

**Natural Heritage Assessment Records Review
Report
SunEdison Oro 4 Line Solar Farm
Township of Oro-Medonte, Simcoe County
November 2012**

Prepared for:
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Project No. 101-17803-00

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Project No. 101-17803-00

November 7, 2012

Mr. Simon Gill
SunEdison
595 Adelaide Street, Suite 400
Toronto, Ontario
M5A 1N8

**Re: Natural Heritage Assessment Records Review Report
SunEdison Oro 4 Line Solar Farm
Part of Lot 12, Concession 5, Edgar,
Township of Oro-Medonte, Simcoe County, Ontario**

Dear Mr. Gill:

GENIVAR Inc. is pleased to provide you with a copy of our Natural Heritage Assessment Records Review Report for the proposed SunEdison Oro 4 Line Solar Farm described as Part of Lot 12, Concession 5, Edgar, Township of Oro-Medonte, Simcoe County, Ontario. Please find the document attached for your records.

Thank you for the opportunity to complete this assignment. Please contact the undersigned if you have any questions.

Yours truly,
GENIVAR Inc.

A handwritten signature in blue ink, appearing to read "Dan J. Reeves".

Dan J. Reeves, B.Sc., M.Sc.
Project Biologist
Environment

EAC:nah

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1. Introduction

GENIVAR Inc. (GENIVAR) has been retained by SunEdison to conduct a Natural Heritage Assessment Records Review as part of the Renewable Energy Approvals (REA) process for the proposed SunEdison Oro 4 Line Solar Farm; herein referred to as the “Property”. The Property is described as Part of Lot 12, Concession 5, Edgar, Township of Oro-Medonte, Simcoe County, Ontario. This review has been prepared in accordance with Ontario Regulation (O.Reg.) 359/09 Renewable Energy Approvals made under Part V.0.1 of the Environmental Protection Act (Government of Ontario (Ontario), 2009); herein referred to as the “REA Regulation”.

1.1 Project Description

The owner of the subject Property is investigating the feasibility of developing the SunEdison Oro 4 Line Solar Farm. The proposed solar project has been issued an Ontario Power Authority FIT Contract Number FIT-FQ91Z3W.

The Property totals approximately 124 acres (50.2 ha) and is located southeast of the community of Edgar, bounded by the 4th Line Road North to the west, and 5th Line Road North to the east. Property uses within the surrounding areas are largely agricultural and rural residential. Refer to Figure 1 for a depiction of the Property and surrounding area.

1.2 Environmental Policy Context

1.2.1 Green Energy Act

The Green Energy Act, 2009 provides a government mandate with respect to the development of green technologies in Ontario including solar, geothermal, wind, and biofuels. The Act also revises key legislation pertaining to the roles of provincial and municipal governments and other agencies as they relate to renewable energy undertakings and approvals. The proposed development of the above referenced Property is consistent with renewable growth targets defined under the Green Energy Act.

1.2.2 Ontario Regulation 359/09 under the Environmental Protection Act

The REA Regulation made under the Environmental Protection Act identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario.

Section 25 of O. Reg. 359/09 (Ontario, 2009) requires that a records review be conducted as part of the Natural Heritage Assessment to determine if the Property is proposed in a natural feature, within 50 m of an Earth Science ANSI, or within 120 m of any other natural feature protected by the REA Regulation. For the purposes of the records review component of the Natural Heritage Assessment, as defined by the regulation, a ‘natural feature’ includes all or part of:

- a) *Area of natural and scientific interest (ANSI) (earth science)* – An area that has earth science values related to protection, scientific study or education.

- b) *ANSI (life science)* – An area that has life science values related to protection, scientific study or education.
- c) *Coastal wetland* – A wetland that is located on Lake Ontario, Lake Erie, Lake Huron, Lake Superior, Lake St. Clair, St. Mary's River, St. Clair River, Detroit River, Niagara River or St. Lawrence River; or on a tributary to any of these waterbodies and, either in whole or in part, downstream of a line located two km upstream of the 1:100 year floodline of the waterbody.
- d) *Northern wetland* – A wetland located north of the northern limit of Ecoregions 5E, 6E and 7E as shown in Figure 1 of the Provincial Policy Statement issued under Section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005.
- e) *Southern wetland* – A wetland located south of the northern limit of Ecoregions 5E, 6E and 7E as shown in Figure 1 of the Provincial Policy Statement issued under Section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005.
- f) *Valleyland* – A natural area that is south and east of the Canadian Shield as shown in Figure 1 of the Provincial Policy Statement issued under Section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005; and that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.
- g) *Wildlife habitat* – An area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species.
- h) *Woodland* – A treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees, that is located south and east of the Canadian Shield as shown in Figure 1 of the Provincial Policy Statement issued under Section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005.

Subsection 25 (3) of the REA Regulation requires the proponent to prepare a report “setting out a summary of the records searched and the results of the analysis” (Ontario, 2009). This report has been prepared to meet these requirements.

1.3 Conservation Authorities Act

Within the Province of Ontario, Conservation Authorities are provided with the mandate to both develop and maintain programs that will protect life and Property from adverse impacts due to natural hazards including flooding and erosion. Conservation Authorities are also tasked to ensure that watercourses, woodlands, and wetlands are properly safeguarded, managed and restored. The Property is comprised of land that falls under the jurisdiction of the Nottawasaga Valley Conservation Authority (NVCA). Should any pertinent Natural Heritage Features and Areas be found in the portion under the NVCA's jurisdiction, O. Reg. 172/06 (Nottawasaga Valley Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) under the Conservation Authorities Act would be consulted prior to further progress.

2. Methodology and Results

A search of relevant government and non-government information sources was conducted to determine if the Property is located in or within 120 m of Natural Heritage Features and Areas, in or within 50 m of an Earth Science Area of Natural and Scientific Interest (ANSI-ES), in or within 120 m of a natural feature that is not an ANSI-ES, or is located in or within 120 m of a provincial park or conservation reserve. In accordance with Section 25 (1) of O. Reg. 359/09 (Ontario, 2009), the following information sources and documents were used over the course of the records review process. Search details are discussed in the subsequent sections and references for specific documents are provided in Literature Cited Section of this report.

- Atlas of the Breeding Birds of Ontario (Bird Studies Canada, 2006);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Greenbelt Plan (Ontario, 2005);
- Hawkestone Swamp Wetland Data Record (OMNR, 1985);
- Land Information Ontario (OMNR, 2011);
- Natural Heritage Information Centre (NHIC) Mapping and Databases (OMNR, 2010);
- Oak Ridges Moraine Conservation Plan (Ontario, 2002);
- Ontario Crown Land Use Policy Atlas (OMNR, 2007);
- Ontario Ministry of Natural Resources, Midhurst Office;
- Ontario Ministry of Northern Development and Mines - Ontario Base Mapping resources (CLAIMaps) (2010);
- Ontario Regulation 359/09 made under the Environmental Protection Act (2009);
- Oro Moraine Report Card (NVCA and Lake Simcoe Region Conservation Authority, 2010);
- Provincial Policy Statement (Ontario Ministry of Municipal Affairs and Housing, 2005);
- Species at Risk in Ontario (SARO) List;
- Species at Risk Public Registry (SARA) (2011);
- Township of Oro-Medonte Official Plan (2007); and,
- Willow Creek Subwatershed Report Card (NVCA, 2007).

2.1 Qualifications of the Investigators

Dan Reeves, M.Sc., Project Biologist. Dan has a diverse background in environmental sciences, ecology, and biology gained through experience in academia, and work in both the private and public sectors. He has conducted multi-scale vegetation assessments and worked on a variety of long-term abundance and diversity indices. Dan has extensive experience collecting, analyzing, and reporting publication quality scientific data through experiences at several institutions. Work history paired with educational background has given him a well rounded knowledge of scientific methods, an understanding of the scientific process from concept to publication, and solid scientific communication skills. Dan received his Southern Ontario ELC certification in 2011.

Erin Corstorphine, M.Sc., Biologist. With a strong foundation in biological and ecological sciences, Erin has experience planning terrestrial and marine field programs, collecting and analyzing data, and preparing detailed scientific reports. Through various roles in the public and private sectors, she has gained experience with project design and implementation through involvement with class environmental assessments, renewable energy projects, species at risk surveys, vegetation surveys, stream

rehabilitation and flood risk analysis. Erin is certified in the Southern Ontario Ecosystem Land Classification (2012).

2.2 Ontario Ministry of Natural Resources Records

The following OMNR information resources were reviewed for records pertaining to natural features within one (1) kilometre of the Property:

- Land Information Ontario (LIO);
- Natural Heritage Information Centre (NHIC) Biodiversity Explorer; and
- Ontario Herpetofaunal Summary Atlas.

In addition, the Midhurst District OMNR Office was asked to provide information regarding natural heritage features and species at risk for the proposed SunEdison Oro 4 Line Solar Farm in a letter dated May 14, 2011 and May 26, 2011. Information pertaining to species at risk in the vicinity of the Property was provided by the OMNR (Appendix A). The contents of this letter are discussed in Section 2.2.5 (OMNR Request for Information).

Additional information regarding significant wildlife habitat was provided by staff at the Peterborough Regional Office on August 10, 2012 and is included in Appendix A.

2.2.1 Land Information Ontario

Land Information Ontario (LIO) is managed by the OMNR and provides a forum for the creation, access and exchange of key geospatial datasets about Ontario. LIO data was reviewed for the presence of natural heritage features, including woodlands, wetlands, ANSIs, provincial parks and conservation reserves on and adjacent to the Property. Shapefiles from LIO were used to create a map showing the natural features in or within 120 m of the Property (Figure 2).

Woodlands - LIO maps indicate that wooded areas exist in and within 120 m of the Property. These wooded areas have been assigned unique identifiers and will be herein referred to as woodland WO1 through WO4. The extent of these wooded areas will be determined during the site investigation.

Waterbodies – Several watercourses and waterbodies exist in and within 120 m of the Property. An unnamed watercourse (WC1) transverses the northwest corner of the Property, while three (3) watercourses (WC2, WC3 and WC4) run north to south within the eastern portion of the Property. A fifth watercourse (WC5) is located at the south central corner of the property. Watercourse WC1 begins as a channel running north-south approximately 1.2 km north of the Property and flows in a southerly direction for another 950 m until it joins another watercourse. The three (3) eastern watercourses are associated with the Hawkestone Swamp Provincially Significant Wetland. These watercourses appear to follow pathways consistent with naturally formed channels.

Three waterbodies (WB1 through WB3) are located on the Property; all of which are associated with existing watercourses. The presence and extent of these water features will be determined during the site investigation.

Wetlands – LIO mapping identified the presence of the Hawkestone Provincially Significant Wetland in and within 120 m of the eastern property boundaries.

ANSI – LIO mapping did not identify the presence of any ANSIs on or adjacent to the Property.

Provincial Parks and Conservation Reserves – LIO mapping did not identify the presence of any provincial parks or conservation reserves on or adjacent to the Property.

2.2.2 NHIC Biodiversity Explorer

The Natural Heritage Information Centre (NHIC) database (OMNR, 2010) maintains records on species, plant community and wildlife concentration element occurrences and on natural areas including Earth Science and Life Science ANSIs, wetlands, national and provincial parks, conservation areas and important bird areas.

As part of a desktop review, a search of the OMNR NHIC database was conducted to determine if there are any rare, Special Concern, Threatened or Endangered Species in or within 120 m of the Property. Only rare species or those listed at the provincial level as Special Concern will be addressed in this report – Provincially Threatened or Endangered species will be addressed in a separate Species at Risk report. A one (1) kilometre centroid surrounding the Property and adjacent lands was included in the search. Known species occurrences for the Milksnake (*Lampropeltis triangulum*), Jefferson x Blue-Spotted Salamander Complex (*Ambystoma hybrid pop.*), and Green-striped Darner (*Aeshna verticalis*) were recorded on or surrounding the Property. Global (GRank) and provincial (SRank) conservation ranks, and provincial (Species at Risk in Ontario; SARO) and national (Committee on the Status of Endangered Wildlife in Canada; COSEWIC) at-risk status are provided in Table 1 for species uncovered in the NHIC search. Refer to Appendix B for NHIC search results.

Table 1 NHIC Species Element Occurrences within 1 km of the Property and their Conservation Statuses

Species	Scientific Name	GRank ¹	SRank ¹	COSEWIC ²	SARO ³
Milksnake	<i>Lampropeltis triangulum</i>	G5	S3	SC	SC
Green-striped Darner	<i>Aeshna verticalis</i>	G5	S3	-	-
Jefferson x Blue-Spotted Salamander Complex	<i>Ambystoma hybrid pop.</i>	GNA	S2	-	-

¹ Nature Conservancy Ranking (NHIC, 2010): 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, NA - Not Applicable, G - Global Level, and S - Sub-national Rank (Ontario); ² COSEWIC and ³ SARO Status: END – Endangered, THR – Threatened, SC – Special Concern, NAR – Not at Risk, and ‘-’ – Not Listed.

A survey of the OMNR NHIC database was also conducted to determine if there are any known ANSIs, Provincially Significant Wetlands, Wildlife Concentration Areas, or Rare Vegetation Communities in or within 120 m of the Property. This survey confirmed that the wetland on and adjacent to the Property is part of the Hawkestone Swamp, a Provincially Significant Wetland complex, composed of 97.2 % swamp area and 2.3% marsh area divided among 11 individual wetlands (NHIC, 2011).

2.2.3 Ontario Crown Land Use Policy Atlas

The Ontario Crown Land Use Policy Atlas hosts an interactive map browser which enables users to view the boundaries of Crown land use areas and associated land use policies. The Atlas shows locations for regulated areas such as provincial parks, conservation reserves and Crown game preserves, recommended protected areas and other reserves or parks that are not subject to provincial policy including national parks and Indian reserves.

A review of the Atlas indicated that no Crown land, provincial parks, conservation reserves, Crown land game preserves, national parks or Indian reserves exist within the vicinity of the Property.

2.2.4 Ontario Herpetofaunal Summary Atlas

The Ontario Herpetofaunal Summary Atlas (OHSA) (Oldham and Weller, 2000) provides detailed distribution maps for Ontario's reptiles and amphibians. A review of the OHSA was carried out to determine if there are species of conservation concern that have the potential to occur in or within 120 m of the Property.

The OHSA was consulted for information regarding distributions of target reptiles. The site was not identified as a reptile hibernacula concentration area. Five (5) species have ranges that overlap the Property and are listed in Table 2. Provincially Threatened or Endangered species will be addressed in a separate Species at Risk report.

Table 2 Reptile and Amphibian Species Potentially in the Property and their Conservation Statuses

Species	Scientific Name	GRank ¹	SRank ¹	COSEWIC ²	SARO ³
Eastern Ribbon Snake	<i>Thamnophis sauritis</i>	G5	S3	SC	SC
Eastern Snapping Turtle	<i>Chelydra serpentina</i>	G5	S3	SC	SC
Jefferson x Blue-Spotted Salamander Complex	<i>Ambystoma</i> hybrid pop.	GNA	S2	-	-
Milksnake	<i>Lampropeltis triangulum</i>	G5	S3	SC	SC

¹ Nature Conservancy Ranking (NHIC, 2010): 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, NA - Not Applicable, G - Global Level, and S - Sub-national Rank (Ontario); ² COSEWIC and ³ SARO Status: END – Endangered, THR – Threatened, SC – Special Concern, NAR – Not at Risk, and ‘-’ – Not Listed.

2.2.5 OMNR Request for Information

The Midhurst District OMNR, provided information regarding natural heritage features for the proposed SunEdison Oro 4 Line Solar Farm in a letter dated June 9, 2011 (refer to Appendix A). The letter provided details on OMNR records for species at risk.

A review of the NHIC and internal OMNR records showed potential for several species at risk in and around the Property. Only species provincially listed as special concern will be addressed in this report – provincially threatened or endangered will be addressed in the Approval and Permitting Requirements Document. Several species of Special Concern (on the SARO list but not protected by the Endangered Species Act, 2007) have been found or may be found in and around the Property, including Common Nighthawk (*Chordeiles minor*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Olive-sided Flycatcher (*Contopus cooperi*), Canada Warbler (*Wilsonia canadensis*), Snapping Turtle (*Chelydra serpentina*), Eastern Ribbon Snake (*Thamnophis sauritis*), West Virginia White (*Artogeia virginensis*) and Monarch Butterfly (*Danaus plexippus*). Global (GRank) and provincial (SRank) conservation ranks, as well as provincial at-risk status (SARO) for these species are provided in Table 3.

Table 3 OMNR Records for Species of Conservation Concern Potentially in the Property and their Conservation Statuses

Species	Scientific Name	GRank ¹	SRank ¹	COSEWIC ²	SARO ³
Canada Warbler	<i>Wilsonia canadensis</i>	G5	S4B	THR	SC
Common Nighthawk	<i>Chordeiles minor</i>	G5	S4B	THR	SC
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	G5	S3	SC	SC
Eastern Snapping Turtle	<i>Chelydra serpentina</i>	G5	S3	SC	SC
Monarch	<i>Danaus plexippus</i>	G5	S2N,S4B	SC	SC
Olive-sided Flycatcher	<i>Contopus cooperi</i>	G4	S4B	THR	SC
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	G5	S4B	THR	SC
West Virginia White	<i>Pieris virginiensis</i>	G3G4	S3	-	SC

¹ Nature Conservancy Ranking (NHIC, 2010): 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, G - Global Level, S - Sub-national Rank (Ontario), B - Breeds locally, N - Does not breed locally; ² COSEWIC and ³ SARO Status: END - Endangered, THR - Threatened, SC - Special Concern, NAR - Not at Risk, '-' - Not Listed.

Additional information was received from the Peterborough Regional OMNR office depicting the location of identified deer yards within the vicinity of the property (pers. comm. J. Webb, Peterborough OMNR). Deer yards are areas that deer move to in response to the onset of winter snow and cold and are considered Significant Wildlife Habitat seasonal concentration areas. Deer yards are typically mixed or deciduous forests with abundant browse. The wooded areas (WO2) in the central and eastern portions of the property have been identified by the OMNR as deer yards (refer to Figure 2 and Appendix A).

2.3 Provincial Government Records

2.3.1 CLAIMaps

CLAIMaps (Ontario Ministry of Northern Development, Mines and Forestry, 2010) provides information on mining claims within Ontario through an interactive online map browser. CLAIMaps was reviewed for the Property and surrounding area. No mining or aggregate resource claims were discovered on or around the Property. No additional water bodies or wetlands were noted in or within 120 m of the Property boundaries.

2.3.2 Oak Ridges Moraine and Greenbelt

The Oak Ridges Moraine Conservation Plan (Ontario, 2002) and Greenbelt Plan (Ontario, 2005) mapping was consulted to determine if the subject property is located within either management zone. The Property is located north of the Greenbelt and Oak Ridges Moraine plan areas.

2.4 Federal Government Records

2.4.1 Atlas of Canada – Toporama: Topographic Maps

The Atlas of Canada online topographic mapping tool (Toporama; Department of Natural Resources Canada, 2010) was reviewed for any additional natural features in the vicinity of the Property. No additional natural heritage features were noted in or within 120 m of the Property boundaries.

2.5 Conservation Authority Records

The Property falls within the jurisdiction of the Nottawasaga Valley Conservation Authority (NVCA). A review of NVCA legislation and publications was conducted to obtain relevant information for the area on and surrounding the Property. Findings are discussed in the following sections.

2.5.1 Nottawasaga Valley Conservation Authority

The NVCA is given authority over development near or in watercourses and wetlands by O. Reg. 172/06 (Nottawasaga Valley Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses). Mapping provided by the NVCA was consulted to determine whether the watercourses and wetland in question is covered by O. Reg. 172/06 (Ontario, 2006). It was determined that the watercourses and wetland are covered under O. Reg. 172/06 and therefore regulated by NVCA.

2.5.2 Willow Creek 2007 Subwatershed Report Card

The Willow Creek 2007 Subwatershed Report Card (NVCA, 2007) was consulted for information on water bodies. Watercourse WC1 is a tributary of Willow Creek, upstream of Little Lake. The surface water quality in this area is rated as “fair”. No specific information regarding the Hawkestone PSW was provided. There were no additional water bodies or wetlands identified in or within 120 m of the Property.

2.6 Municipal Records

Municipal records from the Township of Oro-Medonte were consulted for information regarding locally or regionally significant natural heritage features.

The Township of Oro-Medonte Official Plan (2007) provided mapping of natural heritage features in Schedule B. The mapping identified the Hawkestone PSW, as well as significant woodlands within the eastern portion of the Property. These woodlands are associated with the Hawkestone PSW. No additional information about the unnamed watercourses was included in this document or in the mapping.

Under the Official Plan (2007), no development is permitted below the top of bank of any river or stream, or within 30 m of the top of bank. In addition, all major development applications within 120 m of a hydrologically sensitive feature (which includes wetlands and streams) “must be supported by a hydrological evaluation that:

- demonstrates that the use of development will have no negative impact on the hydrologically sensitive feature or the ecological function of the feature itself;
- identifies planning, design and construction practices that will maintain and enhance or restore, where possible, the health, diversity and size of the hydrologically sensitive feature and its connections with nearby components of the natural heritage system; and,
- identifies, if necessary, an area that should be retained or planned to be in a vegetated state adjacent to the feature to protect its function.”

With respect to the significant woodland within the Property, it is classified under Environmental Protection Two in the Official Plan (2007). This classification provides significant woodlands a 50 m buffer

from development. If development is to occur in or within 50 m of significant woodlands, it may be necessary to conduct an Environmental Impact Study and develop a Management Plan.

2.7 Non-Government Records

2.7.1 Atlas of the Mammals of Ontario

The Atlas of the Mammals of Ontario (Dobbyn, 1994) provides information on the provincial distribution for mammal species in Ontario. Distributions for each species are drawn from actual specimen records, sightings, or species-specific markings such as tracks, scat or other obvious signs.

A review of the Atlas of the Mammals of Ontario indicates that the ranges of many mammals overlap with the Property. Mammal species listed as at-risk by COSEWIC that have distributions that overlap with the Property are listed in Table 4. These species are Little Brown Myotis (*Myotis lucifuga*) and Northern Long-eared Bat (*Myotis septentrionalis*). Only species provincially listed as special concern will be addressed in this report – provincially Threatened or Endangered species will be addressed in a separate Species at Risk report.

Table 4 Mammal Species with Vulnerable Global or Sub-national Rankings that have Occurred within 20 km of the Property

Common Name	Scientific Name	GRank ¹	SRank ¹	COSEWIC ²	SARO ³
Little Brown Myotis	<i>Myotis lucifuga</i>	G5	S4	END	-
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	G4	S3	END	-

¹ Nature Conservancy Ranking (NHIC, 2010): 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, G - Global Level, S - Sub-national Rank (Ontario), '?' – Rank Uncertain; ² COSEWIC and ³ SARO Status: END – Endangered, THR – Threatened, SC – Special Concern, NAR – Not at Risk, and '-' – Not listed.

2.7.2 Important Bird Areas of Canada

Important Bird Areas (IBA) in Canada (2010) is part of an international initiative to identify, conserve and monitor sites that provide essential habitat for birds. The Canadian program is carried out by Bird Studies Canada in partnership with Nature Canada. A search of the IBA database indicated that the Property is not located in or near any published IBA.

2.7.3 Ontario Breeding Bird Atlas

Bird Studies Canada, together with Environment Canada, Ontario Federation of Ornithologists, OMNR and Ontario Nature, has completed two atlases on the breeding distributions of Ontario birds. The first atlas covers a survey period from 1981 to 1985, while the second atlas covers a period from 2001-2005. A review of the 17PK02 and 17PK12 10 km squares for the first and second Ontario Breeding Bird Atlases (OBBA) indicated that several species of conservation concern may be present on or adjacent to the Property. Global (GRank) and provincial (SRank) conservation ranks, as well as federal (COSEWIC) and provincial (SARO) at-risk status are provided in Table 5. Provincially threatened or endangered species will be addressed in the Approval and Permitting Requirements Document. Complete search results (excluding Threatened and Endangered species) for the first and second atlas are provided in Appendix C.

Table 5 Bird Species Potentially Occurring in the Property and their Conservation Statuses

Species	Scientific Name	GRank ¹	SRank ¹	COSEWIC ²	SARO ³
Olive-sided flycatcher	<i>Contopus cooperi</i>	G4	S4B	THR	SC

¹ Nature Conservancy Ranking (NHIC, 2010): 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, G - Global Level, S - Sub-national Rank (Ontario), B - Breeds locally, N - Does not breed locally; ² COSEWIC and ³ SARO Status: END - Endangered, THR - Threatened, SC - Special concern, NAR - Not at Risk, and '-' - Not Listed.

3. Summary of Records Review

To meet the requirements of Section 25 of the Ontario Regulation 359/09, a search of relevant government and non-government information sources was conducted to determine if the Property is located in or within 120 m of a natural feature, within 50 m of an ANSI-ES, within 120 m of a natural feature that is not an ANSI-ES, or is located in or within 120 m of a provincial park or conservation reserve. The results of the review are summarized in the sections that follow. The presence of natural features in or within 120 m of the Property will be confirmed during the site investigation.

3.1 Natural Features

The records review revealed that the Property was not located within a proposed or designated provincial park; was not located within a proposed or designated conservation reserve; was not located within the Greenbelt or the Oak Ridges Moraine Plan Areas; and was not located within 50 m of an ANSI-ES or within 120 m of an ANSI-LS. However, the Property is located within a natural feature that is not an ANSI-ES: the Hawkestone Swamp and associated significant woodland exist within the eastern portion of the Property and on adjacent lands to the north and south. Several unnamed watercourses exist in and within 120 m of the Property. Deer yards exist within the eastern portion of the property and are associated with woodland WO3. Table 6 summarizes these findings.

Table 6 Natural Feature Determinations

Determination to be Made	Yes/No	Notes / Description
Located in or within 120 m of a provincial park or conservation reserve	No	The Property is not located within a provincial park or conservation reserve, nor is it within 120 m of a provincial park or conservation reserve.
Located within the Protected Countryside	No	The Property is not located within the designated Greenbelt Protected Countryside.
Located within the Oak Ridges Moraine Conservation Plan Area	No	The Property is not located within the Oak Ridges Moraine Conservation Plan Area.
Located in a natural feature as described by Section 25 of O. Reg. 359/09	No	The Property is not located within a natural feature as described in Section 25 of the O.Reg. 359/09.
Located within 50 m of an Earth Science ANSI	No	The Property is not located within 50 metres of an Earth Science ANSI.
Located within 120 m of a natural feature other than an Earth Science ANSI	Yes	This Property is located within portions of the Hawkestone Swamp, a Provincially Significant Wetland complex, significant woodlands associated with the PSW and several unnamed watercourses. Significant Wildlife Habitat (deer yards), has been identified within the central and eastern portions of the Property.

3.2 Species of Conservation Concern

A number of species of conservation concern have the potential to occur in or within 120 m of the Property. Table 7 summarizes the results of these findings and provides source information for each species record. Please note that Table 7 does not include those species designated as Threatened or Endangered on the SARO List.

Table 7 Species of Conservation Concern with Potential to be within the Property and their Conservation Statuses

Species	Scientific Name	GRank ¹	SRank ¹	COSEWIC ²	SARO ³	Information Resource ⁴
Canada Warbler	<i>Wilsonia canadensis</i>	G5	S4B	THR	SC	OMNR
Common Nighthawk	<i>Chordeiles minor</i>	G5	S4B	THR	SC	OMNR
Eastern Ribbon Snake	<i>Thamnophis sauritis</i>	G5	S3	SC	SC	OMNR
Eastern Snapping Turtle	<i>Chelydra serpentina</i>	G5	S3	SC	SC	OMNR
Green-striped Darner	<i>Aeshna verticalis</i>	G5	S3	-	-	NHIC
Jefferson x Blue-Spotted Salamander Complex	<i>Ambystoma hybrid pop.</i>	GNA	S2	-	-	NHIC
Little Brown Myotis	<i>Myotis lucifuga</i>	G5	S4	END	-	AMO
Milksnake	<i>Lampropeltis triangulum</i>	G5	S3	SC	SC	OHSA, OMNR
Monarch	<i>Danaus plexippus</i>	G5	S2N,S4B	SC	SC	OMNR
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	G4	S3	END	-	AMO
Northern Map Turtle	<i>Graptemys geographica</i>	G4	S3	SC	SC	OHSA
Olive-sided Flycatcher	<i>Contopus cooperi</i>	G4	S4B	THR	SC	OBBA, OMNR
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	G5	S4B	THR	SC	OMNR
West Virginia White	<i>Pieris virginiensis</i>	G3G4	S3	-	SC	OMNR

¹ Nature Conservancy Ranking (NHIC, 2010): 1 - Critically Imperiled, 2 - Imperiled, 3 - Vulnerable, 4 - Apparently Secure, 5 - Secure, NA - Not Applicable, G - Global Level, S - Sub-national Rank (Ontario), B - Breeds locally, N - Does not breed locally; ² COSEWIC and ³ SARO Status: END - Endangered, THR - Threatened, SC - Special concern, NAR - Not at Risk, and '-' - Not Listed. ⁴ Information resource identifying potential for species in the Property; AMO - Atlas of the Mammals of Ontario, OBBA - Ontario Breeding Bird Atlas, OHSA - Ontario Herpetofaunal Summary Atlas, OMNR - Ontario Ministry of Natural Resources, NHIC - Natural Heritage Information Centre.

4. Closure

This report has been prepared by GENIVAR Inc. The assessment represents the conditions at the subject Property only at the time of the assessment, and is based on the information referenced and contained in the report. GENIVAR Inc. attests that to the best of our knowledge, the information presented in this report is accurate. The use of this report for other projects without written permission of SunEdison and GENIVAR Inc. is solely at the user's own risk.

Thank you for the opportunity to complete this report. We trust that this information is adequate. If there are any questions please do not hesitate to contact the undersigned.

Yours truly,

GENIVAR Inc.

Prepared by:



Erin Corstorphine, M.Sc.
Biologist

Reviewed by:



Dan Reeves, M.Sc.
Project Biologist

5. Literature Cited

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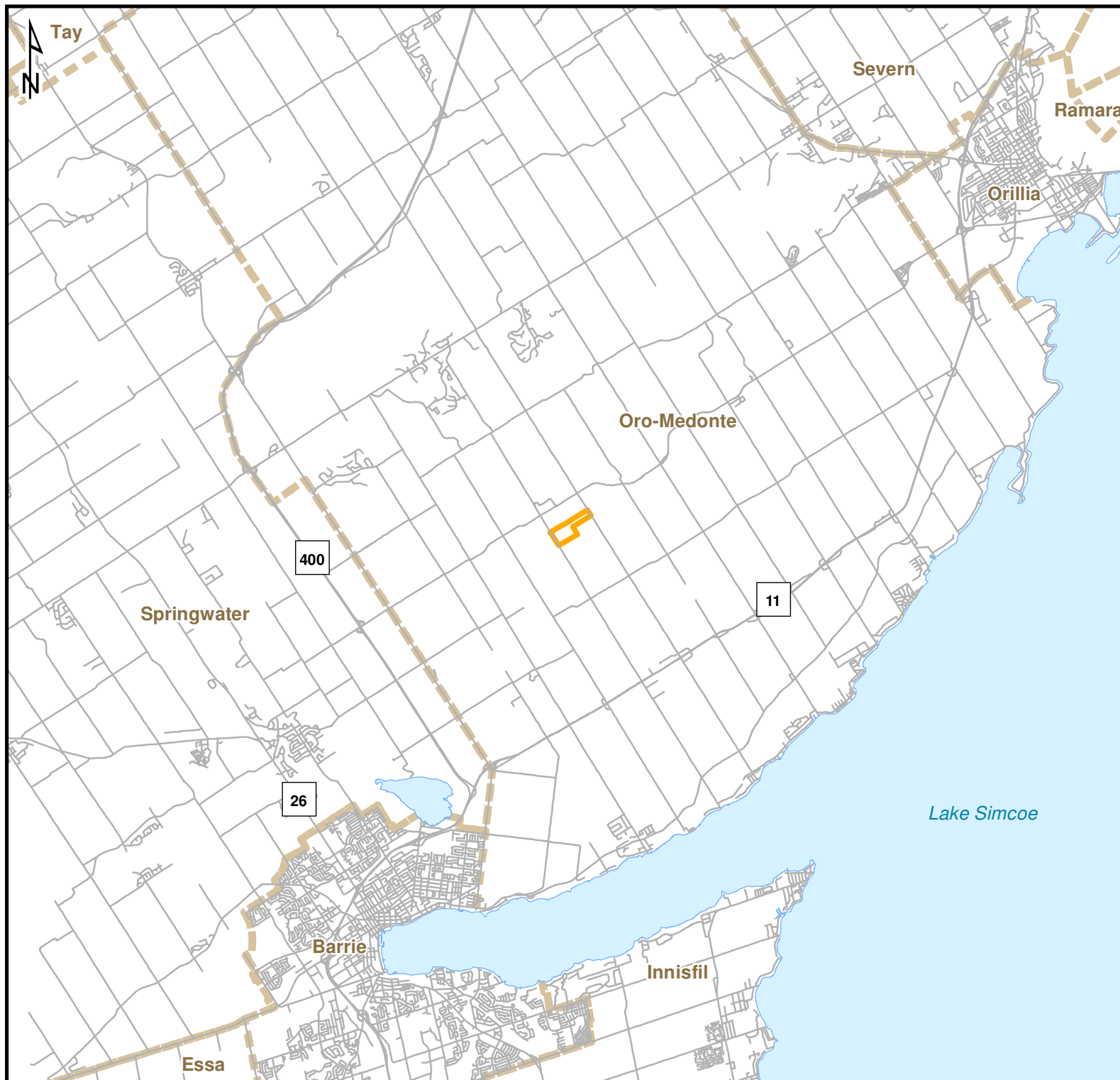
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Figures

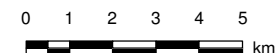


Legend

 Property Area



Scale:



1:175,000

Project:

SunEdison
Oro 4 Line Solar Farm

Title:

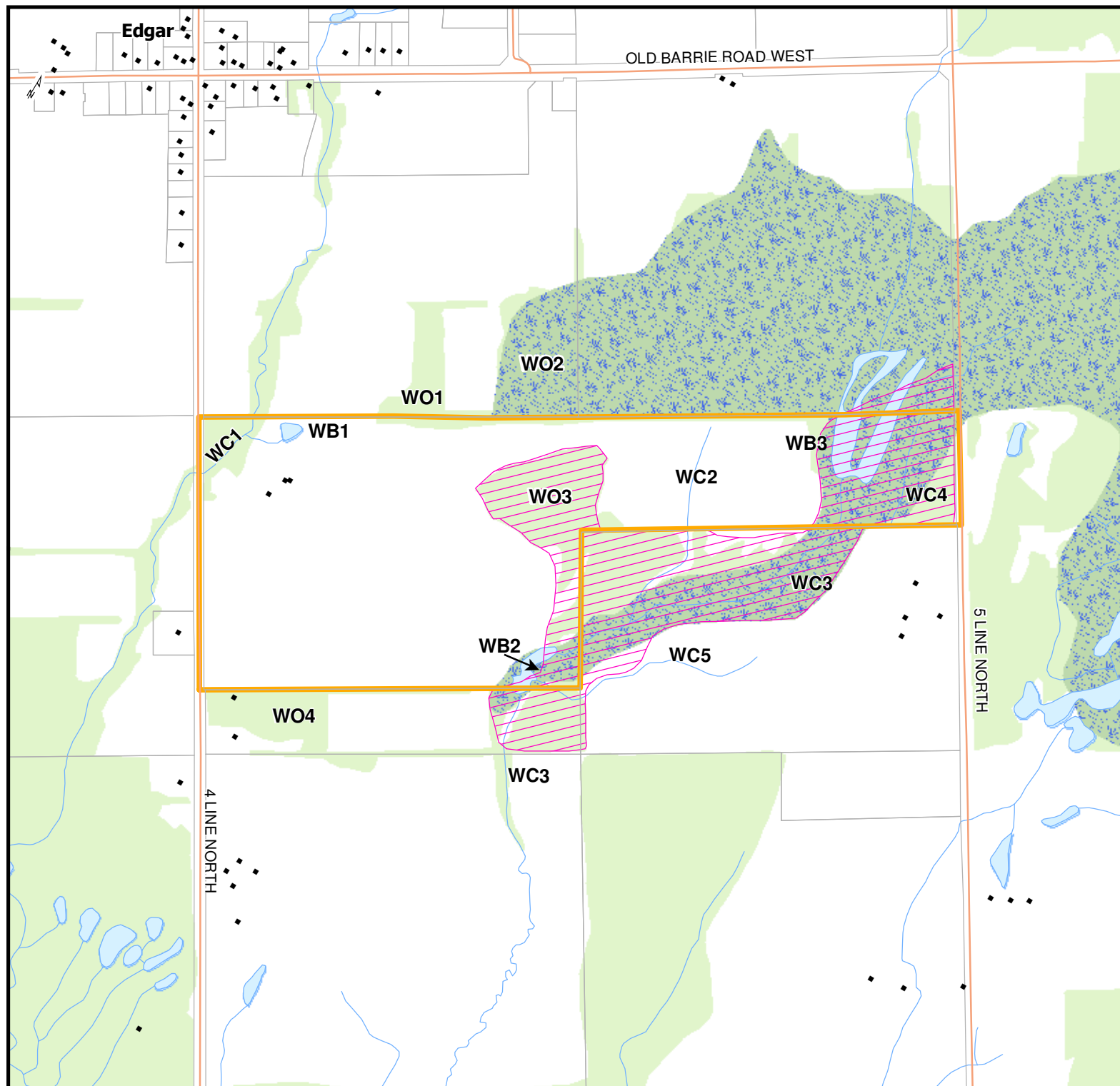
Location Map

Project No.:
101-17803-00

Date:
October 18, 2012

Revision No.:
0

Figure No.:
1



<h3>Legend</h3> <ul style="list-style-type: none"> ■ Building — Road ~ Watercourse (WC) Waterbody (WB) Provincially Significant Wetland Wooded Area (WO) Lot Property Area Deer Yard 	
<p>Scale:</p> <p>0 100 200 300 400 500 m</p> <p>1:10,000</p>	
<p>Project:</p> <p>SunEdison Oro 4 Line Solar Farm</p>	
<p>Title:</p> <p>Natural Heritage Features</p>	
<p>Project No.:</p> <p>101-17803-00</p>	<p>Date:</p> <p>September 18, 2012</p>
<p>Revision No.:</p> <p>0</p>	<p>Figure No.:</p> <p>2</p>

Appendices

Appendix A

Ontario Ministry of Natural Resources Information

Erin Corstorphine

From: Benvenuti, Jodi (MNR) [jodi.benvenuti@ontario.ca]
Sent: Thursday, June 09, 2011 4:26 PM
To: Erin Corstorphine
Cc: Moore, Whitney (MNR); Dan Reeves
Subject: RE: Renewable Energy Ecologist

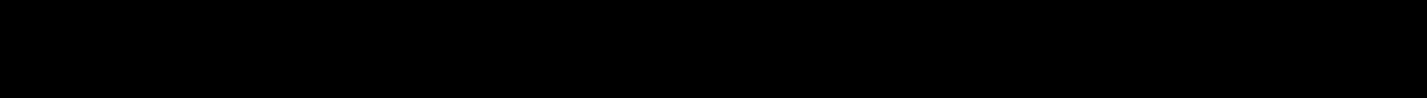
Follow Up Flag: Follow up
Flag Status: Flagged

Hi Erin,

With respect to your list below, after taking a look at an aerial photo of the available habitat at this site, there is certainly



Given the habitat in this location, I would add to your list the following species as MNR will be looking to ensure appropriate field work was conducted to consider these species in future NHA reports for this site:

- 
- Common Nighthawk (Special Concern)
 - Red-headed Woodpecker (Special Concern)
 - Olive-sided Flycatcher (Special Concern)
 - Golden-winged Warbler (Special Concern)
 - Canada Warbler (Special Concern)

Other:

-



Please don't hesitate to call if you have any questions concerning the above information. Additionally, you may wish to contact Whitney Moore our Renewable Energy Planning Ecologist to discuss the adjacent provincially significant Hawkestone Wetland Complex in more detail.

Jodi Benvenuti
Species at Risk Biologist
Ministry of Natural Resources
Midhurst District
Phone: (705) 725-7513

From: Erin Corstorphine [mailto:Erin.Corstorphine@genivar.com]
Sent: May 26, 2011 4:26 PM
To: Benvenuti, Jodi (MNR)
Cc: Dan Reeves
Subject: FW: Renewable Energy Ecologist

Hi Jodi,

I have cross-referenced the habitat types we may expect to find on the site with the information provided on the MNR's SAR website as you have suggested. The list provided below is based on habitat type and is in addition to the initial list based on the NHIC records.

West Virginia White (*Pieris virginiensis*) – if Broad-leaved toothwort (*Cardamine dyphylla*) is present for larvae to feed on

ii) agricultural fields (based on crop type)

until we visit the site it is difficult to tell what crop type is typically planted and therefore what type of species may utilize this habitat

iii) wetland areas/ponds and streams (given proximity to Hawkestone Wetland Complex)

Eastern Ribbon Snake (*Thamnophis sauritus*) – if sufficient water for prey species

iv) hedgerows

West Virginia White (*Pieris virginiensis*) if Broad-leaved toothwort (*Cardamine dyphylla*) is present

v) other

Monarch Butterfly (*Danaus plexippus*) especially if Common milkweed (*Asclepias syriac*) is present

When we visit the site we will be in a better position to gauge the suitability of these habitats for the SAR mentioned here. Of course, should we encounter any, we would be sure to document their presence.

Please let me know if this revised list is sufficient.

Kind regards,



Erin Corstorphine, BSc, MSc

Biologist

GENIVAR | *Constructive people*

1091 Gorham Street, Suite 301, Newmarket, ON L3Y 8X7

Direct: (905) 853-3303 ext. 232 | Cell: (905) 967-3330 |

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From: Benvenuti, Jodi (MNR) [mailto:jodi.benvenuti@ontario.ca]

Sent: Tuesday, May 24, 2011 4:07 PM

To: Dan Reeves

Subject: RE: Renewable Energy Ecologist

Hi Dan,

As referenced in my email below, relying on records in the NHIC database alone is not sufficient and is a starting point only. The NHIC contains known or reported records only and as a result is not comprehensive. As a result, due diligence requires that consideration be given to what species at risk (SAR) it is reasonable to expect could be present based on available habitat at this particular location with any planning and associated field work conducted accordingly.

More specifically, I have taken a look at air photos for this site and based on the available habitat at this location the level of information required related to species at risk is the following:

- i) What SAR is it reasonable to expect in a wooded area in Oro-Medonte → ?
- ii) an agricultural field in Oro-Medonte based on the type of crop present → ?

- iii) a wetland area in Oro-Medonte given the adjacent Hawkestone Wetland Complex → ?
- iv) hedgerows in Oro-Medonte → ?
- v) etc

Once we have received this information **in conjunction** with your records review from the NHIC (provided below), MNR will then confirm the information gathered is accurate and identify any additional information that may be available for this site or information that should be included.

For your reference a complete list of the species at risk in Ontario can be reviewed at:
<http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/246809.html>

Feel free to call if you wish to discuss or have any questions.

Jodi

From: Dan Reeves [mailto:Dan.Reeves@genivar.com]
Sent: May 18, 2011 4:07 PM
To: Benvenuti, Jodi (MNR)
Cc: Moore, Whitney (MNR)
Subject: RE: Renewable Energy Ecologist

Hi Jodi,

We generally rely on the NHIC website to flag likely SAR or our investigatory sites. The site has several different ecosites, and 'available habitat' is a very broad statement and could include most SAR in Ontario. That being said, known occurrences for the 10 km squares surrounding the site have yielded:

Milksnake (*Lampropeltis triangular*)
Jefferson X Blue-spotted Salamander (*Ambystoma hybrid pop*)
Green-striped Darner (*Aeshna vertialis*)
Houghton's Flatsedge (*Cyperus houghtonii*)
Crested Arrowhead (*Sagittaria cristata*)

I have not been to the site to date, but when I do I will ensure to document any SAR, should we encounter them. Specific searches for any of these species requires significant planning and field time to orchestrate, so if there are specific species you would like us to flag, please let me know.

Sincerely,



Dan J. Reeves, B.Sc., M.Sc. | Project Biologist
GENIVAR | *Constructive People*
Direct: (905) 853-3303 ext. 249 | Mobile: (905) 954-5990
dan.reeves@genivar.com

From: Benvenuti, Jodi (MNR) [mailto:jodi.benvenuti@ontario.ca]
Sent: Wednesday, May 18, 2011 3:46 PM
To: Dan Reeves
Cc: Moore, Whitney (MNR)
Subject: Renewable Energy Ecologist

Hi Dan,

With respect to species at risk, I note from the information attached that you have queried the NHIC database for this area "to determine if there are any known Threatened or Endangered species on or within 120 m of the site". To address the point of NHIC records specifically, as you are likely aware the species at risk records found in this database are not exhaustive and are based on **known or reported** occurrences **only**. As a result, although there may be no record (or confirmation) of a species at risk on site it does not mean that they are not present if appropriate habitat exists. Due diligence is therefore still required and would include an appropriate consideration of what species could be present based on available habitat at this location. As a result, in addition to your records review, a list of what species at risk it is reasonable to expect could be present at this site **based on the available habitat** should also be provided. MNR Species at Risk Biologists will then assist with ensuring a complete records review by confirming this list as accurate and identifying any additional species or information that should be included.

Thank you for your information request and please don't hesitate to call if you have any questions.

Best Regards,

Jodi Benvenuti

Species at Risk Biologist
Ministry of Natural Resources
Midhurst District
Phone: (705) 725-7513

From: Moore, Whitney (MNR)
Sent: May 17, 2011 3:36 PM
To: Benvenuti, Jodi (MNR)
Subject: FW: Renewable Energy Ecologist

Whitney Moore
Renewable Energy Planning Ecologist
Midhurst District

Tel: 705-725-7560
Fax: 705-725-7584

From: Dan Reeves [mailto:Dan.Reeves@genivar.com]
Sent: May 17, 2011 2:44 PM
To: Moore, Whitney (MNR)
Subject: RE: Renewable Energy Ecologist

Hi Whitney,

Please see attached a map (LIO source) of the site with Forestry, watercourse, and wetland information. Please let me know if this is sufficient for your review purposes.

Thanks for your help.

Sincerely,



Dan J. Reeves, B.Sc., M.Sc. | Project Biologist
GENIVAR | *Constructive People*
Direct: (905) 853-3303 ext. 249 | Mobile: (905) 954-5990
dan.reeves@genivar.com

From: Moore, Whitney (MNR) [mailto:Whitney.Moore@ontario.ca]
Sent: Tuesday, May 17, 2011 10:31 AM
To: Dan Reeves
Subject: RE: Renewable Energy Ecologist

Hello Dan,

I will be happy to respond to your inquiry but I have a couple of questions first. Do you have a FIT contract? What are the names of your projects? It would be helpful to get the names/ proponents so I can check our database and keep a record of what projects we have heard from, what correspondence we have had etc. It would also be helpful if you provided a map of the project location with the features you have identified clearly marked on the map. This will make our review much more efficient.

Once I receive a map of the area, I will also forward your message on to our Species at Risk Biologist so she can screen for any additional species as she requires a map of the area to do her screening as well.

If you have any questions in the meantime, please let me know.

Thanks so much,

Whitney Moore
Renewable Energy Planning Ecologist
Midhurst District

Tel: 705-725-7560
Fax: 705-725-7584

From: Shoreman, Mark (MNR)
Sent: May 17, 2011 10:09 AM
To: Moore, Whitney (MNR)
Cc: Allan, Brad (MNR)
Subject: FW: Renewable Energy Ecologist

Hi Whitney:

Can you please respond to this inquiry – thanks-lots,

Mark.

Mark Shoreman
District Manager, Midhurst District,
Ministry of Natural Resources.
2284 Nursery Road,
Midhurst ON.
L0L 1X0
(705) 725-7504 ph
(705) 725-7584 fax

From: Dan Reeves [mailto:Dan.Reeves@genivar.com]
Sent: May 17, 2011 9:21 AM
To: Shoreman, Mark (MNR)
Subject: Renewable Energy Ecologist

Good morning Mark,

We are conducting the Natural Heritage work for a Renewable Energy Project (Solar) within your district, and I am unable to find an e-mail address and/or contact info for the Renewable Energy Ecologist in your office to submit my

background review. Could you please forward this e-mail and attachment to the appropriate person and cc myself so I know whom to discuss with in future.

Thanks,



Dan J. Reeves, B.Sc., M.Sc. | Project Biologist

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Newmarket, Ontario L3Y 8X7

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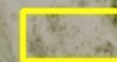
ORO4 - deer yard

Deer Yard (Stratum 1)

Deer Wintering Area (Stratum 2)

Legend

1:6,400



Deer Wintering Area



0 0.125 0.25 0.5 Kilometers



Appendix B

NHIC Search Results

Appendix B: NHIC Search Results



Natural Heritage Information Centre

Biodiversity Explorer

Species Element Occurrence Report [help](#)

Scientific name:	Lampropeltis triangulum				
Common name:	Milksnake				
Family:	Colubridae				
Global (G-rank):	G5	Committee on the Status of Endangered Wildlife in Canada (COSEWIC):		SC	
Ontario (S-rank):	S3	Species At Risk in Ontario (SARO):		SC	
Canada General Status:	Sensitive	Ontario General Status:		Sensitive	

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
91341	17	609000	4929000	H	1942-06-30



Natural Heritage Information Centre

Biodiversity Explorer



Species Element Occurrence Report

[help](#)

Scientific name: Ambystoma hybrid pop. 1
Common name: Jefferson X Blue-spotted Salamander, Jefferson genome dominates
Family: Ambystomatidae
Global (G-rank): GNA **Committee on the Status of Endangered Wildlife in Canada (COSEWIC):**
Ontario (S-rank): S2 **Species At Risk in Ontario (SARO):**
Canada General Status: **Ontario General Status:**

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
35366	17	614000	4925000	E	1989-04



Natural Heritage Information Centre

Biodiversity Explorer



Species Element Occurrence Report

[help](#)

Scientific name: Aeshna verticalis
Common name: Green-striped Darner
Family: Aeshnidae
Global (G-rank): G5 **Committee on the Status of Endangered Wildlife in Canada (COSEWIC):**
Ontario (S-rank): S3 **Species At Risk in Ontario (SARO):**
Canada General Status: **Ontario General Status:**

1 Element Occurrence Retrieved

EO ID	UTM Zone	Easting(nearest km)	Northing(nearest km)	EO Rank	Last Observed Date
41144	17	621000	4928000	H	1941-PRE



Natural Heritage Information Centre

Biodiversity Explorer

Natural Areas Reports: HAWKESTONE SWAMP

[help](#)

Identifiers

Area Type:	Wetland	Significant Level:	Provincial
Area ID:	7849	Reported Size (ha):	0
Alias(es):	HAWKESTONE SWAMP	Related to:	

Locational Information

UTM Centroid:	17,613011,4930223	Datum:	NAD83	Decimal Lat./Long.:	44.5164 / -79.578
Ecodistrict(s):		County(ies):			
Topographic Map(s):		Tertiary Watershed(s):			
Imagery:					

Natural Heritage Values

Description:	A Provincially significant wetland complex, made up of eleven individual wetlands, composed of two wetland types (97.2% swamp and 2.8% marsh) (Ferguson et al., 1985).
Vegetation:	Dominant Vegetation Forms (Ferguson et al., 1985):58% deciduous trees, 17% coniferous trees, 14% dead deciduous trees, 7% dead coniferous trees, 3% tall shrubs, 1% robust emergents, narrow-leaved emergents, and low shrubs;Vegetation Communities (Ferguson et al., 1985):One formS1: dead coniferous trees;M1: robust emergents;Two formsS2: dead coniferous trees; narrow-leaved emergents;S3: tall shrubs; narrow-leaved emergents;S4: narrow-leaved emergents; herbs;S5: low shrubs; herbs;S6: coniferous trees; herbs;M2: dead coniferous trees; robust emergents;M3: robust emergents; submergents;M4: robust emergents; floating plants;M5: narrow-leaved emergents; robust emergents;Three formsS7: dead coniferous trees; tall shrubs; robust emergents;S8: dead coniferous trees; narrow-leaved emergents; free-floating plants;S9: dead coniferous trees; narrow-leaved emergents; floating plants;S10: tall shrubs; low shrubs; herbs;S11: coniferous trees; tall shrubs; herbs;S12: dead coniferous trees; tall shrubs; herbs;S13: deciduous trees; tall shrubs; herbs;S14: tall shrubs; herbs; narrow-leaved emergents;S15: dead coniferous trees; dead deciduous trees; herbs;S16: dead deciduous trees; dead coniferous trees; tall shrubs;S17: deciduous trees; coniferous trees; herbs;S18: deciduous trees; narrow-leaved emergents; herbs;Four formsS19: coniferous trees; tall shrubs; low shrubs; herbs;S20: dead coniferous trees; tall shrubs; low shrubs; narrow-leaved emergents;S21: coniferous trees; deciduous trees; tall shrubs; herbs;S22: coniferous trees; deciduous trees; tall shrubs; low shrubs;S23: dead coniferous trees; herbs; narrow-leaved emergents; robust emergents;S24: dead deciduous trees; dead coniferous trees; tall shrubs; free-floating plants;S25: coniferous trees; tall shrubs; herbs; narrow-leaved emergents;S26: deciduous trees; coniferous trees; herbs; narrow-leaved emergents;S27: deciduous trees; tall shrubs; low shrubs; herbs;S28: deciduous trees; tall shrubs; narrow-leaved emergents; robust emergents;S29: deciduous trees; tall shrubs; narrow-leaved emergents; submergents;S30: deciduous trees; tall shrubs; herbs; narrow-leaved emergents;S31: deciduous trees; tall shrubs; herbs; robust emergents;S32: dead deciduous trees; dead tall shrubs; tall shrubs; narrow-leaved emergents;Five formsS33: dead deciduous trees; tall shrubs; narrow-leaved emergents; robust emergents; submergents;S34: deciduous trees; coniferous trees; tall shrubs; herbs; narrow-leaved emergents;S35: coniferous trees; tall shrubs; low shrubs; herbs; narrow-leaved emergents;S36: dead deciduous trees; dead coniferous trees; herbs; narrow-leaved emergents; free-floating plants;M6: dead deciduous trees; narrow-leaved emergents; robust emergents; broad-leaved emergents; floating plants;Six or more formsS37: dead deciduous trees; dead coniferous trees; tall shrubs; herbs; narrow-leaved emergents; submergents;
Landform:	Soils (Ferguson et al., 1985): 20% clays, loams or silts, 80% organic;Site Type (Ferguson et al., 1985): 24% palustrine (permanent or intermittent outflow), 76% riverine;
Representation:	
Ecological Functions:	Nesting of colonial waterbirds- active feeding area (Ferguson et al., 1985);Winter cover for wildlife- good winter cover for Snowshoe Hare, Grouse, Woodcock (R. Toth- MNR, referenced) (Ferguson et al., 1985);Significance for fish spawning and rearing- present (Brook Trout) (R. Toth and B. Peacock, referenced) (Ferguson et al., 1985);
Other Values:	Resource Products (Ferguson et al., 1985);Bullfrogs (B. Peacock- local trapper, referenced); Snapping Turtles (B. Peacock, referenced); Furbearers- Muskrat, Raccoon, Beaver, Mink, Fox, Coyote, Weasel (all- B. Peacock, referenced);
Current Land Use:	

<u>Historical Land Use:</u>							
<u>Floristic Quality:</u>							
Management and Protection							
<u>Management Organisation:</u>							
<u>Management Comments:</u>							
<u>Protection:</u>							
<u>Ownership:</u>							
<u>Threats:</u>							
<u>Exotic/Invasive Species:</u>							
<u>Off Site Uses:</u>							
<u>Rating Comments:</u>							
<u>Other Comments:</u>							

Appendix C

Ontario Breeding Bird Atlas Search Results

Appendix C: Ontario Breeding Bird Atlas Results

Atlas summary: Species list for squares 17pk02 and 17pk12

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17PK02	Alder Flycatcher	S	POSS	1	Dave Fewster	1	1.64	0.0164	1
13	17PK12	Alder Flycatcher	T	PROB	1	Valerie Jacobs	1	4	0.04	1
13	17PK02	American Black Duck	FY	CONF	1					
13	17PK02	American Crow	CF	CONF	1		33	54.1	0.7869	1
13	17PK12	American Crow	FY	CONF	1	Valerie Jacobs	24	96	3.2	1
13	17PK02	American Goldfinch	NY	CONF	1	Liz M. MacDonald	22	36.07	0.7705	1
13	17PK12	American Goldfinch	T	PROB	1	Valerie Jacobs	13	52	1.12	1
13	17PK02	American Kestrel	V	PROB	1		2	3.28	0.0492	1
13	17PK12	American Kestrel	H	POSS	1	Valerie Jacobs				
13	17PK02	American Redstart	S	POSS	1	2 atlassers	1	1.64	0.0164	1
13	17PK12	American Redstart	S	POSS	1	Prabha Khosla	3	12	0.12	1
13	17PK02	American Robin	CF	CONF	1	Brad Allan	22	36.07	0.541	1
13	17PK12	American Robin	CF	CONF	1	Prabha Khosla	19	76	1.48	1
13	17PK02	American Woodcock	T	PROB	1					
13	17PK02	Baltimore Oriole	CF	CONF	1		3	4.92	0.0492	1
13	17PK12	Baltimore Oriole	FY	CONF	1	Valerie Jacobs	1	4	0.12	1
13	17PK02	Bank Swallow	H	POSS	1	Dave Fewster				
13	17PK02	Barred Owl	S	POSS	1	Brad Allan				
13	17PK02	Belted Kingfisher	AE	CONF	1					
13	17PK12	Belted Kingfisher	T	PROB	1	Valerie Jacobs				
13	17PK02	Black-and-white Warbler	T	PROB	1					
13	17PK12	Black-and-white Warbler	T	PROB	1		2	8	0.2	1
13	17PK02	Black-billed Cuckoo	S	POSS	1					
13	17PK12	Black-billed Cuckoo	S	POSS	1					
13	17PK02	Blackburnian Warbler	T	PROB	1	Dave Fewster				
13	17PK02	Black-capped Chickadee	CF	CONF	1		10	16.39	0.2131	1
13	17PK12	Black-capped Chickadee	A	PROB	1		9	36	1.12	1
13	17PK02	Black-throated Blue Warbler	T	PROB	1		1	1.64	0.0164	1
13	17PK02	Black-throated Green Warbler	T	PROB	1	Brad Allan	2	3.28	0.0492	1

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17PK12	Black-throated Green Warbler	T	PROB	1		1	4	0.12	1
13	17PK02	Blue Jay	NY	CONF	1		14	22.95	0.2951	1
13	17PK12	Blue Jay	FY	CONF	1	Valerie Jacobs	7	28	0.4	1
13	17PK12	Blue-winged Teal	H	POSS	1					
13	17PK12	Broad-winged Hawk	T	PROB	1					
13	17PK02	Brown Creeper	S	POSS	1					
13	17PK12	Brown Creeper	H	POSS	1					
13	17PK02	Brown Thrasher	FY	CONF	1	Dave Fewster	3	4.92	0.0656	1
13	17PK02	Brown-headed Cowbird	NY	CONF	1		1	1.64	0.0164	1
13	17PK12	Brown-headed Cowbird	D	PROB	1	Valerie Jacobs	5	20	0.56	1
13	17PK02	Canada Goose	AE	CONF	1	Brad Allan	1	1.64	0.8197	1
13	17PK12	Canada Goose	H	POSS	1	Prabha Khosla				
13	17PK02	Cedar Waxwing	FY	CONF	1	Liz M. MacDonald	3	4.92	0.0492	1
13	17PK12	Cedar Waxwing	T	PROB	1	Valerie Jacobs	3	12	0.28	1
13	17PK02	Chestnut-sided Warbler	T	PROB	1		2	3.28	0.0328	1
13	17PK12	Chestnut-sided Warbler	T	PROB	1					
13	17PK02	Chipping Sparrow	NY	CONF	1		12	19.67	0.3279	1
13	17PK12	Chipping Sparrow	FY	CONF	1	Valerie Jacobs	6	24	0.44	1
13	17PK02	Cliff Swallow	V	PROB	1	Dave Fewster				
13	17PK02	Common Grackle	FY	CONF	1	2 atlassers	4	6.56	0.0984	1
13	17PK12	Common Grackle	CF	CONF	1	Valerie Jacobs	7	28	1.12	1
13	17PK12	Common Loon	H	POSS	1	Prabha Khosla				
13	17PK02	Common Raven	FY	CONF	1	Dave Fewster				
13	17PK02	Common Snipe	S	POSS	1	Brad Allan				
13	17PK02	Common Yellowthroat	A	PROB	1		5	8.2	0.1148	1
13	17PK12	Common Yellowthroat	T	PROB	1	Valerie Jacobs	5	20	0.36	1
13	17PK02	Cooper's Hawk	FY	CONF	1	Dave Fewster				
13	17PK02	Downy Woodpecker	FY	CONF	1					
13	17PK12	Downy Woodpecker	T	PROB	1		2	8	0.08	1
13	17PK02	Eastern Bluebird	AE	CONF	1	Dave Fewster	2	3.28	0.0656	1
13	17PK02	Eastern Kingbird	CF	CONF	1	Dave Fewster	3	4.92	0.0656	1
13	17PK12	Eastern Kingbird	FY	CONF	1	Valerie Jacobs	6	24	0.4	1
13	17PK02	Eastern Phoebe	AE	CONF	1	Dave Fewster	1	1.64	0.0164	1

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17PK12	Eastern Phoebe	T	PROB	1	Valerie Jacobs	1	4	0.08	1
13	17PK12	Eastern Screech-Owl	S	POSS	1					
13	17PK02	Eastern Wood-Pewee	T	PROB	1	Dave Fewster	12	19.67	0.2951	1
13	17PK12	Eastern Wood-Pewee	S	POSS	1					
13	17PK02	European Starling	NY	CONF	1		8	13.11	0.7213	1
13	17PK12	European Starling	FY	CONF	1	Valerie Jacobs	11	44	1.72	1
13	17PK02	Field Sparrow	T	PROB	1		4	6.56	0.0656	1
13	17PK12	Field Sparrow	T	PROB	1					
13	17PK12	Gadwall	P	PROB	1	Doug Woods				
13	17PK12	Golden-winged Warbler	S	POSS	1	Prabha Khosla				
13	17PK02	Grasshopper Sparrow	A	PROB	1		3	4.92	0.0492	1
13	17PK02	Gray Catbird	P	PROB	1					
13	17PK12	Gray Catbird	T	PROB	1		1	4	0.04	1
13	17PK02	Great Crested Flycatcher	T	PROB	1	Dave Fewster	7	11.48	0.1475	1
13	17PK12	Great Crested Flycatcher	T	PROB	1	Valerie Jacobs				
13	17PK02	Great Horned Owl	FY	CONF	1					
13	17PK12	Great Horned Owl	H	POSS	1					
13	17PK02	Green Heron	NY	CONF	1					
13	17PK12	Green Heron	H	POSS	1					
13	17PK12	Green-winged Teal	H	POSS	1	Valerie Jacobs				
13	17PK02	Hairy Woodpecker	FY	CONF	1					
13	17PK12	Hairy Woodpecker	T	PROB	1		1	4	0.04	1
13	17PK02	Hermit Thrush	CF	CONF	1		3	4.92	0.0984	1
13	17PK02	Horned Lark	T	PROB	1					
13	17PK02	House Finch	NY	CONF	1					
13	17PK02	House Sparrow	AE	CONF	1					
13	17PK12	House Sparrow	H	POSS	1	Valerie Jacobs	1	4	0.04	1
13	17PK02	House Wren	AE	CONF	1	Dave Fewster	5	8.2	0.1148	1
13	17PK12	House Wren	S	POSS	1		12	48	0.8	1
13	17PK02	Indigo Bunting	FY	CONF	1		6	9.84	0.1148	1
13	17PK12	Indigo Bunting	S	POSS	1	2 atlassers	3	12	0.12	1
13	17PK02	Killdeer	NE	CONF	1		2	3.28	0.2295	1
13	17PK12	Killdeer	H	POSS	1		1	4	0.04	1

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17PK02	Least Flycatcher	T	PROB	1	Dave Fewster				
13	17PK02	Magnolia Warbler	S	POSS	1		1	1.64	0.0164	1
13	17PK02	Mallard	FY	CONF	1		1	1.64	0.0656	1
13	17PK12	Mallard	FY	CONF	1		2	8	0.16	1
13	17PK02	Mourning Dove	AE	CONF	1		11	18.03	0.2951	1
13	17PK12	Mourning Dove	T	PROB	1	Valerie Jacobs	11	44	0.64	1
13	17PK02	Mourning Warbler	DD	CONF	1		1	1.64	0.0164	1
13	17PK12	Mourning Warbler	S	POSS	1	Prabha Khosla	1	4	0.04	1
13	17PK02	Nashville Warbler	T	PROB	1		1	1.64	0.0328	1
13	17PK12	Nashville Warbler	T	PROB	1					
13	17PK02	Northern Cardinal	P	PROB	1		6	9.84	0.1311	1
13	17PK12	Northern Cardinal	T	PROB	1		4	16	0.2	1
13	17PK02	Northern Flicker	D	PROB	1		4	6.56	0.082	1
13	17PK12	Northern Flicker	AE	CONF	1	Prabha Khosla	2	8	0.08	1
13	17PK02	Northern Rough-winged Swallow	FY	CONF	1	Dave Fewster				
13	17PK02	Northern Waterthrush	A	PROB	1	Dave Fewster	1	1.64	0.0164	1
13	17PK12	Olive-sided Flycatcher	H	POSS	1	Prabha Khosla				
13	17PK02	Osprey	NY	CONF	1	Liz M. MacDonald				
13	17PK02	Ovenbird	A	PROB	1	Dave Fewster	22	36.07	0.541	1
13	17PK12	Ovenbird	T	PROB	1		3	12	0.12	1
13	17PK02	Pileated Woodpecker	AE	CONF	1		1	1.64	0.0164	1
13	17PK12	Pileated Woodpecker	H	POSS	1	Valerie Jacobs	1	4	0.04	1
13	17PK02	Pine Warbler	T	PROB	1	Dave Fewster	3	4.92	0.0492	1
13	17PK02	Purple Finch	S	POSS	1	Dave Fewster				
13	17PK02	Red-breasted Nuthatch	CF	CONF	1		2	3.28	0.0328	1
13	17PK02	Red-eyed Vireo	AE	CONF	1		17	27.87	0.3115	1
13	17PK12	Red-eyed Vireo	S	POSS	1	Valerie Jacobs	3	12	0.12	1
13	17PK02	Red-shouldered Hawk	H	POSS	1					
13	17PK02	Red-tailed Hawk	T	PROB	1					
13	17PK02	Red-winged Blackbird	NE	CONF	1	Dave Fewster	16	26.23	0.4918	1
13	17PK12	Red-winged Blackbird	CF	CONF	1	Valerie Jacobs	13	52	2.28	1
13	17PK02	Rock Pigeon	AE	CONF	1		4	6.56	0.2623	1
13	17PK12	Rock Pigeon	H	POSS	1	Valerie Jacobs	2	8	0.08	1

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17PK02	Rose-breasted Grosbeak	FY	CONF	1	Dave Fewster	7	11.48	0.1475	1
13	17PK12	Rose-breasted Grosbeak	CF	CONF	1					
13	17PK02	Ruby-throated Hummingbird	D	PROB	1					
13	17PK12	Ruby-throated Hummingbird	H	POSS	1	Prabha Khosla	2	8	0.08	1
13	17PK02	Ruffed Grouse	H	POSS	1					
13	17PK12	Ruffed Grouse	FY	CONF	1		1	4	0.04	1
13	17PK02	Savannah Sparrow	NE	CONF	1		12	19.67	0.2787	1
13	17PK12	Savannah Sparrow	S	POSS	1	Valerie Jacobs	6	24	0.48	1
13	17PK02	Scarlet Tanager	S	POSS	1	Brad Allan	1	1.64	0.0164	1
13	17PK12	Scarlet Tanager	S	POSS	1					
13	17PK02	Song Sparrow	CF	CONF	1		15	24.59	0.3934	1
13	17PK12	Song Sparrow	AE	CONF	1		22	88	1.8	1
13	17PK02	Sora	DD	CONF	1					
13	17PK12	Sora	T	PROB	1	Valerie Jacobs				
13	17PK02	Spotted Sandpiper	H	POSS	1					
13	17PK02	Swamp Sparrow	CF	CONF	1		2	3.28	0.0492	1
13	17PK12	Swamp Sparrow	T	PROB	1	Valerie Jacobs	1	4	0.04	1
13	17PK02	Tree Swallow	AE	CONF	1	Dave Fewster	9	14.75	0.2131	1
13	17PK12	Tree Swallow	AE	CONF	1	Valerie Jacobs	7	28	0.52	1
13	17PK02	Trumpeter Swan	H	POSS	1					
13	17PK02	Turkey Vulture	P	PROB	1		1	1.64	0.0164	1
13	17PK02	Veery	T	PROB	1	Brad Allan	11	18.03	0.2295	1
13	17PK12	Veery	S	POSS	1		1	4	0.08	1
13	17PK02	Vesper Sparrow	S	POSS	1	2 atlassers	1	1.64	0.0164	1
13	17PK02	Warbling Vireo	T	PROB	1		1	1.64	0.0164	1
13	17PK12	Warbling Vireo	S	POSS	1	Valerie Jacobs	1	4	0.04	1
13	17PK02	White-breasted Nuthatch	FY	CONF	1		2	3.28	0.0328	1
13	17PK12	White-breasted Nuthatch	S	POSS	1	Valerie Jacobs				
13	17PK02	White-throated Sparrow	T	PROB	1		4	6.56	0.082	1
13	17PK12	White-throated Sparrow	T	PROB	1	Valerie Jacobs	2	8	0.12	1
13	17PK02	Wild Turkey	S	POSS	1	Liz M. MacDonald				
13	17PK12	Wild Turkey	H	POSS	1	Valerie Jacobs	1	4	0.12	1
13	17PK12	Willow Flycatcher	S	POSS	1					

Region	Square	Species	Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17PK02	Winter Wren	S	POSS	1	Dave Fewster				
13	17PK12	Winter Wren	FY	CONF	1					
13	17PK02	Wood Duck	H	POSS	1	Dave Fewster				
13	17PK12	Wood Duck	H	POSS	1		2	8	0.12	1
13	17PK02	Wood Thrush	T	PROB	1	Brad Allan	6	9.84	0.1803	1
13	17PK12	Wood Thrush	S	POSS	1		1	4	0.04	1
13	17PK02	Yellow Warbler	T	PROB	1		5	8.2	0.1311	1
13	17PK12	Yellow Warbler	S	POSS	1	Prabha Khosla	1	4	0.08	1
13	17PK02	Yellow-bellied Sapsucker	T	PROB	1		1	1.64	0.0164	1
13	17PK12	Yellow-bellied Sapsucker	S	POSS	1					
13	17PK02	Yellow-billed Cuckoo	S	POSS	1		1	1.64	0.0164	1
13	17PK02	Yellow-rumped Warbler	CF	CONF	1	Dave Fewster				