical Guide* (OMNR, 2000). Regional guidance on inspections for proposed developments (e.g., Guelph District) are also available.

The primary habitats for bats are divided into the following subcategories:

#### *Maternity and Roosting Habitat*

Habitats for roosting males and for rearing and raising young can vary but often includes non-natural habitat such as attics or disused chimneys. The natural habitat often consists of rock crevices and cavities/crevices in trees. Determining suitable maternity habitat often requires both a vegetation survey (discussed below) and a survey of trees that contain suitable cavities/crevices (i.e., referred to as “snags”).

Myotis species are known to form roosts in forests and swamps (Foster and Kurta, 1999), maternity roost habitat may include the following Ecological Land Classification (ELC) communities:

- Deciduous Forests (FOD);
- Mixedwood Forests (FOM);
- Coniferous Forests (FOC);
- Deciduous Swamp (SWD);
- Mixedwood Swamps (SWM), and
- Coniferous Swamps (SWC).

Generally, the MNDMNRFP guidance provides a step-wise approach to fully assess this type of habitat, as briefly provided below:

- Step One - Identify Potential Maternity Roost Habitat Ecological Land Classification (ELC);
- Step Two - Snag Density Calculations;
- Step Three - Selection of Acoustic Monitoring Locations;
- Step Four - Acoustic Field Data Collection and Interpretation, and
- Step Five - Detailed Mapping of Snag/Cavity Trees.

Although good quality bat snags were noted during the vegetation community inspections described above, an assessment to characterize and determine the quality of habitat was not completed. Future assessments should include bat snag surveys in accordance to provincial guidelines to determine the quality of habitat available.

### *Foraging Habitat*

The foraging habitats of different bat species vary according to a number of different factors. Little Brown Myotis may forage nocturnally on insects and spiders in predominantly open habitats, Northern Myotis tend to feed within forested habitats and Tri-coloured Bats tend to forage in forested riparian areas. The Eastern Small-Footed Myotis foraging habitat is less defined and the species has been observed through multiple studies using all the habitats outlined above. Specific methodology for examining foraging habitats include direct observations and captures. Surveys specific to foraging habitat were not included in this study.

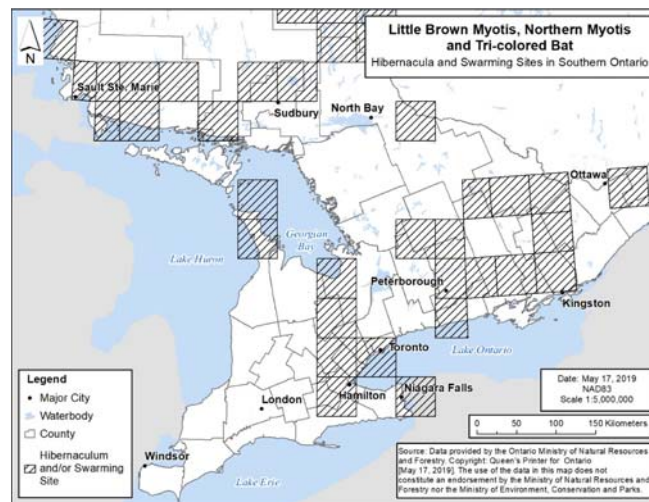
### *Hibernacula*

Overwintering habitats (hibernacula) for hibernating bat species generally consists of underground openings, including caves, abandoned mines, wells and tunnels. The locations of these habitats generally maintain a temperature of between 2°C and 10°C<sup>2</sup>, with a relative humidity of less than 80% (Cryan et al. 2010). During this period, the bats enter a torpor state, relying on fat reserves for survival.

---

<sup>2</sup> Fenton 1970, Anderson and Robert 1971 and Vanderwolf et al 2012

Natural hibernacula habitat is described by the Significant Wildlife Habitat Technical Guide (SWHTG) as being mostly consistent with karst topography, where natural cave formations can extend deep below the surface. However, the structural features and bedrock outcrops of the claim group also provide opportunities for bats to hibernate deep within fractured granites and metasediments that dominate the area. Talus slopes also provide opportunities for bats to find adequate conditions.



According to the recovery strategy for Ontario, hibernacula habitat has been confirmed in the general area of the claim group, as provided by the above graphic/map.

Confirming the presence/absence of hibernacula within the subject claim group will be necessary to determine whether future extraction activities have a potential to affect SAR bat habitat. However, identification of suitable hibernacula can be difficult, as the number of openings, cave size/length, and angle of chambers can influence the stability and levels of humidity and temperature that bats find suitable (Davis 1970, Raesly and Gates 1987).

The MNDMNR Bat Survey Protocol first published in the *Bat and Bat Habitats: Guidelines for Wind Power Projects* (MNR, 2011), provides criteria for surveying hibernacula habitats:

- *The area around the potential hibernacula should be thoroughly searched to identify multiple entrances.*
- *Acoustic monitoring stations should be positioned at each entrance, within 10 m of the opening of the cave / abandoned*

*mine.*

- *If one entrance is found to have evidence of bats then the other entrances need not be monitored if they are part of the same structure.*

Although the guide provides that hibernacula surveys should be conducted from August 1 to August 30, changes in weather patterns and seasonal variations can affect activity levels. The guide does provide the ideal weather conditions for these surveys to be on warm/mild nights with an “*ambient temperature above 10°C with low winds (< 6 m/s) and no precipitation*”.

The U.S. National Park Service (NPS) also provides that bats will often enter torpor for just a few hours on a cold day, or can remain in torpor for up to a month while hibernating. Even during periods of hibernation, bats will interrupt torpor for brief periods of arousal when their body temperatures return to normal.

Acoustic surveys as part of previous assessment work did not detect any bats utilizing the central part of the claim group during the typical overwintering period. Additional targeted acoustic surveys may be required within the recommended period to determine the presence/absence of suitable habitat in the immediate area.

### *Swarming Habitat*

Swarming habitat refers to the congregation of bat species in a particular area, typically for the purpose of mating. This often includes hibernacula, as the bats search out mates in the autumn. Acoustic surveys and visual inspections are utilized to confirm presence/absence of swarming habitat. Surveys completed for roosting and hibernacula habitat should also have consideration for swarming populations.

Although included as part of previous assessments, bat-specific surveys were not included as part of this study.

## **6.2 Preliminary Vegetation Communities**

As outlined above, the focus of this EBS update was to expand the existing preliminary vegetation community mapping completed in 2016 to include additional lands now covered by the claim group. Given the extensive area now encompassed by the claim group, the detailed vegetation assessment was completed within the northern-most part of the claim

group, within Claim Nos. 140706, 242100 & 229938. Figure 7 illustrates the results of the vegetation community assessment. In total, eight (8) vegetation communities have been identified within the 2016 and 2022 study areas:

### *Upland Communities*

1. Red Oak Deciduous Forest (FODM1-1)
2. White Pine - Hardwood Mixed Forest (FOMM2)
3. Rural Residential (CVR\_4)

### *Wetland / Aquatic Communities*

4. Black Spruce Treed Bog (BOT1-1)
5. Graminoid Bedrock Open Bog (BOOG1)
6. Thicket Swamp (SWT)
7. Mixed Shallow Aquatic (SAM)
8. Open Water (OAW) / Open Water Aquatic (OAO)

Brief descriptions of each vegetation community are provided below:

### *Upland Communities*

#### 1. Red Oak Deciduous Forest (FODM1-1)

The Dry-Fresh Red Oak Deciduous Forest possesses a moderately dry (0) to fresh (1, 2, 3) moisture regime and is dominated by Red Oak (*Quercus rubra*) and has a number of associate species that include Red Maple (*Acer rubrum*), White Pine (*Pinus strobus*) and Black Cherry (*Prunus serotina*) among others. Typical ground species in this ecosite include Bracken Fern (*Pteridium aquilinum*), Wintergreen (*Gaultheria procumbens*), and Starflower (*Trientalis borealis*). The ELC characterizes the community as possessing 75% or more canopy cover.

Within the current study area, this tract of forest is approximately (28.5 ha) and comprises a large portion of the subject site (41.5%). It is dominated by Red Oak with minor patches of other deciduous species. This forest tract is relatively mature with a closed canopy and is almost exclusively dominated by deciduous species. Other tree species include Ironwood (*Ostrya virginiana*), Red Maple, Sugar Maple (*Acer saccharum*) and Trembling Aspen (*Populus tremuloides*). In areas where the canopy has opened, young deciduous saplings are growing in thicket-like conditions beneath the overstorey.

The understorey throughout the ecosite is dominated by young Oak species, European Buckthorn (*Rhamnus cathartica*), various Fern species, Wintergreen and White Grained

Mountain Rice Grass (*Oryzopsis asperifolia*). Open Bedrock Outcrops are exposed throughout this ecosite. Vegetation in the outcrops is minimal given the lack of available substrate, however some species persist within the crevasses of the rock.

The soils were penetrated to a total depth of 75 cm utilizing a manual auger to refusal, presumably on bedrock. An initial organic soil horizon was observed to a depth of 5 cm. The rest of the sample was comprised of a silty sand with sand content increasing with depth. A small (<5 cm) gravel seam was observed at 30 cm deep. An oxidized reddish brown sandy silt was observed near the surface.

## 2. White Pine - Hardwood Mixed Forest (FOMM2)

The ELC describes a Dry-Fresh White Pine - Hardwood Mixed Forest (FOMM2) as having greater than 25% coniferous species and greater than 25% deciduous species. This ecosite can contain both White Ash (*Fraxinus americana*) and Yellow Birch (*Betula alleghaniensis*) species, but is primarily comprised of Eastern White Pine and a combination of deciduous species. The deciduous species include American Basswood (*Tilia americana*), Ironwood (*Ostrya virginiana*), and Red Maple. This ecosite will likely possess dry-fresh shallow soils over bedrock.

Within the current study area, sporadic occurrences of this forest type comprise approximately 9.8 ha, representing 14.2% of the study area. The most contiguous portion of this forest type occurs in the extreme western portion of the current study area. This mature ecosite is dominated by Eastern White Pine with a secondary presence of Ironwood and Red Oak. Yellow and White Birch can be found in minor amounts throughout this ecosite. Ground cover is moderately vegetated and is comprised of Bracken Fern, European Buckthorn and young tree species that are reflective of the overall composition of the treed community. Bedrock outcrops are also exposed throughout the ecosite. Vegetation in the outcrops is minimal given the lack of available substrate materials.

A manual auger was advanced into the soils to a total depth of 35 cm where refusal occurred, presumably at the bedrock surface. An initial organic soil horizon was observed to a depth of 3 cm. The 35 cm sample was comprised of a highly oxidized, reddish brown sandy silt with minor presence of fine gravel.

## 3. Rural Residential (CVR\_4)

The current study area contains shoreline residential development, mostly occurring along the shore of West Twin Lake. In the absence of municipal servicing, these lots are individually serviced by a well and septic system. Within the study area, rural residential lots occupy approximately 3.2 ha, representing about 4.6% of the study area. According to



signage posted along Fire Route 68, the roadway is not maintained by the municipality, with portions indicating that the road is contained within private property, although this has not been confirmed based on available parcel mapping. Future assessments may need to have regard for local residents who may not be aware of the on-going assessment work.

### *Wetland / Aquatic Communities*

#### 4. Black Spruce Treed Bog (BOT1-1)

The Black Spruce Treed Bog is described by the ELC manual as having between 10% and 25% tree cover. A thick layer of Sphagnum species are typical in this ecosite. The dominant tree species is Black Spruce (*Picea mariana*), also known as Bog Spruce, and can contain other hydrophytic coniferous species. This ecosite is commonly found throughout the Canadian Shield.

One (1) large (12.4 ha) BOT1-1 ecosite was identified within the western portion of the legacy claim in 2016. The ecosite is dominated by Black Spruce, which is commonly found in wet, poorly drained sites. Black Spruce is an adaptable species that can live in a variety of habitats, including acidic bogs. Associate tree species included Tamarack (*Larix laricina*) and Balsam Fir (*Abies balsamea*). Trees within the community ranged from 0.5 m - 10 m in height.

The BOT1-1 community grows on a thick mat of sphagnum species. Similar to the BOOG1 ecosite (described below), a ring of open water (<1 m depth) that separates the bedrock outcrops from the sphagnum species was apparent throughout the ecosite. Aerial photographs illustrate some small, lightly vegetated bedrock outcrops occurring within these bog communities. The outcrops are not large enough (are less than 0.5 ha in size) to be included as their own ecosite, thus been included within the BOT1-1 community. An Open Water Aquatic (OAO) habitat is also located within the BOT1-1 ecosite. This community is described in the following section.

A soil analysis was not completed at this ecosite. However, the presence of a peaty organic matt was confirmed at the time. This ecosite does not occur within the current study area.

#### 5. Graminoid Open Bog (BOOG1)

The ELC describes a Graminoid Open Bog as having less than 25% tree cover as well as an organic layer exceeding depths of 40 cm. Precipitation and snowmelt are the primary water sources for the vegetation within a bog as they are typically characterized by a vegetation community that lies above groundwater level. Bogs also tend to be quite acidic, therefore, can only support vegetation that can survive in acidic environments. This

ecosite will likely be dominated by sphagnum species and/or a variety of sedge species.

Three (3) main Graminoid Open Bog ecosites were observed to occur in the legacy claim area during the 2016 assessment work. These ecosites were dominated by sedge species, primarily Cotton-grass (*Eriophorum*), and Few-seeded Sedge (*Carex oligosperma*). A ring of open water (<1 m depth) that separates the bedrock outcrops from the floating mat was a common characteristic of the on-site BOOG1 communities. Scattered bushes and young thicket species (e.g., Red-osier Dogwood) are found along the edge and atop some of the tufts in the floating matts in the middle of the bog, although all three (3) BOOG1 ecosites contain less than 25% tree over.

A manual soil probe was completed to a depth of 15 cm, with refusal occurring at the bedrock surface. The 15 cm sample was comprised of a highly fibrous root matt with a dark mucky organic substrate. Saturated conditions were encountered at 8 cm depth, although the rest of the sample was noted as being moist.

## 6. Thicket Swamp (SWT)

The Thicket Swamp (SWT) ecosite typically occurs in wet areas possessing variable flooding regimes with standing water typically less than 2 m in depth. Vegetation can vary in this ecosite but will be dominated by dense trees and/or shrubs. To be considered a wetland community, the substrate has to possess a 20 cm to 40 cm deep organic layer.

A number of isolated and/or connected Thicket Swamps were identified during the most-recent site inspections, comprising approximately 12.8 ha and representing about 18.6% of the study area. Dense deciduous shrubs and young trees dominate these ecosites. Although a variety of species are found throughout these ecosites, the dominant shrub and tree species were revealed to be Speckled Alder (*Alnus incana*), Winterberry (*Ilex verticillata*), and Red-osier Dogwood (*Cornus sericea*).

The dominant species varied throughout each wetland. Vegetation rarely exceeded 2.5 m with the exception of infrequent tall (>2.5 m) trees. Ground vegetation was dominated by young thicket species and various fern and sedge species. The small isolated pockets of Thicket Swamp are typically “bowl-type” depression features in the bedrock where periodic pooling occurs. These bedrock depressions support a variety of hydrophytic thicket species. Pockets of standing water and saturated soil conditions are apparent throughout these Thicket Swamps.

A manual auger was utilized to sample the soils to a maximum depth of 110 cm (i.e., limit of capability). An initial organic horizon was observed to a depth of 25 cm. Heavy mottling and gleys were observed from 35 cm to 110 cm. The sample was determined to be a silty sand with increasing sand content and particle size with depth.

## 7. Mixed Shallow Aquatic (SAM)

According to the ELC, the Mixed Shallow Aquatic ecosite is comprised of greater than 25% submerged and floating-leaved macrophytes, with the depth of water not exceeding 2 m. These ecosites are expected to be always submerged with no tree or shrub cover.

Within the study area, the SAM ecosite comprises approximately 3.3 ha, mostly associated with nearby watercourses and or Open Water Aquatic ecosites. This ecosite comprises approximately 4.8% of the current study area.

This ecosite appears to be represented by pooled depressions with slow to no drainage or channels with slow water movement. The observed areas have a mix of floating-leaved macrophytes, including: White Water-Lily (*Nymphaea alba*), Yellow Water-Lily (*Nuphar lutea*) and Water Shield (*Brasenia schreberi*). The submerged macrophytes included: Coontail (*Ceratophyllum demersum*) and Norther Watermilfoil (*Myriophyllum sibiricum*).

## 8. Open Water (OAW) / Open Water Aquatic (OAO)

Two (2) unnamed Open Aquatic ecosites were previously delineated within the legacy claim during the 2016 assessment work. The larger area (1.6 ha, as measured within the Claim) is situated along the western boundary of the legacy claim, while the other (0.9 ha as measured within the Claim) is located along the southern boundary of the legacy claim, near the southwest corner. These water bodies are hydrologically connected to each other, provide extensive habitat for wildlife and are typically surrounded by wetlands and forested ecosites.

During the most-recent assessment, additional Open Water Aquatic (OAO) and Open Water (OAW) communities associated with West Twin Lake and Blue Lake were delineated. These open water communities comprise approximately 11.2 ha, representing about 16.3% of the study area. While shoreline development occurs in the area, it primarily occurs along the shores of West Twin Lake, with no observed development within the study area along Blue Lake.

## **6.3 Wildlife Assessment / SAR Presence**

### **6.3.1 Bats**

Although the bat detectors during our previous assessment did not detect any bats over the survey period, the data simply suggest hibernacula do not exist in proximity to these locations. The Significant Wildlife Habitat Mitigation Support Tool (SWHMIST) defines hibernaculum Significant Wildlife Habitat (SWH) as being within 200 m of the entrance to

the hibernaculum for most development types. As a result, future assessments for bat hibernacula should focus on areas that are at least 200 m from the detector locations shown on Figure 7. Given the presence of shoreline development in the study area, it is also possible that some bats would utilize structures (not considered SWH) for over-winter habitat.

The SWH for bat maternity colonies typically includes the entire forested ecosite (i.e., ELC) where a maternity colony has been identified. Although not identified during this study, SWHMiST provides that any removal of the forest cover should be avoided. However, if avoidance is not possible, removal of any forest cover should be minimized and subsequently rehabilitated. Evaluation of maternity roosts would need to be completed prior to any development activities.

### 6.3.2 Other Mammals

No rare or significant mammal species (including bats, as described above) were identified during the site inspections for the 2022, 2021 and 2016 assessments. There are no records of any SAR mammals identified on-site as per the information provided in the NHIC query.

The Claims possess an abundance of furbearers such as Beaver, Muskrat, Coyote, Black Bear, Red Fox, etc. It is possible that trap lines for furbearing species exist within the claim group, although, no traps were observed. It is also possible that the claim areas are part of the traditional territories used by nearby First Nations for trapping or gathering.

It may be beneficial to determine whether the Claims contain any traditional trapping ties and/or determine if anyone has obtained a permit from MNDMNR to trap within the Claims.

A full list of the mammals identified on-site is presented in Appendix F.

### 6.3.3 Herptiles

Morning amphibian surveys detected only common species, consisting of Green Frog (*Lithobates clamitans*), American Toad (*Anaxyrus americanus*), American Bullfrog (*Lithobates catesbeianus*), Wood Frog (*Lithobates sylvaticus*) and Spring Peeper (*Pseudacris crucifer*). Although not detected during the most recent assessment, previous assessments have also identified the Eastern Red-backed Salamander (*Plethodon cinereus*) and the Blue-spotted Salamander (*Ambystoma laterale*), both considered to be common species. Despite the presence of suitable habitat, no SAR amphibians were detected.

Surveys during the morning hours and throughout the day were conducted (using binoculars) for basking turtles along the shorelines of small lakes and wetlands. Midland Painted Turtle (not currently classified as at risk under SARO) and Blanding's Turtle (*Threatened*) were observed during the surveys.

The Midland Painted Turtle was observed on September 09, 2022 basking on a log in the in Mixed Shallow Ecosite (SAM) in the northeastern Claim #229938. Similarly, the Blandings Turtle was observed September 09, 2022 emerging from the vegetation and entering into the water in Claim #288534 in the Graminoid Open Bog (BOOG1). It is possible that the same Blanding's Turtle was observed in a watercourse 600 m south of the claim group by the individual who recorded Blanding's Turtle (May 2022) in the iNaturalist database. Blanding's Turtle are known to cover a large area for the purpose of breeding and nesting.

As Blandings Turtle are considered Threatened in Ontario, any future activities to develop within the study area will need to have regard for this species and its associated habitat, under the Endangered Species Act (ESA). The province categorized Blanding's Turtle habitat in an online document General Habitat Description for the Blanding's Turtle (July 2013/updated March 2021). The categories in the document are provided below:

- “Category 1. Nest and the area within 30 m or overwintering sites and the area within 30 m.*
- Category 2. The wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies.*
- Category 3. Area between 30 m and 250 m around suitable wetlands / waterbodies identified in Category 2, within 2 km of an occurrence.”*

The Blanding's Turtle was observed late in the summer/early fall season (September) by ORE staff, suggesting it was preparing to overwinter within the watercourse it was observed within. Therefore, that watercourse would be considered a Category 1 habitat. The province outlines the following regarding Category 1 in the General Habitat Description for the Blanding's Turtle:

*“Nest sites and overwintering sites are essential features and along with the 30 m area surrounding them are considered to have the lowest tolerance to alteration. Blanding's Turtles depend on these areas for sensitive life processes including egg-laying, incubation, hatching of young, and hibernation. A 30 m radius (average tree height) buffer around nesting and overwintering sites is important to maintain the microclimate conditions (e.g., thermal, vegetative and lighting features). These areas are habitually used and may support concentrations of individuals.”*

Any future development on the claims would have to be cognisant of the Blanding's Turtle(s) and their habitat, either directly on the claims or in the vicinity of the claim group.

Although the Midland Painted Turtle is not currently considered to be at risk in Ontario, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) declared this species to be of Special Concern in 2018. Regardless, overwinter and nesting habitats of the Midland Painted Turtle are afforded protections according to the SWHMiST. More detailed, repeated (i.e., multi-season) inspections would be required to confirm whether the habitat meets the SWHMiST criteria.

The NHIC and iNaturalist queries also identified Snapping Turtle either within or in proximity to the claim group. Although this species was not detected within the subject claims, there is an abundance of habitat for this species within the wetland/aquatic communities. The locations of these ecosites are provided on Figure 7. Given the wetland and beaver pond conditions occur throughout the claims, there is a high probability that these species will occur within the boundaries of the subject claims.

The Five-Lined Skink had also been identified to occur within an NHIC 1 km square proximal to the claim group. Surveys were conducted in 2022 but no Five-Lined Skink were observed. Habitat on the Claims is ideal for this lizard species as there are plenty of bedrock outcrops, woodlands and wetlands that provide food, shelter and hibernaculum.

Only a common reptile, consisting of Eastern Gartersnake (*Thamnophis sirtalis sirtalis*), was identified within the subject claims in 2022. The NHIC indicates that Eastern Ribbonsnake occurs within a 1 km square grid proximal to the claim group. Similar to the above, the claim group offers ideal habitat for this species of snake, with plenty of wetland/aquatic areas for food/protection from predators and bedrock outcrops with crevices that can be used for hibernation.

Although there were no SAR herptile sightings, additional surveys during spring emergence and nesting periods are recommended to confirm the presence or absence of any/all SAR.

#### 6.3.4 Fish and Mussel Habitat

The Open Aquatic ecosites provide the best habitat for fish. Some areas of wetland and streams will also provide marginal habitat. With the exception of watercourses connecting the lakes, many of the watercourses and drainage areas on-site did not possess any flows during our inspections, therefore, should not be considered significant habitat for fish. During the spring freshet - melt period, it is possible that the streams and drainage areas would flow sufficiently to allow fish to migrate between wetlands and open



water areas, although this will vary annually.

A survey was not completed by ORE to assess for the presence of SAR fish and mussels. However, it is unlikely that any SAR fish or mussels are present as they have not been detected in the past by agencies. Regardless, further studies should be completed to determine any constraints associated with potential fisheries.

### 6.3.5 Vascular Plants and Lichens

Surveys were conducted for vascular plant and lichen SAR, however, none were observed. A complete list of vascular plant and lichen species identified on-site is provided in Appendix F.

More detailed inventories should be completed to confirm presence or absence of any plant and lichen SAR.

### 6.3.6 Avifauna

As outlined above, ORE staff established two (2) point-count locations for detecting avian species during early morning and daytime inspections within the subject claims. A total of thirty one (31) species were detected during the one (1) breeding bird period and one (1) summer inspection.

No SAR avian were detected during the surveys. As the focus of this assessment was to map vegetation communities, the point count surveys were not conducted during the typical early morning period, when the greatest density of calls can be heard. As a result, it is expected that SAR avian likely occur on the site. Among the birds listed within the OBBA squares for the claim group, the following species could find adequate habitat within the study area:

**Barn Swallow (*Threatened*)** - Adjacent properties contain structures that would be appealing for this species to nest within. In addition, there is an abundance of dead tree snags near the watercourses which could appeal to this species. ORE notes that the claim group conversion has resulted in man-made structures being within the subject claims. As a result, the probability of Barn Swallow being present on-site is now considered likely, but is expected to be isolated to the shoreline of West Twin Lake, where development is prevalent.

**Black Tern (*Special Concern*)** - There is plenty of marshy wetland habitat available on-site that would provide adequate habitat and nesting areas for Black Tern. The open aquatic areas of the lakes would also provide sufficient feeding

grounds for this species. As the claim group now contains larger lakes and wetland features, the probability of Black Tern being present on-site is considered moderate to high.

**Canada Warbler** (*Special Concern*) - The subject property provides both mixed and deciduous forests that abut waterways in the claim group that may be suitable habitat to breed and nest within. This species prefers coniferous lined creeks and rivers that flow periodically throughout the year. The probability of Canada Warbler being present on-site is considered moderate to high.

**Chimney Swift** (*Threatened*) - Historically, this species would inhabit open cavities in standing trees. However, it has adapted over time to utilize similar habitats in urban settlements such as chimneys to nest within. There are plenty of trees with cavities available on-site, although it may be attracted to the nearby cottages in the area which are more spacious for this communal species. The probability of Chimney Swift being present on-site is now considered low to moderate given the presence of cottage development within the claim group.

**Common Nighthawk** (*Special Concern*) - This species is part of the Nightjar family and prefers forest openings, bogs and sometimes open field/meadow areas. Nesting is on bare ground where both adults feed the young. Feeding can take place during day or night, while the species constantly forages for all types of insects. The Common Nighthawk would likely find suitable habitat within the claim group and had been identified by iNaturalist north of the study area in 2017.

**Eastern Whip-poor-will** (*Threatened*) - The mixed forest communities in the claim group are excellent habitat for this species to breed, nest and forage within. It would utilize the tall pines to call from during the breeding bird period. This species is also known to forage for insects overtop of wetlands of which there is an abundance of lakes and wetlands on-site. The probability of Whip-poor-will being present on-site is considered high.

**Eastern Wood-Pewee** (*Special Concern*) - The subject claims provide a large tract of deciduous forest for this species to breed within. Similar to the above, the probability of Eastern Wood-Pewee being present on-site is considered high.

**Golden-Winged Warbler** (*Special Concern*) - The Thicket Swamp habitat is the preferred habitat of this species. The subject claims provide an abundance of this type of habitat in the transition area between the upland shores and the marshy areas. The probability of Golden-winged Warbler being present on-site is believed to be moderate.

**Wood Thrush** (*Special Concern*) - The subject claims provide secondary succession

mixed and deciduous forests for this species to breed within. The woodlands have been harvested in the past, therefore, secondary succession woodlands are present within the claim group. The probability of Wood Thrush being present on-site is considered high.

Species that possess a Special Concern designation are not regulated under the ESA. These species are protected under the Significant Wildlife Habitat (SWH) criteria for Ecoregion 5E. According to the Significant Wildlife Habitat Mitigation Support Tool (SWHMiST) the habitat of Special Concern species are not to be impacted. However, provided the mitigation measures outlined in the SWHMiST are applied (as per the type of the development listed in the SWHMiST), future resource development could potentially occur.

Species that possess a Threatened or Endangered status according to the Species at Risk Ontario (SARO) website database, receive both individual and habitat protection under the ESA. The delineated habitat, if its presence is confirmed on-site, would therefore represent a potential constraint and a SAR permit from the Ministry of Environment, Parks and Conservation would be required to potentially harm, harass or alter/destroy the habitat of the said species.

Additional assessments conducted within the breeding fauna period would be necessary to confirm or exclude the presence of any potential SAR identified within the background information.

## 7.0 Conclusions & Recommendations

7.1 In general, Land Information Ontario (LIO) data are consistent with our vegetation assessment in terms of the amount of wetlands and aquatic habitats within the current study area. The mapping suggests about 24.6% (i.e., 16.9 ha) of the study area contains wetland, with approximately 10.3 ha (i.e., ~15.1%) containing open water.

By comparison, our updated vegetation mapping of the area has revealed that the open water and wetland habitats comprise 27.3 ha or 39.7% of the subject claims. The vegetation mapping has identified a total of 28 aquatic features that are either fully or partially located within the current study area.

7.2 Although comprehensive wetland evaluations were beyond the scope of this study, the general wetland-types were verified and additional data were obtained regarding their composition and connectivity to surrounding features. All wetlands associated with the claim group provide ecological and hydrological value, whether within or outside of the claims.

- 7.3 The latest version of the Southern Ontario Land Resource Information System (SOLRIS, v.3) indicates the potential presence of fens within the claim group. As these ecosites tend to occur in association with carbonate-rich substrates, their presence suggests that marble or zones of carbonate alteration may be present in the bedrock. As carbonate-rich zones have not previously been identified within the subject claims, these features may warrant further investigation.
- 7.4 It is generally recommended that the design of any future development maintain the current drainage regime within the identified subwatersheds (i.e., Sams Lake, West Twin Lake and Oak Lake). Given the potential local significance of the wetlands within these subwatersheds, detailed studies would need to be completed to determine the potential hydrological and ecological impacts (on-site and off-site) should development in those areas be contemplated. This is relevant considering that the gabbro contact runs through these subwatersheds.
- 7.5 Two (2) upland forest communities were delineated within the study area, with the Red Oak Deciduous forest being part of a large continuous tract of forest in the region. These upland forest communities are valuable with respect to their ecological and hydrological roles. Therefore, it is recommended that these forests be reviewed in the context of their significance and their overall content.

There is the potential for a number of forest dwelling *Species At Risk* such as birds and reptiles to occur within the upland woodlands within the claims. Therefore, a more detailed inventory of the woodlands and of the fauna they support should be conducted to determine the forest's relative significance in the area. The review should also include a forestry resource assessment.

- 7.6 If mining is proposed to occur within the claim group, consideration should be given to marking the trees prior to any removals in accordance with the Ontario Tree Marking Guide. The guide determines the quality of the forest being harvested for forestry product. Although the tree marking guide is specifically designed for tree harvesting purposes, it could be used in this circumstance to quickly evaluate the snag with respect to the type and quality (value) of the cavities and gauge whether the snag is considered retainable.

If the number of retainable snag trees can be determined, it may be possible to offset snag tree loss by targeting unhealthy trees outside the area and helping those trees to become snags sooner. For example, trees with evidence of advanced heart rot in the bole (e.g., conks) and/or trees with large plates of loose bark could be targeted to increase the

number of snags in the area of interest for roosting bats.

If a high number of retainable snags are going to be removed as part of any future development, it will be important to identify those trees in the surrounding lands that have a high potential to develop cavities. If tree removal reduces the overall average of snags to six (6) trees with existing cavities per hectare, then the living trees with high potential to develop into cavity trees outside the affected area may become critical with respect to maintaining good quality habitat for the greatest variety of cavity-using wildlife in the area. Any proposed operations should not cause a shortage of good quality snags as it will increase competition between wildlife attempting to secure good quality nesting, roosting or maternity habitat.

This type of approach would be best suited to a progressive type of extraction, whereby those trees that have a high potential to develop cavities can be engaged in areas where extraction is not proposed to occur for many years within the mining claims. In doing so, it may be possible to offset the snag loss in the extraction area.

- 7.7 The tree marking surveys, outlined above, should be conducted with the type of cavity being the priority:
1. Pileated woodpecker roost cavity;
  2. Pileated woodpecker nest cavity;
  3. Other woodpecker nest cavity or natural nest or den cavity;
  4. Escape cavity;
  5. Woodpecker feeding cavity, and
  6. High potential to develop cavities.

The data for each snag or potential snag should be collected with the above-mentioned criteria in mind. It is safe to assume that the better quality cavity trees would provide the best habitat for the greatest variety of cavity-using wildlife (including bats and SAR bats) in the area.

- 7.8 While future development would necessarily result in the removal of some trees and other vegetation, it should be possible to mitigate those removals by restoring the forest and waterways elsewhere to produce an “*overall net benefit*” with respect to the lands and species. This type of mitigation should be considered at the development design stage and may be an important component of any required permitting. A progressive-type rehabilitation process that actively follows the extraction limit/works is recommended.

- 7.9 One (1) Species at Risk herptile was identified during the site inspections. Blanding’s

Turtle was observed within the northeast portion of Claim #288534, exiting the Graminoid Open Bog (BOOG1) community within the central part of the claim group.

The Blanding's Turtle observed during the September 2022 inspection was most likely in its overwintering site/area which is listed as a Category 1 habitat by the province.

Consequently, a 30 setback radius should be applied to the location the Blanding's Turtle was detected to protect the overwintering habitat of the individual observed during the site inspection.

If a development is proposed to occur within the claim group, the watercourses should be inspected multiple times and head-space traps introduced within the waterways to confirm presence/absence of Blanding's Turtle. A permit must be obtained from the province prior to inserting any traps for the purpose of capturing/detecting any SAR turtle species. Permits are obtained from the Ministry of Environment, Conservation and Parks (MECP).

- 7.10 Although SAR avian species were not detected in 2022, there is ample suitable habitat within the claim group to support many of the species listed by the OBBA. Future assessment work could include early morning inspections during the breeding period (i.e., April 1<sup>st</sup> to August 31<sup>st</sup>) to assemble a more robust inventory of breeding avian. These inspections could also capture the early morning chorus of breeding amphibians.
- 7.11 The waterways and forests that occur within the subject claims possesses fur-bearing animals that Indigenous people in the area may utilize for hunting/trapping and gathering. These groups may also obtain medicines from the woodlands and wetlands within the claims. As such, consultation with Indigenous communities should be considered prior to any proposed development within the claims.

**\*\*End of Environmental Baseline Report Update\*\***

Respectfully Submitted,  
**Oakridge Environmental Limited**



Rob D. West, HBSoc. CSEB.  
Senior Environmental Scientist

# Statement of Qualifications

I, Rob D. West have been practising in the fields of Environmental Sciences and Earth Sciences for more than 20 years. I have supervised the design of, collection of data for, and interpretive work involved in this study.

My educational background includes completion of an Honours Bachelor of Science degree from Laurentian University, Sudbury, Ontario, specializing in Ecology, Biology, Vertebrates/Invertebrates, Vascular/Non Vascular Plants Taxonomy, Environmental Chemistry and Environmental Geology. My expertise also includes:

- 2012 - MTO/DFO/OMNR Protocol for Protecting Fish & Fish Habitat
- 2011 - Fish Identification, Royal Ontario Museum
- 2008 - Electrofishing Techniques, Central Lake Ontario Conservation
- 2008 - Mussel Identification, Environment Canada
- 2007 - Ministry of Natural Resources - Data Sensitivity Training (NHIC)
- 2002 - Ministry of Environment - Well Technician Certification
- 2001 - Ministry of Natural Resources - Wetland Evaluation Course

I hold memberships or participate in the following:

- ESA - Member, Ecological Society of America
- CSEB - Member, Canadian Society of Environmental Biologists
- OBBA - Ontario Breeding Bird Atlasser
- PFN - Member, Peterborough Field Naturalists
- PADI - Certified Open Water Diver

It is further stated that neither Oakridge Environmental Ltd. nor its employees have any ownership interest in the subject property and that the only remuneration to be received is monetary and that the remuneration is solely related to the work completed as outlined in this report.

Rob West

**Oakridge Environmental Ltd.**

[rob@oakridgeenvironmental.com](mailto:rob@oakridgeenvironmental.com) email

## Selected References

- Argus, G.W. and K.M. Pryer.** 1982-1987, "Atlas of the Rare Vascular Plants of Ontario". Four Parts. National Museum of Natural Sciences, Ottawa, Ontario.
- Austen, M.J. et. al.** 1995. "Ontario Birds at Risk Program". Federation of Ontario Naturalists and Long Point Observatory. 165 pp. OBAR website contacted June 2013.
- Bezener, A.** 2000. "Birds of Ontario". Lone Pine Publishing.. 376 pp.
- Bakowsky, W.,** 1995. "S-ranks for Southern Ontario Vegetation Communities". OMNR, Natural Heritage Information Centre, Peterborough, ON. 11 pp.
- Bellrose F.C.** 1976. "Ducks, Geese and Swans of North America". Stackpole Books
- Brigham, R.M., et al.** Suggested Reading From Bat Echolocation Research: Tools, Techniques and Analysis. Bat Conservation International. Austin Texas. Eds. 2004.
- Cadman, M.D. et. al.,** 1987. "Atlas of Breeding Birds of Ontario", OBBA website contacted May 2013.
- Cheskey, E.D.** 1995. "Towards Conserving Birds of Ontario". Federation of Ontario Naturalists. 48 pp.
- Gill F.B.** 2007. "Ornithology - Third Edition". National Audobon Society, W.H. Freeman and Company.
- Habib, L., Bayne, E. M. & Boutin, S.** "Chronic Industrial Noise Affects Pairing Success and Age Structure of Ovenbirds *Seiurus Aurocapilla*." Journal of Applied Ecology 44 (2007): 176-84.
- Holmgren, Noel H.,** "Manual of Vascular Plants of Northeastern United States and Adjacent Canada - Second Edition", The New York Botanical Garden, 1998.
- Humphrey, Christy and Heather Fotherby.** 2019. Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. vii + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tri-colored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018).
- Humphrey, C.** 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.
- Jones et. al.** 2008. "The Dragonflies and Damselflies of Algonquin Park and the Surrounding Area." The Friends of Algonquin Park. 263 pp.
- Konze, Karl and McLaren, Margaret.** 1998. Wildlife Monitoring Programs and Inventory Techniques for Ontario. Ontario Ministry of Natural Resources. Northeast Science and Technology Manual TM-009. 139 pp
- Layng, A.M., et al.** Bat Species Distribution and Habitat Associations in Northern Ontario, Canada. Journal of Mammology. January 2019.
- Lee, H.D. et. al..** 1998. Ecological Land Classification for Southern Ontario -First Approximation and it's Application - SCSS FieldGuide; FG-02. OMNR, North Bay, Ontario.
- Muller, E. H., and V. K. Prest.** 1985. Glacial Lakes in the Ontario Basin. Quaternary Evolution of the Great Lakes, GAC Special Paper 30.
- National Park Service (NPS).** 2016. Guidance for conducting acoustic surveys for bats: Version 1 detector deployment, file processing and database version 1.7. Natural Resource Report NPS/NRSS/NRR—2016/1282. National Park Service, Fort Collins, Colorado.
- Newcomb, L.,** 1977. "Nerwcomb's Wildflower Guide". Little Brown and Company(Canada) Limited.



**Oldham, M.J.**, "Natural Heritage Resources of Ontario, Amphibians and Reptiles", Ontario Herpetofaunal Survey (OHS), 1996, OHS website contacted August 2013.

**Oakridge Environmental Ltd.**, "Environmental Baseline Study (EBS), Claim No. 1240157 (East Gabbro Project), Lot 10, Concession 4, (Methuen), Township of Havelock-Belmont-Methuen, County of Peterborough", 2016.

**Ontario Ministry of Natural Resources.** Bats and Bat Habitats: Guidelines for Wind Power Projects, Second Edition. July 2011.

**Peck G.K. & James R.D.**, 1983. "Breeding Birds of Ontario Nidology and Distribution Volume 1 : Nonpasserines and Volume 2: Passerines". Royal Ontario Museum, Toronto.

**Phipps, D (a)**; Trigan Resources Assessment Report (Diamond drilling Report), West Gabbro Property, Methuen Township, Southern Ontario District; August 31st, 2003.

**Phipps, D (b)**; Trigan Resources Assessment Report (Aggregate Testing), West Gabbro Property, Methuen Township, Southern Ontario District; November 18th, 2003.

**Reichert, B., et al.** Guide to Acoustic Detectors Settings v1.0. North American Bat Monitoring Program. October 2017.

**Reichert, B., and Lausen, C., Loeb, S., Weller, T., Allen, R., Britzke, E., Hohoff, T., Siemers, J., Burkholder, B., Herzog, C., and Verant, M.**, 2018, A Guide to processing bat acoustic data for the North American Bat Monitoring Program (NABat): U.S. Geological Survey Open-File Report 2018-1068, 33 p., <https://doi.org/10.3133/ofr20181068>.

**Seburn, D.C.**, 2010. Recovery strategy for the Common Five-lined Skink (Plestiodon fasciatus) – Carolinian and Southern Shield populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 22

**Schnitzler, H.U. and Kalko, E.K.V.**, Echolocation by Insect-Eating Bats. BioScience July 2001. 51(7): 557 - 569.

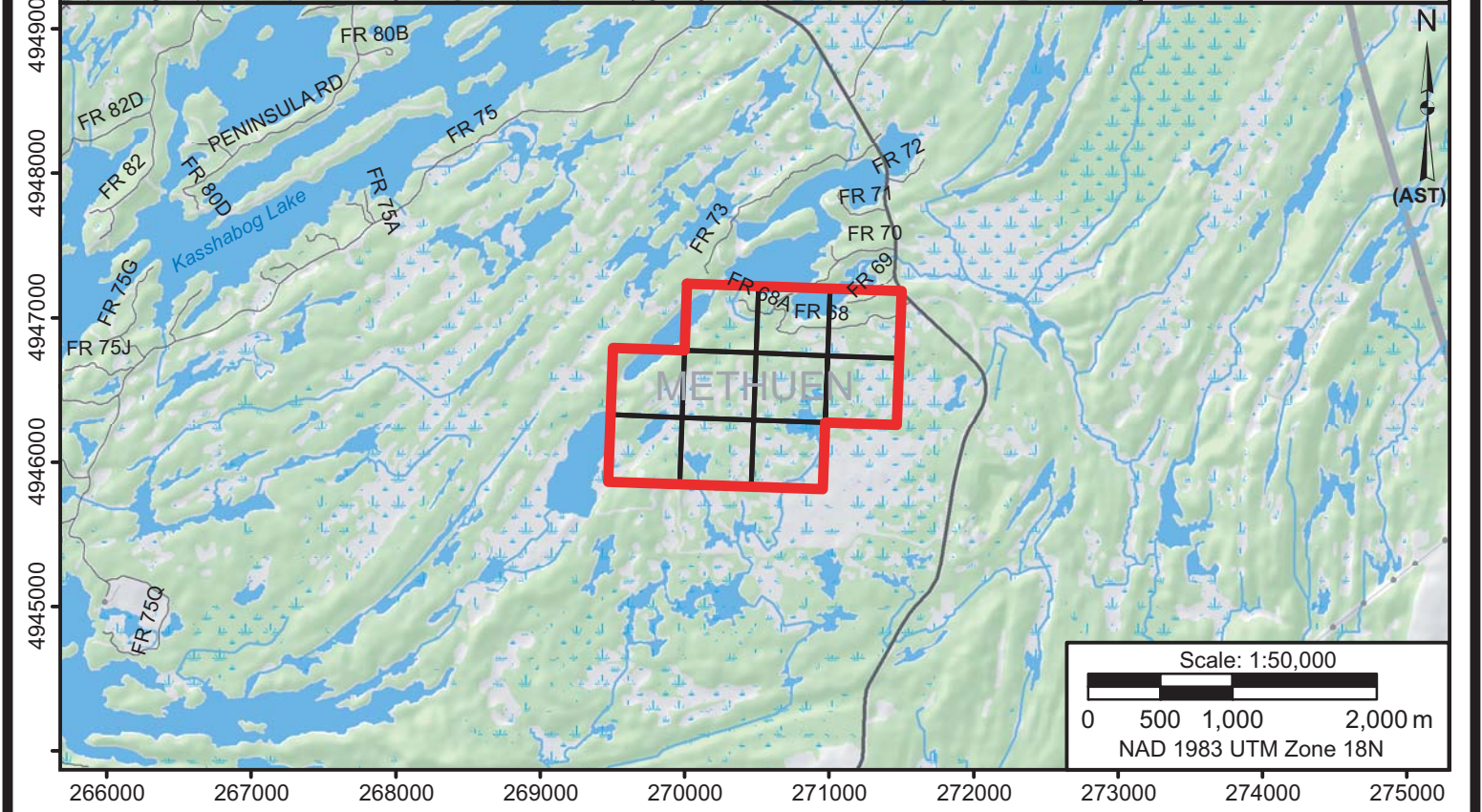
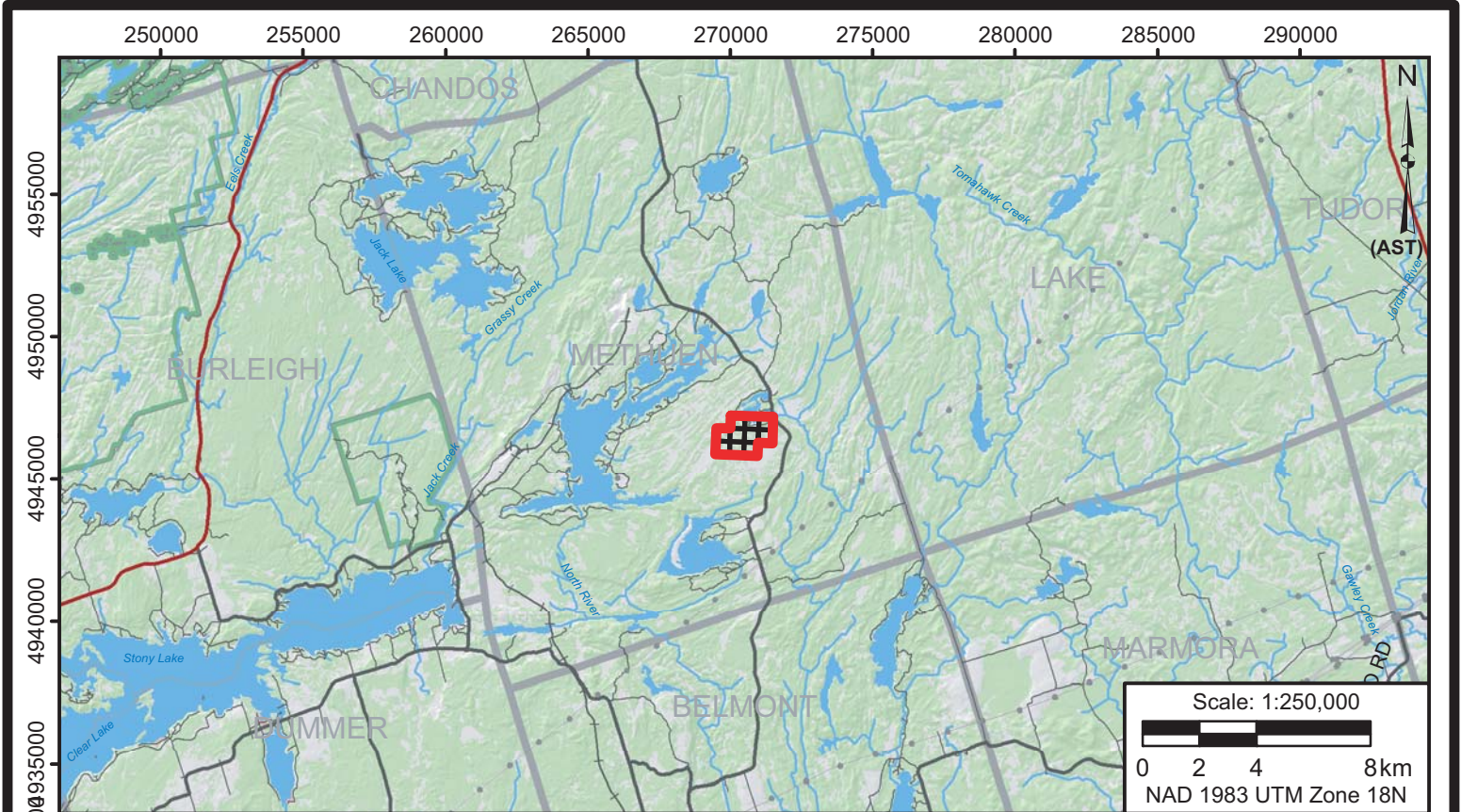
**Sibley, D.A.** 2003. "The Sibley Field Guide to Birds of Eastern North America". New York: Alfred A. Knopf.



"**Species at Risk in Ontario List.**" Ontario.ca. N.p., 16 June 2015.  
<<http://www.ontario.ca/environment-and-energy/species-risk-ontario-list>>.

**Szewczak, J.M.**, March 2011. Echolocation Call Characteristics of Eastern US Bats. Humboldt State University Bat Lab.

**Voss, Edward G.**, 1972. "Michigan Flora - Part I to Part III"; Cranbrook Institute of Science Bulletin 55 and The University of Michigan Herbarium.

## **Figures**



-  Claim Boundary
-  East Gabbro Claim Group

Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)

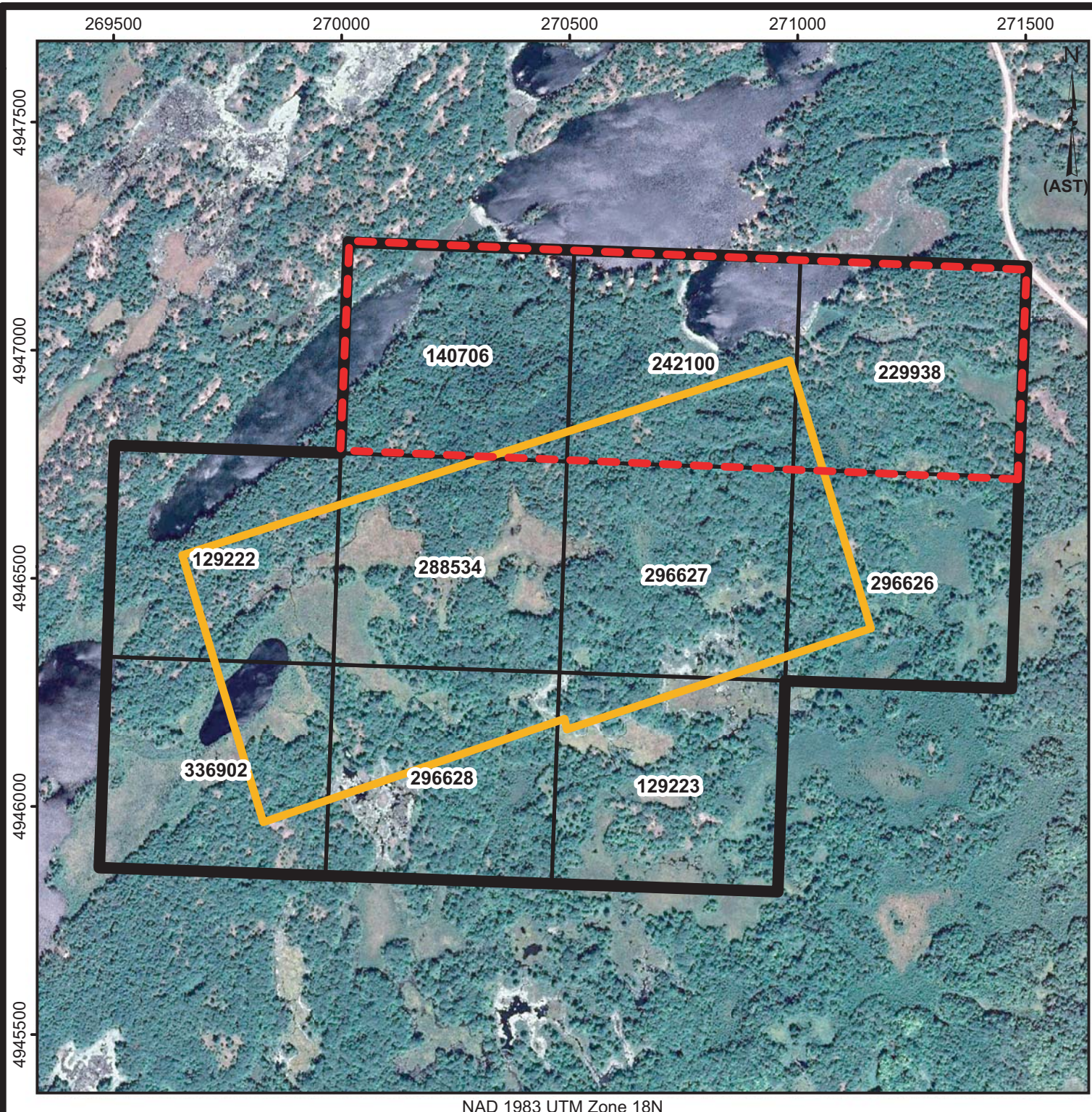
**Environmental Baseline Study (EBS)**  
Update, Work Performed on  
**Claim Nos. 140706, 242100 & 229938,**  
(East Gabbro Project)  
Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
Township of Havelock-Belmont-Methuen



**ORE**  
Oakridge Environmental Ltd.  
Environmental and Hydrogeological Services

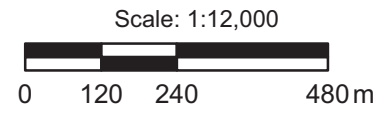
North American Datum (NAD) 1983	
TITLE <b>General Location</b>	
PROJECT # 22-3112	FIGURE NO. <b>1</b>
DATE January 2023	





**Environmental Baseline Study (EBS)**  
**Update, Work Performed on**  
**Claim Nos. 140706, 242100 & 229938,**  
**(East Gabbro Project)**  
 Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
 Township of Havelock-Belmont-Methuen

-  East Gabbro Claim Group
-  Claim Boundary
-  Legacy Claim Boundary
-  Study Area (2022)



Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)

Imagery provided by Google Earth (2019)

Optimized for Oakridge Environmental Ltd. printing

TITLE  
**Claim Group**



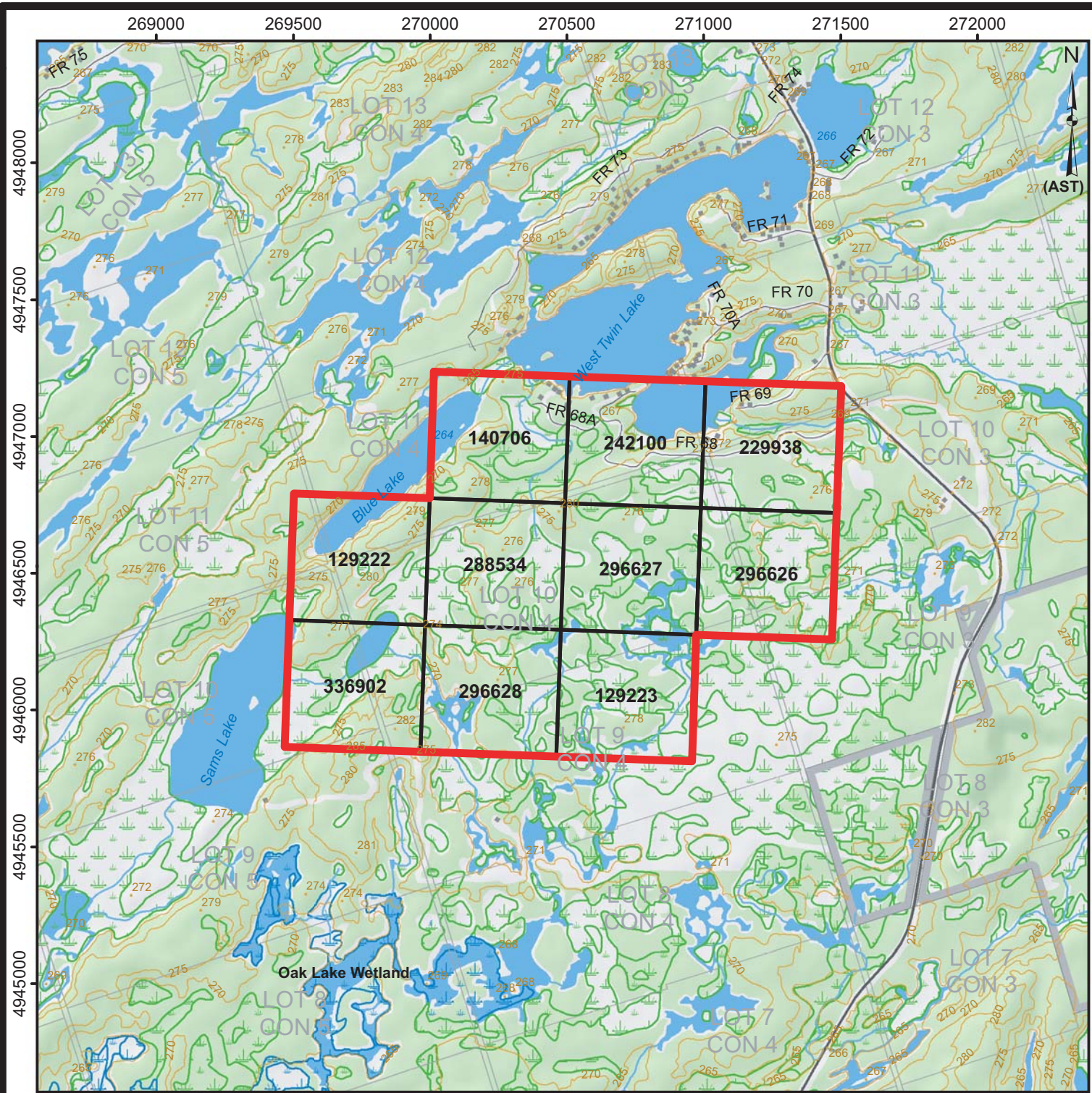
PROJECT #  
22-3112

FIGURE NO.  
**2**
















DATE  
January 2023

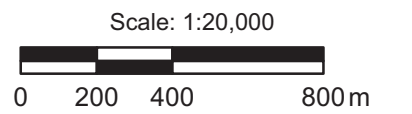
NAD 1983 UTM Zone 18N





**Environmental Baseline Study (EBS)  
Update, Work Performed on  
Claim Nos. 140706, 242100 & 229938,  
(East Gabbro Project)**  
Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
Township of Havelock-Belmont-Methuen

-  East Gabbro Claim Group
-  Claim Boundary
-  Wetland (Unevaluated)
-  Provincial Significant Wetland
-  Watercourse
-  Waterbody
-  Wooded Area
-  Spot Height (m asl)
-  Contour (5m Intervals)
-  Building (symbol)
-  Building (to scale)
-  Arterial Road
-  Road
-  Aggregate Site
-  Geographic Lot Fabric



Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)

Optimized for Oakridge Environmental Ltd. printing

TITLE  
**Topography and Drainage**



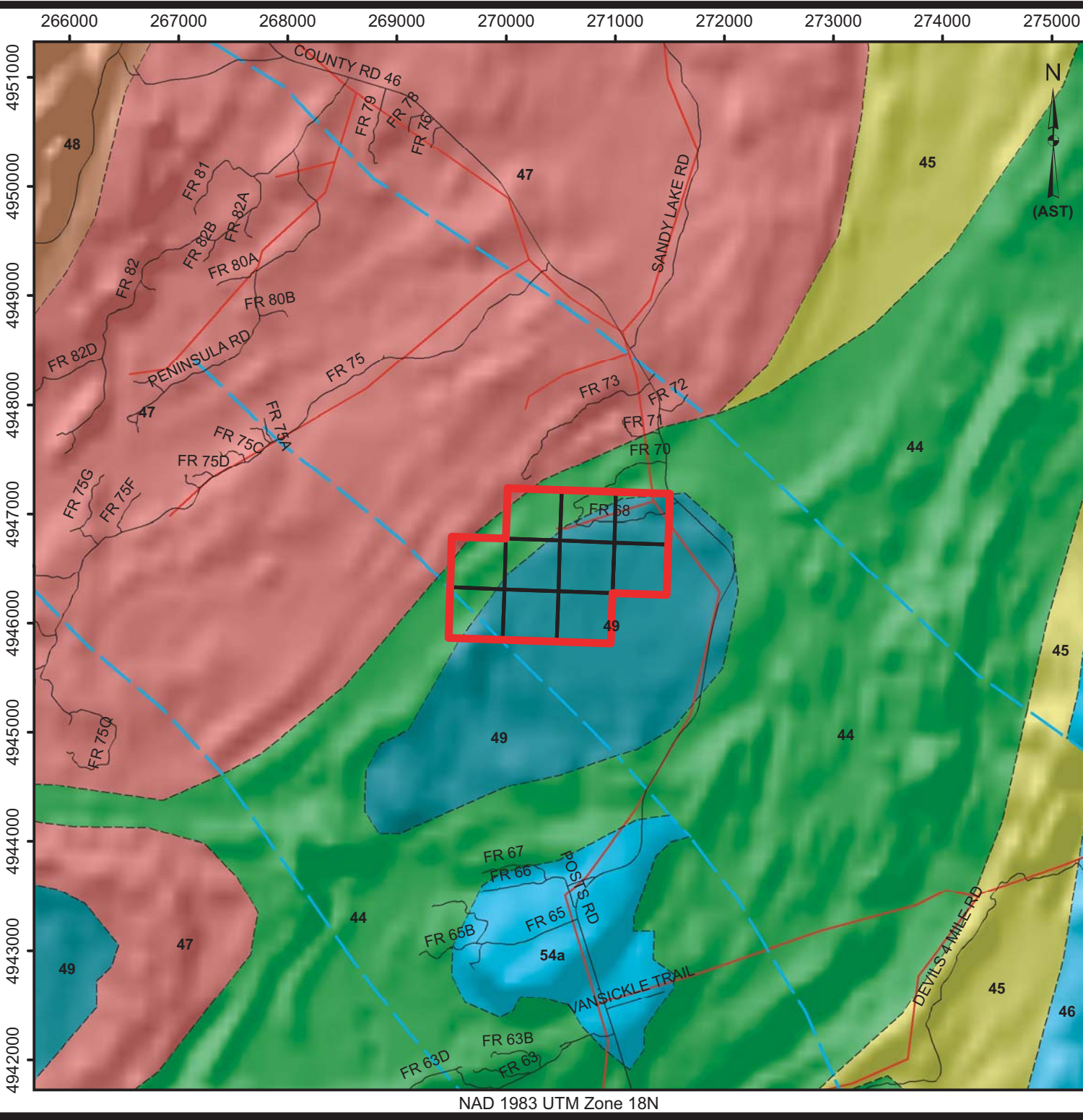
PROJECT #  
22-3112

FIGURE NO.  
**3**

DATE  
January 2023

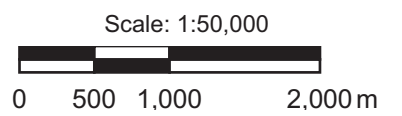
NAD 1983 UTM Zone 18N





**Environmental Baseline Study (EBS)**  
**Update, Work Performed on**  
**Claim Nos. 140706, 242100 & 229938,**  
**(East Gabbro Project)**  
 Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
 Township of Havelock-Belmont-Methuen

- East Gabbro Claim Group
- Claim Boundary
- Contact (sharp, interpreted)
- Fault (interpreted)
- Limestone, dolostone, shale, arkose, sandstone - Ottawa Gp.; Simcoe Gp.; Shadow Lake Fm.
- Mafic to Ultramafic Plutonic Rocks
- Alkalic Plutonic Rocks
- Early Felsic Plutonic Rocks
- Carbonate Metasedimentary Rocks
- Clastic Metasedimentary Rocks
- Mafic to Felsic Metavolcanic Rocks



Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)

Optimized for Oakridge Environmental Ltd. printing

TITLE  
**Bedrock Geology**



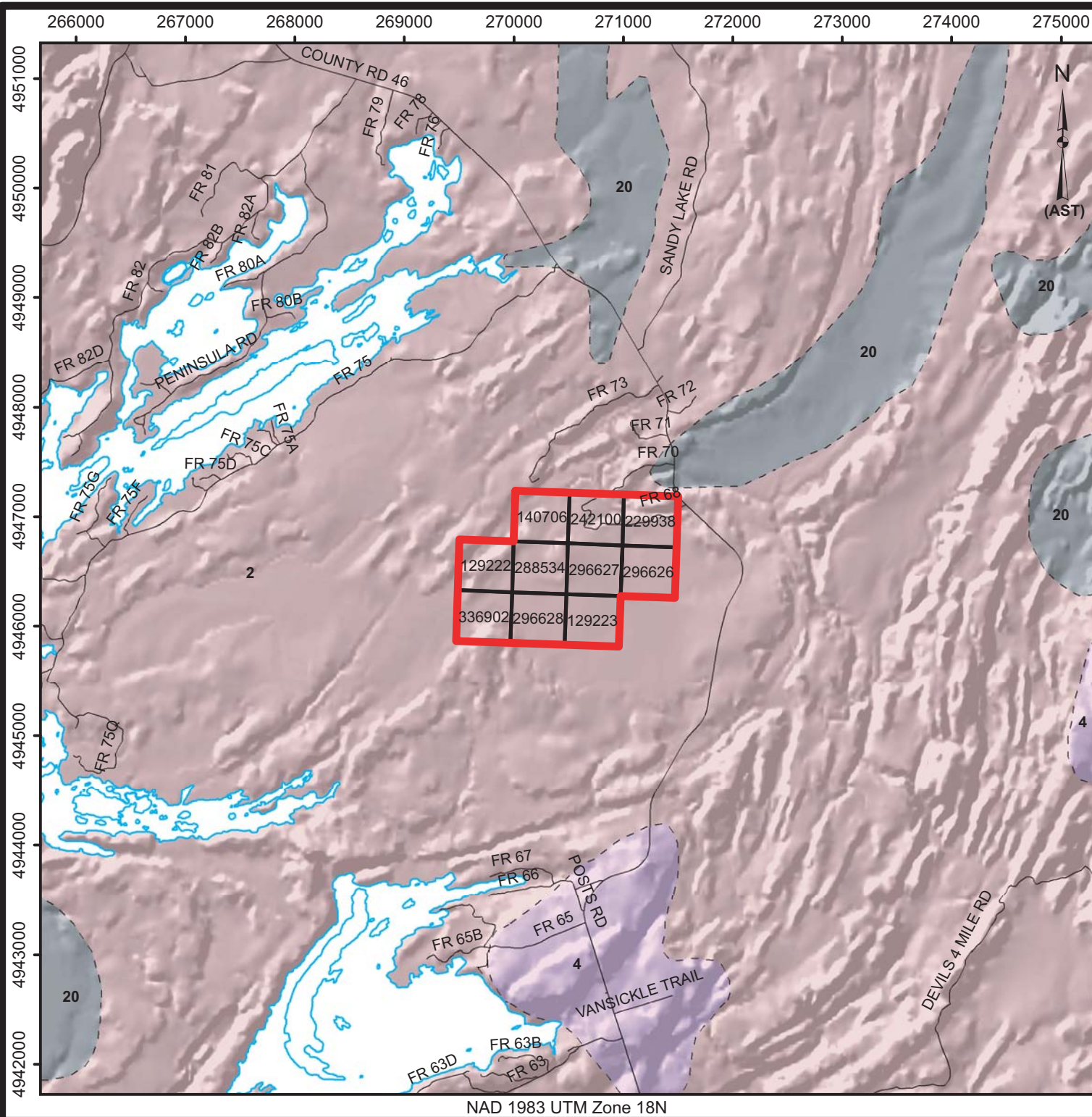
PROJECT #  
22-3112

DATE  
January 2023

FIGURE NO.  
5

NAD 1983 UTM Zone 18N

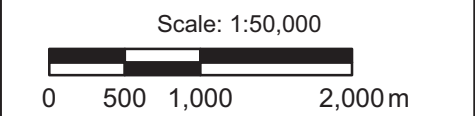




NAD 1983 UTM Zone 18N

**Environmental Baseline Study (EBS)**  
**Update, Work Performed on**  
**Claim Nos. 140706, 242100 & 229938,**  
**(East Gabbro Project)**  
 Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
 Township of Havelock-Belmont-Methuen

- East Gabbro Claim Group
- Claim Boundary
- Contact (approximate/assumed)
- Lake
- 2 Precambrian bedrock-drift complex
- 4 Paleozoic bedrock-drift complex
- 20 Organic deposits



Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)  
 Optimized for Oakridge Environmental Ltd. printing

TITLE  
**Surficial Geology**

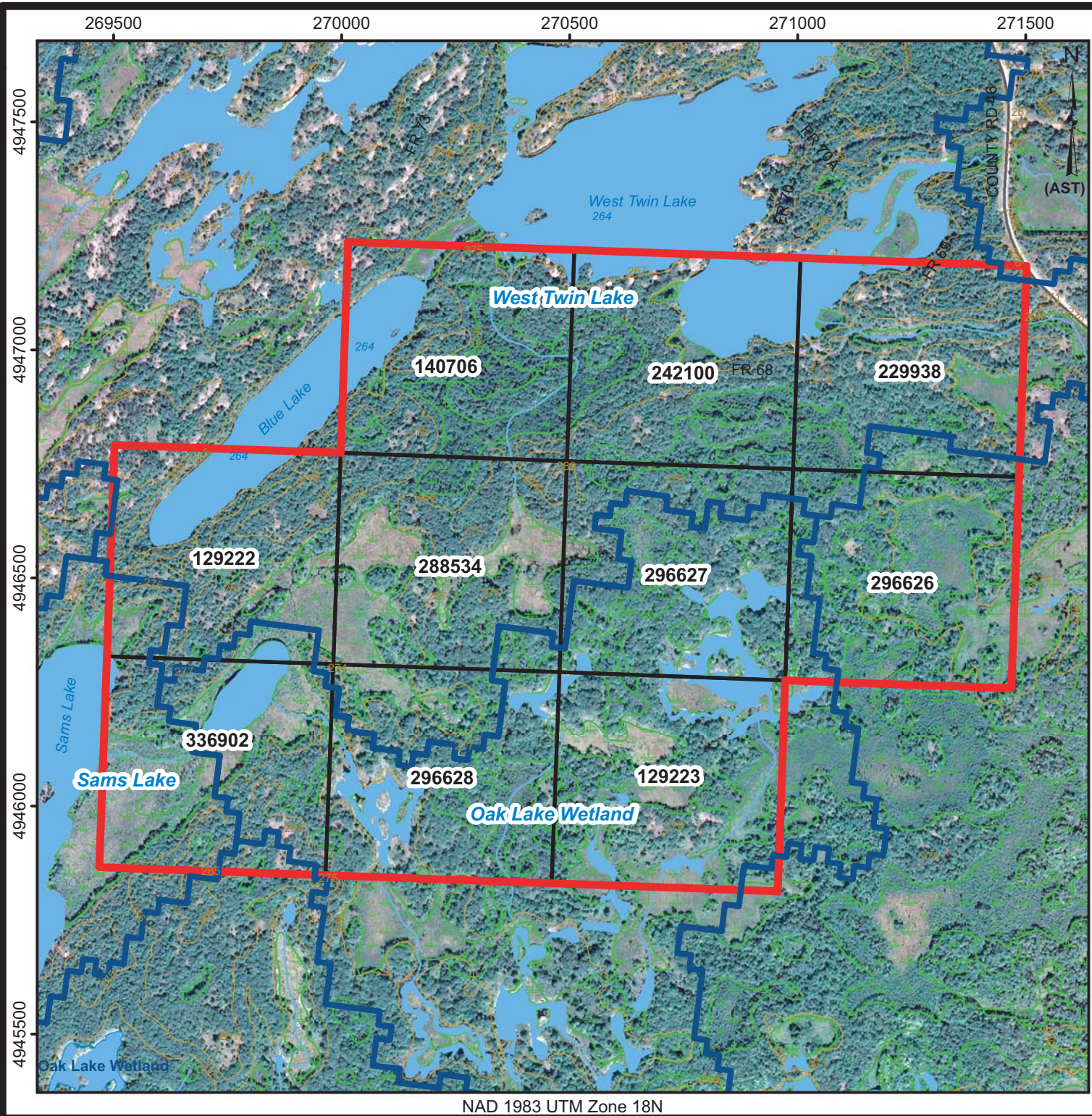


PROJECT #  
22-3112

FIGURE NO.  
**5**

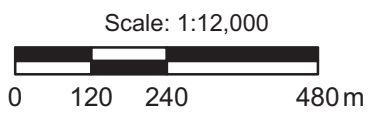
DATE  
January 2023





**Environmental Baseline Study (EBS)**  
**Update, Work Performed on**  
**Claim Nos. 140706, 242100 & 229938,**  
**(East Gabbro Project)**  
 Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
 Township of Havelock-Belmont-Methuen

- East Gabbro Claim Group
- Claim Boundary
- Subwatershed
- Wetland (Unevaluated)
- Provincially Significant Wetland
- Waterbody
- Watercourse
- Contour (5 m Intervals)
- Spot Height (m asl)



*Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)*

*Imagery provided by Google Earth (2019)*

*Optimized for Oakridge Environmental Ltd. printing*

TITLE  
**Ontario Watershed Information Tool (OWIT)**



PROJECT #  
22-3112

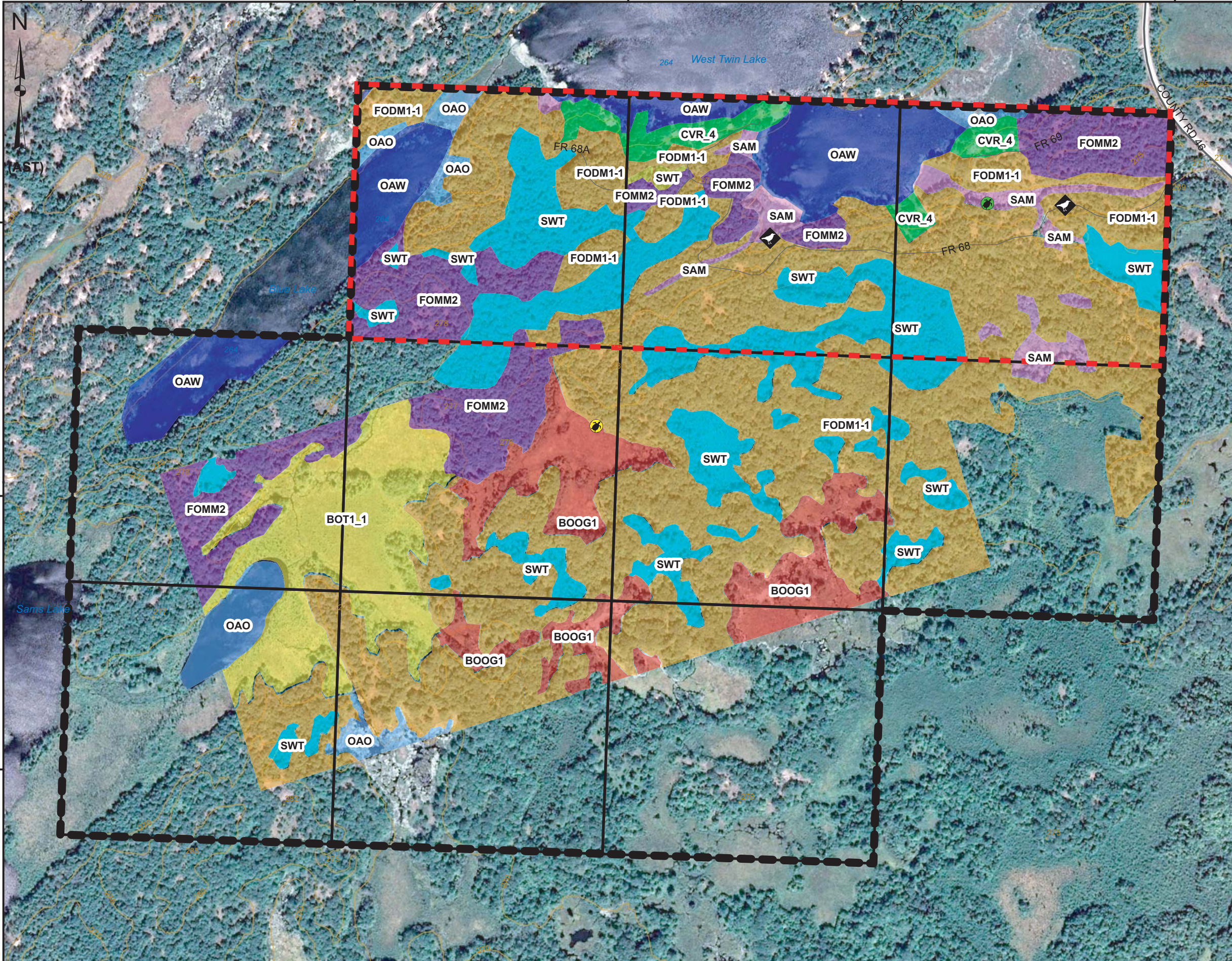
FIGURE NO.  
**6**

DATE  
January 2023

NAD 1983 UTM Zone 18N



269500 270000 270500 271000 271500



4947000  
4946500  
4946000



**Environmental Baseline Study (EBS)**  
**Update, Work Performed on**  
**Claim Nos. 140706, 242100 & 229938,**  
**(East Gabbro Project)**  
 Part Lots 9, 10, & 11, Concessions 3, 4 & 5 (Methuen)  
 Township of Havelock-Belmont-Methuen

- East Gabbro Claim Group
- Claim Boundary
- Study Area (2022)
- Black Spruce Bog (BOT1\_1)
- Graminoid Open Bog (BOOG1)
- Mixed Shallow Aquatic Ecosite (SAM)
- Open Aquatic (OAO)
- Open Water (OAW)
- Red Oak Deciduous Forest (FODM1-1)
- Rural Residential (CVR\_4)
- Thicket Swamp (SWT)
- White Pine-Hardwood Mixed Forest (FOMM2)
- Contour (5 m Intervals)
- Spot Height (m asl)
- Blanding's Turtle
- Midland Painted Turtle
- Point Count Location

Scale: 1:7,000  
  
 0 75 150 300 m

*Notes: Base maps provided by Land Information Ontario and Natural Resources Canada (2022)*  
*Imagery provided by Google Earth (2019)*  
*Feature locations determined by differential GPS (+/- 3.0 m)*  
*Optimized for Oakridge Environmental Ltd. printing*

TITLE  

## Vegetation



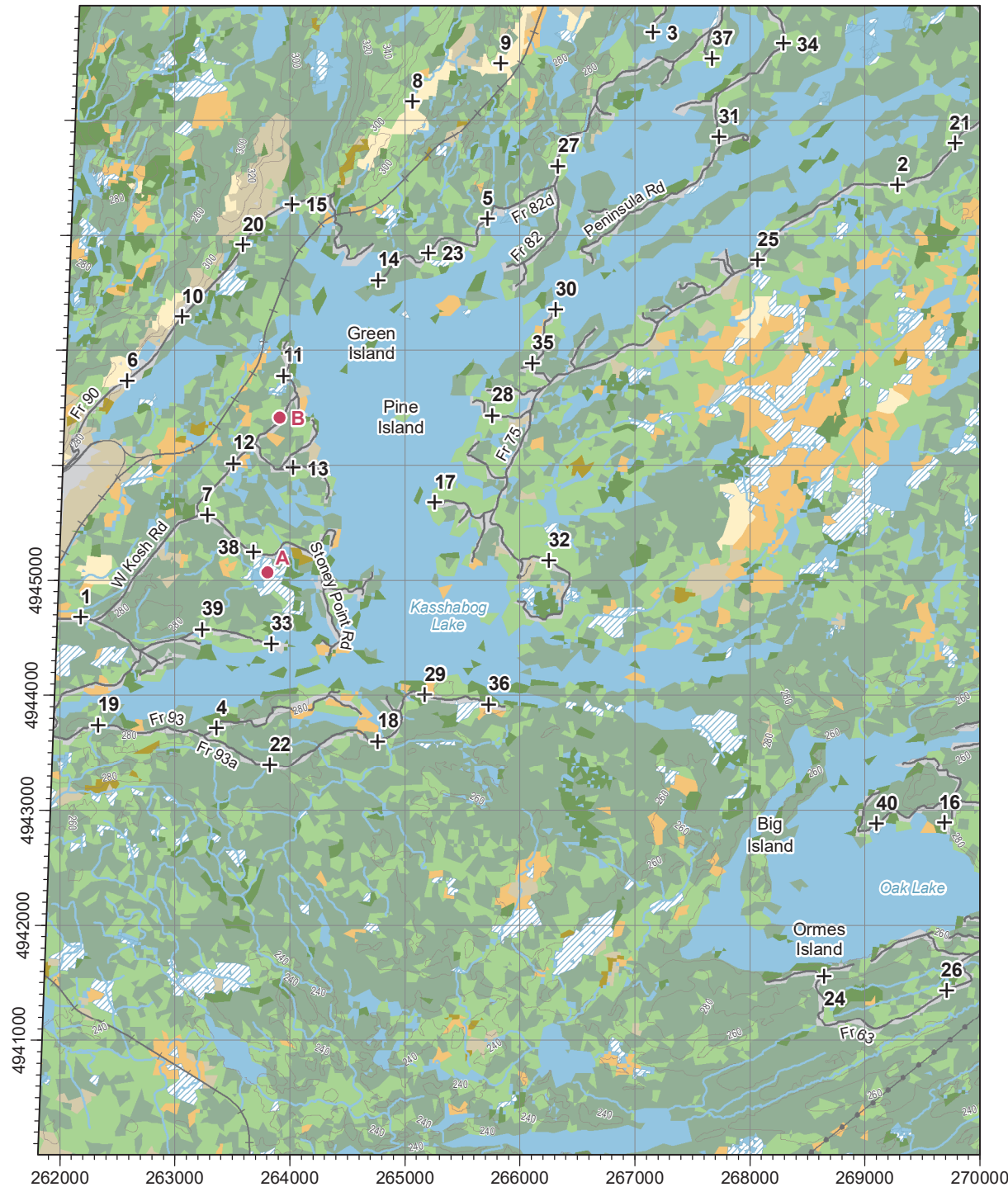
PROJECT # 22-3112	FIGURE NO. <b>7</b>
DATE January 2023	

NAD 1983 UTM Zone 18N



# **Appendix A**

OBBA Data



POINT +	EASTING UTM Est	NORTHING UTM Nord
1	262180	4944678
2	269285	4948438
3	267156	4949764
4	263362	4943714
5	265716	4948144
6	262583	4946734
7	263281	4945565
8	265065	4949163
9	265831	4949493
10	263063	4947293
11	263943	4946777
12	263509	4946013
13	264029	4945979
14	264766	4947609
15	264016	4948270
16	269693	4942892
17	265257	4945677
18	264763	4943597
19	262329	4943740
20	263591	4947918
21	269785	4948800
22	263827	4943391
23	265205	4947848
24	268643	4941558
25	268067	4947785
26	269712	4941433
27	266331	4948600
28	265759	4946432
29	265171	4944005
30	266312	4947355
31	267731	4948856
32	266249	4945170
33	263837	4944447
34	268289	4949668
35	266108	4946886
36	265729	4943918
37	267670	4949536
38	263684	4945243
39	263235	4944571
40	269099	4942882

Legend	Légende
Expressway or highway	Autoroute ou route nationale (asphaltée)
Regional or local road	Route régionale ou locale (asphaltée ou non)
Resource / Recreation	Ressource / route récréative
Rail line	Chemin de fer
Utility corridor	Ligne de transport d'énergie
Watercourse	Rivière ou ruisseau
Protected or conserved area	Zone protégée ou conservée
Fire disturbance since 2000	Incendie perturbé depuis 2000
Broadleaf forest	21 Forêt de feuillus
Coniferous forest	4 Forêt de conifères
Mixed forest	41 Forêt mixte
Shrubland	4 Milieu arbustif
Grassland	Prairie
Barren	2 Dénudé
Wetland	3 Milieu humide
Agriculture	1 Milieu agricole
Water	22 Eau
Developed area	3 Zone développée
Unclassified	Non classifié

The approximate percent coverage of each habitat type is indicated by the numbered box in the legend.

La couverture approximative est indiquée en pourcentage dans le rectangle coloré de la légende.

Cartographic production by Birds Canada  
Production cartographique par oiseaux Canada

Note: The project partners are in no way responsible for any inaccuracies, mistakes or omissions in the information that appears on this map.

Avis : Les responsables du projet d'atlas ne peuvent être tenus responsables de toute inexactitude, erreur ou omission concernant les informations apparaissant sur cette carte.

6° Universal Transverse Mercator (UTM) Projection; Zone 18, Central Meridian -75°; North American Datum 1983 (NAD 83)

Projection universelle transverse de Mercator (UTM) 6° Zone 18, méridien central -75°;

Système de référence géodésique nord-américain 1983 (NAD 83)

**Number of off-road point counts  
Nombre de points d'écoute hors route**

Broadleaf forest:	2	Grassland:	0
Coniferous forest:	0	Wetland:	0
Mixed forest:	3	Shrubland:	0

**Predefined / Prédéterminés: 20  
Off-road / Hors route: 5**

Atlas-2 off-road point    Point hors route Atlas-2



March 2021 / mars 2021

<https://www.birdsontario.org/>


**Square Summary (18TTQ64) [\[change\]](#)**

	#species			#hours			#pc done	
	poss	prob	conf	total	total	peak	road	offrd
Curr.	41	14	3	58	2.5	2.3	22	0
Prev.	34	26	35	95	42.2	—	32	

**Region summary (#16:  
Peterborough, ON)**

#squares	#sq with data	#species	#squares (pc)	
			target	compl.
60	60	162	60	24
60	60	185	0	60

**Target number of point counts in this square:** 25 in total: 20 road side, 5 off road (Broadleaf Forest in 2, Mixed Forest in 3). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat. **Predef. completed:** [01, 02, 03, 04, 05, 07, 11, 12, 13, 17, 18, 19, 21, 22, 23, 25, 27, 28, 31, 34, A, B]

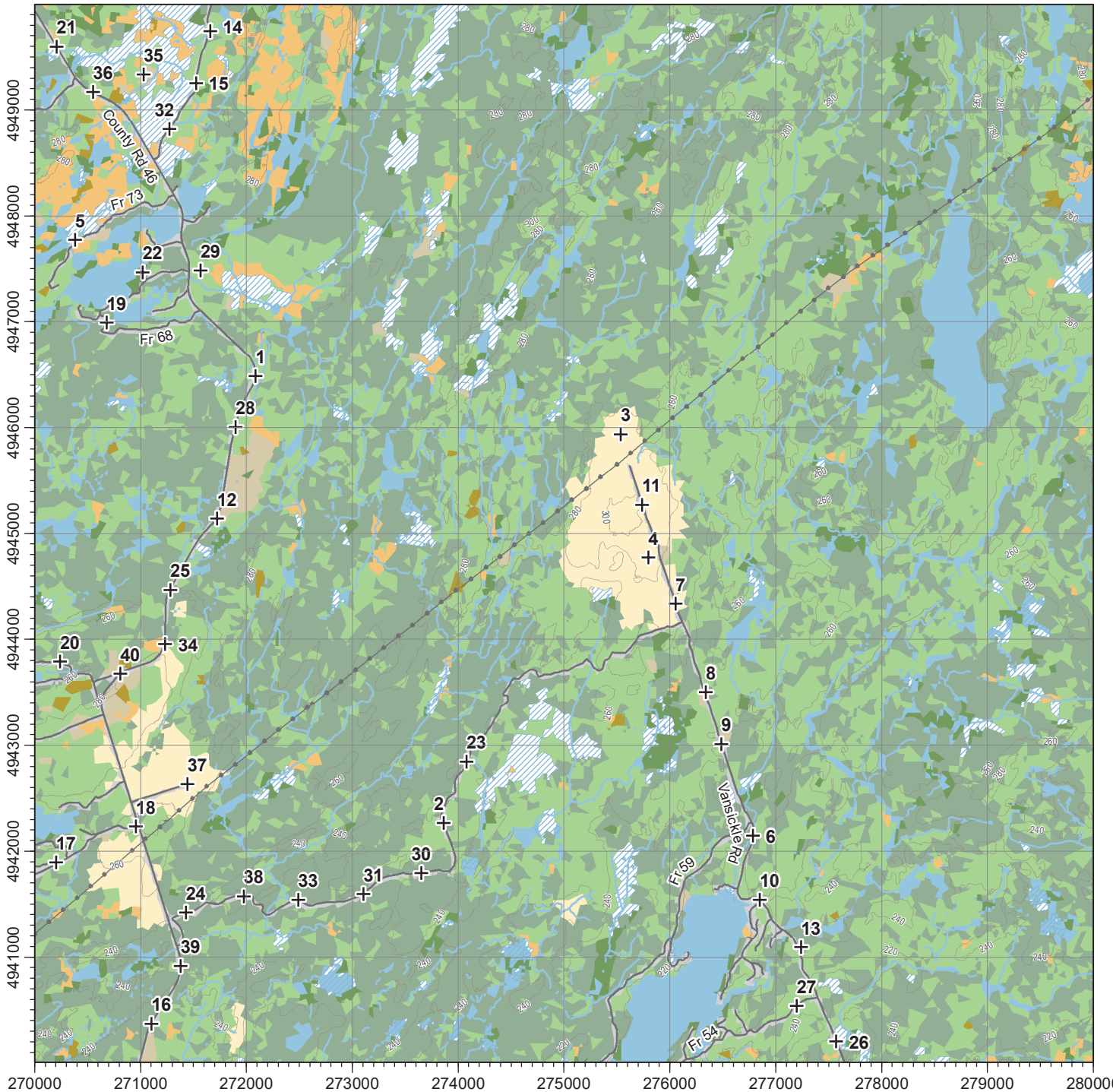
SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%
<b>Canada Goose</b>	FY	AE	80	American Coot ‡			1	Northern Saw-whet Owl			3
Mute Swan ‡			3	<b>Sandhill Crane ‡</b>		FY	23	<b>Belted Kingfisher</b>	A		88
Trumpeter Swan			20	<b>Killdeer §</b>	A		51	<b>Yellow-bellied Sapsucker</b>	A	S	96
<b>Wood Duck</b>	FY		78	Upland Sandpiper †			8	Red-headed Woodpecker †			8
Blue-winged Teal ‡			8	American Woodcock	H		45	Red-bellied Woodpecker			36
Northern Shoveler ‡			0	Wilson's Snipe	V		48	Black-backed Woodpecker ‡			1
Gadwall ‡			0	Spotted Sandpiper	P		46	<b>Downy Woodpecker</b>	FY	S	83
American Wigeon ‡			0	Ring-billed Gull § ‡	H		1	<b>Hairy Woodpecker</b>	NY	H	91
<b>Mallard</b>	FY	P	78	Herring Gull §	NE		25	<b>Pileated Woodpecker</b>	T	S	90
American Black Duck	H		5	Caspian Tern ‡			0	<b>Northern Flicker</b>	T	H	91
Northern Pintail ‡			0	Black Tern †			1	American Kestrel §			48
Green-winged Teal ‡			0	Common Tern § ‡			0	Merlin	P		43
Redhead †			0	<b>Common Loon</b>	FY	H	71	Peregrine Falcon ‡			0
Ring-necked Duck			20	Double-crested Cormorant § ‡			3	Olive-sided Flycatcher ‡			6
Lesser Scaup ‡			0	<b>American Bittern</b>			66	<b>Eastern Wood-Pewee §</b>	S	S	100
<b>Hooded Merganser</b>	H		56	Least Bittern †	AE		21	Yellow-bellied Flycatcher ‡	P		0
Common Merganser ‡	H		20	<b>Great Blue Heron §</b>	NY		61	<b>Alder Flycatcher</b>	S		91
Ruddy Duck ‡			0	Green Heron §			45	Willow Flycatcher			36
<b>Wild Turkey</b>		H	88	<b>Turkey Vulture</b>	P	H	88	<b>Least Flycatcher</b>	S	S	91
<b>Ruffed Grouse</b>	S	S	85	<b>Osprey</b>	AE		50	<b>Eastern Phoebe</b>	NY	M	100
Ring-necked Pheasant ‡			0	Northern Harrier			26	<b>Great Crested Flycatcher</b>	FY	S	100
Pied-billed Grebe	S		21	Sharp-shinned Hawk			21	<b>Eastern Kingbird</b>	FY	H	90
<b>Rock Pigeon (Feral Pigeon)</b>			50	Cooper's Hawk			20	Yellow-throated Vireo			31
<b>Mourning Dove</b>	P		81	Northern Goshawk ‡	NY		1	<b>Blue-headed Vireo</b>		S	75
<b>Yellow-billed Cuckoo</b>			50	Bald Eagle ‡			5	Philadelphia Vireo ‡			0
<b>Black-billed Cuckoo</b>	S		68	Red-shouldered Hawk			30	<b>Warbling Vireo</b>	S	S	75
Common Nighthawk §	P		21	<b>Broad-winged Hawk</b>	P		78	<b>Red-eyed Vireo</b>	FY	M	100
Eastern Whip-poor-will §	T		33	Red-tailed Hawk	H		48	Loggerhead Shrike †			0
Chimney Swift ‡			6	Eastern Screech-Owl			10	Canada Jay ‡			0
<b>Ruby-throated Hummingbird</b>	FY		70	Great Horned Owl ‡	H		13	<b>Blue Jay</b>	P	H	100
<b>Virginia Rail</b>	A	S	55	Barred Owl	H		40	<b>American Crow</b>	CF	H	95
Sora			18	Long-eared Owl ‡			3	<b>Common Raven</b>	D		91
Common Gallinule ‡			10	Short-eared Owl †			0	<b>Black-capped Chickadee</b>	CF	M	98

## Breeding Bird Atlas - Summary Sheet for Square 18TTQ64 (page 2 of 2)

SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%
Boreal Chickadee ‡			0	<b>Purple Finch</b>	FY	S	96	Hooded Warbler ‡			0
Horned Lark ‡			5	Red Crossbill ‡			5	<b>American Redstart</b>	D	M	96
Northern Rough-winged Swallow	H		20	White-winged Crossbill ‡			3	Cape May Warbler ‡			0
Purple Martin ‡			0	Pine Siskin ‡			10	Cerulean Warbler †			3
<u>Tree Swallow</u>	P		81	<u>American Goldfinch</u>	P		93	Northern Parula ‡			10
Bank Swallow §			11	Grasshopper Sparrow §			21	<u>Magnolia Warbler</u>	S		70
<u>Barn Swallow</u> §	NU		73	<b>Chipping Sparrow</b>	FY	M	95	Bay-breasted Warbler ‡			0
Cliff Swallow §			16	Clay-colored Sparrow ‡			15	<b>Blackburnian Warbler</b>		S	65
Ruby-crowned Kinglet ‡			0	<b>Field Sparrow</b> §	S	S	61	<u>Yellow Warbler</u>	FY		85
Golden-crowned Kinglet			28	Dark-eyed Junco ‡	S		3	<b>Chestnut-sided Warbler</b>	A	M	93
<b>Red-breasted Nuthatch</b>	FY	H	93	<b>White-throated Sparrow</b>	S	S	96	<b>Black-throated Blue Warbler</b>	S	S	58
<b>White-breasted Nuthatch</b>	P	S	88	Vesper Sparrow			28	<b>Pine Warbler</b>	FY	M	91
<b>Brown Creeper</b>	S	S	71	<u>Savannah Sparrow</u>			58	<b>Yellow-rumped Warbler</b>	FY	S	83
Blue-gray Gnatcatcher ‡			3	<b>Song Sparrow</b>	AE	M	100	Prairie Warbler †	NE		0
<b>House Wren</b>	S	S	76	Lincoln's Sparrow ‡			5	<b>Black-throated Green Warbler</b>	CF	S	93
<b>Winter Wren</b>		S	96	<b>Swamp Sparrow</b>	CF	S	100	<u>Canada Warbler</u> §			61
Sedge Wren ‡			8	<b>Eastern Towhee</b> §	S	S	48	<b>Scarlet Tanager</b>	S	S	95
Marsh Wren	S		46	<u>Bobolink</u> §			50	<u>Northern Cardinal</u>			50
Carolina Wren ‡			5	<u>Eastern Meadowlark</u> §			56	<b>Rose-breasted Grosbeak</b>	P	S	98
<u>European Starling</u>			80	Orchard Oriole ‡			3	<b>Indigo Bunting</b>	FY	S	95
<b>Gray Catbird</b>	T	S	80	<u>Baltimore Oriole</u>	S		75				
<b>Brown Thrasher</b>	H	S	75	<b>Red-winged Blackbird</b>	AE	P	100				
Northern Mockingbird ‡			1	<b>Brown-headed Cowbird</b>	S	S	63				
<u>Eastern Bluebird</u>			53	<b>Common Grackle</b>	CF	CF	98				
<b>Veery</b>	CF	M	100	<b>Ovenbird</b>	A	M	98				
Swainson's Thrush			15	<u>Northern Waterthrush</u>	S		91				
<b>Hermit Thrush</b>	S	S	75	Golden-winged Warbler †			13				
<u>Wood Thrush</u> §			86	Blue-winged Warbler ‡			10				
<b>American Robin</b>	CF	A	98	<b>Black-and-white Warbler</b>	S	S	96				
<u>Cedar Waxwing</u>	P		88	Tennessee Warbler ‡			0				
House Sparrow			36	<b>Nashville Warbler</b>	H	S	90				
Evening Grosbeak ‡	S		0	<u>Mourning Warbler</u>			71				
House Finch			16	<b>Common Yellowthroat</b>	AE	M	100				

This list includes all breeding species expected in the region #16 (Peterborough). Underlined species are those that you should try to add to this square (18TTQ64). They have not yet been reported in this square, but have been reported in more than 50% of the squares in this region so far. "Prev." is the code for the highest breeding evidence for that species in square 18TTQ64 in the previous atlas. "Code" is the code for the highest breeding evidence for that species in square 18TTQ64 over the last 5 years. The % columns give the percentage of squares in that region where that species was reported (this gives an idea of the expected chance of finding that species in region #16). Rare/Colonial Species Report Forms should be completed for species marked: § (Species of interest), ‡ (regionally rare), † (provincially rare). An up-to-date version of this sheet is available from <https://naturecounts.ca/nc/atlas/summaryform.jsp?squareID=18TTQ64&lang=EN> Data current as of 1/01/2023 23:12.





POINT	EASTING UTM Est	NORTHING UTM Nord
1	272085	4946486
2	273865	4942263
3	275536	4945935
4	275798	4944771
5	270382	4947771
6	276783	4942147
7	276055	4944335
8	276340	4943501
9	276488	4943010
10	276847	4941540
11	275736	4945271
12	271721	4945138
13	277238	4941091
14	271658	4949743
15	271525	4949252
16	271100	4940369
17	270204	4941892
18	270956	4942232
19	270680	4946991
20	270241	4943789
21	270208	4949598
22	271019	4947466
23	274081	4942843
24	271430	4941418
25	271280	4944465
26	277572	4940200
27	277198	4940536
28	271897	4946003
29	271567	4947483
30	273653	4941792
31	273107	4941592
32	271273	4948818
33	272489	4941539
34	271232	4943954
35	271027	4949332
36	270552	4949170
37	271441	4942633
38	271975	4941573
39	271380	4940915
40	270810	4943673

Legend	Légende
Expressway or highway	Autoroute ou route nationale (asphaltée)
Regional or local road	Route régionale ou locale (asphaltée ou non)
Resource / Recreation	Ressource / route récréative
Rail line	Chemin de fer
Utility corridor	Ligne de transport d'énergie
Watercourse	Rivière ou ruisseau
Protected or conserved area	Zone protégée ou conservée
Fire disturbance since 2000	Incendie perturbé depuis 2000
Broadleaf forest	33 Forêt de feuillus
Coniferous forest	3 Forêt de conifères
Mixed forest	46 Forêt mixte
Shrubland	2 Milieu arbustif
Grassland	Prairie
Barren	1 Dénudé
Wetland	4 Milieu humide
Agriculture	3 Milieu agricole
Water	7 Eau
Developed area	2 Zone développée
Unclassified	Non classifié

**Number of off-road point counts  
Nombre de points d'écoute hors route**

Broadleaf forest:	2	Grassland:	0
Coniferous forest:	0	Wetland:	0
Mixed forest:	3	Shrubland:	0

**Predefined / Prédéterminés: 20  
Off-road / Hors route: 5**

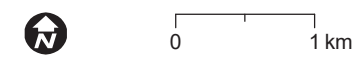
Atlas-2 off-road point    Point hors route Atlas-2

The approximate percent coverage of each habitat type is indicated by the numbered box in the legend.  
La couverture approximative est indiquée en pourcentage dans le rectangle coloré de la légende.

Cartographic production by Birds Canada  
Production cartographique par oiseaux Canada

Note: The project partners are in no way responsible for any inaccuracies, mistakes or omissions in the information that appears on this map.  
Avis : Les responsables du projet d'atlas ne peuvent être tenus responsables de toute inexactitude, erreur ou omission concernant les informations apparaissant sur cette carte.

6° Universal Transverse Mercator (UTM) Projection; Zone 18, Central Meridian -75°; North American Datum 1983 (NAD 83)  
Projection universelle transverse de Mercator (UTM) 6° Zone 18, méridien central -75°; Système de référence géodésique nord-américain 1983 (NAD 83)




**Square Summary (18TTQ74) [\[change\]](#)**

	#species			#hours			#pc done	
	poss	prob	conf	total	total	peak	road	offrd
Curr.	31	32	48	111	58.8	43.6	20	0
Prev.	38	43	49	130	135.7	—	33	

**Region summary (#16:**
**Peterborough, ON)**

#squares	#sq with data	#species	#squares (pc)	
			target	compl.
60	60	162	60	24
60	60	185	0	60

**Target number of point counts in this square:** 25 in total: 20 road side, 5 off road (Broadleaf Forest in 2, Mixed Forest in 3). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat. **Predef. completed:** [01, 02, 03, 04, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 18, 21, 22, 23, 24]

SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%
Canada Goose	FY	FY	80	Common Gallinule ‡			10	Short-eared Owl †			0
Mute Swan ‡			3	American Coot ‡			1	<b>Northern Saw-whet Owl</b>	S	S	3
Trumpeter Swan			20	<b>Sandhill Crane ‡</b>		FY	23	<b>Belted Kingfisher</b>	AE	H	88
<b>Wood Duck</b>	FY	FY	78	<b>Killdeer §</b>	NE	FY	51	<b>Yellow-bellied Sapsucker</b>	AE	AE	96
Blue-winged Teal ‡			8	Upland Sandpiper †			8	Red-headed Woodpecker †	S		8
Northern Shoveler ‡			0	<b>American Woodcock</b>	S	P	45	<b>Red-bellied Woodpecker</b>		S	36
Gadwall ‡			0	<b>Wilson's Snipe</b>	S	T	48	Black-backed Woodpecker ‡			1
American Wigeon ‡			0	<b>Spotted Sandpiper</b>	H	H	46	<b>Downy Woodpecker</b>	CF	S	83
<b>Mallard</b>	FY	FY	78	Ring-billed Gull § ‡			1	<b>Hairy Woodpecker</b>	CF	AE	91
American Black Duck	H		5	<b>Herring Gull §</b>		AE	25	<b>Pileated Woodpecker</b>	N	N	90
Northern Pintail ‡			0	Caspian Tern ‡			0	<b>Northern Flicker</b>	FY	FY	91
Green-winged Teal ‡	H		0	Black Tern †	P		1	American Kestrel §	H		48
Redhead †			0	Common Tern § ‡			0	Merlin	FY		43
<b>Ring-necked Duck</b>	D	FY	20	<b>Common Loon</b>	NE	AE	71	Peregrine Falcon ‡			0
Lesser Scaup ‡			0	Double-crested Cormorant § ‡			3	<b>Olive-sided Flycatcher ‡</b>		S	6
<b>Hooded Merganser</b>	FY	P	56	<b>American Bittern</b>	S	S	66	<b>Eastern Wood-Pewee §</b>	T	FY	100
<b>Common Merganser ‡</b>		H	20	Least Bittern †	S		21	Yellow-bellied Flycatcher ‡	T		0
Ruddy Duck ‡			0	<b>Great Blue Heron §</b>	H	NY	61	<b>Alder Flycatcher</b>	T	S	91
<b>Wild Turkey</b>	FY	FY	88	<b>Green Heron §</b>	H	H	45	<b>Willow Flycatcher</b>	T	S	36
<b>Ruffed Grouse</b>	FY	S	85	<b>Turkey Vulture</b>	T	NY	88	<b>Least Flycatcher</b>	T	T	91
Ring-necked Pheasant ‡			0	<b>Osprey</b>	CF	H	50	<b>Eastern Phoebe</b>	NY	NE	100
Pied-billed Grebe	H		21	Northern Harrier			26	<b>Great Crested Flycatcher</b>	T	T	100
<b>Rock Pigeon (Feral Pigeon)</b>	NE	T	50	Sharp-shinned Hawk	H		21	<b>Eastern Kingbird</b>	FY	AE	90
<b>Mourning Dove</b>	T	T	81	<b>Cooper's Hawk</b>	H	H	20	<b>Yellow-throated Vireo</b>	T	S	31
<b>Yellow-billed Cuckoo</b>		S	50	Northern Goshawk ‡	A		1	<b>Blue-headed Vireo</b>	S	T	75
<b>Black-billed Cuckoo</b>	CF	S	68	Bald Eagle ‡			5	Philadelphia Vireo ‡			0
Coccyzus sp. ‡	S		0	<b>Red-shouldered Hawk</b>	S	H	30	<b>Warbling Vireo</b>	S	T	75
<b>Common Nighthawk §</b>	H	D	21	<b>Broad-winged Hawk</b>	S	H	78	<b>Red-eyed Vireo</b>	NY	FY	100
<b>Eastern Whip-poor-will §</b>	T	S	33	<b>Red-tailed Hawk</b>	H	H	48	Loggerhead Shrike †			0
Chimney Swift ‡			6	Eastern Screech-Owl			10	Canada Jay ‡			0
<b>Ruby-throated Hummingbird</b>	D	T	70	Great Horned Owl ‡			13	<b>Blue Jay</b>	FY	FY	100
<b>Virginia Rail</b>	S	T	55	<b>Barred Owl</b>		P	40	<b>American Crow</b>	FY	FY	95
Sora	S		18	Long-eared Owl ‡	S		3	<b>Common Raven</b>	NY	FY	91

## Breeding Bird Atlas - Summary Sheet for Square 18TTQ74 (page 2 of 2)

SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%	SPECIES	Prev.	Code	%
<b>Black-capped Chickadee</b>	CF	FY	98	House Finch			16	<b>Common Yellowthroat</b>	CF	CF	100
Boreal Chickadee ‡			0	<b>Purple Finch</b>	T	T	96	Hooded Warbler ‡			0
Horned Lark ‡			5	Red Crossbill ‡			5	<b>American Redstart</b>	T	T	96
Northern Rough-winged Swallow	AE		20	White-winged Crossbill ‡			3	Cape May Warbler ‡			0
Purple Martin ‡	S		0	Pine Siskin ‡	H		10	Cerulean Warbler †			3
<b>Tree Swallow</b>	AE	FY	81	<b>American Goldfinch</b>	FY	P	93	Northern Parula ‡			10
Bank Swallow §			11	Grasshopper Sparrow §	T		21	<b>Magnolia Warbler</b>	S	S	70
<b>Barn Swallow §</b>	AE	AE	73	<b>Chipping Sparrow</b>	CF	CF	95	Bay-breasted Warbler ‡			0
<b>Cliff Swallow §</b>	P	FY	16	Clay-colored Sparrow ‡	S		15	<u>Blackburnian Warbler</u>	T		65
Ruby-crowned Kinglet ‡			0	<b>Field Sparrow §</b>	CF	T	61	<b>Yellow Warbler</b>	FY	T	85
Golden-crowned Kinglet	S		28	Dark-eyed Junco ‡			3	<b>Chestnut-sided Warbler</b>	FY	T	93
<b>Red-breasted Nuthatch</b>	T	NB	93	<b>White-throated Sparrow</b>	FY	T	96	<b>Black-throated Blue Warbler</b>	T	S	58
<b>White-breasted Nuthatch</b>	T	T	88	Vesper Sparrow	S		28	<b>Pine Warbler</b>	T	FY	91
<b>Brown Creeper</b>	S	CF	71	<b>Savannah Sparrow</b>	S	T	58	<b>Yellow-rumped Warbler</b>	CF	T	83
Blue-gray Gnatcatcher ‡			3	<b>Song Sparrow</b>	CF	CF	100	Prairie Warbler †			0
<b>House Wren</b>	FY	AE	76	<b>Lincoln's Sparrow ‡</b>		S	5	<b>Black-throated Green Warbler</b>	T	T	93
<b>Winter Wren</b>	T	T	96	<b>Swamp Sparrow</b>	FY	CF	100	<b>Canada Warbler §</b>	S	S	61
Sedge Wren ‡	S		8	<b>Eastern Towhee §</b>	T	FY	48	<b>Scarlet Tanager</b>	S	CF	95
<b>Marsh Wren</b>	A	S	46	<b>Bobolink §</b>	T	T	50	<b>Northern Cardinal</b>	P	H	50
Carolina Wren ‡			5	<b>Eastern Meadowlark §</b>	FY	FY	56	<b>Rose-breasted Grosbeak</b>	CF	CF	98
<b>European Starling</b>	CF	FY	80	Orchard Oriole ‡			3	<b>Indigo Bunting</b>	T	FY	95
<b>Gray Catbird</b>	A	T	80	<b>Baltimore Oriole</b>	T	T	75				
<b>Brown Thrasher</b>	T	FY	75	<b>Red-winged Blackbird</b>	FY	CF	100				
Northern Mockingbird ‡			1	<b>Brown-headed Cowbird</b>	FY	H	63				
<b>Eastern Bluebird</b>	CF	FY	53	<b>Common Grackle</b>	CF	CF	98				
<b>Veery</b>	T	FY	100	<b>Ovenbird</b>	T	T	98				
Swainson's Thrush	S		15	<b>Northern Waterthrush</b>	T	CF	91				
<b>Hermit Thrush</b>	CF	T	75	Golden-winged Warbler †	T		13				
<b>Wood Thrush §</b>	T	T	86	Blue-winged Warbler ‡			10				
<b>American Robin</b>	NE	CF	98	<b>Black-and-white Warbler</b>	T	FY	96				
<b>Cedar Waxwing</b>	P	H	88	Tennessee Warbler ‡			0				
<b>House Sparrow</b>	FY	FY	36	<b>Nashville Warbler</b>	FY	T	90				
Evening Grosbeak ‡	T		0	<b>Mourning Warbler</b>	S	S	71				

This list includes all breeding species expected in the region #16 (Peterborough). Underlined species are those that you should try to add to this square (18TTQ74). They have not yet been reported in this square, but have been reported in more than 50% of the squares in this region so far. "Prev." is the code for the highest breeding evidence for that species in square 18TTQ74 in the previous atlas. "Code" is the code for the highest breeding evidence for that species in square 18TTQ74 over the last 5 years. The % columns give the percentage of squares in that region where that species was reported (this gives an idea of the expected chance of finding that species in region #16). Rare/Colonial Species Report Forms should be completed for species marked: § (Species of interest), ‡ (regionally rare), † (provincially rare). An up-to-date version of this sheet is available from <https://naturecounts.ca/nc/atlas/summaryform.jsp?squareID=18TTQ74&lang=EN> Data current as of 1/01/2023 23:12.



# **Appendix B**

## Species Descriptions

Barn Swallow is listed as “Threatened” by *Species at Risk Ontario* (SARO) and is protected under the *Endangered Species Act* (ESA). The Barn Swallow inhabits open-rural and urban sites where buildings are situated near watercourses. Nesting is typically within loose colonies on building structures, bridges and other suitable overhanging structures. Structures are chosen because they keep the half “cup-like” mud nest dry and have edges that the nest can adhere to. The Barn Swallow feeds on insects by catching them on its wing.

Bank Swallow is listed as “Threatened” by SARO and is protected under the ESA. This avian species nests in burrows into the banks of silt and sand deposits. Nests tend to be found on the shorelines of rivers and lakes. The Bank Swallow may also inhabit sand and gravel pits. Typically, this species forages on insects in flight, but will also glean insects off the water.

Black Tern is listed as “Special Concern” by SARO and is protected under the ESA. The Black Tern prefers shallow, freshwater cattail marshes, wetlands, lake edges and sewage ponds with emergent vegetation. Nesting occurs on dead plant material piled upon aquatic floating vegetation. The Black Tern hunts small insects and minnows along the surface of lakes or ponds.

Bobolink is listed as “Threatened” by SARO and is protected under the ESA. The Bobolink prefers large tracts of tallgrass areas, either true prairies or hay fields, as it forages low to the ground in search of larvae and seeds.

Canada Warbler is listed as “Special Concern” by SARO and is protected under the ESA. It prefers large tracts of mixed forests on bottomlands within wetlands or drainage courses. The species nests within the upper extremities of the canopy in deciduous and coniferous trees. The Canada Warbler feeds on beetles, caterpillars and common insects. Typically, this species prefers creeks and mixed forests with a coniferous edge along a moving creek, tributary or river system.

Chimney Swift is listed as “Threatened” by SARO and is protected under the ESA. The Chimney Swift is a somewhat generalist species. It will utilize empty cavity nests found in dead trees within fencerows or may utilize unused chimneys as suggested by its common name. This species is most active in early morning and early evening (i.e., dawn and dusk). It will venture outside of the nesting area and feast on insects during those times. It then flies back to the nesting site, entering the nest one after another in an orderly funnel-shaped sequence.

Common Nighthawk is listed as “Special Concern” by SARO and is protected under the ESA. The Common Nighthawk is part of the Nightjar family and prefers forest openings, bogs and sometimes open field/meadow areas. Nesting is on bare ground where both adults feed the young. Feeding can take place during day or night, while the species constantly forages for all types of insects.

Eastern Meadowlark is listed as “Threatened” by SARO and is protected under the ESA. The Eastern Meadowlark is similar to Bobolink, as this species also prefers large tracts of agricultural fields or tall grass prairies to nest within. Eastern Meadowlark is a ground nester, and utilizes the tall grass to conceal its nest and eggs. Feeding includes beetles, crickets, and spiders.

Eastern Whip-poor-will is listed as “Threatened” by SARO and is protected under the ESA. The Whip-poor-will prefers a combination of large natural tracts of forest, watercourses and edge habitat consisting of meadow areas with open, deciduous and pine woodlands. The Whip-poor-will does not construct a nest, but rather utilizes the soft leaf litter on the ground to form a nest and lay the eggs directly on the ground. The Whip-poor-will is a nighttime hunter, calling it’s own name while searching for large flying insects, beetles, moths, mosquitos and sometimes grasshoppers. The Whip-poor-will often choose pine species adjacent to waterways from which to call.

Eastern Wood-pewee is listed as “Special Concern” by SARO and is protected under the ESA. This species prefers mixed deciduous and coniferous woodlands which are open or considered edge-habitat. Nesting occurs on a tree branch as the species catches insects from a perch.

Evening Grosbeak (*Coccothraustes vespertinus*) is listed as “Special Concern” by SARO and is not protected under the ESA. During the breeding season, Evening Grosbeak is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops.

Golden-winged Warbler is listed as “Special Concern” by SARO and is protected under the ESA. The Golden-winged Warbler prefers woodland edge habitat with young secessional tree species and moist shrubby fields. This species gleans insects on shrubs and the forest floor and nesting occurs on the ground.

Grasshopper Sparrow (*Ammodramus savannarum*) is listed as “Special Concern” by SARO and is not protected under the ESA. The Grasshopper Sparrow prefers large (greater than 5 ha) grassland habitats where it breeds. Grassland habitats include pastures, hayfields, natural prairies, alvars. Nests are typically hidden within the grassland and its preferred diet in the summer is large insects (i.e., Grasshoppers).

Least Bittern is listed as “Threatened” by SARO and is protected under the ESA. The Least Bittern inhabits freshwater marshes where tall, impenetrable stands of emergent vegetation are utilized for coverage. The Least Bittern may build up a hunting platform in search of small fish, insects, and amphibians.

Olive-sided Flycatcher (*Contopus cooperi*) is listed as “Special Concern” by SARO and is not protected under the ESA. This species is typically found within natural forest edges and openings. Its preferred habitat is within coniferous or mixed forests adjacent to rivers or wetlands. It likes to inhabit conifers such as White/Black Spruce, Jack Pine, and Balsam Fir.

Red-headed Woodpecker is listed as “Special Concern” by SARO and is protected under the ESA. It prefers a combination of deciduous forests and rural development areas, similar to a park-like setting. The deciduous species can be oak or maple, however, the understoreys must be meadow-like or a maintained lawn space. The species will nest within cavities that it constructs or it will take over cavity nests that other woodpeckers have constructed. The Red-headed Woodpecker feeds on beetles, caterpillars and common insects that are found within the bark of trees.

Red-shouldered Hawk no longer possesses a status in Ontario, although is still considered to be a “sensitive” species with respect to development. It prefers mature deciduous dominated forests, often nesting within hundreds of metres of the edge of wetlands or waterways. The nest will often occur in the crotch of deciduous trees. It prefers slopes where it can easily fly to the tree-tops and overlook the waterway for foraging purposes, hunting for small mammals, birds, reptiles and amphibians.

Wood Thrush is listed as “Special Concern” by SARO and is protected under the ESA. The Wood Thrush enjoys relatively undisturbed, mature woodlands. Nesting occurs low in the fork of a tree, as this species forages for berries and insects at ground level. Similar to the Eastern Wood-Pewee, this species prefers large tracts of woodland.

Blanding’s Turtle (*Emydoidea blandingii*) is listed as “Threatened” by SARO and is protected under the ESA. It tends to inhabit shallow waters within large wetlands or shallow lakes that have lots of aquatic plants. However, they have been known to travel hundreds of metres from a main body of water for nesting or mating. This species is most easily identified by its bright yellow throat and chin.

Common Five-lined Skink (Southern Shield Population) (*Plestiodon fasciatus*) is listed as “Special Concern” by SARO and is not protected under the ESA. This species of lizard basks on sunny rocks and logs to maintain a preferred body temperature (28 - 36°C). During the winter, they hibernate in crevices among rocks or buried in the soil. The Southern Shield population can be found underneath rocks on open bedrock in forests.


Eastern Ribbon Snake (*Thamnophis sauritus*) is listed as “Special Concern” by SARO, and is not protected under the ESA. This species occurs mainly within large marshlands that have an open water content. This species uses the lily-pads and other vegetation within the wetland to bask in the sun. It also utilizes the deeper sections of the marsh to dive beneath the water when threatened by predators.

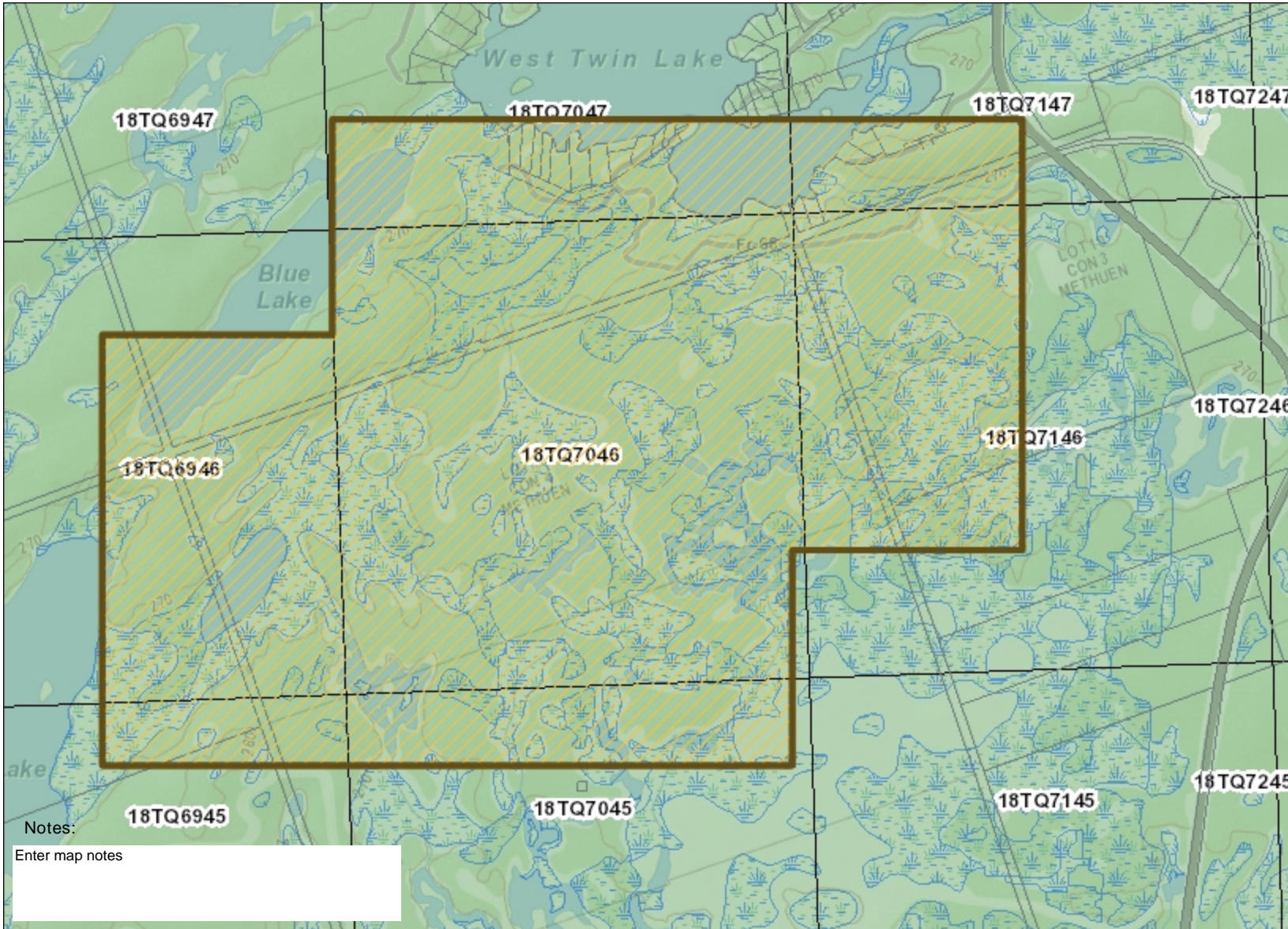
Snapping Turtle (*Chelydra serpentina*) is listed as “Special Concern” by SARO and is not protected under the ESA. Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dam and aggregate pits.

# **Appendix C**

NHIC Data

**Legend**

-  Assessment Parcel
-  NHIC 1 Km Grid
- ANSI
  -  Earth Science Provincially Significant/sciences de la terre d'importance provinciale
  -  Earth Science Regionally Significant/sciences de la terre d'importance regionale
  -  Life Science Provincially Significant/sciences de la vie d'importance provinciale
  -  Life Science Regionally Significant/sciences de la vie d'importance regionale
- Evaluated Wetland
  -  Provincially Significant/considérée d'importance provinciale
  -  Non-Provincially Significant/non considérée d'importance provinciale
  -  Unevaluated Wetland
- Conservation Reserve 
- Provincial Park 
- Natural Heritage System 



Notes:

Enter map notes

0.7 0 0.33 0.7 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

© Copyright for Ontario Parcel data is held by King's Printer for Ontario and its licensors and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.



Imagery Copyright Notices: DRAPE © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008  
© King's Printer for Ontario, 2023



## NHIC Data

To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1069581	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ7145	
1069581	SPECIES	Midland Painted Turtle	Chrysemys picta marginata			SC	18TQ7145	
1069581	SPECIES	Blanding's Turtle	Emydoidea blandingii	THR	END		18TQ7145	
1069581	SPECIES	Eastern Ribbonsnake	Thamnophis sauritus	SC	SC		18TQ7145	
1067562	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ6946	
1069572	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ7046	
1069572	SPECIES	Wood Thrush	Hylocichla mustelina	SC	THR		18TQ7046	
1069582	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ7146	
1069582	SPECIES	Midland Painted Turtle	Chrysemys picta marginata			SC	18TQ7146	
1069582	SPECIES	Blanding's Turtle	Emydoidea blandingii	THR	END		18TQ7146	
1069582	SPECIES	Eastern Ribbonsnake	Thamnophis sauritus	SC	SC		18TQ7146	
1069582	SPECIES	Wood Thrush	Hylocichla mustelina	SC	THR		18TQ7146	
1069582	SPECIES	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	Pseudacris maculata pop. 1	NAR	THR		18TQ7146	
1069582	SPECIES	Canada Warbler	Cardellina canadensis	SC	THR		18TQ7146	
1069582	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	THR	THR		18TQ7146	
1067563	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ6947	
1067563	SPECIES	Houghton's Flatsedge	Cyperus houghtonii				18TQ6947	
1067563	SPECIES	Wood Thrush	Hylocichla mustelina	SC	THR		18TQ6947	
1069573	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ7047	
1069573	SPECIES	Common Nighthawk	Chordeiles minor	SC	SC		18TQ7047	
1069573	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	THR	THR		18TQ7047	
1069573	SPECIES	Wood Thrush	Hylocichla mustelina	SC	THR		18TQ7047	
1069573	SPECIES	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	Pseudacris maculata pop. 1	NAR	THR		18TQ7047	
1069573	SPECIES	Snapping Turtle	Chelydra serpentina	SC	SC		18TQ7047	
1069583	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ7147	
1069583	SPECIES	Wood Thrush	Hylocichla mustelina	SC	THR		18TQ7147	
1069583	SPECIES	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	Pseudacris maculata pop. 1	NAR	THR		18TQ7147	
1069583	SPECIES	Common Five-lined Skink (Southern Shield population)	Plestiodon fasciatus pop. 2	SC	SC		18TQ7147	
1069583	SPECIES	Eastern Whip-poor-will	Antrostomus vociferus	THR	THR		18TQ7147	
1069583	RESTRICTED SPECIES	Restricted Species	Restricted Species				18TQ7147	
1069583	RESTRICTED SPECIES	RESTRICTED SPECIES	RESTRICTED SPECIES	THR	THR		18TQ7147	
1067561	NATURAL AREA	Oak Lake Wetland					18TQ6945	
1067561	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ6945	
1067561	WILDLIFE CONCENTRATION AREA	Mixed Wader Nesting Colony		SNR			18TQ6945	
1069571	NATURAL AREA	Oak Lake Wetland					18TQ7045	
1069571	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area		SNR			18TQ7045	



# **Appendix D**

eBird Data

# Nephton Ridge (no public access)

## Hotspot stats

### Observations - Last seen - Sorted by Date descending

[SORT BY TAXONOMIC ORDER SPECIES NAME](#)

[SORT BY COUNTCOUNT](#)

[SORT BY DATEDATE](#)

OBSERVER

#### Canada Goose

Count 6

[15 Nov 2022](#)

Luke Berg

species1.

#### Mallard

Count 3

[15 Nov 2022](#)

Luke Berg

species2.

#### Common Merganser

Count 8

[15 Nov 2022](#)

Luke Berg

species3.

#### Rock Pigeon

Exotic: Naturalized

Count 2

[15 Nov 2022](#)

Luke Berg

species4.

#### Herring Gull

Count 2

[15 Nov 2022](#)

Luke Berg

species5.

#### Bald Eagle

Count 1

[15 Nov 2022](#)

Luke Berg

species6.

#### Red-tailed Hawk

Count 1

[15 Nov 2022](#)

Luke Berg

species7.

## Downy Woodpecker

Count 1

[15 Nov 2022](#)

Luke Berg

species8.

## Blue Jay

Count 1

[15 Nov 2022](#)

Luke Berg

species9.

## Common Raven

Count 5

[15 Nov 2022](#)

Luke Berg

species10.

## Black-capped Chickadee

Count 1

[15 Nov 2022](#)

Luke Berg

species11.

## Horned Lark

Count 1

[15 Nov 2022](#)

Luke Berg

species12.

## Bohemian Waxwing

Count 81

[15 Nov 2022](#)

Luke Berg

Show Details

species13.

## Evening Grosbeak

Count 3

[15 Nov 2022](#)

Luke Berg

species14.

## Pine Grosbeak

Count 2

[15 Nov 2022](#)

Luke Berg

species15.

## American Goldfinch

Count 1

[15 Nov 2022](#)

Luke Berg

species16.

## Dark-eyed Junco

species17.

Count 1  
[15 Nov 2022](#)  
Luke Berg

species18.

## **Mourning Dove**

Count 1  
[8 Nov 2022](#)  
Andy Nguyen

species19.

## **Sandhill Crane**

Count 2  
[8 Nov 2022](#)  
Andy Nguyen

species20.

## **Hairy Woodpecker**

Count 1  
[8 Nov 2022](#)  
Andy Nguyen

species21.

## **Pileated Woodpecker**

Count 1  
[8 Nov 2022](#)  
Andy Nguyen

species22.

## **White-breasted Nuthatch**

Count 3  
[8 Nov 2022](#)  
Andy Nguyen

species23.

## **American Robin**

Count 4  
[8 Nov 2022](#)  
Andy Nguyen

species24.

## **Red-winged Blackbird**

Count 3  
[8 Nov 2022](#)  
Andy Nguyen

species25.

## **Brant**

Count 100  
[22 Oct 2022](#)  
C Douglas  
[Show Details](#)

species26.

## **Wood Duck**

Count 3  
[22 Oct 2022](#)

C Douglas

species27.

## **Hooded Merganser**

Count 2

[22 Oct 2022](#)

C Douglas

species28.

## **Wild Turkey**

Count 9

[22 Oct 2022](#)

C Douglas

Show Details

species29.

## **Common Loon**

Count 1

[22 Oct 2022](#)

C Douglas

species30.

## **Turkey Vulture**

Count 4

[22 Oct 2022](#)

C Douglas

species31.

## **Sharp-shinned Hawk**

Count 2

[22 Oct 2022](#)

C Douglas

species32.

## **Cooper's Hawk**

Count 3

[22 Oct 2022](#)

C Douglas

Show Details

species33.

## **Northern Goshawk**

Count 2

[22 Oct 2022](#)

C Douglas

Show Details

species34.

## **Rough-legged Hawk**

Count 1

[22 Oct 2022](#)

C Douglas

species35.

## **Merlin**

Count 1

[22 Oct 2022](#)

C Douglas

species36.

### **Peregrine Falcon**

Count 2

[22 Oct 2022](#)

C Douglas

Show Details

species37.

### **American Crow**

Count 24

[22 Oct 2022](#)

C Douglas

species38.

### **Ruby-crowned Kinglet**

Count 1

[22 Oct 2022](#)

C Douglas

species39.

### **Red-breasted Nuthatch**

Count 2

[22 Oct 2022](#)

C Douglas

species40.

### **Brown Creeper**

Count 2

[22 Oct 2022](#)

C Douglas

species41.

### **American Pipit**

Count 1

[22 Oct 2022](#)

C Douglas

species42.

### **White-crowned Sparrow**

Count 8

[22 Oct 2022](#)

C Douglas

species43.

### **Song Sparrow**

Count 1

[22 Oct 2022](#)

C Douglas

species44.

### **Golden-crowned Kinglet**

Count 5

[10 Oct 2022](#)

Cathy Dueck

species45.

## White-throated Sparrow

Count 3

[10 Oct 2022](#)

Cathy Dueck

species46.

## Swamp Sparrow

Count 4

[10 Oct 2022](#)

Cathy Dueck

species47.

## Yellow-rumped Warbler

Count 4

[10 Oct 2022](#)

Cathy Dueck

species48.

## Ruffed Grouse

Count 1

[2 Oct 2022](#)

Luke Berg

species49.

## Ring-billed Gull

Count 1

[2 Oct 2022](#)

Luke Berg

species50.

## Double-crested Cormorant

Count 1

[2 Oct 2022](#)

Luke Berg

species51.

## Red-shouldered Hawk

Count 1

[2 Oct 2022](#)

Luke Berg

species52.

## Cedar Waxwing

Count 2

[2 Oct 2022](#)

Luke Berg

species53.

## Pine Siskin

Count 1

[2 Oct 2022](#)

Luke Berg

species54.

## Field Sparrow

Count 1

[2 Oct 2022](#)

Luke Berg

species55.

### **Common Grackle**

Count 1

[2 Oct 2022](#)

Luke Berg

species56.

### **Great Blue Heron**

Count 1

[16 Sep 2022](#)

Luke Berg

species57.

### **Belted Kingfisher**

Count 1

[16 Sep 2022](#)

Luke Berg

species58.

### **Yellow-bellied Sapsucker**

Count 1

[16 Sep 2022](#)

Luke Berg

species59.

### **Northern Flicker**

Count 1

[16 Sep 2022](#)

Luke Berg

species60.

### **Eastern Wood-Pewee**

Count 3

[16 Sep 2022](#)

Luke Berg

species61.

### **Blue-headed Vireo**

Count 2

[16 Sep 2022](#)

Luke Berg

species62.

### **Philadelphia Vireo**

Count 2

[16 Sep 2022](#)

Luke Berg

species63.

### **Winter Wren**

Count 1

[16 Sep 2022](#)

Luke Berg

species64.

### **Swainson's Thrush**



Count 1  
[16 Sep 2022](#)  
Luke Berg

species65.

### **Chipping Sparrow**

Count 5  
[16 Sep 2022](#)  
Luke Berg

species66.

### **Lincoln's Sparrow**

Count 2  
[16 Sep 2022](#)  
Luke Berg

species67.

### **Tennessee Warbler**

Count 2  
[16 Sep 2022](#)  
Luke Berg

species68.

### **Nashville Warbler**

Count 1  
[16 Sep 2022](#)  
Luke Berg

species69.

### **Common Yellowthroat**

Count 7  
[16 Sep 2022](#)  
Luke Berg

species70.

### **American Redstart**

Count 1  
[16 Sep 2022](#)  
Luke Berg

species71.

### **Cape May Warbler**

Count 1  
[16 Sep 2022](#)  
Luke Berg

species72.

### **Northern Parula**

Count 4  
[16 Sep 2022](#)  
Luke Berg

species73.

### **Magnolia Warbler**

Count 4  
[16 Sep 2022](#)  
Luke Berg

## Bay-breasted Warbler

Count 8

[16 Sep 2022](#)

Luke Berg

species74.

## Blackburnian Warbler

Count 1

[16 Sep 2022](#)

Luke Berg

species75.

## Blackpoll Warbler

Count 4

[16 Sep 2022](#)

Luke Berg

species76.

## Black-throated Blue Warbler

Count 2

[16 Sep 2022](#)

Luke Berg

species77.

## Palm Warbler

Count 1

[16 Sep 2022](#)

Luke Berg

species78.

## Pine Warbler

Count 4

[16 Sep 2022](#)

Luke Berg

species79.

## Black-throated Green Warbler

Count 6

[16 Sep 2022](#)

Luke Berg

species80.

## Rose-breasted Grosbeak

Count 1

[16 Sep 2022](#)

Luke Berg

species81.

## Red-eyed Vireo

Count 1

[1 Aug 2022](#)

Luke Berg

species82.

## Gray Catbird

Count 1

species83.

[1 Aug 2022](#)

Luke Berg

species84.

## **Green-winged Teal**

Count 1

[23 Apr 2022](#)

Luke Berg

species85.

## **Killdeer**

Count 1

[23 Apr 2022](#)

Luke Berg

species86.

## **Wilson's Snipe**

Count 1

[23 Apr 2022](#)

Luke Berg

species87.

## **Greater Yellowlegs**

Count 1

[23 Apr 2022](#)

Luke Berg

species88.

## **Osprey**

Count 1

[23 Apr 2022](#)

Luke Berg

species89.

## **Eastern Phoebe**

Count 1

[23 Apr 2022](#)

Luke Berg

species90.

## **Tree Swallow**

Count 2

[23 Apr 2022](#)

Luke Berg

species91.

## **Barn Swallow**

Count 1

[23 Apr 2022](#)

Luke Berg

species92.

## **Hermit Thrush**

Count 4

[23 Apr 2022](#)

Luke Berg

species93.

## Purple Finch

Count 4

[23 Apr 2022](#)

Luke Berg

species94.

## White-winged Crossbill

Count 30

[23 Apr 2022](#)

Luke Berg

Show Details

species95.

## Brown-headed Cowbird

Count 1

[23 Apr 2022](#)

Luke Berg

species96.

## Ring-necked Duck

Count 2

[22 Apr 2022](#)

Luke Berg

Show Details

species97.

## Great Horned Owl

Count 1

[22 Apr 2022](#)

Luke Berg

Show Details

species98.

## Barred Owl

Count 2

[22 Apr 2022](#)

Luke Berg

species99.

## Snow Goose

Count 1

[12 Apr 2022](#)

Luke Berg

Show Details

species100.

## American Kestrel

Count 2

[12 Apr 2022](#)

Luke Berg

species101.

## Northern Shoveler

Count 3

[9 Apr 2022](#)

C Douglas

## **Bufflehead**

Count 4

[9 Apr 2022](#)

C Douglas

species102.

## **Common Goldeneye**

Count 2

[9 Apr 2022](#)

C Douglas

species103.

## **Snow Bunting**

Count 3

[9 Apr 2022](#)

Dave Milsom

species104.

## **American Tree Sparrow**

Count 3

[9 Apr 2022](#)

C Douglas

species105.

## **Common Redpoll**

Count 66

[28 Feb 2022](#)

Luke Berg

species106.

## **Red Crossbill**

Count 7

[28 Feb 2022](#)

Luke Berg

Show Details

species107.

## **Black-backed Woodpecker**

Count 1

[14 Feb 2022](#)

Luke Berg

Show Details

species108.

## **Golden Eagle**

Count 3

[13 Feb 2022](#)

Luke Berg

Show Details

species109.

## **Northern Shrike**

Count 1

[1 Jan 2022](#)

Luke Berg

species110.

Show Details

species111.

### **Northern Harrier**

Count 1

[4 Nov 2021](#)

C Douglas

species112.

### **European Starling**

Exotic: Naturalized

Count 4

[4 Nov 2021](#)

C Douglas

species113.

### **Lapland Longspur**

Count 1

[29 Oct 2020](#)

Matthew Tobey

Show Details

species114.

### **American Black Duck**

Count 7

[24 Oct 2020](#)

Matthew Tobey

species115.

### **Northern Pintail**

Count 37

[24 Oct 2020](#)

Matthew Tobey

Show Details

species116.

### **White-winged Scoter**

Count 17

[24 Oct 2020](#)

Matthew Tobey

Show Details

species117.

### **American Golden-Plover**

Count 5

[24 Oct 2020](#)

Matthew Tobey

Show Details

species118.

### **Eastern Bluebird**

Count 1

[11 Oct 2020](#)

Matthew Tobey

species119.

### **Warbling Vireo**

Count 1  
[9 Jun 2020](#)  
Allen Stewart  
Show Details

species120.

## American Woodcock

Count 1  
[30 Oct 2019](#)  
Matthew Tobey

species121.

## Rusty Blackbird

Count 2  
[30 Oct 2019](#)  
Matthew Tobey

species122.

## Eastern Kingbird

Count 1  
[9 Aug 2019](#)  
Matthew Tobey

species123.

## Least Flycatcher

Count 1  
[30 Jun 2019](#)  
Matthew Tobey

species124.

## Baltimore Oriole

Count 1  
[30 Jun 2019](#)  
Matthew Tobey

species125.

## Black-and-white Warbler

Count 1  
[30 Jun 2019](#)  
Matthew Tobey

species126.

## Yellow Warbler

Count 1  
[30 Jun 2019](#)  
Matthew Tobey

species127.

## Chestnut-sided Warbler

Count 1  
[30 Jun 2019](#)  
Matthew Tobey

species128.

## Broad-winged Hawk

Count 1  
[27 Apr 2019](#)

Matthew Tobey

species129.

### **Pied-billed Grebe**

Count 1

[24 Apr 2019](#)

Matthew Tobey

species130.

### **Brown Thrasher**

Count 1

[24 Apr 2019](#)

Matthew Tobey

species131.

### **Alder Flycatcher**

Count 1

[24 Jun 2015](#)

Donald A. Sutherland

species132.

### **Great Crested Flycatcher**

Count 3

[24 Jun 2015](#)

Donald A. Sutherland

species133.

### **Veery**

Count 7

[24 Jun 2015](#)

Donald A. Sutherland

species134.

### **Ovenbird**

Count 6

[24 Jun 2015](#)

Donald A. Sutherland

species135.

### **Scarlet Tanager**

Count 2

[24 Jun 2015](#)

Donald A. Sutherland

species136.

### **Indigo Bunting**

Count 1

[24 Jun 2015](#)

Donald A. Sutherland

species137.

### **Virginia Rail**

Count 1

[28 Jun 1996](#)

Geoff Carpentier

Show Details

species138.



## Yellow-throated Vireo

Count 2

[28 Jun 1996](#)

Geoff Carpentier

[Show Details](#)

species139.

## Northern Waterthrush

Count 1

[28 Jun 1996](#)

Geoff Carpentier

[Show Details](#)

species140.

## Golden-winged Warbler

Count 1

[28 Jun 1996](#)

Geoff Carpentier

[Show Details](#)

species141.

## Mourning Warbler

Count 1

[28 Jun 1996](#)

Geoff Carpentier

[Show Details](#)

species142.

## Common Nighthawk

Count 5

[13 Jun 1993](#)

Geoff Carpentier

[Show Details](#)

species143.

## Eastern Whip-poor-will

Count 1

[13 Jun 1993](#)

Geoff Carpentier

[Show Details](#)

species144.

## Spotted Sandpiper

Count 1

[13 Jun 1993](#)

Geoff Carpentier

[Show Details](#)

species145.

## American Bittern

Count 1

[13 Jun 1993](#)

Geoff Carpentier

[Show Details](#)

species146.

## Olive-sided Flycatcher

Count 1

[13 Jun 1993](#)

Geoff Carpentier

Show Details

species147.

## Cliff Swallow

Count 3

[13 Jun 1993](#)

Geoff Carpentier

Show Details

species148.

## House Wren

Count 2

[13 Jun 1993](#)

Geoff Carpentier

Show Details

species149.

## Wood Thrush

Count 2

[13 Jun 1993](#)

Geoff Carpentier

Show Details

species150.

## Townsend's Solitaire

Count 1

[10 Feb 1991](#)

Published Ontario Bird Records Data

Show Details

species151.

## Sedge Wren

Count 1

[7 Jun 1983](#)

Geoff Carpentier

Show Details

species152.

## Eastern Towhee

Count 2

[7 Jun 1983](#)

Geoff Carpentier

## **Appendix E**

Species at Risk Range Map Results

Common Name	Scientific Name	SARA Status
Spotted Turtle	<i>Clemmys guttata</i>	Endangered
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	Threatened
Eastern Musk Turtle	<i>Sternotherus odoratus</i>	Special Concern
Eastern Ribbonsnake (Great Lakes population)	<i>Thamnophis sauritus</i>	Special Concern
Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern
Eastern Milksnake	<i>Lampropeltis triangulum</i>	Special Concern
Butternut	<i>Juglans cinerea</i>	Endangered
Blanding's Turtle (Great Lakes / St. Lawrence population)	<i>Emydoidea blandingii</i>	Threatened
Five-lined Skink (Great Lakes / St. Lawrence population)	<i>Plestiodon fasciatus</i>	Special Concern
Rusty-patched Bumble Bee	<i>Bombus affinis</i>	Endangered
Least Bittern	<i>Ixobrychus exilis</i>	Threatened
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Threatened
Short-eared Owl	<i>Asio flammeus</i>	Special Concern
Gray Fox	<i>Urocyon cinereoargenteus</i>	Threatened
Monarch	<i>Danaus plexippus</i>	Special Concern
Northern Leopard Frog (Western Boreal/Prairie populations)	<i>Lithobates pipiens</i>	Special Concern
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Threatened
Chimney Swift	<i>Chaetura pelagica</i>	Threatened
Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Threatened
Canada Warbler	<i>Cardellina canadensis</i>	Threatened
Common Nighthawk	<i>Chordeiles minor</i>	Threatened
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Threatened
Rusty Blackbird	<i>Euphagus carolinus</i>	Special Concern
Yellow Rail	<i>Coturnicops noveboracensis</i>	Special Concern
Bank Swallow	<i>Riparia riparia</i>	Threatened
Barn Swallow	<i>Hirundo rustica</i>	Threatened
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened
Eastern Wood-pewee	<i>Contopus virens</i>	Special Concern
Grasshopper Sparrow, pratensis subspecies	<i>Ammodramus savannarum pratensis</i>	Special Concern
Gypsy Cuckoo Bumble Bee	<i>Bombus bohemicus</i>	Endangered
Gypsy Cuckoo Bumble Bee	<i>Bombus bohemicus</i>	Endangered
Loggerhead Shrike Eastern subspecies	<i>Lanius ludovicianus ssp.</i>	Endangered
Macropis Cuckoo Bee	<i>Epeoloides pilosulus</i>	Endangered
Spotted Turtle	<i>Clemmys guttata</i>	Endangered
Wood Thrush	<i>Hylocichla mustelina</i>	Threatened
Bobolink	<i>Dolichonyx oryzivorus</i>	No Status

# **Appendix F**

## Species List

# Observed Species List

KINGDOM	Common Name	Scientific Name	SARO	SARA
<b>Animalia</b>	American Bullfrog	Lithobates catesbeianus		
	American Crow	Corvus brachyrhynchos		
	American Goldfinch	Spinus tristis		
	American Mink	Neovison vison		
	American Toad	Anaxyrus americanus		
	Beaver	Castor canadensis		
	Black-capped Chickadee	Poecile atricapillus		
	Blanding's Turtle	Emydoidea blandingii	THR	
	Blue Jay	Cyanocitta cristata		
	Blue-spotted Salamander	Ambystoma laterale		
	Blue-winged Teal	Anas discors		
	Canada Goose	Branta canadensis		
	Common Grackle	Quiscalus quiscula		
	Common Loon	Gavia immer	NAR	
	Common Raven	Corvus corax		
	Coyote	Canis latrans		
	Dark-eyed Junco	Junco hyemalis		
	Downy Woodpecker	Dryobates pubescens		
	Eastern Chipmunk	Tamias striatus		
	Eastern Cottontail	Sylvilagus floridanus		
	Eastern Red-backed Salamander	Plethodon cinereus		
	European Starling	Sturnus vulgaris		
	Great Blue Heron	Ardea herodias		
	Green Frog	Lithobates clamitans		
	Green Heron	Butorides virescens		

<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	Hairy Woodpecker	<i>Dryobates villosus</i>		
	Hooded Merganser	<i>Lophodytes cucullatus</i>		
	Mallard	<i>Anas platyrhynchos</i>		
	Meadow Vole	<i>Microtus pennsylvanicus</i>		
	Midland Painted Turtle	<i>Chrysemys picta marginata</i>		
	Muskrat	<i>Ondatra zibethicus</i>		
	Northern Flicker	<i>Colaptes auratus</i>		
	Northern Leopard Frog	<i>Lithobates pipiens</i>	NAR	
	Northern Raccoon	<i>Procyon lotor</i>		
	Ovenbird	<i>Seiurus aurocapilla</i>		
	Pileated Woodpecker	<i>Dryocopus pileatus</i>		
	Purple Finch	<i>Haemorhous purpureus</i>		
	Red Fox	<i>Vulpes vulpes</i>		
	Red Squirrel	<i>Tamiasciurus hudsonicus</i>		
	Red-breasted Nuthatch	<i>Sitta canadensis</i>		
	Ring-necked Duck	<i>Aythya collaris</i>		
	Ruffed Grouse	<i>Bonasa umbellus</i>		
	Snow Bunting	<i>Plectrophenax nivalis</i>		
	Song Sparrow	<i>Melospiza melodia</i>		
	Spring Peeper	<i>Pseudacris crucifer</i>		
	White-breasted Nuthatch	<i>Sitta carolinensis</i>		
	White-tailed Deer	<i>Odocoileus virginianus</i>		
	White-throated Sparrow	<i>Zonotrichia albicollis</i>		
	Wild Turkey	<i>Meleagris gallopavo</i>		
	Wood Duck	<i>Aix sponsa</i>		
	Wood Frog	<i>Lithobates sylvaticus</i>		
	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>		
<b>Plantae</b>	American Beech	<i>Fagus grandifolia</i>		

<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	American Cancerroot	Conopholis americana		
	American Mountain-ash	Sorbus americana		
	American Witch-hazel	Hamamelis virginiana		
	Annual Canarygrass	Phalaris canariensis		
	Balsam Fir	Abies balsamea		
	Balsam Poplar	Populus balsamifera		
	Basswood	Tilia americana		
	Beach Pea	Lathyrus japonicus		
	Black Ash	Fraxinus nigra		
	Black Cherry	Prunus serotina		
	Black Raspberry	Rubus occidentalis		
	Black Spruce	Picea mariana		
	Bladder Sedge	Carex intumescens		
	Blue Vervain	Verbena hastata		
	Bracken Fern	Pteridium aquilinum		
	Broad-leaved Cattail	Typha latifolia		
	Brown-eyed Susan	Rudbeckia triloba		
	Bulbous Water-hemlock	Cicuta bulbifera		
	Bunchberry	Cornus canadensis		
	Bur Oak	Quercus macrocarpa		
	Butter-and-eggs	Linaria vulgaris		
	Calico Aster	Symphyotrichum lateriflorum		
	Canada Anemone	Anemonastrum canadense		
	Canada Avens	Geum canadense		
	Canada Bluegrass	Poa compressa		
	Canada Goldenrod	Solidago canadensis var. canadensis		
	Canada Horseweed	Erigeron canadensis		
	Chokecherry	Prunus virginiana		
	Coltsfoot	Tussilago farfara		



<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	Common Bladderwort	<i>Utricularia vulgaris</i>		
	Common Buttercup	<i>Ranunculus acris</i>		
	Common Dandelion	<i>Taraxacum officinale</i>		
	Common Hornwort	<i>Ceratophyllum demersum</i>		
	Common Motherwort	<i>Leonurus cardiaca</i>		
	Common Prickly-ash	<i>Zanthoxylum americanum</i>		
	Common St. John's-wort	<i>Hypericum perforatum</i>		
	Common Timothy	<i>Phleum pratense</i>		
	Common Yarrow	<i>Achillea millefolium</i>		
	Creeping Bellflower	<i>Campanula rapunculoides</i>		
	Creeping Cinquefoil	<i>Potentilla reptans</i>		
	Creeping Juniper	<i>Juniperus horizontalis</i>		
	Creeping Yellow Loosestrife	<i>Lysimachia nummularia</i>		
	Dark-green Bulrush	<i>Scirpus atrovirens</i>		
	Downy Arrowwood	<i>Viburnum rafinesqueanum</i>		
	Downy Yellow Violet	<i>Viola pubescens</i> var. <i>pubescens</i>		
	Dudley's Rush	<i>Juncus dudleyi</i>		
	Early Saxifrage	<i>Micranthes virginiana</i>		
	Eastern Hemlock	<i>Tsuga canadensis</i>		
	Eastern Hop-hornbeam	<i>Ostrya virginiana</i>		
	Eastern Panicked Aster	<i>Symphotrichum lanceolatum</i> ssp. <i>lanceolatum</i>		
	Eastern Teaberry	<i>Gaultheria procumbens</i>		
	Eastern White Cedar	<i>Thuja occidentalis</i>		
	Eastern White Pine	<i>Pinus strobus</i>		
	English Plantain	<i>Plantago lanceolata</i>		
	European Buckthorn	<i>Rhamnus cathartica</i>		
	European Red Raspberry	<i>Rubus idaeus</i> ssp. <i>idaeus</i>		
	Few-seeded Sedge	<i>Carex oligosperma</i>		
	Field Brome	<i>Bromus arvensis</i>		

<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	Field Horsetail	<i>Equisetum arvense</i>		
	Flat-top White Aster	<i>Doellingeria umbellata</i> var. <i>umbellata</i>		
	Floating-leaved Pondweed	<i>Potamogeton natans</i>		
	Fragrant Water-lily	<i>Nymphaea odorata</i> ssp. <i>odorata</i>		
	Fringed Yellow Loosestrife	<i>Lysimachia ciliata</i>		
	Garden Asparagus	<i>Asparagus officinalis</i>		
	Hairy Flat-top White Aster	<i>Doellingeria umbellata</i> var. <i>pubens</i>		
	Hanging Bulrush	<i>Scirpus pendulus</i>		
	Hard Fescue	<i>Festuca trachyphylla</i>		
	Herb-Robert	<i>Geranium robertianum</i>		
	Jack-in-the-pulpit	<i>Arisaema triphyllum</i>		
	Lake Sedge	<i>Carex lacustris</i>		
	Large False Solomon's Seal	<i>Maianthemum racemosum</i>		
	Large Yellow Pond-lily	<i>Nuphar advena</i>		
	Large-toothed Aspen	<i>Populus grandidentata</i>		
	Long-stalked Sedge	<i>Carex pedunculata</i>		
	Low Hop Clover	<i>Trifolium campestre</i>		
	Maple-leaved Viburnum	<i>Viburnum acerifolium</i>		
	May-apple	<i>Podophyllum peltatum</i>		
	Mountain Fly-honeysuckle	<i>Lonicera villosa</i>		
	Mountain Holly	<i>Ilex mucronata</i>		
	Mouse-ear Hawkweed	<i>Pilosella officinarum</i>		
	Nannyberry	<i>Viburnum lentago</i>		
	Narrow-leaved Cattail	<i>Typha angustifolia</i>		
	Narrow-leaved Cottongrass	<i>Eriophorum angustifolium</i>		
	New England Aster	<i>Symphotrichum novae-angliae</i>		
	New Jersey Tea	<i>Ceanothus americanus</i>		
	Northern Bedstraw	<i>Galium boreale</i>		
	Northern Bush-honeysuckle	<i>Diervilla lonicera</i>		

<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	Northern Red Oak	<i>Quercus rubra</i>		
	Northern Starflower	<i>Lysimachia borealis</i>		
	Old Field Aster	<i>Symphotrichum pilosum</i> var. <i>pilosum</i>		
	Ostrich Fern	<i>Matteuccia struthiopteris</i>		
	Pale Starwort	<i>Stellaria pallida</i>		
	Paper Birch	<i>Betula papyrifera</i>		
	Partridgeberry	<i>Mitchella repens</i>		
	Peach-leaved Willow	<i>Salix amygdaloides</i>		
	Pearly Everlasting	<i>Anaphalis margaritacea</i>		
	Pickernelweed	<i>Pontederia cordata</i>		
	Pointed Broom Sedge	<i>Carex scoparia</i>		
	Porcupine Sedge	<i>Carex hystericina</i>		
	Pussy Willow	<i>Salix discolor</i>		
	Red Baneberry	<i>Actaea rubra</i>		
	Red Clover	<i>Trifolium pratense</i>		
	Red Columbine	<i>Aquilegia canadensis</i>		
	Red Maple	<i>Acer rubrum</i>		
	Red-osier Dogwood	<i>Cornus sericea</i>		
	Reed Canarygrass	<i>Phalaris arundinacea</i>		
	Riverbank Grape	<i>Vitis riparia</i>		
	Rock Polypody	<i>Polypodium virginianum</i>		
	Rough-leaved Mountain Rice	<i>Oryzopsis asperifolia</i>		
	Scots Pine	<i>Pinus sylvestris</i>		
	Sensitive Fern	<i>Onoclea sensibilis</i>		
	Serrate-leaved Evening-primrose	<i>Oenothera serrulata</i>		
	Sheep Sorrel	<i>Rumex acetosella</i>		
	Siberian Water-milfoil	<i>Myriophyllum sibiricum</i>		
	Slender Cottongrass	<i>Eriophorum gracile</i>		
	Smooth Crabgrass	<i>Digitaria ischaemum</i>		

<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	Smooth Scouring-rush	Equisetum laevigatum		
	Speckled Alder	Alnus incana ssp. rugosa		
	Spotted Joe Pye Weed	Eutrochium maculatum var. maculatum		
	Spotted Lady's-thumb	Persicaria maculosa		
	Spotted St. John's-wort	Hypericum punctatum		
	Spreading Dogbane	Apocynum androsaemifolium		
	Staghorn Sumac	Rhus typhina		
	Stinking Chamomile	Anthemis cotula		
	Striped Maple	Acer pensylvanicum		
	Sugar Maple	Acer saccharum		
	Sweet Gale	Myrica gale		
	Sweet-fern	Comptonia peregrina		
	Tall Rattlesnakeroot	Nabalus altissimus		
	Tamarack	Larix laricina		
	Tatarian Honeysuckle	Lonicera tatarica		
	Three-petalled Bedstraw	Galium trifidum		
	Thyme-leaved Speedwell	Veronica serpyllifolia		
	Trembling Aspen	Populus tremuloides		
	Turion Duckweed	Lemna turionifera		
	Tussock Sedge	Carex stricta		
	Virginia Creeper	Parthenocissus quinquefolia		
	White Ash	Fraxinus americana		
	White Baneberry	Actaea pachypoda		
	White Elm	Ulmus americana		
	White Meadowsweet	Spiraea alba		
	White Oak	Quercus alba		
	White Sweet-clover	Melilotus albus		
	White Trillium	Trillium grandiflorum		
	Wild Carrot	Daucus carota		

<b>KINGDOM</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>SARO</b>	<b>SARA</b>
	Wild Chicory	Cichorium intybus		
	Wild Cucumber	Echinocystis lobata		
	Wild Raisin	Viburnum cassinoides		
	Wild Sarsaparilla	Aralia nudicaulis		
	Woolly Blue Violet	Viola sororia		
	Yellow Birch	Betula alleghaniensis		
	Yellow Trout-lily	Erythronium americanum		