

# **SOUTH KENT WIND PROJECT Natural Heritage Records Review Report**

**Prepared for:**

Hatch Ltd.

4342 Queen Street, Suite 500

Niagara Falls, Ontario Canada L2E 7J7

Project No. 1184

Date: April 2012



**NATURAL RESOURCE SOLUTIONS INC.**

Aquatic, Terrestrial and Wetland Biologists

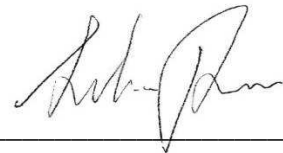
# SOUTH KENT WIND PROJECT

## Natural Heritage Records Review Report

### Project Team:

Staff	Role
David E. Stephenson	Senior Biologist/Project Advisor
Andrew G. Ryckman	Project Manager/Biologist
Barry A. Moss	Terrestrial and Wetland Biologist
Christy L. Humphrey	Terrestrial and Wetland Biologist
Kevin S. Dance	Terrestrial and Wetland Biologist
Tara Lessard	Terrestrial and Wetland Biologist
Shawn W. MacDonald	GIS Technician

Report submitted on April 25, 2012



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Andrew G. Ryckman

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## 1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained in September 2010 by Hatch Ltd., on behalf of Samsung Renewable Energy Inc. and Pattern Energy (the “Proponent”) to conduct a records review in accordance with the Renewable Energy Approval (REA) Regulation for a proposed 270 MW wind energy generating facility in the Regional Municipality of Chatham-Kent, Ontario. This assessment includes a detailed review of available background information from a variety of sources, including Ministry of Natural Resources (MNR), Lower Thames Valley Conservation Authority (LTVCA), municipal files, existing biological studies, and other available online or published resources.

The South Kent Wind Project, proposed by the Proponent, is located in the southern half of the Regional Municipality of Chatham-Kent, between Highway 401 and the shoreline of Lake Erie. This wind energy generating facility is proposed to be 270 MW in size, consisting of a total of 124 operational wind turbines, as well as supporting infrastructure, including access roads, construction and vehicle turn around areas, and buried and/or overhead collection/transmission lines. The collection/transmission system will include an approximate 34 km 230 kV transmission line, and two (2) substations to enable step-up of the voltage from 34.5kV to 230 kV to connect to the Chatham Switching Station (SS).

As identified the REA Regulation, the proposed layout of these features is collectively referred to as the ‘Project location’. In accordance with Section 25 of the Renewable Energy Approval (REA) Regulation (O. Reg. 359/09 of the Environmental Protection Act), NRSI has conducted a thorough records review of available background resources to identify any potentially significant natural features within 120 m of the Project location. This includes areas within 120 m of turbine blade tip as well as any areas that may be used as temporary lay-down areas, crane pads, access roads, connector, distribution and transmission lines.

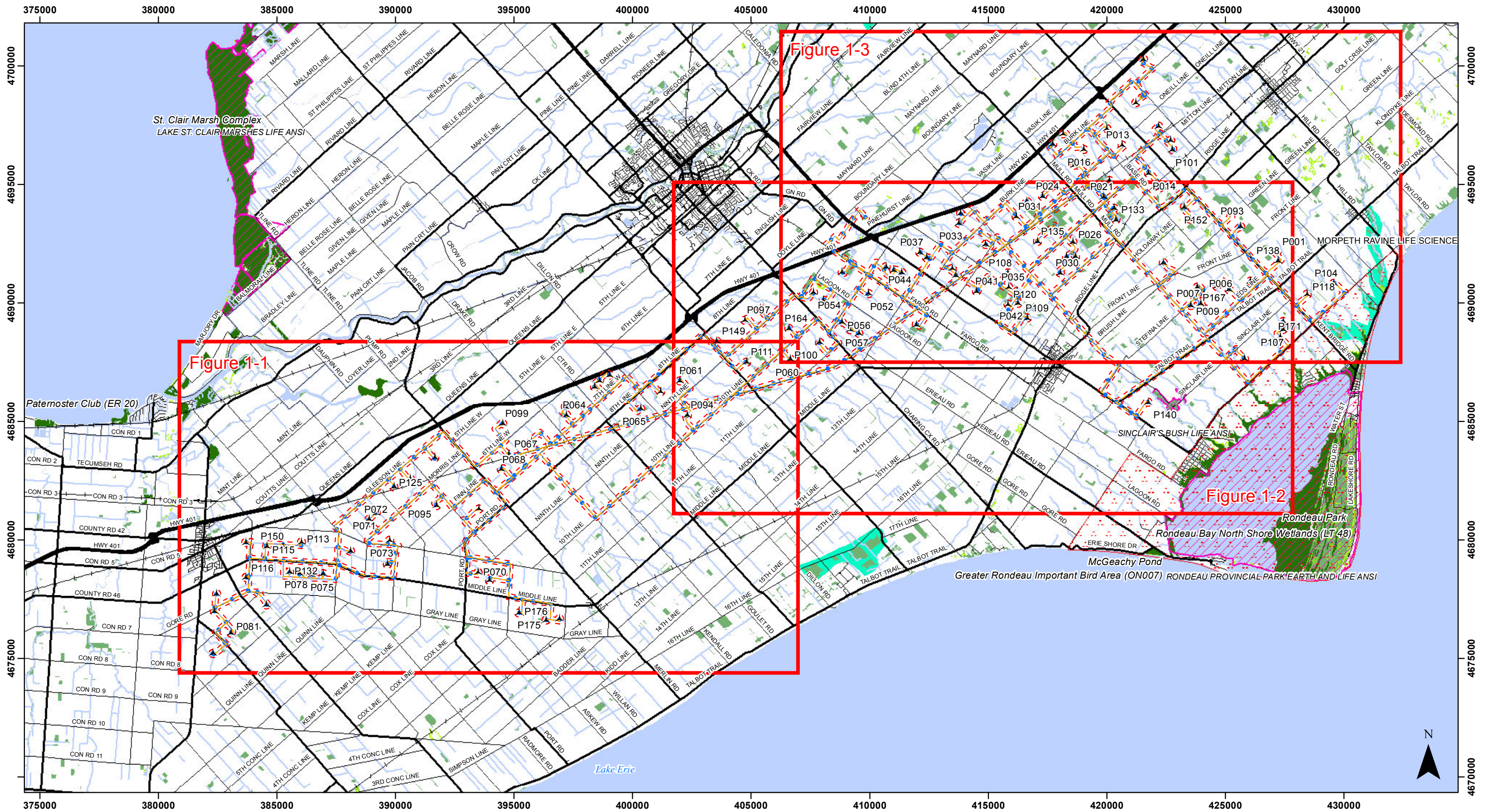
The ‘Project location’, as defined by the REA Regulation, includes all proposed development activities to occur on land or in air. In order to ensure all areas within 120 m of the Project location were reviewed for the presence of candidate significant natural features, NRSI biologists have examined natural features within this larger ‘Project area’,

which includes all land, water, and air that cover the natural features within 120 m of the Project location.

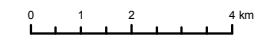
The Project area is located generally between Highway 401 to the north and Lake Erie to the south, and from the Town of Tilbury east to the Town of Ridgetown in the province of Ontario. The Project location and Project area are identified in Figure 1.

The Project location occurs primarily within areas of active agricultural practices, including rotational crops of wheat, corn and soybeans. Other land uses, including hayfields and agricultural pasture, are also expected to be present within the Project area. Fragmented woodlands, hedgerows, and small wetland pockets are characteristic of this area of Ontario, and are expected to be occasionally present within the Project area.

As part of this Project, NRSI has considered all aspects relating to provincially Threatened and Endangered species. However, since these species are addressed as part of the *Endangered Species Act* (2007), they have not been discussed within any of these Natural Heritage Assessment reports. These species will be address in full detail, including a description and results of field assessments, potential impacts, and recommended mitigation measures, as part of a separate *Approval and Permitting Requirements Document (APRD)* to be submitted to the MNR under a separate cover, where necessary.



**Key Map**  
**South Kent Wind Project**  
**Project Area and Natural Features**



April 23, 2012. Project No: NRSI-1184.  
 UTM Zone 17, NAD 83 Scale: 1:150,000 (at 11x17")

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**Legend**

- |                            |                |                                 |  |
|----------------------------|----------------|---------------------------------|--|
| Project Area (April, 2012) | Access Road    | Watercourse (Permanent)         | ANSI, Life Science                     |
| Constructible Area         | Railway        | Deer Wintering Area (Stratum 2) | Provincially Significant Wetland (PSW) |
| Proposed Turbine (L020)    | Highway        | Important Bird Area             | Waterbody                              |
| Substation                 | Primary Road   | ANSI, Earth Science             | Wetland Area                           |
| Cabling                    | Secondary Road |                                 | Wooded Area                            |



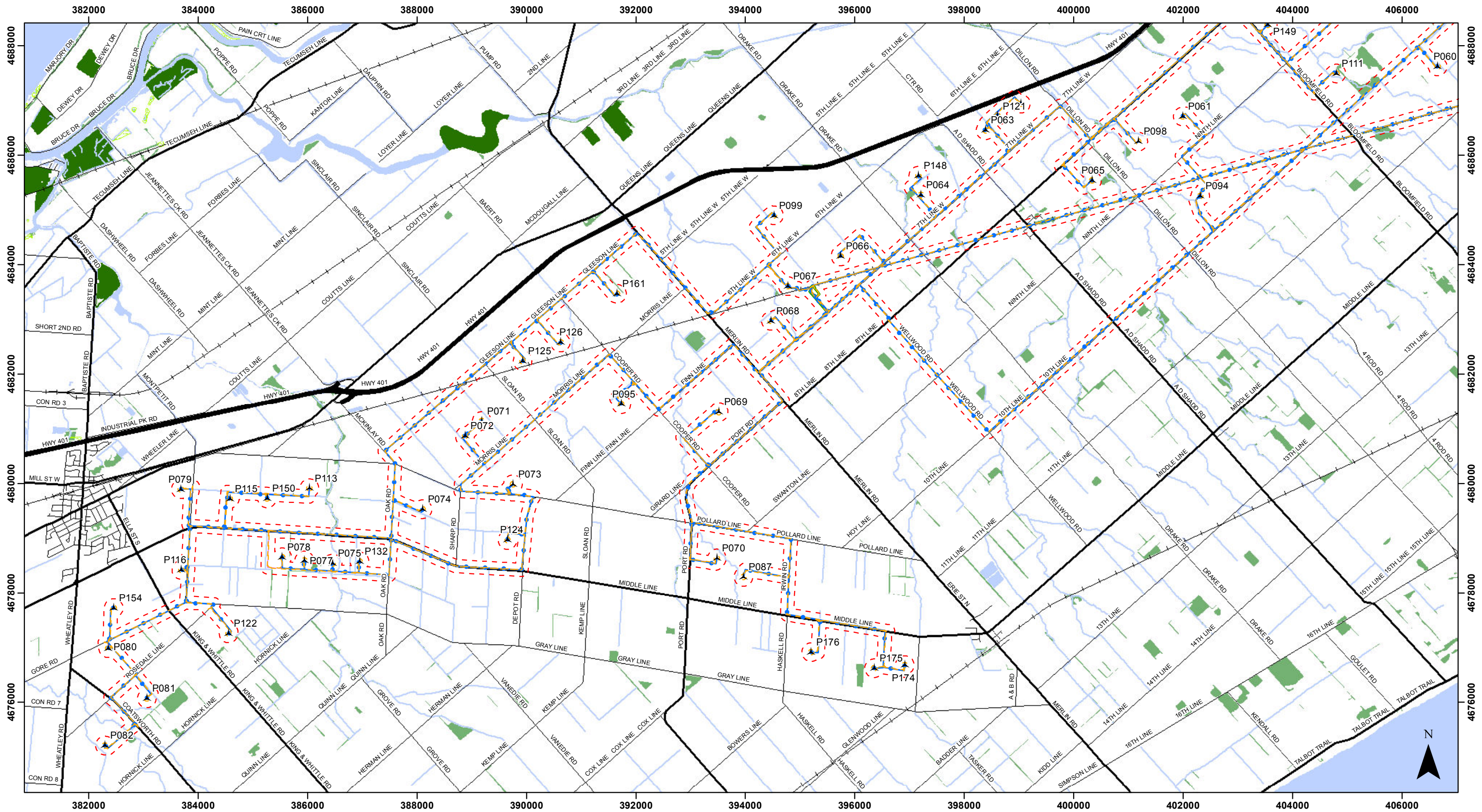
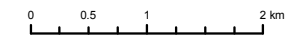


Figure 1-1  
**South Kent Wind Project**  
**Project Area and Natural Features**



April 23, 2012. Project No: NRSI-1184.  
 UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

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**Legend**

- Project Area (April, 2012)
- Constructible Area
- ▲ Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Railway
- Highway
- Primary Road
- Secondary Road
- Watercourse (Permanent)
- Deer Wintering Area (Stratum 2)
- Important Bird Area
- ANSI, Earth Science
- ANSI, Life Science
- Provincially Significant Wetland (PSW)
- Waterbody
- Wetland Area
- Wooded Area

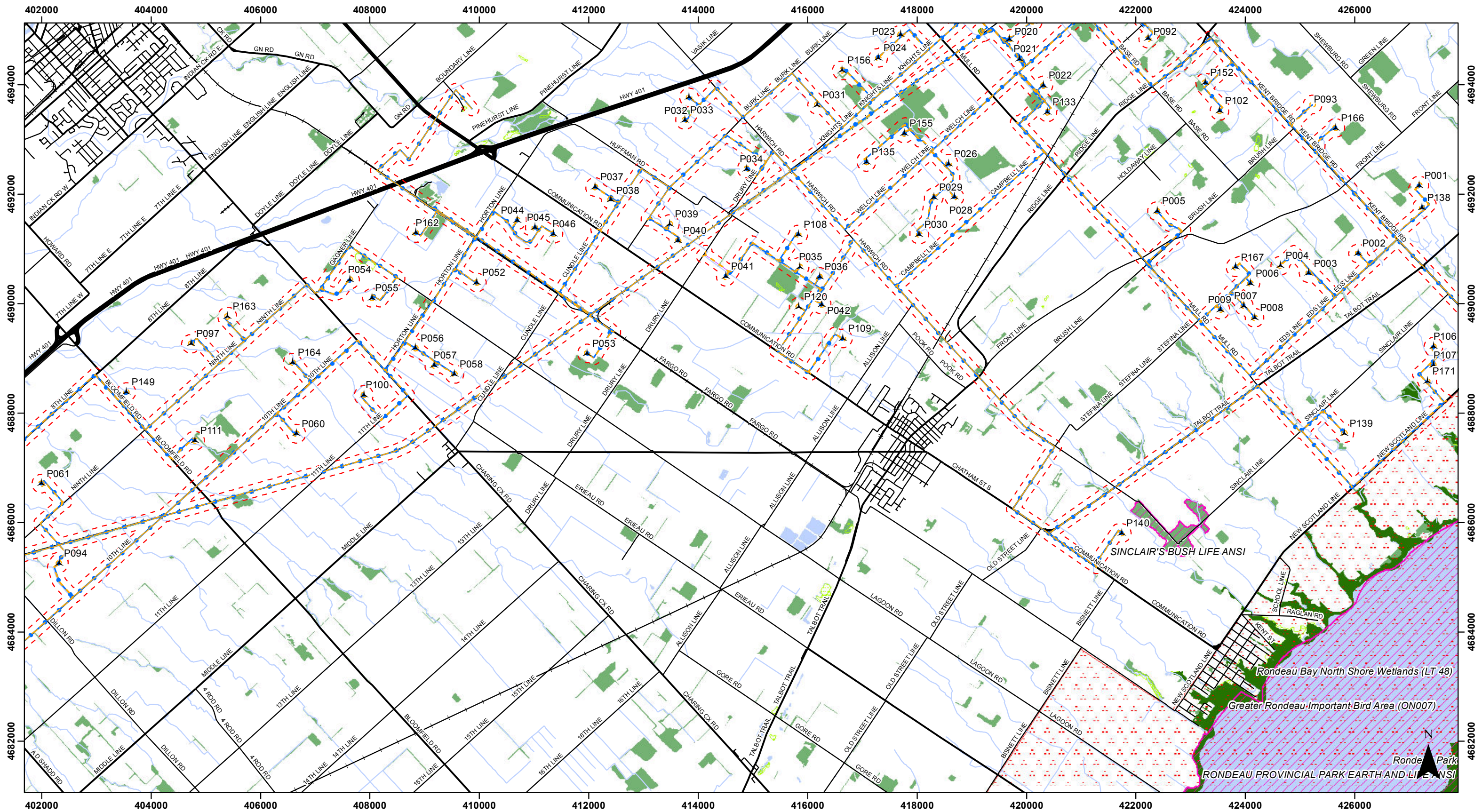


Figure 1-2  
**South Kent Wind Project**  
**Project Area and Natural Features**

**NATURAL RESOURCE SOLUTIONS INC.**  
 Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: NRSI-1184.  
 UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

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**Legend**

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Railway
- Highway
- Primary Road
- Secondary Road
- Watercourse (Permanent)
- Deer Wintering Area (Stratum 2)
- Important Bird Area
- ANSI, Earth Science
- ANSI, Life Science
- Provincially Significant Wetland (PSW)
- Waterbody
- Wetland Area
- Wooded Area

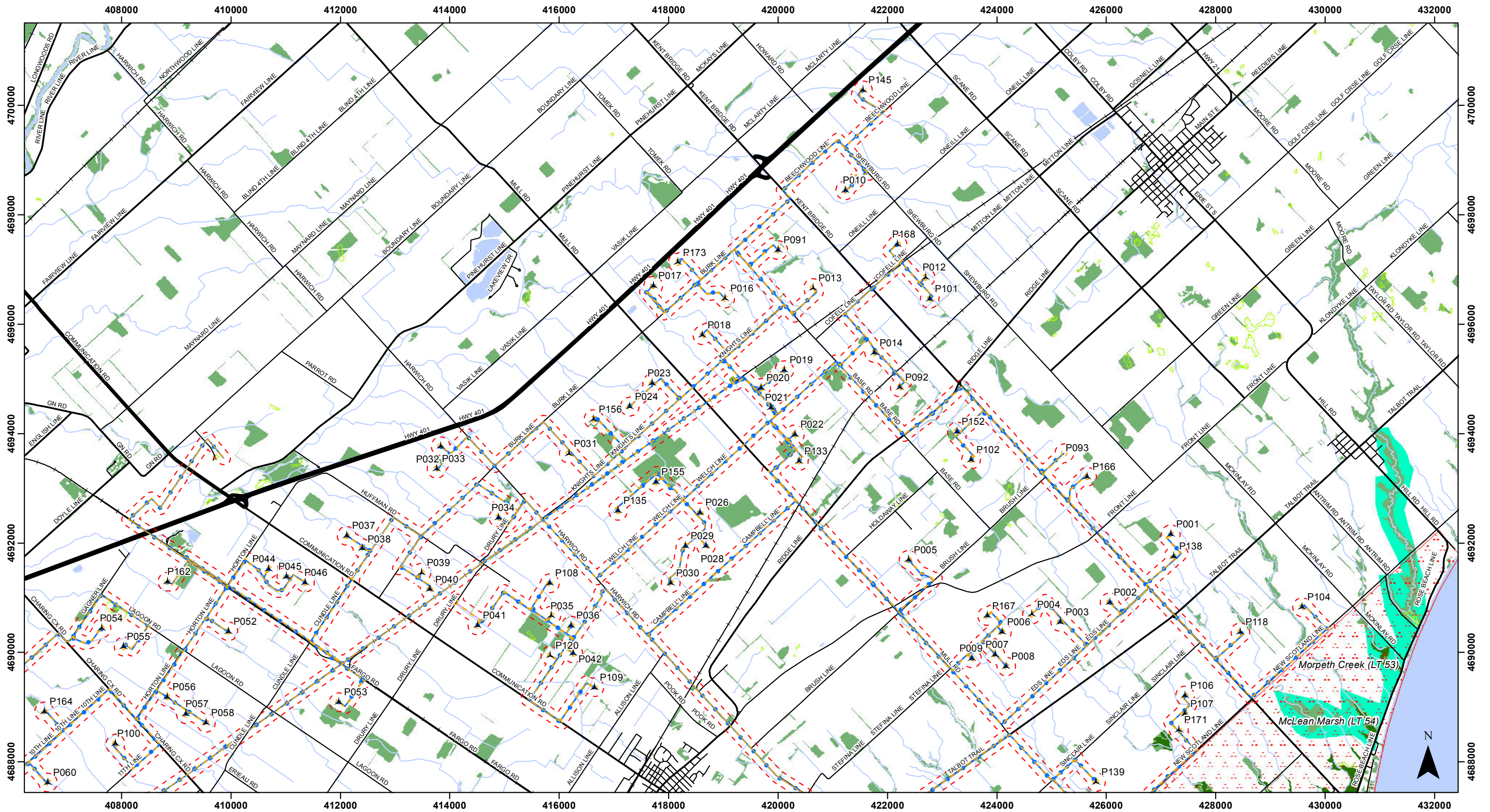


Figure 1-3  
**South Kent Wind Project**  
**Project Area and Natural Features**



0 0.5 1 2 km

April 23, 2012. Project No: NRSI-1184.  
 UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

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**Legend**

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Access Road
- Substation
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- Railway
- Highway
- Primary Road
- Secondary Road
- Watercourse (Permanent)
- Deer Wintering Area (Stratum 2)
- Important Bird Area
- ANSI, Earth Science
- ANSI, Life Science
- Provincially Significant Wetland (PSW)
- Waterbody
- Wetland Area
- Wooded Area

## 2.0 REA Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the requirements for the development of renewable energy Projects in Ontario. In accordance with REA Regulation, the South Kent Wind Project, classified as a Class 4 wind facility, is required to complete a REA.

Section 25 of the REA Regulation requires proponents of Class 4 wind Projects to undertake a natural heritage records review to identify whether the Project location is:

1. in a provincial park or conservation reserve
2. within 120 m of a provincial park or conservation reserve
3. in a natural feature
4. within 50 m of an area of natural and scientific interest (earth science), or
5. within 120 m of a natural feature that is not an area of natural and scientific interest (earth science)

Natural Features are defined in Section 1.1 of the REA Regulation to be all or part of

- (a) an area of natural and scientific interest (ANSI) (earth science)
- (b) an ANSI (life science)
- (c) a coastal wetland
- (d) a northern wetland
- (e) a southern wetland
- (f) a valleyland
- (g) a wildlife habitat, or
- (h) a woodland.

Subsection 3 of Section 25 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” (O. Reg. 359/09). This Natural Heritage Records Review Report has been prepared to meet these requirements.

Species at Risk (SAR) species that have been designated as Threatened or Endangered within Ontario, are warranted protection under the *Endangered Species Act (2007)*. Although NRSI has considered these species during all stages of records review, site investigation, and evaluation of significance, they will be addressed in detail in a separate *APRD* to be submitted at a later date.

### 3.0 Ministry of Natural Resources

As required by the REA Regulation, MNR and associated databases were consulted during the records review process of this Project. An inquiry to the Aylmer District MNR office was initiated through an e-mail dated October 5, 2010, requesting that any information pertaining to natural features within, or adjacent to, the Project area be provided. Information pertaining to natural features was received from the Aylmer District MNR office on November 1, 2010 (C. Jong 2010, *pers. comm.*). This information included records of bald eagle nests (*Haliaeetus leucocephala*), fisheries, and designated natural areas. Additional information pertaining to an Area of Natural and Scientific Interest (ANSI) within the Project area was reviewed as part of the Inventory Report (Allen 1988), which was provided by the Aylmer District MNR office in an e-mail dated November 9, 2010 (H. Simpson 2010, *pers. comm.*).

In addition to direct consultation with MNR, several online resources including the Biodiversity Explorer (OMNR 2010), Natural Heritage Information Centre (NHIC 2010), and natural feature mapping layers available through Land Information Ontario (LIO) (GNC 2010) were consulted by NRSI biologists. The results of these queries and reviews are provided in the following sections.

#### 3.1 Areas of Natural and Scientific Interest

The online resources of the Biodiversity Explorer and available basemapping were reviewed for the presence of Earth Science (ES) and Life Science (LS) ANSIs.

The Morpeth Ravine is a regionally significant life science ANSI (C. Jong 2010, *pers. comm.*), located more than 1km from the proposed turbine no. P104 and its associated infrastructure. This 60 ha ravine system includes wetland, old field, and upland forest habitats. This area has heavily impacted by disturbances, including dumping and trampling (OMNR 2010). Several species of conservation concern, including common pawpaw and golden-winged warbler (*Vermivora chrysoptera*), have been previously identified using this natural area (OMNR 2010).

The next closest ANSI to the South Kent Wind Project is Sinclair's Bush Life Science ANSI, a provincially significant natural feature, located approximately 317 m northeast

from proposed turbine no. P140 (shown in Figure 1-3). This natural feature is approximately 50ha in size and is dominated by sugar maple (*Acer saccharum*) and American beech (*Fagus grandiflora*) upland forest. Other communities within this large natural feature include lowland woods, marsh ponds, and a creek corridor. The vegetation community identified adjacent to the Project location is a 17.3 ha Upland Hardwoods – Disturbed Sugar Maple-American Beech-White Ash (*Fraxinus americana*) community (Allen 1988). Seasonal ponds were also noted to occur in low-lying topographic features. Some of the communities within this ANSI represent disturbed and highly disturbed habitats, resulting from historical and current land-use practices, such as tree harvesting, snowmobiling, biking, dumping, and maple syrup production (Allen 1988, OMNR 2010). Several floral species of conservation concern, including pawpaw (*Asimina triloba*), sharp-winged monkey-flower (*Mimulus alatus*), and Carey's sedge (*Carex careyana*), are known to exist within Sinclair's Bush (OMNR 2010). A review of background information has also identified one avian species of conservation concern, red-headed woodpecker (*Melanerpes erythrocephalus*), that has been documented within this community (Allen 1988).

Rondeau Provincial Park ANSI (life science) is also within the general vicinity of the Project area, located approximately 1.6 km from the Project location, near the cabling associated with turbine no. P171, along New Scotland Line (OMNR 2010). Rondeau Provincial Park ANSI (life science) is a 4800 ha provincially significant peninsula along the northern shore of Lake Erie. This area represents one of the largest remaining tracts of forest in the deciduous forest region of Canada, and is home to several species of conservation concern (OMNR 2010). The diverse and unique habitats of this natural feature also provide a stopover location for migratory birds and a variety of wetland and open water habitats for waterfowl during most of the year.

There are no other ANSI features present within 2 km of the proposed Project location of the South Kent Wind Project (OMNR 2010).

### 3.2 Woodlands

The presence of woodland features has been reviewed using available basemapping obtained from LIO. This mapping resource has identified approximately 53 woodlands found within 120 m of the Project location. These woodlands range in size from

approximately 2 ha to 54 ha. These woodlands are expected to represent primarily deciduous woodlands. Species associations, the distance of these features to the Project location, and candidate significant wildlife habitat potential within these features should be confirmed during the site investigation phase of this Project.

### 3.3 Wetlands

NRSI biologists have used the available information from the Biodiversity Explorer, available basemapping, and correspondence with the Aylmer District MNR office to identify the presence of any wetland features within, or near, the South Kent Wind Project area.

One (1) Provincially Significant Wetland (PSW) has been identified within 120 m of the Project location, and one (1) PSW has been identified beyond 120 m of the Project location, but within the vicinity of the Project area. The one (1) wetland identified within 120 m of the Project location is located in the southeast corner of the Project area, while the one (1) wetland identified beyond 120 m of the Project location is located in the vicinity of the southeast corner of the Project location (shown on Figure 1-3). These wetlands are discussed in more detail below. Six (6) unevaluated southern wetlands have also been identified within 120 m of the proposed Project location based on Land Information Ontario (LIO) mapping.

The Rondeau Bay North Shore PSW complex is located approximately 90 m south of the cabling near turbine no. P171, along New Scotland Line. This natural feature represents a provincially significant coastal wetland complex made up of 12 individual wetlands, and is dominated by marsh habitat with a total wetland size of 361.8 ha (OMNR 2010). Wetland evaluation files for the Rondeau Bay North Shore Wetlands were provided by MNR (OMNR 2009b), the results of which are detailed below. The Rondeau Bay North Shore PSW complex is dominated by robust emergent and submerged plant vegetation forms, and is composed primarily of humic/mesic soils with some clay/loam soils. This natural feature is primarily privately owned, and is hydrologically connected by surface water to Rondeau Bay. It contains open water in a pattern of small ponds and “embayments.” The wetland complex is intact, but intense impairment of ecosystem quality is present in some areas. The Rondeau Bay North Shore PSW complex is a provincially significant waterfowl staging and breeding area, as

well as a provincially significant migratory passerine, shorebird, or raptor stopover area. It contains breeding habitat for spotted gar and least bittern, both threatened species, and is a traditional migration or feeding habitat for the following endangered and threatened species: bald eagle, spiny softshell, Fowler's toad, and eastern foxsnake. Additionally, this wetland complex provides habitat for several provincially significant species, such as snapping turtle, milksnake, yellow-headed blackbird, black tern, black-crowned night-heron, Caspian tern, great egret, monarch, giant swallowtail, and northern map turtle, southern wild rice, and swamp rose-mallow (OMNR 2009b).

The Morpeth Creek (LT53) PSW is located approximately 1km east of turbine no. P104. Information on this provincially significant wetland habitat could not be obtained through the Biodiversity Explorer (OMNR 2010) or Natural Heritage Information Centre (NHIC 2010); however, wetland evaluation files for the Morpeth Creek PSW were obtained through the MNR (OMNR 2009a). This privately owned wetland has an area of 6.57 ha, and is composed of both swamp and marsh habitat. The swamp is 4.53 ha in size, is classified as palustrine (permanent or intermittent flow) with sand soils, and is dominated by black ash, willow, swamp red currant, and marsh buttercup. The marsh is 2.04 ha, is classified as lacustrine (on enclosed bay, with barrier beach) with sand soils, and is dominated by phragmites and reed canary grass. The Morpeth Creek PSW does not contain open water. This natural feature provides traditional migration or feeding habitat for Fowler's toad, an endangered species. Additionally, a locally significant species, swamp red currant, is present within this wetland (OMNR 2009a).

Available basemapping obtained from the Land Information Ontario (LIO) database has identified two unevaluated wetlands within the South Kent Wind Project area. One wetland is located in the vicinity of the potential transmission line corridor, just south of Boundary Line near the Chatham Switching Station. The other wetland is located in the northeast portion of the Project area, near the intersection of Gagner Line and Lagoon Road. These wetlands are shown on Figure 1-2. No other wetlands were identified within the Project area.

### 3.4 Valleylands

No specific information on valleylands is available through the MNR or associated databases.



### 3.5 Wildlife Habitat

#### 3.5.1 Seasonal Concentration Areas

Available basemapping obtained from the Land Information Ontario (LIO) database has identified the presence of a deer wintering area within approximately 500 m of the access road/cablings associated with turbine no. P104 (shown on Figure 1-3). This wildlife habitat is found along the northern shoreline of Lake Erie, and extends east of the Project area. Deer wintering areas are often coarsely mapped and should be examined during the site investigation phase of this Project.

Mid-winter waterfowl surveys were conducted by volunteers for the MNR in 2011 and 2012. Two survey routes (Routes 3 and 7), while not within the Project area, are in the general vicinity. Route 3 follows the shoreline of Lake St. Clair, while Route 7 follows the shoreline of Lake Erie through Rondeau Provincial Park. Approximately 400 tundra swans were observed along Route 3 in 2011, while 4,000 tundra swans were observed along the same route in 2012. No tundra swans were observed along Route 7 in either 2011 or 2012. The survey results, and a map showing general survey locations, are included in Appendix III. These areas should be examined in more detail during the site investigation phase of this Project.

Additional information on potential waterfowl stopover and staging areas in the vicinity of the South Kent Project Area was provided by a local landowner through the MNR. This information included anecdotal evidence of flocks of between 10 and 50 swans and geese that gather in fields within the vicinity of the Project Area in early to late March. Mapping of the general locations of potential flyway and roost/staging areas can be found in Appendix IV.

#### 3.5.2 Rare Vegetation Communities or Specialized Wildlife Habitat

A search of rare vegetation communities was conducted through the Biodiversity Explorer (OMNR 2010). Two (2) rare vegetation communities, a tallgrass woodland and tallgrass prairie, have been identified within the reference squares overlapping the Project area. Both of these vegetation communities have a provincial S-Rank of S1, indicating they are critically imperiled within Ontario (NHIC 2010). Particular attention

will be made to these community types and species associations during the site investigation phase of this Project.

Information received from the MNR indicates that the local MNR office does not maintain raptor nest records, however they are aware of a bald eagle nest located approximately 3 km from the southwest corner of the Project area (C. Jong 2010, *pers. comm.*). Previous correspondence with MNR staff indicated that another bald eagle nest may be located near the Town of Ridgetown, ON, however this location would also be several kilometers from the Project location. These nest locations, including the 800 m radius of significant wildlife habitat around each nest, are well beyond the Project area. The Project location does not occur between known bald eagle nests and potential foraging habitats of Lake Erie based on the records review. Site investigation and review of existing studies (Section 8.0) will further verify the presence/absence of bald eagle nests within 120 m of the Project location.

### 3.5.3 Species of Conservation Concern

Species of conservation concern include all species that have been designated as a species of Special Concern according to the Species at Risk in Ontario (SARO) or have been given a provincial S-Rank of S1-S3, but have not been designated as either Endangered or Threatened within Ontario.

A query of the NHIC and Biodiversity Explorer identified a total of 102 species of conservation concern that have been identified within the vicinity of the South Kent Wind Project. The reference squares reviewed for the purposes of this records review included a total of 11 reference squares, each 10km x 10km in size (17LG86, 17LG87, 17LG97, 17LG98, 17MG07, 17MG08, 17MG09, 17MG18, 17MG19, 17MG28, and 17MG29). These records include several historical sightings prior to 1980 that are expected to represent historical populations that are unlikely to be present within the Project area. The remaining 67 current (1980-2010) species records represent a variety of species groups, including ten (10) birds, three (3) reptiles, and forty-six (46) plant species. The full list of species records obtained through the Biodiversity Explorer has been included in Appendix I of this report. These species are discussed in more detail in Section 8.0.

#### 3.5.4 Animal Movement Corridors

Available basemapping for the South Kent Wind Project has identified several linear features, including both hedgerows and drainage corridors, within the Project area. The Project location itself will cross several of these features. These linear features have the potential to act as movement corridors for species within the Project area. This is particularly important for areas in southwestern Ontario where forest fragmentation is considerable. The species associations and habitat within these features should be evaluated in more detail during the site investigation phase of this Project.

No other specific wildlife habitat features have been identified during correspondence with the local MNR office or review of available databases.

#### **4.0 The Crown in the Right of Canada**

As a result of the large size of this Project, several other proposed wind energy generating facilities overlap with the proposed Project area. A number of existing studies previously conducted for these individual Projects have been reviewed as part of the records review completed by NRSI.

Federal agencies, including Environment Canada and the Canadian Wildlife Service, were consulted prior to conducting fieldwork for the Merlin Buxton Wind Farm ESR (see Section 9.3), the Merlin Wind Farm ESR (see Section 9.4), the Swanton Wind Farm EIS/ESR (see Section 9.9), and the Port Alma Wind Power Project ESR/EIS (see Section 9.12). Information from these federal agencies was reviewed and was used to guide the field surveys for these individual Projects.

In addition, NRSI biologists consulted the Natural Resources Canada (NRCan) website as part of the records review for the South Kent Project. All of the information on the NRCan website that is overlapping with the Project area was already obtained through other sources (i.e. LIO mapping, NHIC website, etc.). As such, no additional information was obtained for the Project area through a review of NRCan information.

## **5.0 Lower Thames Valley Conservation Authority**

As outlined in Section 25(3) of the REA Regulation, the local conservation authority, LTVCA, was consulted as part of the records review for the South Kent Wind Project. An email, dated October 14, 2010, was sent to LTVCA to request any available background information for the Project area. As a result of several other Projects that have already been examined by NRSI in the LTVCA jurisdiction, much of the information overlapping the Project area has been obtained. Most of this information relates to aquatic resources, including fish species, drain classifications, and SAR mapping.

The LTVCA displays lands regulated by O. Reg. 152/06 Development, Interference with Wetlands & Alteration to Shorelines & Watercourses on mapping available online (LTVCA 2010). This mapping indicates that all watercourses within the Project area are subject to this regulation as watercourse hazards. Flood-prone areas within the Project area do not appear to extend beyond the width of the incised watercourse channels. As such, valleys within the Project area will likely be limited to the extent of these watercourse channels.

Through previous correspondence with the LTVCA, no specific natural heritage features have been identified within most of the South Kent Wind Project area. As of the date of this report, no further information has been provided by the LTVCA specific to the Project area.

## **6.0 Regional Municipality of Chatham-Kent**

The South Kent Wind Project area is located entirely within the Regional Municipality of Chatham-Kent. The Regional Municipality has prepared an Official Plan (2010) that contains natural heritage mapping, showing significant woodlands, Provincially Significant Wetlands, and provincial ANSIs (Regional Municipality of Chatham-Kent 2010).

The Project area previously would have been located throughout four (4) lower tier municipalities that have since been amalgamated with the Municipality of Chatham-Kent. These amalgamated lower tier municipalities were previously identified as the Township of Tilbury East, the Township of Raleigh, the Township of Harwich, and the Township of Howard. Each of these Townships is included in the consolidated Chatham-Kent Official Plan (2010), and is discussed in the following sections.

Schedules C3, C4, C5 and C7 of the Chatham-Kent Official Plan (2010) include natural heritage mapping for the Townships identified above. These figures have been compared with available mapping of the Project location.

### **6.1 Township of Tilbury East**

Schedule C7 of the Chatham-Kent Official Plan (2010) includes the natural heritage mapping for the Township of Tilbury East, which overlaps the western extent of the Project area. One (1) significant woodland has been identified within 120 m of the Project location. This feature is within 120 m of one (1) proposed turbine no. P077, and its associated infrastructure (access road and underground cabling). No other significant natural heritage features have been identified within 120 m of the Project location as identified by available municipal mapping.

### **6.2 Township of Raleigh**

Schedule C5 of the Chatham-Kent Official Plan (2010) includes the natural heritage mapping for the Community of Raleigh Township, which overlaps the central portion of the South Kent Wind Project area. A total of seven (7) significant woodlands have been identified within 120 m of the Project location. The Project location, as identified by available municipal mapping, is not proposed to occur within any of these significant natural heritage features.

### 6.3 Township of Harwich

Schedule C4 of the Chatham-Kent Official Plan (2010) includes the natural heritage mapping for the Community of Harwich Township, which overlaps central portions of the South Kent Wind Project area. A total of 21 significant woodlands have been identified within 120 m of the Project location. Most of these areas are a result of proposed access roads or crane paths in proximity to these features. In most cases, the Project location has been placed considerably further from significant woodlands. The Project location is not proposed to overlap with any significant natural heritage features, as identified by available municipal mapping.

### 6.4 Township of Howard

Schedule C3 of the Chatham-Kent Official Plan (2010) includes natural heritage mapping for the Community of Howard Township, which overlaps the western extent of the Project area. Proposed development activities are expected to occur within 120 m of five (5) woodlands that have been deemed significant. Two (2) of these woodlands are within 120 m of turbine locations, while the other three (3) are within 120 m of proposed access roads. No Project components are proposed within any significant natural heritage features, as identified by municipal mapping.

### 6.5 Summary of Municipal Files

A full review of the municipal mapping for all four (4) Townships overlapping the Project area has identified that up to 34 regionally significant woodlands are present within 120 m of the Project location. Woodlands identified in basemapping from the LIO indicates there are 53 woodlands in the Project area which meet the size criterion for a regionally significant woodland. Each of the woodland features identified by municipal mapping and by LIO basemapping will be examined in more detail during the site investigation phase of this Project. Any additional woodlands which occur within the Project area that are not identified by municipal mapping or LIO basemapping will also be identified through the site investigation. This site investigation will follow the REA Regulation and will confirm natural feature boundaries, species associations, available habitat, and other information that may be needed during the evaluation of significance and Environmental Impact Study phases of this Project, if needed.

## 7.0 Other Background Sources

In addition to government agencies and municipal files, NRSI biologists have reviewed several existing published and/or online resources to identify species that may be present within the vicinity of the Project location. These resources include the Ontario Breeding Bird Atlas (OBBA), Bird Studies Canada mapping of Important Bird Areas (IBA), Ontario Herpetofauna Atlas, and the Atlas of the Mammals of Ontario. The results of the records review have been detailed below:

### 7.1 Ontario Breeding Bird Atlas

A total of 11 OBBA reference squares were reviewed for information pertaining to breeding bird records within the Project area. These 11 squares (17LG86, 17LG87, 17LG97, 17LG98, 17MG07, 17MG08, 17MG09, 17MG18, 17MG19, 17MG28, and 17MG29) correspond to the same reference squares reviewed in the Biodiversity Explorer query. Results from surveys within these squares were reviewed to determine what bird species may be expected to occur within the Project area (results of the surveys within this square are provided in Appendix II). A total of 171 bird species have been documented within the combined atlas periods (1981-1985 and 2001-2005) for the 11 OBBA squares. Although most of these species represent common and abundant bird species within Ontario, a total of ten (10) species are considered species of conservation concern. The complete list of avian species documented by the OBBA can be found in Appendix II. Bird species of conservation concern that may be present within the Project area are discussed in more detail in Section 7.0.

### 7.2 Important Bird Areas

A review of IBAs in this region of the province has revealed that the Project location is within 120m of the Greater Rondeau Bay IBA (ON007). This IBA is a globally significant area for congregatory species, waterfowl concentrations, and migratory landbird concentrations. This particular location is important for several avian species, including Forster's tern (*Sterna forsteri*), greater scaup (*Aythya marila*), and tundra swan (*Cygnus columbianus*), and represents a candidate significant wildlife habitat for both terrestrial and aquatic waterfowl stopover and staging areas.



The Project location is located adjacent to the northern limit of this IBA boundary, at the Town of New Scotland, ON; however, no Project components overlap with it. No other IBAs overlap with, or are located within 120m of, the proposed Project location.

### 7.3 Ontario Herpetofauna Atlas

The Ontario Herpetofaunal Summary Atlas identified a total of 30 species of reptile and amphibian whose ranges and preferred habitats may overlap with the Project area. Of these species, four (4) species of conservation concern were identified whose ranges potentially overlapped with the Project area, including eastern milksnake (*Lampropeltis triangulum triangulum*), eastern ribbonsnake (*Thamnophis sauritus*), common snapping turtle (*Chelydra serpentina serpentina*), and northern map turtle (*Graptemys geographic*). These species are discussed further in Section 7.0.

### 7.4 Atlas of the Mammals of Ontario

The Atlas of the Mammals of Ontario (Dobbyn, 1994) identified a total of 34 species of mammals that may overlap with the Project area. One (1) of these species, tri-colored bat (*Perimyotis subflavus*), is considered a provincially rare species based on an S-Rank of S3?. This bat species, formerly called the eastern pipistrelle (*Pipistrellus subflavus*), is considered a potentially vulnerable mammal species within Ontario (NHIC 2008). The remaining 33 species represent common species with secure populations within Ontario.

### 7.5 Other

Other background information sources were also considered during the records review process, including the planning board, the municipal planning authority, the local roads board, the Local Services Board and the Niagara Escarpment Commission; however this information was not applicable to the natural heritage assessment process of this Project.

## 8.0 Species of Conservation Concern

As identified above, several species of conservation concern may potentially occur within or adjacent to the Project area. These species of conservation concern and their likelihood of occurrence within the South Kent Wind Project area are addressed below.

### 8.1 Birds

Through a comprehensive records review, including MNR files, OBBA, NHIC, and the Biodiversity Explorer, a total of ten (10) species of conservation concern have been identified within the vicinity of the Project location. Each of these ten (10) species is identified in Table 1 below.

**Table 1. Bird Species of Special Concern Identified Near the South Kent Wind Project**

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
<i>Chlidonias niger</i>	Black Tern <sup>1,2</sup>	S3B	SC	NAR
<i>Chordeiles minor</i>	Common Nighthawk <sup>2</sup>	S4B	SC	THR
<i>Dendroica cerulea</i>	Cerulean Warbler <sup>2</sup>	S3B	SC	SC
<i>Haliaeetus leucocephala</i>	Bald Eagle <sup>1,2</sup>	S2N, S4B	SC	NAR
<i>Icteria virens</i>	Yellow-breasted Chat <sup>1,2</sup>	S2B	SC	SC
<i>Melanerpes erythrocephalus</i>	Red-Headed Woodpecker <sup>2</sup>	S4B	SC	THR
<i>Seiurus motacilla</i>	Louisiana Waterthrush <sup>1,2</sup>	S3B	SC	SC
<i>Vermivora chrysoptera</i>	Golden-winged Warbler <sup>2</sup>	S4B	SC	THR
<i>Wilsonia canadensis</i>	Canada Warbler <sup>2</sup>	S4B	SC	THR
<i>Wilsonia citrina</i>	Hooded Warbler <sup>1,2</sup>	S3B	SC	THR

<sup>1</sup> Biodiversity Explorer Record (OMNR 2010)

<sup>2</sup> Ontario Breeding Bird Atlas (Cadman et. al 2007)

#### Provincial Rank (S-Rank)

S1: Critically Imperiled

S2: Imperiled

S3: Vulnerable

S4: Apparently Secure

SH: Historic

#### COSEWIC and SARO Status

END: Endangered

THR: Threatened

SC: Special Concern

NAR: Not at Risk

As species of Special Concern, each of these ten (10) species is considered a species of conservation concern. As such, habitats of these species should be considered candidate significant wildlife habitat, and should be reviewed in more detail during the site investigation and evaluation of significance phases of this Project. Due to the potential for habitats of these species to represent significant wildlife habitat, brief habitat descriptions for each species have been provided below.

- Several forest-breeding birds, including Canada warbler (*Wilsonia canadensis*), cerulean warbler (*Dendroica cerulea*), golden-winged warbler, hooded warbler (*Wilsonia citrina*), and Louisiana waterthrush (*Seiurus motacilla*) have been recorded within the OBBA and/or Biodiversity Explorer reference squares that overlap with the Project area (Cadman et. al 2007, OMNR 2010). Several woodlands within the Project area have the potential to support these species.
- Black tern (*Chlidonias niger*) requires wetlands for breeding, and has been recorded within the OBBA and Biodiversity Explorer reference squares that overlap with the Project area (Cadman et. al 2007, OMNR 2010). Available basemapping indicates that the Project area overlaps with one PSW and two (2) unevaluated wetlands. Black terns could potentially occur within these portions of the Project area.
- Bald eagles typically nest in tall trees within 200 m of the shore, and will utilize tall, dead or partially dead, trees within 400 m of the nest for perching (OMNR 2000). No development activities are proposed within 500 m of any major shorelines. It is possible, but unlikely, that proposed development activities are located within 120 m of nests located further inland, or that proposed development activities are located between nest locations and foraging habitats. This species was confirmed breeding within three (3) OBBA reference squares during the 2001-2005 monitoring period.
- Common nighthawks (*Chordeiles minor*) prefer open ground, clearings in dense forests, ploughed fields, gravel beaches, and open woodlands (OMNR 2000). Habitat of this type is abundantly available in the area, and this species was observed within four (4) atlas squares during the 2001-2005 OBBA atlas periods (Cadman et. al 2007). Common nighthawks could potentially occur within the South Kent Wind Project area.
- Red-headed woodpecker can be found in field edges and farmyards with a few large trees (OMNR 2000). Habitat of this type is available within the area, and this species was confirmed breeding within several OBBA reference squares overlapping the Project area during the 2001-2005 atlas period. It is likely that this species is presently utilizing the wooded habitat within the South Kent Wind Project area.
- Yellow-breasted chats (*Icteria virens*) nest above ground in clearings with thickets and shrubs near streams and ponds (OMNR 2000). Habitat of this type is available within the Project area. This species was observed within two (2) OBBA reference squares overlapping the Project area during the 2001-2005 atlas periods. Although not confirmed breeding within the Project area, it is possible that this species is present within the South Kent Wind Project area.

In addition to these ten (10) species of Special Concern, another eleven (11) bird species of conservation concern have been identified through a review of the Biodiversity Explorer (OMNR 2010). These species are also considered species of conservation concern based on their provincial S-Rank and/or are considered species of interest with populations currently tracked by the MNR. The list of species identified by the Biodiversity Explorer query can be seen in Appendix I of this report.

Most of these additional eleven (11) species of conservation concern are waterfowl or waterbirds that rely heavily on aquatic or wetland habitat for breeding, such as Caspian tern (*Sterna caspia*), black-crowned night-heron (*Nycticorax nycticorax*), and little gull (*Larus minutus*). Although wetlands do exist within 120 m of the Project location, habitats for these species are expected to occur in the nearby habitats of Rondeau Bay and its associated shoreline wetlands, which are generally located more than 120 m from proposed development activities. Two (2) of these species, white-eyed vireo (*Vireo griseus*) and western kingbird (*Tyrannus verticalis*), prefer terrestrial habitats that are more likely to be encountered within the Project area. Habitat preferences for these two (2) species have been described in more detail below. All species of conservation concern identified through the review of Biodiversity Explorer can be seen in Appendix I of this report.

- Western kingbirds (*Tyrannus verticalis*) prefer dry, open country or scrub-land with trees and hedgerows (OMNR 2000). A single observation of this species occurred within one (1) of the OBBA reference squares overlapping the Project area during the 2001-2005 monitoring period. This record is expected to represent an accidental species, and it is unlikely that this species is breeding within the Project area.
- White-eyed vireos (*Vireo griseus*) nest in shrubs and bushes along forest edges and early successional fields (OMNR 2000). Habitat of this type is present within the Project area. This species was confirmed breeding within one OBBA atlas square during the 2001-2005 monitoring period. It is possible that this species is present within the limits of the Project area.

As a result of the review of species of conservation concern that may be present within the Project area and preferred habitats of each species, NRSI biologists have determined that several of these species are expected to be present within, or near, the

Project area. Most of these species, if present, are most likely to be breeding within woodlands or hedgerow habitats, and are unlikely to use the active agricultural fields.

## 8.2 Herpetofauna

The potential presence of reptile and amphibian species of conservation concern within the South Kent Wind Project area was evaluated through a review of the Biodiversity Explorer, Ontario Herpetofauna Atlas, and consultation with MNR specialists at the Aylmer District Office. A total of four (4) herpetofauna species of conservation concern have been documented within the vicinity of the Project area. Each of these species, including provincial and federal status, has been identified in Table 2 below.

**Table 2. Herpetofauna Species of Conservation Concern Identified Near the South Kent Wind Project**

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
<i>Ambystoma jeffersonianum-laterale</i> "complex"	Jefferson/Blue Spotted Salamander Complex <sup>2</sup>	S2		
<i>Ambystoma jeffersonianum-laterale</i> "polyploids"	Jefferson/Blue-spotted Salamander Polyploids <sup>2</sup>	S2		
<i>Chelydra serpentina serpentina</i>	Common Snapping Turtle <sup>6</sup>	S5	SC	SC
<i>Graptemys geographic</i>	Northern Map Turtle <sup>5</sup>	S3	SC	SC
<i>Lampropeltis triangulum</i>	Eastern Milksnake <sup>5</sup>	S3	SC	SC
<i>Thamnophis sauritus</i>	Eastern Ribbonsnake <sup>5</sup>	S3	SC	SC

<sup>1</sup> Biodiversity Explorer Record (OMNR 2010)

<sup>2</sup> Ontario Herpetofauna Summary Atlas (Oldham and Weller 2000)

Provincial Rank (S-Rank)	COSEWIC and SARO Status
S1: Critically Imperiled	END: Endangered
S2: Imperiled	THR: Threatened
S3: Vulnerable	SC: Special Concern

Preferred habitat for these species of conservation should be considered candidate significant wildlife habitat, and should be considered during the site investigation and evaluation of significance phases of this Project. As such, brief descriptions of the habitat requirements of these six (6) species have been provided below.

- Northern map turtle (*Graptemys geographic*) has been recorded within the general vicinity of the Project area (Oldham and Weller 2000). This species of Special Concern typically prefers large open water systems with soft, muddy bottoms (OMNR 2000). This species will sometimes travel considerable distances from aquatic habitats and will often use aquatic corridors for travel (OMNR 2000). Available basemapping obtained from LIO

and aerial photography indicated that wetland and open water habitat within the Project area is limited. This species is more likely associated within shoreline habitats, particularly those associated with the wetland communities of Rondeau Bay, however it may be found using near-shore watercourses as movement corridors or nesting locations.

- Common snapping turtles (*Chelydra serpentina serpentina*) can inhabit permanent, or semi-permanent, bodies of water, marshes, bogs, or rivers and streams with soft, muddy substrates (OMNR 2000). This species of Special Concern can often be found nesting considerable distances from aquatic habitats. It is possible that this species may be found within the watercourses or agricultural ponds within the Project area, and may travel through the Project area looking for breeding locations.
- Eastern milksnake is a species of Special Concern which is a habitat generalist, often found in open woodlands, fields, and farm buildings (OMNR 2000). Habitat of this type is abundantly available in the area, and there are several records of this species from within the Project area. It is likely that the eastern milksnake is present within 120 m of the Project location.
- Eastern ribbonsnakes (*Thamnophis sauritus*) are a species of Special Concern which live in open grassy areas with low, dense vegetation near bodies of shallow permanent calm water (OMNR 2000). Habitat of this type is available within the Project area, and this species may be occasionally found along vegetated watercourses within the South Kent Wind Project area.
- Jefferson salamander/blue-spotted salamander complex and polyploids (*Ambystoma jeffersonianum-laterale* "complex" and "polyploids") are considered species of conservation concern based on a provincial S-Rank of S2, indicating that populations of this species are imperilled within Ontario. This species prefers damp, shady deciduous forest, swamps, moist pasture, and lakeshores, and it requires temporary woodland pools for breeding (OMNR, 2000). Habitat of this type is available in the Project area, and it is possible that these species complexes and polyploids may be present within the Project area. Habitat for this species should be examined during the site investigation phase of this Project.

### 8.3 Mammals

A single mammal species of conservation concern, the tricolored bat (*Perimyotis subflavus*), has been identified through a comprehensive records review of available information. This species has a provincial S-rank of S3?, indicating that populations of this species are likely vulnerable within Ontario. Habitat for this species includes woodlands near open water for foraging; trees, buildings, caves, or crevices for roosting; and caves, mines, or rock crevices for hibernating (OMNR 2000). Many of these

features, particularly woodlands near open water and trees for roosting, are located throughout the Project area. Suitable habitat for this species should be confirmed during the site investigation.

#### 8.4 Vegetation

A total of four (4) plant species of Special Concern have been identified within the South Kent Wind Project area through a review of recent records identified by the Biodiversity Explorer (OMNR 2010). These are listed in Table 3 below.

**Table 3. Plant Species of Special Concern Identified Near the South Kent Wind Project Area**

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
<i>Fissidens exilis</i>	Pygmy Pocket Moss	S1	SC	SC
<i>Hibiscus moscheutos</i>	Swamp Rose-mallow	S3	SC	SC
<i>Phegopteris hexagonoptera</i>	Broad Beech Fern	S3	SC	SC
<i>Quercus shumardii</i>	Shumard Oak	S3	SC	SC

**Provincial Rank (S-Rank)**

S1: Critically Imperiled  
 S2: Imperiled  
 S3: Vulnerable

**COSEWIC and SARO Status**

END: Endangered  
 THR: Threatened  
 SC: Special Concern

In addition to the four (4) plant species of Special Concern identified above, another forty-two (42) species of conservation concern have been identified by a query of the Biodiversity Explorer (OMNR 2010). These plant species are considered species of conservation concern based on their provincial S-Ranks and/or are considered species of interest with populations that are currently tracked by the MNR. These forty-two (42) species represent a wide range of plant species, including trees, ferns, sedges, and other herbaceous species.

Most of the forty-six (46) species of conservation concern, including species of Special Concern and those with provincial S-Ranks of S1-S3, are typical of natural habitats and are unlikely to occur within active agricultural fields. Some of these species, particularly trees, have the potential to occur in hedgerow habitats within the Project area. Habitat for species of conservation concern may be considered significant wildlife habitat, and as such, habitats for these species should be considered during the site investigation

phase of this Project. A full list of species of conservation concern identified by the Biodiversity Explorer can be seen in Appendix I of this report.

#### 8.5 Other Species

Species from several other fauna groups, including slugs and snails, dragonflies, and butterflies, have also been reviewed for the potential presence of significant species within the South Kent Wind Project area.

A total of fourteen (14) other faunal species of conservation concern have been identified as potentially occurring within the Project area. These species have been identified as rare based on their provincial S-Rank and/or are species of interest with populations currently tracked by the MNR. Of these fourteen (14) species, eight (8) include relatively recent records (1980-2010) that have the potential to be present within the Project area. These species include two (2) land snails, five (5) dragonflies and/or damselflies, and one (1) butterfly.



## 9.0 Existing Studies

As a result of the large size of the South Kent Wind Project, several other proposed wind energy generating facilities overlap with the proposed Project area. A number of existing studies previously conducted for these individual Projects have now been incorporated into the larger South Kent Wind Project. Several existing studies have been reviewed as part of the records review completed by NRSI. Each of these studies has been described in more detail below, including general Project locations and summary of environmental studies completed.

Completed field studies at these proposed facilities, primarily bird and bat studies, have been reviewed and compared to the Significant Wildlife Habitat Technical Guide (OMNR 2000) and Significant Wildlife Habitat Ecoregion Criteria Schedules (OMNR 2009) for their relevance to identifying candidate significant wildlife habitat within the Project area. Although these records are a preliminary indication of candidate significant wildlife habitat within 120 m of the Project location, a full review of this data will be detailed as part of the evaluation of significance for the South Kent Wind Project.

The purpose of this records review is to provide preliminary information as it relates to potentially significant areas within the South Kent Wind Project. As such, NRSI has provided a list of some of the candidate significant wildlife habitat types that have been considered while reviewing existing studies that have been completed within the vicinity of the South Kent Wind Project area. This list, provided in Table 4, indicates many of the likely significant wildlife habitat candidates, and which survey types have been examined to determine the presence of these candidate features. The potential significance of these features will be addressed in more detail in the evaluation of significance phase of this Project.

**Table 4. Candidate Significant Wildlife Habitat Identified in Existing Studies**

Survey Type	Candidate Significant Wildlife Habitat
Birds – Swan Surveys	Waterfowl Stopover Area (Terrestrial) Waterfowl Staging Area (Terrestrial)
Birds – Spring Migration	Waterfowl Stopover Area (Terrestrial and Aquatic) Waterfowl Staging Area (Terrestrial and Aquatic) Shorebird Migratory Stopover Area

Survey Type	Candidate Significant Wildlife Habitat
	Songbird Migratory Stopover Area Waterfowl Nesting Area Osprey Nesting, Foraging, and Perching Habitat Woodland Raptor Nesting Habitat
Birds - Breeding	Colonial-Nesting Bird Breeding Habitat Colonial-Nesting Bird Breeding Habitat (Tree/Shrub) Colonial-Nesting Bird Breeding Habitat (Ground) Waterfowl Nesting Area Marsh Bird Breeding Habitat Area-Sensitive Bird Breeding Habitat Open Country Bird Breeding Habitat Shrub/Early Successional Bird Breeding Habitat
Birds – Fall Migration	Waterfowl Stopover Area (Terrestrial and Aquatic) Waterfowl Staging Area (Terrestrial and Aquatic) Shorebird Migratory Stopover Area Songbird Migratory Stopover Area
Birds - Winter	Raptor Wintering Area
Bats	Bat Maternal Colonies

Table 5 identifies the Projects that have been reviewed as part of this records review. The approximate size of the Project areas, and the South Kent Wind Project turbines which fall within the surveyed Project areas, are also included in the table below. Approximate proposed or existing Project location boundaries for each of these 13 proposed wind farms, in relation to the location of the South Kent Wind Project, have been provided in Figure 2.

**Table 5. Proposed and Existing Wind Projects in Vicinity of Proposed South Kent Wind Project**

Study Name	Project Area (ha)	South Kent Wind Project Turbines
Flat Creek Wind Farm	287	P002, P003, P004, P006, P007, P008, P009, P167
Harwich Wind Farm	283	P035, P036, P041, P042, P108, P109, P120
Merlin-Buxton Wind Farm	21,000	P060, P061, P062, P063, P064, P065, P066, P067, P068, P069, P070, P071, P072, P073, P074, P075, P077, P078, P087, P094, P095, P097, P098, P099, P100, P111, P113, P115, P121, P124, P125, P126, , P132, P148, P149, P150, P161, P163, P164, P175, P176
Merlin Wind Farm (Wind Prospect)	1,100	P176
Kent Centre Wind Farm	15,171	P063, P121, P98, P129, P065, P061, P094, P117, P059, P097, P096, P111, P112, P060, P100, P054, P055, , P052, P056, P057, P058,

Study Name	Project Area (ha)	South Kent Wind Project Turbines
		P044, P045, P046, P053, P037, P038, P039, P040, P047, P048, P041, P108, P034, P032, P033, P035, P036, P120, P042, P031, P135, P026, P028, P029, P030, P023, P024, P016, P017, P018, P019, P020, P021, P022, P133, P014, P092, P013, P091, P010, P012, P101, P102, P062, P149, P163, P164, P162, P052, P109, P034, P155, P156, P173, P152, P168
Merlin Wind Farm (Acciona)	~6,900	P069, P070, P087, P174, P175, P176
Quinn Wind Farm	~14,600	P080, P081, P082, P122, P116, P079, P075, P077, P078, P132, P113, P115, P124, P071, P072, P073, P074, P150, P079, P154
Invenergy Raleigh Wind Farm	12,982	P094, P061, P069, P098, P065
Swanton Line Wind Farm	~ 460	none
Bisnett Line Wind Farm	~1,000	none
Front Line Wind Farm	~ 1,125	P001, P138
Port Alma Wind Farm	34,200	P113, P115, P075, P077, P078, P132, P122, P070, P087, P074, P124, P072, P073, P071, P095, P069, P174, P175, P176, P150
Erieau-Blenheim Wind Farm	7,474	none

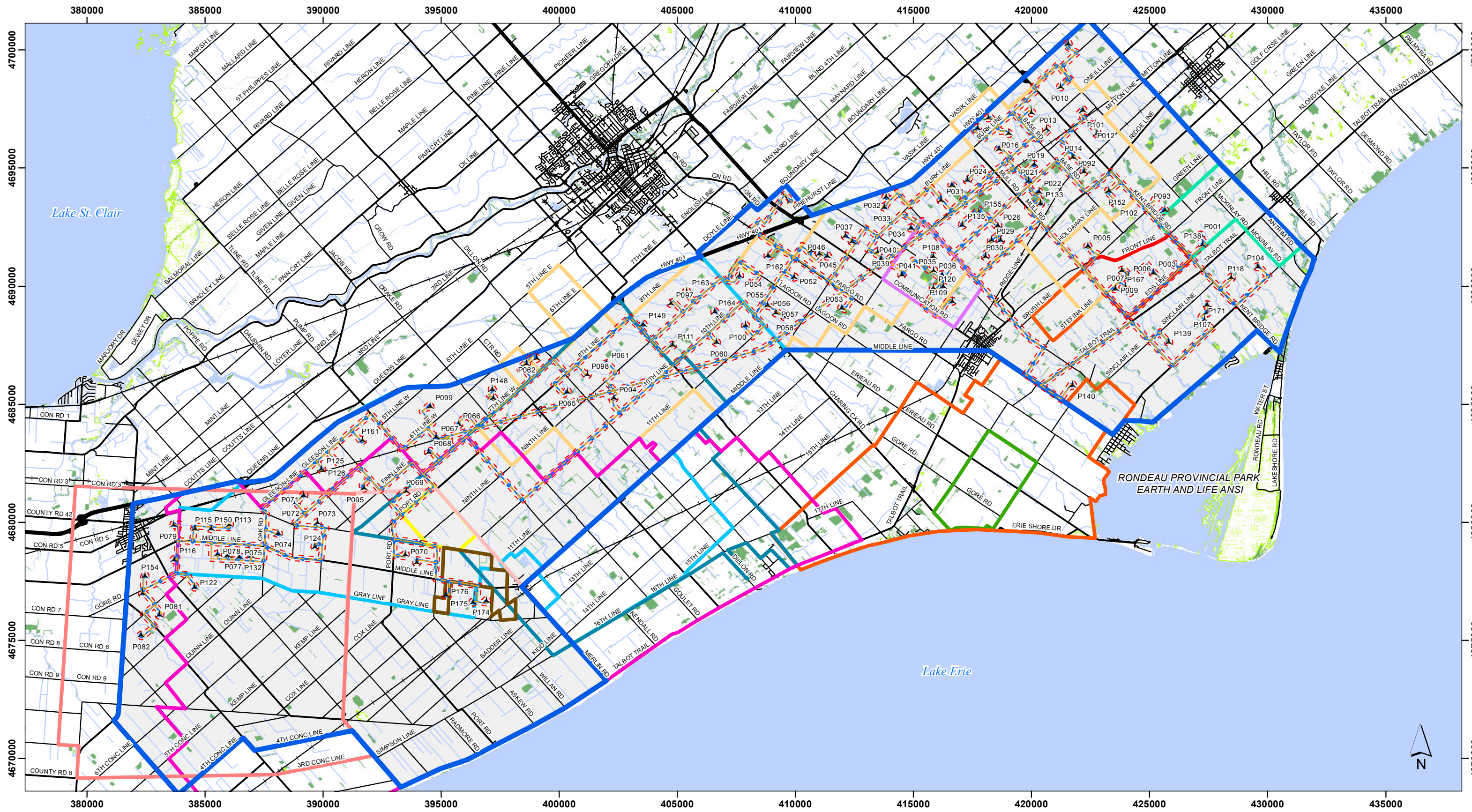


Figure 2  
**South Kent Wind Project**  
**Existing Study Boundaries**

0 1 2 3 4 5 km

April 23, 2012  
 Project No: NRSI-1184  
 UTM Zone 17, NAD 83  
 Scale: 1:150,000 (at 11x17")

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 Aquatic, Terrestrial and Wetland Biologists

- |                            |                         |                         |   |                           |
|----------------------------|-------------------------|-------------------------|---|---------------------------|
| Project Area (April, 2012) | Highway                 | South Kent Wind Project | Merlin Wind Farm (Wind Prospect Inc.)             | Port Alma Wind Farm       |
| Constructible Area         | Primary Road            | Flat Creek Wind Farm    | Merlin Wind Farm (Acciona Wind Energy Canada Inc) | Erieau-Blenheim Wind Farm |
| Proposed Turbine (L020)    | Secondary Road          | Harwich Wind Farm       | Quinn (Acciona) Wind Farm                         | Raleigh Wind Farm         |
| Substation                 | Watercourse (Permanent) | Merlin-Buxton Wind Farm | Raleigh Wind Farm                                 | Swanton Line Wind Farm    |
| Cabling                    | Wooded Area             | Kent Centre Wind Farm   | Swanton Line Wind Farm                            | Front-Line Wind Farm      |
| Access Road                | Waterbody               | Bisnett Line Wind Farm  | Bisnett Line Wind Farm                            |                           |
| Railway                    | Wetland Area            |                         |   |                           |

## 9.1 Flat Creek Wind Farm Proposal: EIS/ESR

The Flat Creek Wind Farm was proposed for an area approximately 6 km east of the Town of Blenheim, ON. The area examined for this Project comprised 287 ha which are now included in the South Kent Wind Project and in which a total of eight (8) turbine locations for the South Kent Wind Project are located. The Environmental Impact Study/Environmental Screening Report (EIS/ESR) for the Flat Creek Wind Farm (Wind Prospect Inc. 2009) considered lands bounded approximately by Front Line to the north, Mull Road to the west, Ed's Line to the south, and Kent Bridge Road to the east. The EIS/ESR was completed by Wind Prospect Inc., and prepared for the BWP Wind Limited Partnership, consisting of Wind Prospect Inc. and Babcock and Brown. BWP Wind Limited Partnership is now a wholly owned subsidiary of Pattern.

### 9.1.1 Birds

#### Spring Migration

The purpose of the spring migration program was to quantify bird usage of the Flat Creek study area during the spring migration season. Surveys were conducted at two (2) monitoring stations within the Project area. On each survey date, monitoring was conducted for two (2) hours at each station and all observed (or heard) birds were documented. Spring migration monitoring was conducted on six (6) different dates between April 21 and May 28, 2007. For each survey, weather conditions, including temperature, precipitation, visibility, cloud cover, wind speed and direction, and barometric pressure were recorded. During the surveys, birds detected were recorded to species and their flight height recorded.

During spring migration, a total of 881 individual birds were observed, representing 45 different species. The most abundant species observed were Canada goose (*Branta canadensis*), common grackle (*Quiscalus quiscula*), and European starling (*Sturnus vulgaris*).

#### Fall Migration

Fall migration surveys were conducted to identify whether the Flat Creek Wind Farm Project area provides important stop-over habitat to migrating birds or acts as an important flyway for diurnal migrants. Surveys were conducted at two (2) different

monitoring stations within the Project area. On each survey date, monitoring was conducted for two (2) hours at each station. All birds observed, or heard, were documented accordingly. Fall migration surveys were conducted on four (4) dates between September 21 and November 1, 2006 and on four (4) dates between September 2 and September 26, 2007. For each survey, weather conditions, including temperature, precipitation, visibility, cloud cover, wind speed and direction, and barometric pressure were recorded. During the surveys, birds detected were recorded to species and their flight height recorded.

Fall migration monitoring in 2006 and 2007 resulted in 7,979 bird observations of 50 different species. The most commonly observed species were blue jay (*Cyanocitta cristata*), Canada goose, European starling, and red-winged blackbird (*Agelaius phoeniceus*), all of which are common with secure populations in Ontario. A total of 45 raptors were observed over two (2) years of fall migration monitoring, including a bald eagle observation, a species of conservation concern.

#### Nocturnal Bird Migration

Nocturnal bird migration monitoring was conducted in order to get an understanding of abundance and flight directions of birds migrating at night through the Project area. This monitoring was conducted by EchoTrack Inc. using their EchoTrack Radar-acoustic surveillance system. The radar system used allowed for detection of airborne bird movement within a 2 km radius and as high as 870 m in altitude of the radar unit. The station location and 2 km survey radius covered by the radar unit allowed for coverage well beyond the limits of the Project area. Monitoring was conducted on five (5) dates between August 19 and September 15, 2008. The timing of the monitoring in this Project area was selected in order to collect both bat and bird data simultaneously.

#### Breeding Birds

Breeding bird surveys were conducted to identify the species of birds breeding within the Project area and their abundance. A total of eight (8) point counts were used to collect breeding bird data for the Project area, each surveyed for five (5) minutes on each date. Surveys were conducted during June 2007, and included two (2) surveys conducted at least ten (10) days apart. During each point count, appropriate information, including

weather, bird species and abundance, vegetation type, and distance of observation, were all recorded. Most of the breeding bird species recorded were reflective of the agricultural nature of the Flat Creek Wind Farm Project area.

### Winter Bird Surveys

Winter bird surveys were conducted using a driving transect method in which observations were made from a slow moving vehicle driving around the perimeter of the Project area. Data collected during these surveys included species identification and abundance, flight heights, location of observation, and time of observation. A total of four (4) winter surveys were conducted at the Flat Creek Wind Farm Project area, including two (2) in February 2006 and two (2) on each of December 26, 2006 and January 29, 2007.

The winter bird surveys identified 26 species within the Project area. Four (4) raptor species were observed, northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), and rough-legged hawk (*Buteo lagopus*). Only one (1) individual of each raptor species was observed except for the Cooper's hawk, which was observed twice.

#### 9.1.2 Bats

Bat monitoring was conducted at the Flat Creek Wind Farm Project area on five (5) nights in August and September, 2008 by EchoTrack Inc. RADAR monitoring was conducted in conjunction with broad-band acoustic monitoring at one (1) ground-level station in 14-minute intervals, 24 times per night, resulting in a total of 28 hours of data collected. The radius of the radar monitoring was 2 km, and covered areas beyond the limits of the Flat Creek Project area. In addition to RADAR studies, broad-band acoustic point count surveys were conducted around the perimeter of the Project area, with five (5) minute ground level point counts occurring every kilometer. A total of 25 stations were surveyed, resulting in more than two (2) hours of acoustic data.

The overall average passage rate, as determined by radar monitoring, was 4.8 passes/hour. Only 9% of bats identified with radar surveys were flying within the typical turbine blade sweep elevation of 40-120 m. Nightly peaks in flight activity were

observed one (1) hour after sunset, with another increase in flights at dawn. Five (5) bat species were confirmed within the Project area from acoustic monitoring, including two (2) migratory species, hoary bat (*Lasiurus cinereus*) and red bat (*Lasiurus borealis*), as well as resident species little brown bat (*Myotis lucifugus*), northern long-eared bat (*Myotis septentrionalis*), and tricolored bat. Unidentifiable calls of at least another species were recorded from the category of big brown bat (*Eptesicus fuscus*) or silver-haired bat (*Lasionycteris noctivagans*). As the Flat Creek (and Harwich Wind Farm) bat data was collected and reported by EchoTrack Inc. as a single Project out of a number of Projects monitored together, the eastern small-footed bat (*Myotis leibii*) was detected at another Project site proposed by Wind Prospect Inc. at a location within the South Kent Wind Project area. It was documented in the Flat Creek and Harwich reports at 42.24287°N and 82.26456°W, just west of the village of Merlin.

The data collected in the Flat Creek Project area indicates that there is not a high concentration of bat activity, and no hibernacula were found. The average flight height of most bats identified within the Flat Creek Project area occurs at heights greater than the typical turbine blade-swept area of 40-120 m. Overall there appears to be a low risk to bats within the Flat Creek Project area (Wind Prospect Inc. 2009a).

## 9.2 Harwich Wind Farm Proposal: EIS/ESR

The Harwich Wind Farm was proposed for an area approximately 2 km north of the Town of Blenheim, ON. The Project area examined as part of this comprised 283 ha which are now included in the South Kent Wind Project and within which seven (7) proposed turbines for the South Kent Wind Project are included. The EIS/ESR for the Harwich Wind Farm (Wind Prospect Inc. 2009) considered lands bounded by Drury Line to the north, Communication Road to the west, Allison Line to the south, and Harwich Road to the east. The EIS/ESR was completed by Wind Prospect Inc., and prepared for the BWP Wind Limited Partnership, consisting of Wind Prospect Inc. and Babcock and Brown. BWP Wind Limited Partnership is now a wholly owned subsidiary of Pattern.



## 9.2.1 Birds

### Breeding Bird Surveys

Breeding bird surveys were conducted to identify the species of birds breeding within the Harwich Wind Farm Project area and their abundance. A total of five (5) point count stations were used to collect breeding bird data for the Project area. Surveys were conducted on two (2) visits in June, 2007, with surveys conducted at least ten (10) days apart.

The birds documented during the breeding bird surveys in 2007 were species which are representative of the largely agricultural habitat within the Harwich Wind Farm Project area. Most of the species observed are considered common species with secure populations within Ontario.

### Winter Bird Surveys

Winter bird surveys were conducted using a driving transect method during which observations were made from a slow moving vehicle driving around the perimeter of the Project area. Data collected during these surveys included species identification and abundance, flight heights, location of observation and time of observation, and weather conditions. Three (3) winter surveys were conducted between December 26, 2006 and February 16, 2008.

Thirteen (13) species, all common species, of birds were observed during the winter surveys. During the December survey a large number of ring-billed gulls were observed, totaling 1,800 individuals. While ring-billed gulls were generally observed foraging in the agricultural fields, at heights of 0-25 m above ground, their abundance within the Harwich Wind Farm Project area might increase their potential for collision.

### Nocturnal Bird Migration Surveys

Nocturnal bird monitoring was conducted by EchoTrack Inc. using their EchoTrack Radar-acoustic surveillance system. This RADAR system allowed for the detection of airborne bird movement within a 2 km radius, and as high as 870 m asl of the RADAR unit. The 2 km radius covered by the RADAR unit was more than adequate to cover the entire Harwich Wind Farm Project area. RADAR data was collected for an 11 hour

period on each of four (4) dates between August 11 and September 30, 2008. The timing of the monitoring at this Project area was selected in order to collect both bat and bird data simultaneously

The peak in nocturnal migration in birds was observed to occur approximately two (2) hours after sunset. This Project area showed a high activity level when compared with eight (8) other proposed wind Projects monitored in 2008. Average flight height for birds at night through the Project area was 137 m. A total of 33% of all airborne birds and/or bats were identified to be flying at heights that would put them within the proposed blade sweep area of wind turbines.

### 9.2.2 Bats

Monitoring was conducted at the Harwich Wind Farm Project area on four (4) nights in August and September, 2008 by EchoTrack Inc. RADAR monitoring was conducted in conjunction with broad-band acoustic monitoring at one ground-level station in 14-minute intervals, twenty-four times per night, resulting in more than 22 hours of RADAR data. In addition to RADAR surveys, broad-band acoustic point counts were conducted around the perimeter of the Project area. Five-minute ground level point counts were conducted every kilometer resulting in a total of 14 stations and more than one (1) hour of acoustic data.

The overall average passage rate, as determined by radar monitoring, was 5.4 passes/hr. RADAR surveys identified that 35% of identified bats were flying within the typical turbine blade sweep elevation of approximately 40-120 m. Nightly peaks in flight activity were observed one (1) hour after sunset, with an increase in flights at dawn. Acoustic bat surveys identified five (5) bat species within the Project area, including hoary bat, red bat, little brown bat, northern long-eared bat, and tricolored bat. Unidentifiable calls of at least one other species were recorded from the category of big brown bat or silver-haired bat. As the Harwich (and Flat Creek Wind Farm) bat data was collected and reported by EchoTrack Inc. as a single Project out of a number of Projects monitored together, the eastern small-footed bat was detected at another Project site proposed by Wind Prospect Inc. at a location within the South Kent Wind Project area. It was documented in the Harwich and Flat Creek Wind Farm reports at 42.24287°N and 82.26456°W, just west of the village of Merlin.

The data collected in the Harwich Wind Farm Project area indicates that there is not a high concentration of bat activity, and no hibernacula were found. The average flight height of most bats identified within the Harwich Project area occurs at heights greater than the typical turbine blade-swept area of 40-120 m. Overall there appears to be a low risk to bats within the Harwich Wind Farm Project area (Wind Prospect Inc. 2009b).

### 9.3 Merlin-Buxton Wind Farm: ESR

The Merlin-Buxton Wind Farm was proposed for an area between the Towns of Chatham and Merlin (north-south), and Tilbury and Charing Cross (west-east). The areas examined for this Project overlap with the South Kent Wind Project. The Proponent is currently looking to acquire the Merlin-Buxton Wind Farm and therefore it has been included in the current South Kent Wind Project area. The ESR for the Merlin-Buxton Wind Farm (Helimax 2009) considered lands bounded by Highway 401 to the north, Davidson Road to the west, Gray Line and 16<sup>th</sup> Line, Middle Line to the south, and Charing Cross Road to the east. This area encompasses 21 000 ha, with forty-one (41) proposed turbines for the South Kent Wind Project. The ESR was completed by Helimax Energy Inc. (2009), and prepared for Boralex.

#### 9.3.1 Birds

Through discussions with Environment Canada/Canadian Wildlife Service staff, four-season avian monitoring was conducted at the Merlin-Buxton Wind Farm, by Dave Martin Inc during 2008. In total 56,069 birds were observed during the study period, with a 114 species being observed within the Project area. Blackbird species and European starlings had the highest abundance at 44.8% of all observations.

#### Spring Migration Monitoring

Four (4) area search surveys were conducted during the month of May, 2008. Migration surveys were conducted to determine whether the Merlin-Buxton Wind Farm Project area provides habitat for significant concentrations of migratory birds, with focus on the potential for shorebird staging areas. Area searches, each lasting between 6-7 hours, were conducted to collect spring migration data within the Merlin-Buxton Project area.

The spring migration monitoring identified that there was some use of the agricultural fields in the Project area by various shorebird species during the May 2008 surveys.

Shorebird species observed included black-bellied plover (*Pluvialis squatarola*), American golden-plover (*Pluvialis dominica*), ruddy turnstone (*Arenaria interpres*), dunlin (*Calidris alpina*), semipalmated sandpiper (*Calidris pusilla*), and whimbrel (*Numenius phaeopus*). Of note however is that during spring 2008 shorebirds appeared to be more dispersed than in some years, with shorebirds not concentrating in the traditionally used “Plover” fields located north of Rondeau Bay along Hwy #3 (Talbot Line).

#### Fall Migration Surveys

Migration monitoring was conducted on ten (10) dates between September 9 and November 11, 2008. Fall migration monitoring was conducted at a single survey station located near the southern border of the Merlin-Buxton Project area, located 500 m east of the intersection of Sixteenth Line and A.D. Shadd Road. Survey dates were chosen to coincide with flight times of various species and on days with a northerly wind direction (winds most likely to result in large migration movements). Data on bird flight heights and direction of movement was recorded during each survey.

Thirteen (13) species of raptor (including vultures) were observed, with turkey vulture (*Cathartes aura*), sharp-shinned hawk (*Accipiter striatus*) and broad-winged hawk (*Buteo platypterus*) being the most abundant species observed. For non-raptor diurnal migrants blackbirds and European starlings (9,533 individuals), blue jays (4521 individuals) and American crows (1657 individuals) were the species observed in the greatest abundance during fall migration. Species of conservation concern, including bald eagle and red-headed woodpecker, were observed during the fall migration period at the Merlin-Buxton Wind Farm.

#### Breeding Bird Surveys

One (1) breeding bird survey was conducted in June 2008. Breeding birds were surveyed using an area search method which involved driving local roads of the Project area, and making stops at important habitats and wherever birds were observed. Most of the species observed were common species with secure populations within Ontario.

### Winter Bird Surveys

Up to three (3) area searches were planned to occur during the winter months, depending on the results of the initial survey(s). As a result of conversations with Environment Canada and Canadian Wildlife Service, it was decided that if the density of overwintering raptors was less than 30 birds per 100 km on the first visit then additional surveys would not be conducted. Based on the results, two (2) surveys were completed on January 12 and 16, 2008. Winter surveys were conducted using driving transects and lasted between 2.5 and 4 hours each.

Three (3) raptor species, red-tailed hawk, American kestrel (*Falco sparverius*), and Cooper's hawk, were observed. Total raptor observations included 44 individuals during approximately 256 km of driving. The density of wintering raptors in the Project area was calculated to be 17.2 raptors/100 km, and as a result additional surveys were not conducted.

#### 9.3.2 Bats

Monitoring was conducted at the Merlin-Buxton Project area from the night of August 1 through October 6, 2008 by Natural Resource Solutions Inc. Acoustic, through-the-night monitoring was conducted using Pettersson D240X ultrasound units. Both heterodyne and time expanded calls were recorded during the monitoring program to allow for analysis of both abundance and species data. This monitoring program was implemented at five (5) ground-level stations and one (1) station elevated to 30 m on an existing MET tower. Acoustic data was collected on 174 nights for a total of 1990 hours. In addition, heterodyne data was manually recorded for five (5) minute periods at 15 point count stations, between sunset and midnight, to identify possible areas of concentrated activity. This point count monitoring occurred on four (4) different nights during the monitoring period.

A total of 2726 bat passes were recorded from through-the-night abundance monitoring, resulting in a low overall average passage rate of 1.4 passes/hour. The average passage rate at stations varied from 0.4 to 2.9 passes/hour. Nightly peaks were observed from 2100-2300 hours (averaging 3.2 passes/hour), with a smaller secondary

peak occurring from 0400-0600 hours (1.8 passes/hour), although the secondary morning peak was not observed at the elevated station.

Point count monitoring identified 58 passes, resulting in an overall average passage rate of 11.6 passes/hour. This higher passage rate is a result of monitoring during periods of peak bat activity each night. The average range of passage rates observed at the 5 minute point count stations was 0 to 60 passes/hour. Two (2) of these point counts had very elevated passage rates as a result of single monitoring nights with 18 and 8 passes during a single point count, respectively.

Bat species confirmed within the Merlin-Buxton Wind Farm Project area include all three (3) migratory species: hoary bat, red bat, and silver-haired bat; as well as four (4) of the resident species little brown bat, northern long-eared bat, big brown bat, and tricolored bat. The most abundant call recorded was in the big brown or silver-haired bat category at around 70% of the calls, followed by identified silver-haired bats at 9.9% of calls, then hoary and red bats at 5.1% of the calls each.

Seasonal peaks in bat activity were recorded on dates in mid-August (12.6 passes/hour) and early September (6.3 passes/hour) at through-the-night monitoring, a trend which was echoed by the five-minute point count monitoring, with a peak on September 2 of 2.4 passes/hour.

In general, activity decreased from August through September to October, with monthly passage rates of 1.9, 0.8, and 0.03 passes/hour, respectively.

The data collected at the Merlin-Buxton Wind Farm Project area indicates that some summer swarming and migration may be occurring within the area, although it is expected to be limited in numbers and not represent large concentrations of bats (Helimax 2009a). No hibernacula were found. In general, lower activity was observed at the elevated through-the-night monitoring station, indicating that most of the activity observed was occurring below the at-risk zone of 40-120 m, the typical range of turbine blade-swept areas.

#### 9.4 Merlin Wind Farm (Wind Prospect Inc.): ESR

The Merlin Wind Farm was proposed for an area approximately one (1) km west of the Town of Merlin, ON and comprises 1,100 ha which are now included in the South Kent Wind Project. The lands within this Project area overlap the Project boundaries and development activities of the South Kent Wind Project. This Project area contains one turbine from the proposed South Kent Wind Project (P176). The ESR for the Merlin Wind Farm (M.K. Ince 2008) examined lands bounded by Gray Line Road in the south, Merlin Road/Erie Street N. in the east, Pollard Line in the north, and Irwin Road in the west. The ESR was completed by M.K. Ince and Associates, Ltd, and prepared for Wind Prospect Inc.

##### 9.4.1 Birds

Through discussion with Environment Canada/Canadian Wildlife Service staff monitoring during all four (4) seasons was deemed to be adequate to characterize bird populations and activity patterns in the Project area.

##### Spring Migration Surveys

Spring migration surveys, focusing on passerine species, were conducted weekly from April 4 to May 16<sup>th</sup> 2006. Tundra swan (*Cygnus columbianus*) surveys were conducted on eight different days from March 11<sup>th</sup> to April 11<sup>th</sup> 2008, to determine whether the Project area is an important area for migrating swans. Both of these survey types were conducted using driving transects during which observations were made from a slow moving vehicle driving all of the roads in and near the Project area.

During the spring 2006 migration surveys, over 3,600 birds were observed, representing 45 different species. Black-bellied plovers had the greatest abundance with 1,660 individuals being observed, followed by red-winged blackbird (337) and common grackle (324). No notable waterfowl movements were observed between the sewage pond (approximately 1.5 km north of Merlin) and the Merlin Wind Farm site. Shorebird movement was found to peak in mid-May with 1,775 shorebirds being observed on May 16<sup>th</sup> 2006.

Tundra swans were observed within the Project area on only one of the eight (8) survey dates in 2008. A group of ten (10) tundra swans were observed flying over the Project

area and when they were outside of the Project area they were joined by six (6) more tundra swans. On March 15<sup>th</sup>, no tundra swans were observed on-site but at a nearby known staging area, 1,750 tundra swans were observed indicating the birds were in the vicinity but not using the Project area.

### Fall Migration Surveys

Surveys were conducted at two (2) different monitoring stations within the Project area. On each survey date, one (1) of the monitoring stations was surveyed for a total of two (2) hours. During the surveys all birds detected visually or aurally being recorded. All birds observed were recorded to species along with their flight height.

Over 2,000 birds, representing 25 species, were observed during fall migration monitoring with no SAR being observed. The most abundant species observed were blue jay, European starling, and red-winged blackbird, respectively. The Project area does not appear to be within a major migration route for raptors as only 18 raptors in total were observed on four (4) different fall survey dates.

### Breeding Bird Surveys

Point count stations were used to collect breeding bird data for the Project area, with five point count stations monitored. Surveys were conducted during June, with two (2) surveys conducted at each point count location. Surveys were conducted at least ten days apart, occurring on June 19, 2007 and June 29, 2006. Point counts were conducted during early morning hours beginning at approximately sunrise, and typically lasting close to 3.5 hours after sunrise.

There were 700 individuals observed during breeding bird surveys, representing 27 species. The majority of breeding species observed were ranked provincially as common species with secure populations within Ontario.

### Winter Bird Surveys

Winter bird surveys were conducted using driving transects during which observations were made from a slow moving vehicle driving around the perimeter of the Project area. Data collected during these surveys included species identification, numbers of



individuals, flight heights, location of observation, time of observation, and weather conditions. Four (4) winter surveys were conducted over the span of two (2) consecutive winters, on February 8 and 17, 2006 and December 27, 2006 and January 29, 2007.

Fourteen (14) species of birds were observed during the winter surveys, with all but one species observed being considered common species with secure populations within Ontario. A single short-eared owl (*Asio flammeus*) was observed on December 27, 2006. This species is a species of conservation concern and indicates the presence of candidate significant wildlife habitat within Merlin Wind Farm (Wind Prospect Inc.).

#### 9.4.2 Bats

Site-specific bat monitoring was not conducted for the Merlin Wind Farm Project area due to the small size of this Project and the abundance of pre-construction data available in the immediate vicinity of the Project, which was discussed and compared to landscape and habitat features within the Merlin Wind Farm Project area. The three (3) Projects referenced within the Merlin Wind Farm ESR include the Invenergy Raleigh Wind Farm, the Swanton Line Wind Farm (Gengrowth), and the Port Alma Wind Farm (Kruger Energy). Methodology and results of these reports are discussed in detail later in this report, in sections 8.8, 8.9, and 8.12, respectively.

#### 9.5 Kent Centre Wind Farm: ESR

The Kent Centre Wind Farm was proposed for an area between the Towns of Chatham and Blenheim (north-south) and from just west of North Buxton to west of Ridgetown (west-east). The Kent Center Wind Farm is owned by Pattern Energy and includes seventy-seven (77) turbines and associated infrastructure comprising approximately fifty-nine (59) percent of the total turbines identified within the South Kent Wind Project area. Proposed turbine locations for the South Kent Wind Project are found within the area examined for the Kent Centre Wind Farm Project area. The ESR for the Kent Centre Wind Farm (Helimax 2009b) considered lands bounded by: Highway 401 and Hitchcock Road to the north; Wellwood Road to the west; 11<sup>th</sup> Line, Middle Line, Stefina Line, and Holdaway Line to the south; and just east of Kent Bridge Road. The ESR was completed by Helimax Energy Inc. and prepared for Kent Centre Wind Farm Inc. (Pattern Energy Group), with BowArk Energy Ltd acting behalf of Kent Centre Wind Farm as the primary developer.

### 9.5.1 Birds

#### Spring Migration Monitoring

Spring migration surveys were conducted using driving transects, during which observations were made from a slow moving vehicle driving around the perimeter of the Project area. Surveys were conducted weekly from April 19 to May 30, 2008. A total of eight (8) field surveys were conducted with each lasting approximately 1.5 to two (2) hours in duration. Data collected during these surveys included species identification and abundance, flight heights, location of observation and time of observation, and weather conditions.

Over the eight (8) survey dates, ten (10) bird species were observed, with black-bellied plover, American golden-plover and turkey vulture representing the most abundant species observed. No provincially listed species were observed during spring surveys.

#### Spring Tundra Swan Surveys

Tundra swan surveys were conducted using driving transects, during which observations were made from a slow moving vehicle driving around the perimeter of the Project area. Surveys were conducted on four (4) dates between March 29 and April 11, 2008, with each survey lasting for 2-2.5 hours. Data collected during these surveys included species identification and abundance, flight heights, location of observation and time of observation, and weather conditions.

Tundra swans were observed on one (1) of the survey dates, March 29, 2008. A total of 20 individuals were observed on this survey date. Due to the limited swan activity, it is unlikely that this Project area represents a stopover or foraging locations for tundra swans.

#### Breeding Bird Surveys

Standardized area searches were conducted to determine breeding species, and their abundances, within the Kent Centre Wind Farm Project area. During the month of June, two (2) driving transects, along the same route, were conducted within the Project area. During each area search, stops were made at key habitats. Surveys were conducted at least 10 days apart, on June 5 and June 15, 2008.

Breeding bird area searches identified 46 breeding species within the Project area. The most abundant species observed were those typical of the agriculturally dominated conditions within the Project area.

### Winter Bird Surveys

Winter bird surveys conducted using driving transects, during which observations were made from a slow moving vehicle driving around the perimeter of the Project area. Surveys were conducted on three (3) dates between December 29, 2008 and February 23, 2009. Each survey was conducted for approximately 3.75 hours. Data collected during these surveys included species identification and abundance, flight heights, location of observation and time of observation, and weather conditions.

Winter bird surveys identified 25 species of birds using the site during the winter of 2008-09. The most abundant species observed were American Crow (8723), European starling (1330), horned lark (*Eremophila alpestris*) (427), and mourning dove (207). A total of four (4) raptor species were observed during winter surveys, totaling 25 individual observations. Red-tailed hawk (*Buteo jamaicensis*) was the most abundant raptor observed.

### 9.5.2 Bats

Monitoring was conducted at the Kent Centre Wind Farm Project area from the night of August 5 through September 29, 2008 by M.K. Ince and Associates Ltd. Acoustic through-the-night monitoring was conducted using Avisoft USG 116HB ultrasound units, where broadband data was recorded for the duration of the night to assess bat abundance. This monitoring was conducted at three (3) ground-level stations and one (1) station elevated to 30 m on a MET tower. All monitoring stations were located in agricultural habitats. This data was collected on 68 nights, totaling 748 hours of acoustic data.

Additional acoustic monitoring was conducted at a ground-level station near a woodland habitat from the night of August 11 to September 3, 2009 by NRSI. Acoustic through-the-night monitoring was conducted using Pettersson D240X ultrasound units, which was set up to record both heterodyne and time expansion data simultaneously. This set-up allowed for the analysis of both abundance and species data from the same acoustic

recordings. This data was collected on 17 nights for a total of 167 hours. Acoustic monitoring data collected at this Project area totaled 85 nights and 915 hours over the span of 2008 and 2009.

A total of 1501 bat passes were recorded from through-the-night abundance monitoring, resulting in low overall average passage rates of 1.86 and 1.3 passes/hour in 2008 and 2009, respectively. This is comparable with other studies in southwestern Ontario which have also shown relatively low passage rates. The average passage rate at stations in 2008 varied from 0.77 passes/hour to 4.45 passes/hour. Nightly peaks were observed near 2100hrs in both 2008 and 2009. Acoustic monitoring data collected during 2009 also showed a smaller secondary peak occurring at approximately 0600 hours (4.5 passes/hour).

Bat species confirmed within the Kent Centre Wind Farm Project area include two (2) of the three (3) migratory species, hoary bat and red bat, as well as three (3) resident species, little brown bat, northern long-eared bat, and tricolored bat (*Periomyotis subflavus*). Additionally, calls were recorded that were unidentifiable to the species level, representing big brown bats or silver-haired bats. Other unidentifiable bat calls were also recorded.

Seasonal peaks in bat activity were generally recorded on dates in late August (18, 17, and 4 passes/hour on each of August 21, 24, and 31) in 2008. In 2009, a seasonal peak was recorded earlier in the year, when 4.7 passes/hour were recorded on August 11.

The data collected in the Kent Centre Wind Farm Project area indicates that some bat migration may be occurring through the area for some of Ontario's migratory bat species, although low passage rates suggest that this Project area is not on a major migration route. The bat activity peak observed in mid-August also indicates that some summer swarming activity may occur within the Project area (Helimax 2009b). No hibernacula were found.

#### 9.6 Merlin Wind Farm (Acciona): Pre-Construction Bird and Bat Monitoring

The Merlin Wind Farm (Acciona) was proposed for an area located southeast of Tilbury, Ontario. The approximately 6,900 ha Project area overlaps with six (6) proposed

turbines in the South Kent Wind Project area. The pre-construction bird (Jacques Whitford Ltd. 2007a-d) and bat (Jacques Whitford Ltd. 2009) monitoring reports for the Merlin Wind Farm considered lands bounded by Highway 401 to the north, Richardson Sideroad to the west, 3<sup>rd</sup> Concession Line to the south, and Stevenson Road and east of Depot and Valetta Roads to the east. The pre-construction monitoring and reports were completed by Jacques Whitford Ltd. and prepared for Suncor Energy Products Inc.

#### 9.6.1 Birds

##### Spring Migration Monitoring

Migration monitoring was conducted at a total of eight point count locations throughout the Project area. Spring migration surveys were conducted from late March to late May 2007. Each survey started approximately 30 minutes prior to sunrise and lasted for a total of ten (10) minutes.

Waterfowl surveys were conducted on four (4) dates in March 2007, and were conducted between 0830hrs and 1300hrs. These surveys were conducted using driving transects, during which the roads within the Project area were driven and all birds were documented accordingly.

Shorebird monitoring was conducted on eight (8) survey dates from May to early June in 2007, each occurring between 0800hrs and 1400hrs. These surveys were conducted using driving transects, during which the roads within the Merlin Wind Farm Project area were driven and all birds were recorded. Data recorded included species, number of individuals, behavior, flight height and direction of flight and weather conditions.

Overall, the bird species observed during spring monitoring surveys are typical of southern Ontario agricultural habitats.

Migration monitoring point count results identified 6,311 individuals, representing 108 species, using the Project area. Flight heights of birds observed during these surveys were largely concentrated in the 0-40 m range.

During spring 2007 shorebird surveys, a total of 8,860 individual birds were observed. Black-bellied plover (7,402) was the most abundant shorebird followed by American golden plover (963) and ruddy turnstone (248). Shorebirds were found in large numbers throughout the Merlin Wind Farm Project area, and a concentration area was identified in the open fields along the Lake Erie shoreline, bounded roughly by Baldwin Road to the west and Askew Road to the east.

Surveys for waterfowl resulted in 1,718 individuals observed. One area of concentrated waterfowl staging area, Merlin sewage lagoons, was found within the Project area. The Merlin sewage lagoons accounted for more than half of the total waterfowl observations within the Project area.

#### Breeding Bird Monitoring

A total of 50 point counts were spaced approximately 1200 m apart along every roadway within the Project area. Each point count station was visited twice during the 2007 breeding season, on June 14 and July 3, 2007. Each point count was three (3) minutes in length, and documented all birds observed during the prescribed monitoring period. Surveys began half an hour before sunrise, and lasted until three (3) hours after sunset.

The breeding bird community observed was typical of the agricultural habitats of southern Ontario. A total of 48 species were observed, including red-winged blackbird, common grackle, and horned lark representing the most abundant species observed, respectively.

#### 9.6.2 Bats

Due to the small size of the Merlin (Acciona) and Quinn Wind Farms, bat monitoring was conducted by Jacques Whitford Ltd. for a combined Project area from the night of August 16 to the end of September, 2007. Acoustic through-the-night monitoring was conducted using Anabat II CF ultrasound units, where broadband data was recorded for the duration of the night to assess bat abundance. This monitoring was conducted at two (2) ground-level stations and one (1) station with detectors elevated to 16, 30, and 55 m on an existing MET tower. This data was collected over a span of 194 nights, accounting for an overall total of 2,328 hours of acoustic bat data. In addition, through-the-night acoustic monitoring was also conducted in this combined Project area by

Jacques Whitford Ltd. in 2008, collecting broadband data using Anabat SD1 ultrasound units at seven ground-level stations and two stations elevated to 30 m on existing MET towers. This monitoring was conducted for a total of 248 nights, resulting in a total of 2,976 additional hours of data collected.

A combined overall total of 2,645 bat passes were recorded from through-the-night abundance monitoring in 2007 and 2008, resulting in a low overall average passage rate of 0.5 passes/hour. Nightly peaks were observed from 2100-2200hrs, with a secondary peak occurring from 0200-0400hrs.

Bat species confirmed within the Merlin (Acciona) and Quinn Wind Farms combined Project area include all three (3) migratory species, hoary bat, red bat, and silver-haired bat, as well as two (2) resident species, tricolored bat and northern long-eared bat. Additionally, several species calls, unidentifiable to the species level were also recorded.

Seasonal peaks in bat activity were recorded on dates spanning the time period from late August to early September.

In general, lower activity was observed at the elevated through-the-night monitoring stations, indicating that most of the activity observed was occurring below the height of the proposed blade sweep area. Those species most often identified within the at-risk zone included the three (3) migratory species, hoary bat, red bat, and silver-haired bat. The low activity identified within the at-risk zone suggests that wind turbines within this Project area would have a low impact to bats (Jacques Whitford Ltd. 2009). No hibernacula or maternity roosts were identified within the Project area.

#### 9.7 Quinn Wind Farm: Pre-Construction Bird and Bat Monitoring

The Quinn Wind Farm was proposed for an area located west of Merlin, Ontario. This Project area is approximately 14 600 ha in size, and twenty (20) South Kent Wind Project turbines are proposed for this area. The pre-construction bird (Jacques Whitford Ltd. 2007e-g) and bat (Jacques Whitford Ltd. 2009) monitoring reports for the Merlin Wind Farm considered lands bounded approximately by Finn Line to the north, Stevenson Road and just west of Kemp Line and Sloan Roads to the west, the Lake Erie Shoreline to the south, and Drake Road to the east. The pre-construction monitoring

and reports were completed by Jacques Whitford Ltd. and prepared for Suncor Energy Products Inc.

#### 9.7.1 Birds

##### Spring Migration Surveys

Migration monitoring was conducted at a total of eight (8) point count locations throughout the Project area. The monitoring period occurred in the spring of 2007, lasting between late March and late May. Each survey date started approximately 30 minutes prior to sunrise, and lasted for 10 minutes in length.

Waterfowl surveys were conducted on four (4) dates in March 2007, and were conducted between 830hrs and 1300hrs. These surveys were conducted using driving transects, during which the roads within the Project area were driven and all birds activity was documented accordingly.

Shorebird monitoring was conducted on eight (8) dates during May and early June, 2007. Surveys occurred between 800hrs and 1400hrs, and were conducted using driving transect surveys within the Project area.

During spring migration monitoring, a total of 4,017 individuals were observed, representing 87 species. Almost all of the bird observations (91%) were documented well below the proposed blade sweep area (0-40 m), and 7% of bird observations were seen flying within the anticipated blade sweep height.

The 2007 spring waterfowl survey identified 2,258 individuals within the Project area. The Tilbury sewage lagoons were found to act as the only consistent concentration point within the Project area, located in the northwest corner of the Project. No localized flight corridors were identified during the field surveys, however a trend of birds flying away from the Lake Erie shoreline was documented.

Spring shorebird surveys in 2007 identified 7,729 individual shorebirds, representing 14 different species within the Project area. Black-bellied plover was the most abundant shorebird observed, and represented 74% of the shorebird individuals observed. Shorebirds were found to be staging in the Project area in large numbers, with two (2)



areas of concentration identified. These areas were the open fields in the northeast corner of the Project area, bounded roughly by Oak Road to the west and Gray Line to the south, and the Tilbury sewage lagoons where 16% of all shorebird individuals were observed.

### Breeding Bird Surveys

A total of 50 point counts were placed approximately 1200 m apart along every roadway within the Project area. Each station was surveyed twice during the 2007 breeding season, on June 12 and 26, 2007. Each point count was three (3) minutes in length, and occurred between a half hour prior to sunrise and three (3) hours after sunrise. Observations were also made at the Tilbury sewage lagoons during the breeding season to determine breeding birds at the sewage lagoons.

The breeding bird community observed in the Project area was identified to be relatively species poor, and typical of agricultural habitats within southern Ontario. Breeding bird surveys identified 52 species of birds showing evidence of breeding within the Quinn Project area based on point count surveys and observations at the sewage lagoons. The low level of diversity is due to the limited variety of habitats found within the Project area. Red-winged blackbird, common grackle, and horned lark were the most abundant species observed, respectively.

#### 9.7.2 Bats

Due to the small size of the Merlin (Acciona) and Quinn Wind Farms, bat monitoring was conducted by Jacques Whitford Ltd. for a combined Project area including both Project areas. The methodology and results of the bat monitoring at the combined Project area is described in Section 8.6.2.

#### 9.8 Raleigh Wind Energy Centre: ERR/EIS

The Raleigh Wind Energy Centre was constructed in an area just west of the community of Merlin, ON. The 12,982 ha Project area is primarily located south of the lands being considered for turbine placement for the South Kent Wind Project, although the lands surveyed contain five (5) proposed South Kent Wind Project turbines. The ERR / ESR for the Invenergy Raleigh Wind Energy Centre (Dillon Consulting Ltd. 2009) considered lands bounded by 7<sup>th</sup> Line W to the north, Pollard Line to the west, 16<sup>th</sup> Line to the south,

and Bloomfield Road to the east. The ERR/ESR was completed by Dillon Consulting Ltd. and prepared for Invenenergy Wind Canada ULC and Raleigh Wind Power Partnership.

#### 9.8.1 Birds

##### Spring Shorebird Surveys

Monitoring to determine whether there were large concentrations of shorebirds using the Project area was conducted over the spring of 2006 and 2007. These surveys were conducted using a driving transect methodology to conduct area searches. In each of 2006 and 2007, one (1) survey was conducted in March and four (4) surveys were conducted in May.

Two (2) years of spring surveys resulted in a total of 20 species of birds observed within the Raleigh Wind Farm Project area. Results are not expected to be typical of a shorebird staging area.

##### Fall Migration Surveys

Fall migration surveys were designed to focus on raptor migration along the shoreline of Lake Erie. A single stationary monitoring location was used, located near the Lake Erie shoreline. Surveys were conducted weekly during the anticipated fall migration period of 2006, and were typically conducted on days with conditions favorable for bird migration. Ten (10) additional monitoring surveys were completed in 2007 between September 6 and November 15, 2007.

A total of 77 species of birds were observed during fall migration surveys. Observations included 3,868 raptors or vultures and 29,537 other bird observations in 2006. In 2007, bird observations included 11,285 raptors or vultures and 160,084 other bird species.

##### Breeding Bird Surveys

Area searches were conducted for breeding birds through the implementation of six (6) area searches conducted from May to June 2006. Area searches were primarily conducted in open country habitats, similar to those proposed for turbine placement, however one (1) survey occurred in woodland habitat. Five (5) additional breeding bird surveys were conducted from May 11 to July 15, 2007.

A total of 66 species of birds were observed during breeding bird surveys. These species are typical of the agricultural landscape of southern Ontario.

### Winter Surveys

Area searches were conducted for wintering raptors on one date of two consecutive winters. These surveys occurred on March 11, 2006 and again on February 24, 2007. Each survey consisted of driving transects within the Project area.

The average density of wintering raptors in the Project area in 2006 was 11 raptors/100km, and in 2007 was approximately 9 raptors/100km. These raptor utilization rates have been identified as representing relatively low concentrations of wintering raptors.

Three (3) species of conservation concern, bald eagle, common nighthawk, and red-headed woodpecker, were all observed during the four (4) season avian inventories conducted at the Raleigh Wind Farm in 2006 and 2007.

### 9.8.2 Bats

Monitoring was conducted at the Raleigh former Project area from the night of August 24 through September 15, 2007 by NRSI. Acoustic through-the-night monitoring was conducted using Pettersson D240X ultrasound units. The set-up of these systems was designed to record both heterodyne and time expansion recordings simultaneously, allowing for an analysis of abundance and species data from the same recorded files. Acoustic monitoring was conducted at three (3) ground-level stations, and was collected during a span of 28 nights, representing an overall total of 209 hours of acoustic bat data.

A total of 370 bat passes were recorded from through-the-night abundance monitoring in 2007, resulting in a low overall average passage rate of 1.8 passes per hour (passes/hour). The average passage rate at stations varied from 0.5 passes/hour to 3.1 passes/hour. Nightly peaks were observed from 2100-2200 hours (averaging 5.5 passes/hour), with a smaller secondary rise in activity occurring from 0200-0500 hours (2.0 passes/hour).

Bat species confirmed within the Raleigh Project area include two (2) migratory species, hoary bat and red bat, as well as the resident species little brown bat and tricolored bat. Additionally, unidentifiable calls of big brown bat/silver-haired bat, as well as *Myotis* sp. (which could include little brown bat, northern long-eared bat, or eastern small-footed bat), were also recorded. Few recorded calls of the tri-colored bat were recorded within the Raleigh Project area. Seasonal peaks in bat activity were recorded in late August, and general decreased from August to September.

The data collected at the Raleigh Project area indicates that seasonal peaks observed likely correspond to some summer swarming and some local migration of resident species. However, the Project area is not expected to represent a major migration route, nor were there any areas of concentration, including hibernacula or maternal colonies, noted (Dillon Consulting Ltd. 2009).

#### 9.9 Swanton Line Wind Farm: EIS/ESR

The Swanton Line Wind Farm was constructed in an area between the Towns of Fletcher and Merlin, ON (north-south). The Swanton Wind Farm Project area is approximately 460 ha in size, and is generally located south of the lands being considered for turbine placement in the South Kent Wind Project (between those lands being considered and the Lake Erie shoreline). As such it does not contain any proposed turbines or associated infrastructure. The EIS/ESR for the Swanton Line Wind Farm (Gengrowth 2008a) considered lands bounded by Cooper Road to the west and Merlin Road to the east, on either side of Swanton Line. The EIS/ESR was completed by Gengrowth for the developer team of Gengrowth Renewables Inc. and Boralex. This Project is currently in operation.

##### 9.9.1 Birds

###### Breeding Bird Surveys

The work plan for Swanton Line, provided to Environment Canada, identified the site as a low sensitivity, small sized facility. Environment Canada agreed that the completion of breeding bird surveys within the Project area would be sufficient to characterize avian populations within the Project area. Breeding bird surveys were conducted on two (2) dates, June 6 and 14, 2007, using driving transects to document all bird activity within

the Project area. Stops were made at key habitats where species of interest might have been present.

A total of 26 species were observed during the surveys, including 24 species expected to be breeding within the Project area. The most abundant species observed were European starling, common grackle and red-winged blackbird.

#### 9.9.2 Bats

Monitoring was conducted at the Swanton Line Project area from the night of August 4 through September 10, 2007 by NRSI. Acoustic through-the-night monitoring was conducted using a Pettersson D240X ultrasound unit, using a system designed to record both heterodyne and time expansion data simultaneously. This equipment set-up allowed for the analysis of both abundance and species data from the same recorded file. The monitoring program, approved by the MNR, included a single ground-based monitoring station. Acoustic data was collected on 17 nights for an overall total of 112.5 hours of acoustic bat data.

A total of 183 bat passes were recorded from through-the-night abundance monitoring, resulting in a low overall average passage rate of 1.6 passes per hour (passes/hour). Nightly peaks were observed from 1900-1930 hours, with much smaller and steadily declining peaks for the remainder of the night. Bat species within the Swanton Line Project area included calls of the big brown bat/silver-haired bat that could not be furthered identified to the species level. A seasonal peak in bat activity was recorded on the night of August 9, with generally decreasing activity between August and September.

The data collected in the Swanton Line Project area does not suggest the presence of concentrated bat activity or heavy bat migration through the area due to low average and peak passage rates. No hibernacula or maternal roosts were identified within the Project area (Gengrowth 2008a).

#### 9.10 Bisnett Line Wind Farm: EIS/ESR

The Bisnett Line Wind Farm was constructed in an area just north of Erie Beach, ON. The approximately 1 000 ha area examined for this Project is generally south of the

South Kent Wind Project area, and does not contain any proposed turbines or associated infrastructure. The Environmental Impact Statement / Environmental Screening Report for the Bisnett Line Wind Farm (Gengrowth 2008b) considered lands from Old Street Line to the north, Charing Cross Road to the west, Towanda Boulevard/Erie Shore Drive and Bisnett Line to the south, and Lagoon Road to the east. The EIS/ESR was completed by Gengrowth for the developer team of Gengrowth Renewables Inc. and Boralex. This Project is currently in operation.

#### 9.10.1 Birds

##### Spring Migration Surveys

Six (6) area searches were conducted during March of 2006 to determine whether the Project area was used by large numbers of tundra swans and other waterfowl. Four (4) subsequent area searches were conducted in May to identify if large numbers of shorebirds use the Project area for feeding and resting.

A total of 79 tundra swans were observed during spring surveys, with none observed foraging or resting within the Project area. Red-headed woodpecker, a species of conservation concern, was observed during the spring migration surveys at the Bisnett Line Wind Farm.

##### Fall Migration Surveys

Surveys were conducted at one (1) monitoring station within the Bisnett Line Wind Farm Project area. Ten (10) days of monitoring was conducted from September 6 to November 9, 2006. On each survey date, monitoring was conducted during a 3 hour monitoring period. This monitoring period focused on potential raptor migration through the Project area.

A total of 2,600 hawks or vultures were observed during monitoring that occurred during fall 2006. A species of conservation concern, bald eagle, was observed during fall 2006 fall migration surveys at the Bisnett Line Wind Farm.

##### Breeding Bird Surveys

Breeding bird surveys involved a single area search in the month of June to characterize the breeding bird populations within the Project area.

No SAR were observed during the breeding bird survey completed on June 14, 2007.

#### Winter Waterfowl Surveys

Twenty-two (22) waterfowl area searches were conducted from September 2006 to February 22, 2007.

#### 9.10.2 Bats

Bat monitoring was conducted for the Bisnett Line Wind Farm Project area from the night of August 5 to September 19, 2007 by NRSI. Acoustic through-the-night monitoring was conducted using Pettersson D240X ultrasound units, which were designed to record both heterodyne and time expansion data simultaneously. This data collection method allowed for the analysis of abundance and species data from the same recorded files. This monitoring was conducted at one (1) ground-level station and one (1) station elevated to 30 m on a MET tower. This data was collected on a total of 43 nights and resulted in an overall total of 236.4 hours of acoustic data.

A total of 1,307 bat passes were recorded from through-the-night abundance monitoring, resulting in an overall average passage rate of 5.5 passes/hour. Nightly peaks were observed from 2030-2100hrs, with smaller secondary peaks observed prior to sunrise at approximately 0530hrs at the ground level station. This secondary peak was not observed at the elevated station.

Bat species confirmed within the Bisnett Line Wind Farm Project area include one (1) migratory species, hoary bat, as well as the resident species little brown bat. Additionally, several unidentifiable species representing big brown bat/silver-haired bat were also recorded within the Project area. A seasonal peak in bat activity was recorded in early August, which is expected to correspond to the period of summer swarming. Bat activity generally decreased from August through September and October.

The data collected in the Bisnett Line Wind Farm Project area indicates that some summer swarming is likely occurring within the area, although the low passage rates during this period and throughout the fall monitoring do not indicate that activity is concentrated (Gengrowth 2008b). No hibernacula or maternal roosts were identified within the Project area.

## 9.11 Front Line Wind Farm: EIS/ESR

The Front Line Wind Farm was constructed in an area just west of Morpeth, ON. Approximately 1,125 ha were examined for this Project which overlaps with two (2) proposed turbines for the South Kent Wind Project. The Environmental Impact Statement / Environmental Screening Report for the Front Line Wind Farm (Gengrowth 2008c) considered lands from just north of Front Line, Kent Bridge Road and McKinlay Road to the west, just north of Talbot Trail and New Scotland Line to the south, and just east of Antrim Road to the east. The EIS/ESR was completed by Gengrowth for the developer team of Gengrowth Renewables Inc. and Boralex. This Project is currently in operation.

### 9.11.1 Birds

#### Spring Migration Surveys

Six (6) driving transect surveys were conducted during March of 2006 to determine whether the Project area is used by large numbers of tundra swans, shorebirds or waterfowl for feeding and resting.

During these surveys, no large populations of waterfowl, or expected feeding or resting locations, were identified within the Front Line Wind Farm Project area.

#### Fall Migration Surveys

Fall migration surveys were conducted at one (1) monitoring station within the Project area. A total of ten (10) days of monitoring were conducted from early September to November 2006. On each survey date a total of three (3) hours of observations were conducted, focusing on potential raptor migration through, or near, the Project area. Despite a focus on raptor activity, all bird observations were recorded during these surveys.

Fifteen (15) species of hawks and vultures were observed during fall 2006, with turkey vulture, broad-winged hawk and sharp-shinned hawk being the most abundant raptor species observed.



### Breeding Bird Surveys

Breeding bird surveys involved two (2) area searches in the month of June to characterize the breeding bird community in the Front Line Wind Farm Project area.

Most of the species observed during this monitoring period represented species representative of the agricultural landscape of southern Ontario.

Several species of conservation concern, including bald eagle, red-headed woodpecker, and short-eared owl, were all observed during the three season inventories at the Front Line Wind Farm.

#### 9.11.2 Bats

Monitoring was conducted at the Front Line Wind Farm Project area from the night of August 5 to September 14, 2007 by NRSI. Acoustic through-the-night monitoring was conducted using Pettersson D240X ultrasound units, using equipment designed to record both heterodyne and time expansion data simultaneously. This equipment set-up allows for the analysis of abundance and species data from the same recorded files. Acoustic monitoring within this Project area was conducted at one ground-level station and one station elevated to 30 m on an existing MET tower. This data was collected over a span of 38 nights for an overall total of 282 hours of acoustic data.

A total of 3,576 bat passes were recorded from through-the-night abundance monitoring, resulting in an overall average passage rate of 12.7 passes/hour. Nightly peaks were observed from 2100-2330 hours, with smaller secondary peaks observed prior to sunrise from 0430 to 0600 at the elevated station only.

Bat species confirmed within the Front Line Project area include two (2) migratory species, hoary bat and red bat. Additionally, unidentifiable species representing big brown bat/silver-haired bat, and *Myotis* sp. (which may include little brown bat, northern long-eared bat, or eastern small-footed bat), were also recorded. A seasonal peak in bat activity was recorded in mid-August, which is expected to correspond to the anticipated period of summer swarming or early fall migration. Bat activity was generally observed to decrease from August to September and October 2007.

The data collected in the Front Line Wind Farm Project area indicates that some summer swarming is likely occurring within the area, and the average passage rate of 12.7 passes/hour represents moderate activity. However, significantly lower activity was observed at the elevated station than the ground-level station, indicating that most of the activity observed was likely summer swarming activity occurring below the at-risk zone of 40-120 m, the typical range of turbine blade-swept areas. No hibernacula or maternal roosts were identified within the Project area (Gengrowth 2008c, Appendix C2).

#### 9.12 Port Alma Wind Power Project: ESR/EIS

The Port Alma Wind Farm is an operational facility in an area between Coatsworth and Dealtown (west-east) and Glenwood, ON and the Lake Erie Shoreline (north-south). The 34,200 ha area examined for this Project overlaps with twenty (20) turbines proposed for the South Kent Wind Project. The Environmental Screening Report for the Port Alma Wind Farm (Stantec 2007) considered lands bounded approximately by Highway 401, Morris Line, 11<sup>th</sup> Line and Middle Line to the north, Davidson Road and Campbell Road to the west, the Lake Erie shoreline to the south, and Bloomfield Road to the east. The ESR was completed by Stantec Consulting Ltd., and prepared for Kruger Energy Port Alma Limited Partnership. This Project is currently operational.

##### 9.12.1 Birds

###### Spring Shorebird Surveys

Spring surveys focused on shorebirds and no other landbirds, based on consultation with EC and CWS, who agreed that the area does not contain a significant area of stop-over habitat (i.e. woodlots, hedgerows etc.). Surveys for spring migratory shorebirds were carried out on a total of five (5) survey dates from April 26 to May 24, 2006. These avian surveys focused on the portion of the Port Alma Wind Power Project area within 2 km of the Lake Erie shoreline. When shorebirds were observed, all appropriate information, including species, abundance, flight height, behaviour, and habitat, were recorded.

A total of 11 species of shorebirds were observed during the spring shorebird migration surveys. Relatively large numbers of shorebirds were found to be staging in the Project area for a two-week period at the end of May, 2006. During one (1) survey in mid-March, ring-billed gulls were observed in relatively large numbers in agricultural fields.

### Breeding Bird Surveys

A single breeding bird survey was conducted in June 2006. Based on the lack of high quality breeding bird habitat (identified through a land-use feature study of the Project area), and in consultation with Environment Canada and Canadian Wildlife Service, no point counts surveys were deemed necessary during the breeding season. The breeding bird survey was conducted using a driving transect, during which observations were made from a slow moving vehicle driving roads within the Project area.

Due to low habitat quality, the diversity and density of breeding birds were found to be low. Most of the species observed were open habitat birds, typically associated with agricultural fields, open meadows, or hayfields.

### Fall Migration Surveys

Surveys were conducted in the fall of 2006 to determine the abundance of migratory raptors and other diurnal migrants that move along the Lake Erie shoreline. Surveys were conducted on ten (10) dates from early September to early November. Surveys were conducted by driving transects, during which observations were made from a slow moving vehicle driving the roads within the Project area. Survey duration lasted for four (4) to 6.25 hours and took place between 1045hrs and 1700hrs. The primary focus of the fall surveys were migratory raptors, but all information on diurnal migrants was recorded.

The turkey vulture and sharp-shinned hawk were determined to be the two (2) species at higher risk during the fall migration period (Stantec 2007). The turkey vulture was deemed to be at higher risk due the large numbers that pass through the location of proposed wind turbines at the blade sweep height.

### Winter Bird Surveys

Winter bird surveys were conducted on three (3) dates in early 2006, January 30, February 25 and March 21<sup>st</sup>, and were conducted in the afternoon from approximately 1200 to 1730hrs. Winter bird surveys were conducted using driving transects, during which observations were made from a slow moving vehicle driving roads within the

Project area. When raptors were observed, the location, species, abundance, and behaviour were all noted.

The Project area was identified as having marginal habitat for wintering raptors (Stantec 2007). Two (2) raptor species, American kestrel and red-tailed hawk, were the only two (2) species consistently observed within the Project area.

#### 9.12.2 Bats

Monitoring was conducted at the Port Alma Wind Power Project area on a total of six (6) nights between September 6 and October 23, 2006 by Stantec Consulting (2007). Acoustic monitoring was manually conducted using Pettersson Elektronik AB D200 ultrasound units, where frequencies were scanned for bat calls for a duration of ten (10) minutes. Broadband data was also recorded on November 6, 2006 using an Anabat SD1 CF device to allow for more detailed species analysis and more accurate abundance estimates. This monitoring program was implemented at ten (10) ground-level stations. Data was collected on seven (7) nights for an overall total of 11 hours and 40 minutes of acoustic data.

Bats were observed at six (6) of the ten (10) stations, with monitoring using the Pettersson device indicating the presence of one migratory species: the red bat; as well as the resident species big brown bat and little brown bats. Additionally, bats in unidentifiable categories of big brown/hoary/silver-haired bats, big brown/silver-haired bats, and red/northern long-eared bats were also identified. The Anabat SD1 CF device, recording broadband data, was able to more accurately identify species, and confirmed the presence of one migratory species: the silver-haired bat; as well as the resident species big brown bat, eastern small-footed bat, and little brown bat. No hibernacula or maternity roosts were identified within the Project area.

#### 9.13 Eriean-Blenheim Wind Farm: Environmental Screening Report

The Eriean-Blenheim Wind Farm is located in an area between Dealtown and Guilds (west-east) and Blenheim and Shrewsbury (north-south), ON. The 7,474 ha area examined for this Project is in close proximity of proposed turbine locations (including P140 and P139) of the South Kent Wind Project, although it does not contain any proposed turbines. The Environmental Screening Report for the Eriean-Blenheim Wind

Farm (Helimax 2008) considered lands bounded approximately by 16<sup>th</sup> Line and Brush Line to the north, Bloomfield Road to the west, the Lake Erie shoreline to the south, and Mull Road to the east. The ESR was completed by Helimax Energy Inc. and prepared for AIM PowerGen Corporation.

#### 9.13.1 Birds

##### Spring Waterfowl Surveys

Six (6) surveys were completed during mid to late March 2006, with surveys every two (2) or three (3) days. These surveys were primarily focused on tundra swan activity within the Project area, but document all bird activity observed. Surveys alternated between dawn and dusk surveys where surveys would either start or end at Rondeau Bay.

Few tundra swans were observed within the Project area or adjacent waters of Rondeau Bay. A total of 2,562 swans were observed with sightings on 26 of the 43 surveys. The highest count on a single day was 312 on March 17, 2006. Of the 31 flocks of swans observed flying through the Project area, groups were typically less than 50 individuals in size.

##### Shorebirds Surveys

Area searches were conducted on four (4) dates in late May to determine whether the Project area provides habitat for significant concentrations of shorebirds. Driving transects were used to conduct the shorebird surveys within the Project area, during which observations were made from a slow moving vehicle driving the roads within the Project area.

Shorebirds were observed using the fields in the Project area during the spring, but in relatively low numbers (total numbers in the low hundreds). The Project area does not appear to be a significant concentration area for shorebirds as the IBA report for greater Rondeau identifies areas known to have counts in the 1000s of individuals.

Red-headed woodpecker, a species of conservation concern, was observed during spring migration surveys on one date, May 26, 2006.

### Breeding Bird Surveys

Breeding bird monitoring involved one (1) area search in June, where a driving transect was used to identify breeding species within the Project area. Stops were made at major habitat types, including hedgerows, drainage ditches and roadside woodlots within the Project area.

Fifty-eight species of birds were observed during the breeding season within the Project area.

### Fall Migration Monitoring

Fall migration surveys were conducted from September to mid November 2006, with ten (10) surveys being completed. Focus of these surveys was to characterize raptor and other diurnal migrant movement through the Project area. Weekly surveys from early September until the freeze-up of Lake Erie (early February) were also conducted near the shoreline, and alternated between starting surveys at dawn and ending at dusk.

During fall migrations surveys, 14 species of raptor were observed with 2,030 total individuals documented. Raptor species with the highest abundance were turkey vulture, sharp-shinned hawk and broad-winged hawk. A total of 139 species were observed during fall migration surveys. Species of conservation concern identified during avian studies at the Eriean-Blenheim Wind Farm included bald eagle and common nighthawk.

#### 9.13.2 Bats

Monitoring was conducted for the Eriean-Blenheim Wind Farm Project area from the night of July 26 through September 26, 2007 by NRSI. Acoustic, through-the-night, monitoring was conducted using Pettersson D240X ultrasound units. Both heterodyne and time expanded calls were recorded during the monitoring program to allow for analysis of both abundance and species data. This monitoring program was implemented at five ground-level stations and one (1) station elevated to 30 m on an existing MET tower. Acoustic data was collected on 82 nights for an overall total of 541 hours of acoustic data.

A total of 2,641 bat passes were recorded from through-the-night abundance monitoring, resulting in a low overall average passage rate of 4.9 passes/hour. The average passage rate at stations varied from 0.1 to 8.0 passes/hour. Nightly peaks were observed from 2100-2330 hours, with a smaller secondary peak occurring from 0400-0600 hours. An evening peak was observed at the elevated station from 2030-2100 hours, with no secondary morning peak observed.

Bat species confirmed within the Eriean-Blenheim Wind Farm Project area include two (2) migratory species, hoary bat and red bat, as well as two (2) of the resident species, little brown bat and tricolored bat. The most abundant calls recorded were unidentified species representing either big brown bats or silver-haired bats. A seasonal peak in bat activity was recorded on August 1<sup>st</sup> with a passage rate of 23.4 passes/hour. This passage rate generally declined as the summer progressed, ending with lower activity in September.

The data collected at the Eriean-Blenheim Wind Farm Project area indicates that some summer swarming and migration may be occurring within the area, although it is not expected to represent large concentrations of bats (Helimax 2008). In general, the average passage rate indicates low bat activity, however it is higher than others observed in southern Ontario. In this study, no influence of the Lake Erie shoreline was observed (i.e. higher passage rates were not observed at stations closer to the shoreline). Lower activity was observed at the elevated through-the-night monitoring station, indicating that most of the activity observed was occurring below the at-risk zone of 40-120 m, the typical range of turbine blade-swept areas. No hibernacula or maternity roosts were identified within the Project area.

#### 9.14 Summary of Existing Studies

The following tables summarize the work completed in existing pre-construction monitoring reports for wind power Projects. A number of these studies have now been incorporated into the larger South Kent Wind Project. Some of these existing pre-construction monitoring studies were also conducted independently for now-operational wind power Projects, and have survey areas which overlap the Project location. The work conducted for these studies is summarized in Table 6 and

Table 7 below.

**Table 6. Seasonal Bird and Bat Studies Conducted Within, or Near, the South Kent Wind Project**

Study Name	Monitoring Type	Year	Survey Timing	Type of Survey
Flat Creek Wind Farm	Bird	2006	September to November	Fall Diurnal Migration
		2007	April - May	Spring Migration
		2007	June	Breeding Birds
		2008	August - September	Fall Nocturnal Migration (RADAR)
	Bat	2008	August - September	Combined RADAR-Acoustic
		2008	August - September	Acoustic Point Count
Harwich Wind Farm	Bird	2006-2007	December - January	Winter Birds
		2007	June	Breeding Birds
	Bat	2008	August - September	Combined RADAR-Acoustic
		2008	August - September	Acoustic Point Count
Merlin-Buxton Wind Farm	Bird	2008	January	Winter Birds
		2008	May	Spring Migration
		2008	June	Breeding Birds
		2008	September - November	Fall Diurnal Migration
	Bat	2008	August - October	Acoustic Through-the-Night
		2008	August - October	Acoustic Point Count
Merlin Wind Farm (Wind Prospect)	Bird	2006	February	Winter Birds
		2006	April - May	Spring Migration
		2006	June	Breeding Birds
		2006	September	Fall Diurnal Migration
		2006-2007	December - January	Winter Birds
	2008	March-April	Spring Tundra Swan	
	Bat	none		
Kent Centre Wind Farm	Bird	2008	March-April	Spring Tundra Swan
		2008	April-May	Spring Migration
		2008	June	Breeding Birds
		2008-2009	December-January	Winter Birds
	Bat	2008	August-September	Acoustic Through-the-Night
		2009	August-September	Acoustic Through-the-Night
Merlin Wind Farm (Acciona)	Bird	2007	March	Waterfowl Surveys
		2007	March-May	Spring Migration
		2007	May-June	Shorebird Surveys
		2007	June	Breeding Birds



Study Name	Monitoring Type	Year	Survey Timing	Type of Survey
	Bat	2007	August-September	Acoustic Through-the-Night
Quinn Wind Farm	Bird	2007	March	Waterfowl Surveys
		2007	March-May	Spring Migration
		2007	May-June	Shorebird Surveys
		2007	June	Breeding Birds
	Bat	2007	August-September	Acoustic Through-the-Night
Invenergy Raleigh Wind Farm	Bird	2006	March	Winter Birds
		2006	Spring	Shorebird Surveys
		2006	May-June	Breeding Birds
		2007	February	Winter Birds
		2007	Spring	Shorebird Surveys
		2007	May-June	Breeding Birds
	2007	September-November	Fall Diurnal Migration	
	Bat	2007	August-September	Acoustic Through-the-Night
Swanton Line Wind Farm	Bird	2007	June	Breeding Birds
	Bat	2007	August-September	Acoustic Through-the-Night
Bisnett Line Wind Farm	Bird	2006	March	Spring Tundra Swan
		2006	May	Shorebird Surveys
		2006	June	Breeding Birds
		2006	September-November	Fall Diurnal Migration
	Bat	2007	August-September	Acoustic Through-the-Night
Front Line Wind Farm	Bird	2006	March	Spring Migration
		2006	June	Breeding Birds
		2006	September-November	Fall Diurnal Migration
	Bat	2007	August-September	Acoustic Through-the-Night
Port Alma Wind Farm	Bird	2006	January-March	Winter Birds
		2006	April-May	Shorebird Surveys
		2006	June	Breeding Birds
		2006	September-November	Fall Diurnal Migration
	Bat	2006	September-November	Frequency Scanning
Erieau-Blenheim Wind Farm	Bird	2006	March	Spring Tundra Swan
		2006	May	Shorebird Surveys
		2006	June	Breeding Birds
		2006	September-November	Fall Diurnal Migration
	Bat	2007	July-September	Acoustic Through-the-Night

Through a review of available information collected on species observed during extensive field monitoring programs conducted throughout the South Kent Wind Project area, NRSI biologists have identified four (4) provincial species of Special Concern that have been confirmed to be using areas surrounding the South Kent Wind Project location (see

Table 7). Habitats of these species are considered candidate significant wildlife habitat and will be evaluated in more detail in the *South Kent Wind Project: Evaluation of Significance Report*.

**Table 7. Special Concern Species Identified from Existing Studies Within, or Near, the South Kent Wind Project**

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
<i>Asio flammeus</i>	Short-eared Owl	S2N, S4B	SC	SC
<i>Chordeiles minor</i>	Common Nighthawk	S4B	SC	THR
<i>Haliaeetus leucocephalus</i>	Bald Eagle	S1S2N, S4B	SC	NAR
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S4B	SC	THR

## 10.0 Summary of Records Review

In accordance with the REA Regulation, NRSI biologists have conducted a comprehensive records review of the natural features within the South Kent Wind Project area. The natural features examined as part of this *Records Review Report* are summarized in Table 8 below.

**Table 8. Summary of Records Review of the South Kent Wind Farm Project Area**

Criteria	Result
1. Within 120 m of a Provincial Park or Conservation Reserve	No Project components are within 120 m of a provincial park or conservation reserve.
2. In a Natural Feature	<p>The Project crosses several linear features, some of which have connectivity to a woodland. It is unlikely that these linear features (with connectivity to woodlands) provide the same species associations and habitat of nearby woodlands. However, these linear features have the potential to still provide significant wildlife habitat, for species of conservation concern and/or as animal movement corridors.</p> <p>The proposed Project location is located within 120m of the globally significant Rondeau Bay IBA. This area contains wildlife habitat features including staging and breeding habitat for several waterfowl and waterbird species. The habitats within the IBA also provide breeding habitat for several species of conservation concern. The proposed cabling along New Scotland Line is located adjacent to this IBA.</p> <p>In addition, the Project area overlaps with several areas that have been identified as candidate wildlife habitat through a review of existing studies, including shorebird staging areas and raptor wintering areas.</p> <p>As such, the Project is located within linear natural features, an IBA, and candidate bird SWH areas. All of these potentially significant habitats should be evaluated in more detail during the site investigation and evaluation of significance phases of this Project.</p>
3. Within 50 m of a ANSI-ES	No Project components are within 50 m of an Earth Science ANSI.
4. Within 120 m of a Natural Feature	
a) ANSI-ES	Not Applicable (see Item 2 above)
b) ANSI-LS	No Project components are within 120 m of a life science ANSI.
c) Coastal Wetland	The Project location is not proposed within 120 m of coastal wetlands.
d) Northern Wetland	The Project Area does not occur in areas of northern wetlands.
e) Southern Wetland	One (1) Provincially Significant Wetland, the Rondeau Bay North Shore PSW complex, and two (2) unevaluated

Criteria	Result
	southern wetlands have been identified within 120 m of the proposed Project location.
f) Valleyland	No valleylands have been identified within 120 m of the Project location.
g) Wildlife Habitat	<p>A deer wintering area has been identified within approximately 500 m of the access road/cablings associated with turbine no. P104. This feature extends east of the Project Area.</p> <p>Several linear features, including treed fencerows and naturalized drains, have been identified within 120 m of the Project location. These features have the potential to act as SWH, specifically providing animal movement corridors and/or habitat for species of conservation concern.</p> <p>A review of available wildlife studies that have been conducted throughout the Project Area have identified several potential areas of wildlife habitat, including shorebird staging areas, raptor wintering habitats, species of conservation concern, and other habitats that may be deemed wildlife habitat.</p> <p>The approximate boundaries of the Rondeau Bay IBA are found within 120 m of the Project location (as outlined above). This area contains several types of wildlife habitat features, primarily for birds and species of conservation concern. The boundaries of this IBA extend beyond the natural habitats of Rondeau Bay into agricultural fields. As such, site investigations will be important to relate the present habitat to identified waterfowl use in order to determine the extent of significant habitat.</p> <p>All of these wildlife habitats should be examined during the site investigation phase and/or the evaluation of significance phase of this Project to identify other habitat features and identify the significance of each natural feature.</p>
h) Woodland	<p>Several woodlands have been identified during the records review process, including the following locations where woodlands are found within 120 m of the Project location.</p> <p>Basemapping obtained from LIO indicates that a total of 53 woodlands, ranging in size from 2ha to 54ha are located within 120 m of the Project location.</p> <p>Municipal files indicate that 34 significant woodlands (as deemed in the Chatham-Kent Official Plan) are found within 120 m of the Project location. Most, if not all, of these 34 woodlands represent the same features as identified by available LIO basemapping.</p>

## 11.0 References

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***Personal Communication***

Jong, C. Natural Heritage Project Assistant, Ministry of Natural Resources (Aylmer District). November 1, 2010.

Simpson, H. Area Biologist, Ministry of Natural Resources (Chatham Office). November 9, 2010.

**Appendix I**  
Biodiversity Explorer Species Records

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Unique Identifier (Element ID)	EO ID	Scientific Name	English Name	French Name	G-rank	S-rank	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status	Species At Risk in Ontario (SARO) Status	Canada General Status	Ontario General Status	UTM Zone	Easting (nearest km)	Northing (nearest km)	EO Rank	EO Rank Date	First Observed Date	Last Observed Date
181246	41741	Enallagma basidens	Double-striped Bluet		G5	S3					17	414000	4680000	E			
181262	41809	Ischnura hastata	Citrine Forktail		G5	S2					17	428000	4695000	E	10/23/2003	6/30/1999	6/30/1999
181152	41195	Epiaschna heros	Swamp Darner		G5	S2S3					17	429000	4682000	E	10/23/2003	6/19/1922	5/30/1998
181153	41218	Nasiaeschna pentacantha	Cyano Darner		G5	S3					17	429000	4682000	H	01/01/2009	6/24/1922	6/24/1922
181268	41913	Arigomphus furcifer	Lilypad Clubtail		G5	S3					17	429000	4682000	E			
181118	67847	Gomphus vastus	Cobra Clubtail		G5	S1					17	429000	4680000	H	9/29/2003	1958-PRE	1958-PRE
181196	41481	Libellula semifasciata	Painted Skimmer		G5	S2					17	429000	4682000	H	01/01/2009	5/24/1935	1980-1990s
181197	41484	Libellula vibrans	Great Blue Skimmer		G5	S1					17	380000	4660000	E	10/01/2003	07/07/1999	07/07/1999
181197	67868	Libellula vibrans	Great Blue Skimmer		G5	S1					17	429000	4681000	E	10/01/2003	8/14/1993	8/14/1993
181206	41561	Sympetrum corruptum	Variiegated Meadowhawk		G5	S3					17	429000	4682000	E	9/29/2004		
180895	21564	Euphyes dukesi	Duke's Skipper		G3	S2					17	380000	4660000	D	4/13/1998	07/10/1988	08/11/1992
180895	21679	Euphyes dukesi	Duke's Skipper		G3	S2					17	386000	4680000	H	01/01/2009	7/25/1981	7/25/1981
181050	31834	Callosamia angulifera	Tulip Tree Silk Moth		G5	S1					17	430000	4881000	H	8/14/2000	6/23/1965	1965-07
39002	3246	Aplectrum hyemale	Puttyroot		G5	S2					17	428000	4677000	X	2/21/2000	1886	1886-08-13
145012	1677	Asclepias purpurascens	Purple Milkweed		G5?	S2					17	429000	4681000	H	01/01/2009	1952	07/09/1952
145016	5044	Asclepias sullivantii	Prairie Milkweed		G5	S3					17	391000	4684000	E		7/18/1990	7/18/1990
145016	5047	Asclepias sullivantii	Prairie Milkweed		G5	S3					17	412000	4689000	E		08/10/1992	08/10/1992
145016	5045	Asclepias sullivantii	Prairie Milkweed		G5	S3					17	397000	4686000	E		7/18/1990	7/18/1990
145016	5046	Asclepias sullivantii	Prairie Milkweed		G5	S3					17	409000	4692000	E		7/18/1990	7/18/1990
145016	64077	Asclepias sullivantii	Prairie Milkweed		G5	S3					17	413000	4694000	E			08/11/1993
69000	1640	Asimina triloba	Pawpaw		G5	S3					17	422000	4685000	H	01/01/2009	08/09/1954	1987
69000	32532	Asimina triloba	Pawpaw		G5	S3					17	424000	4687000	H	01/01/2009	1988	1988
69000	59687	Asimina triloba	Pawpaw		G5	S3					17	424000	4679000	H	01/01/2009		8/25/1943
69000	32518	Asimina triloba	Pawpaw		G5	S3					17	415000	4698000	H	01/01/2009	09/06/1986	09/06/1986
69000	32535	Asimina triloba	Pawpaw		G5	S3					17	408000	4697000	H	01/01/2009	1986	1986
69000	32517	Asimina triloba	Pawpaw		G5	S3					17	408000	4693000	E		09/06/1986	1993
69000	32513	Asimina triloba	Pawpaw		G5	S3					17	429000	4682000	H	01/01/2009	7/17/1960	8/16/1977
168266	1750	Bidens trichosperma	Crowned Beggarticks		G5	S2					17	427000	4689000	H	01/01/2009	1953	9/15/1953
5026	3536	Botrychium oneidense	Blunt-lobed Grapefern		G4	S3?					17	374000	4657000	H	1/28/2002	09/03/1979	09/03/1979
22164	66581	Calamovifla longifolia var. magna	Great Lakes Sand Reed		G5T3T5	S3					17	430000	4679000	H	01/01/2009	8/18/1983	8/18/1983
23016	2834	Carex albicans var. albicans	White-tinged Sedge		G5T4T5	S3					17	380000	4660000	H	01/01/2009		05/03/1986
23026	64823	Carex amphibola	Eastern Narrow-leaved Sedge		G5	S2					17	430000	4682000	E			06/06/1994
23026	64843	Carex amphibola	Eastern Narrow-leaved Sedge		G5	S2					17	380000	4660000	E			6/16/2000
23094	63811	Carex careyana	Carey's Sedge		G4G5	S2					17	422000	4685000	H	01/01/2009		05/07/1986
23214	33452	Carex hirsutella	Hairy Green Sedge		G5	S3					17	375000	4655000	H	01/01/2009	6/19/1984	6/19/1984
23320	5811	Carex muskingumensis	Muskingum Sedge		G4	S3					17	391000	4686000	E		07/09/1983	08/12/1993
23412	2983	Carex squarrosa	Squarrose Sedge		G4G5	S2					17	375000	4656000	H	01/01/2009		6/23/1955
23412	2984	Carex squarrosa	Squarrose Sedge		G4G5	S2					17	380000	4660000	E		1979	6/13/1990
23438	33539	Carex tetanica	Rigid Sedge		G4G5	S3					17	430000	4684000	E		06/06/1994	5/18/2006
44004	64185	Carya laciniosa	Shelbark Hickory		G5	S3					17	391000	4686000	E			08/12/1993
44004	64846	Carya laciniosa	Shelbark Hickory		G5	S3					17	402000	4676000	E			05/06/1990
46000	21147	Castanea dentata	American Chestnut		G4	S2	END	END			17	430000	4709000	H	01/01/2009	10/09/1986	10/09/1986
46000	21149	Castanea dentata	American Chestnut		G4	S2	END	END			17	380000	4660000	C	01/06/2004	1979	2001-2002
55034	2012	Chenopodium foggii	Fogg's Goosefoot		G2G3	S2					17	380000	4660000	H	05/04/2001	1979	09/03/1979
55058	2019	Chenopodium standleyanum	Standley's Goosefoot		G5	S2					17	380000	4660000	H	01/01/2009	1979	09/03/1979
130010	66664	Cornus florida	Eastern Flowering Dogwood		G5	S2?	END	END			17	380000	4660000	E		08/03/1950	5/15/2004
23520	5899	Cyperus flavescens	Annual Yellow Flatsedge		G5	S2					17	430000	4680000	H	01/01/2009	09/01/1985	09/01/1985
83066	2097	Desmodium canescens	Hoary Tick-trefoil		G5	S2					17	404000	4696000	H		1892	08/10/1901
83066	2096	Desmodium canescens	Hoary Tick-trefoil		G5	S2					17	393000	4691000	H	01/01/2009	1969	09/04/1969
83066	2095	Desmodium canescens	Hoary Tick-trefoil		G5	S2					17	429000	4679000	H		1886	1886-08-13
22242	33586	Digitaria cognata	Fall Crab Grass		G5	S1					17	380000	4661000	H	01/01/2009	8/17/1985	08/09/1986
73172	63925	Draba reptans	Carolina Whitlow-grass		G5	S3					17	430000	4679000	E			05/06/1989
73172	64220	Draba reptans	Carolina Whitlow-grass		G5	S3					17	430000	4685000	E			05/06/1989
22260	3421	Echinochloa walteri	Coast Barnyard Grass		G5	S3					17	378000	4661000	H	01/01/2009	1955	8/19/1955
22260	64223	Echinochloa walteri	Coast Barnyard Grass		G5	S3					17	426000	4678000	E			9/24/1996
22260	59150	Echinochloa walteri	Coast Barnyard Grass		G5	S3					17	379000	4661000	H	01/01/2009		8/19/1955
22260	3422	Echinochloa walteri	Coast Barnyard Grass		G5	S3					17	425000	4676000	H	01/01/2009	1931	09/10/1962
23556	31855	Eleocharis geniculata	Bent Spike-rush		G5	S1	END	END			17	415000	4681000	BC	9/26/2000	9/24/1996	09/07/2007
23556	3041	Eleocharis geniculata	Bent Spike-rush		G5	S1	END	END			17	428000	4682000	X	9/26/2000	8/14/1934	8/14/1934
23576	3050	Eleocharis quadrangulata	Square-stemmed Spike-rush		G4	S1					17	429000	4682000	H	01/11/2000	7/23/1958	7/23/1958
141016	32619	Fraxinus profunda	Pumpkin Ash		G4	S2?					17	427000	4682000	E		06/06/1994	06/06/1994
141016	32626	Fraxinus profunda	Pumpkin Ash		G4	S2?					17	391000	4686000	E	4/26/2001	08/12/1993	08/12/1993
161026	33662	Galium pilosum	Hairy Bedstraw		G5	S3					17	430000	4684000	E		06/06/1994	09/03/2009
161026	33661	Galium pilosum	Hairy Bedstraw		G5	S3					17	430000	4682000	E		9/24/1996	9/24/1996
109014	12731	Hibiscus moscheutos	Swamp Rose-mallow		G5	S3	SC	SC			17	424000	4683000	H	01/01/2009	8/15/1985	8/15/1985
109014	2332	Hibiscus moscheutos	Swamp Rose-mallow		G5	S3	SC	SC			17	429000	4681000	A	1/26/2004	8/14/1934	08/08/2002
109014	2337	Hibiscus moscheutos	Swamp Rose-mallow		G5	S3	SC	SC			17	388000	4699000	H	9/29/1997	8/26/1950	8/26/1950
148002	60202	Hydrophyllum appendiculatum	Appendaged Waterleaf		G5	S2					17	380000	4685000	H			1879-06
111020	2033	Hypericum prolificum	Shrubby St. John's-wort		G5	S2					17	430000	4684000	E		1954	09/03/2009
32050	59463	Hyppoxis hirsuta	Yellow Stargrass		G5	S3					17	430000	4684000	H	01/01/2009		6/13/1982
44012	67561	Juglans cinerea	Butternut		G4	S3?	END	END			17	427000	4682000	E	8/14/2003	1996	1996
44012	85498	Juglans cinerea	Butternut		G4	S3?	END	END			17	399000	4696000	E	5/17/2004	12/24/2003	12/24/2003
153074	63552	Leucospora multifida	Cliff Conobea		G5	S2					17	415000	4681000	E			9/24/1996
168598	34164	Liatris cylindracea	Slender Blazing Star		G5	S3					17	430000	4682000	E		9/24/1996	9/24/1996
168602	13281	Liatris spicata	Dense Blazing Star		G5	S2	THR	THR			17	415000	4687000	X	02/01/2001	10/08/1984	9/18/1985

Unique Identifier (Element ID)	EO ID	Scientific Name	English Name	French Name	G-rank	S-rank	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status	Species At Risk in Ontario (SARO) Status	Canada General Status	Ontario General Status	UTM Zone	Easting (nearest km)	Northing (nearest km)	EO Rank	EO Rank Date	First Observed Date	Last Observed Date	
168602	13275	Liatris spicata	Dense Blazing Star		G5	S2	THR	THR				17	430000	4679000	A	10/27/1997	1892-08-04	8/19/2008
168602	32068	Liatris spicata	Dense Blazing Star		G5	S2	THR	THR				17	421000	4696000	X	06/10/2009	2000-07	2000-07
84010	59925	Linum medium var. medium	Stiff Yellow Flax		G5T3T4	S3?						17	429000	4677000	H			1886-08-12
84024	59940	Linum virginianum	Woodland Flax		G4G5	S2						17	380000	4660000	H	01/01/2009		07/02/1976
84024	59942	Linum virginianum	Woodland Flax		G4G5	S2						17	429000	4681000	H	01/01/2009		7/22/1948
149032	60224	Lithospermum latifolium	American Gromwell		G4	S3						17	429000	4681000	H	01/01/2009		07/01/1957
151066	33183	Lycopus rubellus	Taper-leaved Bugleweed		G5	S3						17	429000	4681000	H	6/19/2001	8/15/1960	9/22/1974
151070	5428	Lycopus virginicus	Virginia Bugleweed		G5	S3						17	422000	4685000	H	01/01/2009	1984	9/14/1987
121006	64334	Lythrum alatum	Winged Loosestrife		G5	S3						17	391000	4686000	E			08/12/1993
153094	2695	Mimulus alatus	Sharp-winged Monkeyflower		G5	S2						17	429000	4687000	H	3/31/1992	1897	1897-08-31
151086	60273	Monarda didyma	Scarlet Beebalm		G5	S3						17	430000	4683000	H	01/01/2009		7/25/1975
48004	2356	Morus rubra	Red Mulberry		G5	S2	END	END				17	430000	4684000	B	01/07/1999	8/13/1988	09/03/2009
22440	33179	Muhlenbergia tenuiflora	Slim-flowered Muhly		G5	S2						17	430000	4682000	E		9/24/1996	9/24/1996
63500	2387	Nelumbo lutea	American Lotus		G4	S2						17	380000	4697000	H			11/03/1966
63500	34633	Nelumbo lutea	American Lotus		G4	S2						17	429000	4679000	H	9/18/2001	9/22/1942	9/22/1942
63500	2382	Nelumbo lutea	American Lotus		G4	S2						17	374000	4684000	H		8/29/1953	8/29/1953
122000	60029	Nyssa sylvatica	Black Gum		G5	S3						17	424000	4679000	H	01/01/2009		09/01/1943
122000	65631	Nyssa sylvatica	Black Gum		G5	S3						17	380000	4661000	E			9/23/2001
122000	60025	Nyssa sylvatica	Black Gum		G5	S3						17	402000	4695000	H	01/01/2009		10/06/1922
122000	32502	Nyssa sylvatica	Black Gum		G5	S3						17	379000	4661000	E		7/15/1963	6/16/2000
22480	63549	Paspalum setaceum	Slender Paspalum		G5	S2						17	430000	4683000	E			9/24/1996
54016	59603	Persicaria arifolia	Halberd-leaved Tearthumb		G5	S3						17	380000	4660000	H	01/01/2009		08/03/1950
54016	59601	Persicaria arifolia	Halberd-leaved Tearthumb		G5	S3						17	417000	4687000	H			1886-08-14
54016	59595	Persicaria arifolia	Halberd-leaved Tearthumb		G5	S3						17	379000	4661000	H	01/01/2009		8/15/1979
9402	17264	Phegopteris hexagonoptera	Broad Beech Fern		G5	S3	SC	SC				17	430000	4682000	BC	03/01/2004	9/13/1936	06/03/2003
39112	59502	Platanthera macrophylla	Large Round-leaved Orchid		G4	S2						17	429000	4681000	H			1886-08-11
22518	32582	Poa saltuensis ssp. languida	Weak Blue Grass		G5T3T4Q	S3						17	430000	4682000	E		5/31/1983	06/06/1994
22532	3486	Poa sylvestris	Woodland Blue Grass		G5	S1						17	429000	4681000	H	01/01/2009	1975	6/22/1985
16144	23221	Potamogeton pulcher	Spotted Pondweed		G5	SH						17	429000	4682000	H	01/12/2000	07/09/1948	07/09/1948
88000	5620	Ptelea trifoliata	Common Hoptree		G5	S3	THR	THR				17	424000	4679000	H	01/01/2009	06/08/1982	7/16/1987
88000	5619	Ptelea trifoliata	Common Hoptree		G5	S3	THR	THR				17	429000	4682000	E	06/10/2009	6/20/1905	09/07/2007
151116	63820	Pycnanthemum tenuifolium	Slender Mountain-mint		G5	S3						17	380000	4661000	H	01/01/2009	08/09/1986	08/09/1986
		Pycnanthemum verticillatum var. verticillatum	Whorled Mountain-mint		G5T5	S1?						17	430000	4684000	H	01/01/2009	8/13/1988	8/13/1988
151122	33067	Quercus shumardii	Shumard Oak		G5	S3	SC	SC				17	414000	4692000	H	01/01/2009	9/25/1983	9/25/1983
64092	64952	Ranunculus hispidus var. hispidus	Bristly Buttercup		G5T5	S3						17	380000	4660000	E			5/17/1995
168662	64443	Ratibida pinnata	Gray-headed Prairie Coneflower		G5	S3						17	396000	4690000	E			08/10/1992
168662	64444	Ratibida pinnata	Gray-headed Prairie Coneflower		G5	S3						17	404000	4697000	E			7/19/1994
168662	64799	Ratibida pinnata	Gray-headed Prairie Coneflower		G5	S3						17	403000	4696000	E			7/24/1999
82326	67067	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	383000	4675000	C?	1/21/2003	7/16/2002	7/16/2002
82326	17040	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	380000	4660000	C	1/30/2002	1979-SU	7/17/2002
82326	67066	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	389000	4676000	C	2/26/2003	7/16/2002	7/16/2002
82326	67061	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	394000	4687000	C	2/26/2003	7/16/2002	7/16/2002
82326	67060	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	390000	4686000	C	2/26/2003	07/06/2002	07/06/2002
82326	67062	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	393000	4683000	D	2/26/2003	07/06/2002	07/06/2002
82326	2613	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	392000	4687000	D	1/30/2002	06/09/1983	2001
82326	2612	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	379000	4663000	D	2/26/2003	6/18/1983	07/12/2002
82326	2614	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	392000	4689000	X	1/30/2002	1983	06/09/1983
82326	67069	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	385000	4671000	D	2/26/2003	7/16/2002	7/16/2002
82326	67058	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	401000	4688000	D	1/21/2003	7/19/1996	06/02/2002
82326	35573	Rosa setigera	Climbing Prairie Rose		G5	S3	SC	SC				17	386000	4680000	H	01/01/2009	09/06/1986	09/06/1986
129082	60104	Sanicula canadensis var. grandis	Long-styled Canadian Sanicle		G5T3T5	S2						17	418000	4707000	H	01/01/2009		6/24/1950
40000	23054	Saururus cernuus	Lizard's Tail		G5	S3						17	380000	4660000	E			06/08/1999
83042	23124	Senna hebecarpa	Wild Senna		G5	S1						17	410000	4709000	H	12/14/1999	8/13/1966	8/13/1966
168698	34318	Silphium laciniatum	Compass Plant		G5	S1						17	421000	4694000	E		7/21/2000	7/21/2000
168702	34332	Silphium perfoliatum	Cup Plant		G5	S2						17	395000	4690000	E		08/10/1992	08/10/1992
168762	1894	Solidago riddellii	Riddell's Goldenrod		G5	S3	SC	SC				17	429000	4681000	X	09/10/1997	1892-09-20	10/03/1948
168768	64505	Solidago rigida ssp. rigida	Stiff Goldenrod		G5T5	S3						17	396000	4690000	E			08/10/1992
22598	3496	Sphenopholis obtusata	Prairie Wedge Grass		G5	S1						17	429000	4682000	H	5/23/2001	1922	1922-06
39134	23291	Spiranthes magnicamporum	Great Plains Ladies'-tresses		G4	S3?						17	415000	4681000	E	6/20/2001	9/24/1996	9/24/1996
39134	23297	Spiranthes magnicamporum	Great Plains Ladies'-tresses		G4	S3?						17	429000	4681000	H	01/01/2009		1985
168216	93611	Symphotrichum praealtum	Willowleaf Aster		G5	S2	THR	THR				17	428000	4682000	H	3/24/2003	1956	1956
64144	59680	Thalictrum revolutum	Skunk Meadow-rue		G5	S2						17	429000	4681000	H	01/01/2009		7/17/1960
129096	60113	Thaspium barbinode	Parsnip		G5	SH						17	429000	4679000	H	01/01/2009		7/17/1960
162054	33791	Triosteum perfoliatum	Perfoliate Tinkersweed		G5	S1						17	379000	4660000	E		6/16/2000	6/16/2000
168856	64798	Verbesina alternifolia	Wingstem		G5	S3						17	403000	4696000	E			7/24/1999
168856	64884	Verbesina alternifolia	Wingstem		G5	S3						17	404000	4697000	E			7/19/1994

Unique Identifier (Element ID)	EO ID	Scientific Name	English Name	French Name	G-rank	S-rank	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status	Species At Risk in Ontario (SARO) Status	Canada General Status	Ontario General Status	UTM Zone	Easting (nearest km)	Northing (nearest km)	EO Rank	EO Rank Date	First Observed Date	Last Observed Date
168856	60447	Verbesina alternifolia	Wingstem		G5	S3					17	429000	4681000	H	01/01/2009		8/15/1960
168856	64000	Verbesina alternifolia	Wingstem		G5	S3					17	405000	4700000	H	01/01/2009		06/05/1987
168856	63878	Verbesina alternifolia	Wingstem		G5	S3					17	390000	4689000	H	01/01/2009		08/03/1987
168858	64618	Vernonia gigantea	Giant Ironweed		G5	S1?					17	404000	4690000	E			8/24/1990
168858	64619	Vernonia gigantea	Giant Ironweed		G5	S1?					17	413000	4690000	E			08/05/1992
168858	64598	Vernonia gigantea	Giant Ironweed		G5	S1?					17	398000	4688000	E			08/12/1993
168858	64597	Vernonia gigantea	Giant Ironweed		G5	S1?					17	396000	4690000	E			08/12/1993
168858	64620	Vernonia gigantea	Giant Ironweed		G5	S1?					17	414000	4688000	E			08/10/1992
168858	63871	Vernonia gigantea	Giant Ironweed		G5	S1?					17	399000	4692000	H	01/01/2009		7/21/1987
168966	63819	Vernonia missurica	Missouri Ironweed		G4G5	S3?					17	380000	4661000	H	01/01/2009		08/09/1986
153192	2702	Veronicastrum virginicum	Culver's Root		G4	S2					17	384000	4697000	E			
115068	60019	Viola striata	Striped Cream Violet		G5	S3					17	431000	4696000	H	01/01/2009		06/11/1960
115068	2762	Viola striata	Striped Cream Violet		G5	S3					17	384000	4697000	E			
181975	68162	Fissidens exilis	Pygmy Pocket Moss		G3G4	S1	SC	SC			17	422000	4685000	E	01/02/2004	2003	2003

**Appendix II**  
Ontario Breeding Bird Atlas

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**Square Summary (17LG87)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
17	15	28	60	8	22	34	64	19	17	0	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		FY	29	94
Mute Swan			5	29
Wood Duck		NE	56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard	P	NE	94	94
Blue-winged Teal			54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser			8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant		NE	43	43
Ruffed Grouse			29	13
Wild Turkey		H	0	54
Northern Bobwhite †			27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §			70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §			67	78
Black-crown N.-Heron † §			40	21
Turkey Vulture			54	78
Bald Eagle †			8	29
Northern Harrier		AE	45	67
Sharp-shinned Hawk			10	45
Cooper's Hawk		V	8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	NY	NY	83	83
American Kestrel	CF	AE	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	DD		94	94
Rock Dove	AE	H	83	89
Spotted Sandpiper	H	H	91	97
Upland Sandpiper			18	5
Common Snipe			16	18
American Woodcock	H	NE	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §			18	16
Forster's Tern † §			29	27
Mourning Dove	NE	NE	91	97
Yellow-billed Cuckoo	CF	NE	70	81
Black/Yell-billed Cuckoo			0	32
Black-billed Cuckoo	H	T	62	54
Eastern Screech-Owl	S	AE	83	91
Great Horned Owl	H	DD	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk	H		27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift	P	AE	67	75
Ruby-thr Hummingbird	H	D	59	89
Belted Kingfisher			83	78
Red-headed Woodpecker †	AE	H	83	62
Red-bell Woodpecker		H	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker	FY	N	89	94
Hairy Woodpecker			64	64
Northern Flicker	NE	FS	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	S	T	91	94
Acadian Flycatcher †			16	5
Alder Flycatcher			2	16
Willow Flycatcher			78	81
Least Flycatcher			56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17LG87 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe			37	86	Wood Thrush	NE	T	89	83	Field Sparrow	S	T	81	78
Gr Crested Flycatcher	P	V	86	89	American Robin	NE	NU	97	100	Vesper Sparrow	CF	CF	81	86
Eastern Kingbird	A	H	97	97	Gray Catbird	CF	A	91	97	Savannah Sparrow	CF	FS	91	89
White-eyed Vireo †			16	21	Northern Mockingbird			10	59	Grasshopper Sparrow			10	8
Yellow-throated Vireo			43	40	Brown Thrasher	P	P	89	91	Song Sparrow	CF	NE	94	100
Warbling Vireo	AE	V	91	97	European Starling	NY	NY	94	94	Swamp Sparrow			51	43
Red-eyed Vireo	A	A	86	97	Cedar Waxwing	P		91	89	Summer Tanager ‡			2	0
Blue Jay	CF	NY	91	91	Blue-winged Warbler			18	24	Scarlet Tanager	S	V	62	54
American Crow	P	AE	94	94	Golden-winged Warbler			16	2	Northern Cardinal	A	P	91	91
Horned Lark	CF	P	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	S		81	86
Purple Martin	AE	FY	97	100	Yellow Warbler	A	NE	94	100	Indigo Bunting	CF	T	91	94
Tree Swallow	H	FY	97	100	Chestn-sided Warbler		H	27	29	Bobolink	D	T	81	83
North Rgh-wing Swallow	AE	NE	91	89	Black-thr Green Warbler			2	8	Red-wing Blackbird	FY	NE	100	100
Bank Swallow §	H		89	78	Pine Warbler			10	16	Eastern Meadowlark	S	T	75	70
Cliff Swallow §			37	75	Cerulean Warbler †			13	5	Western Meadowlark ‡			5	2
Barn Swallow	AE	NE	100	100	American Redstart	S	T	51	70	Yellow-h Blackbird †			8	8
Black-capped Chickadee			56	72	Prothonotary Warbler †			10	13	Common Grackle	CF	CF	97	100
Tufted Titmouse †			5	13	Ovenbird			48	35	Brown-head Cowbird	P	NE	91	91
Red-breast Nuthatch ‡			2	2	North Waterthrush			10	10	Orchard Oriole		H	18	75
White-breast Nuthatch			54	59	Louis Waterthrush †			8	2	Baltimore Oriole	NY	AE	94	100
Brown Creeper			10	10	Kentucky Warbler †			8	0	Purple Finch			8	0
Carolina Wren	T	P	13	59	Mourning Warbler			35	27	House Finch		T	24	91
House Wren	AE	AE	91	97	Common Yellowthroat	S	FS	97	97	American Goldfinch	P	CF	91	97
Winter Wren ‡			5	2	Hooded Warbler †			2	5	House Sparrow	CF	NY	91	94
Sedge Wren			13	13	Canada Warbler			13	18					
Marsh Wren			29	43	Yellow-breast Chat †			21	18					
Blue-gr Gnatcatcher			37	59	Eastern Towhee	P		64	75					
Eastern Bluebird			13	56	Chipping Sparrow	S	T	89	91					
Veery			59	43	Clay-colored Sparrow			2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17LG87 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17LG87>

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**Square Summary (17LG86)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
15	27	36	78	12	25	59	96	36	72	25	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		FY	29	94
Mute Swan			5	29
Wood Duck		FY	56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard	P	FY	94	94
Blue-winged Teal	P		54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser		H	8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant	FY	S	43	43
Ruffed Grouse			29	13
Wild Turkey			0	54
Northern Bobwhite †		H	27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †		FY	24	29
Great Blue Heron §		H	70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §		A	67	78
Black-crown N.-Heron † §	H	X	40	21
Turkey Vulture	P	P	54	78
Bald Eagle †		AE	8	29
Northern Harrier		H	45	67
Sharp-shinned Hawk			10	45
Cooper's Hawk		AE	8	56
Broad-winged Hawk	H	H	18	13
Red-tailed Hawk	P	A	83	83
American Kestrel		T	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora	S	H	24	29
Common Moorhen		P	29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	A	FY	94	94
Rock Dove	AE	AE	83	89
Spotted Sandpiper	H	A	91	97
Upland Sandpiper	P		18	5
Common Snipe			16	18
American Woodcock	D	T	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §			18	16
Forster's Tern † §		X	29	27
Mourning Dove	FY	FY	91	97
Yellow-billed Cuckoo	D	A	70	81
Black/Yell-billed Cuckoo		S	0	32
Black-billed Cuckoo	T	S	62	54
Eastern Screech-Owl	FY	FY	83	91
Great Horned Owl	P	FY	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk			27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift		P	67	75
Ruby-thr Hummingbird		A	59	89
Belted Kingfisher	CF	CF	83	78
Red-headed Woodpecker †	AE	NY	83	62
Red-bell Woodpecker	N	CF	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker	CF	NY	89	94
Hairy Woodpecker	NY	CF	64	64
Northern Flicker	AE	AE	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	CF	FY	91	94
Acadian Flycatcher †	NE		16	5
Alder Flycatcher			2	16
Willow Flycatcher	A	CF	78	81
Least Flycatcher			56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17LG86 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe	H	FY	37	86	Wood Thrush	NY	CF	89	83	Field Sparrow	CF	CF	81	78
Gr Crested Flycatcher	P	A	86	89	American Robin	FY	NE	97	100	Vesper Sparrow	H	CF	81	86
Eastern Kingbird	CF	CF	97	97	Gray Catbird	T	CF	91	97	Savannah Sparrow	H	CF	91	89
White-eyed Vireo †		A	16	21	Northern Mockingbird		P	10	59	Grasshopper Sparrow			10	8
Yellow-throated Vireo	H	P	43	40	Brown Thrasher	CF	T	89	91	Song Sparrow	FY	CF	94	100
Warbling Vireo	P	AE	91	97	European Starling	AE	NY	94	94	Swamp Sparrow	H	S	51	43
Red-eyed Vireo	P	AE	86	97	Cedar Waxwing	CF	P	91	89	Summer Tanager ‡			2	0
Blue Jay	A	FY	91	91	Blue-winged Warbler			18	24	Scarlet Tanager	P	T	62	54
American Crow	FY	FY	94	94	Golden-winged Warbler			16	2	Northern Cardinal	CF	CF	91	91
Horned Lark	P	FY	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	A	CF	81	86
Purple Martin	AE	AE	97	100	Yellow Warbler	CF	AE	94	100	Indigo Bunting	CF	A	91	94
Tree Swallow	AE	NE	97	100	Chestn-sided Warbler			27	29	Bobolink	S	A	81	83
North Rgh-wing Swallow	AE	AE	91	89	Black-thr Green Warbler			2	8	Red-wing Blackbird	P	NE	100	100
Bank Swallow §	AE	AE	89	78	Pine Warbler			10	16	Eastern Meadowlark	T	A	75	70
Cliff Swallow §	AE	AE	37	75	Cerulean Warbler †			13	5	Western Meadowlark ‡	S		5	2
Barn Swallow	NY	NY	100	100	American Redstart	P	CF	51	70	Yellow-h Blackbird †			8	8
Black-capped Chickadee	H	CF	56	72	Prothonotary Warbler †			10	13	Common Grackle	CF	CF	97	100
Tufted Titmouse †			5	13	Ovenbird	H	T	48	35	Brown-head Cowbird	NE	FY	91	91
Red-breast Nuthatch ‡			2	2	North Waterthrush			10	10	Orchard Oriole	CF	AE	18	75
White-breast Nuthatch	H	CF	54	59	Louis Waterthrush †		A	8	2	Baltimore Oriole	CF	NY	94	100
Brown Creeper			10	10	Kentucky Warbler †			8	0	Purple Finch			8	0
Carolina Wren		CF	13	59	Mourning Warbler		H	35	27	House Finch		AE	24	91
House Wren	NY	NE	91	97	Common Yellowthroat	A	S	97	97	American Goldfinch	P	A	91	97
Winter Wren ‡			5	2	Hooded Warbler †			2	5	House Sparrow	NY	NE	91	94
Sedge Wren			13	13	Canada Warbler			13	18					
Marsh Wren		D	29	43	Yellow-breast Chat †			21	18					
Blue-gr Gnatcatcher	NY	CF	37	59	Eastern Towhee	P	CF	64	75					
Eastern Bluebird		NY	13	56	Chipping Sparrow	A	CF	89	91					
Veery	H	A	59	43	Clay-colored Sparrow			2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17LG86 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17LG86>

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**Square Summary (17LG98)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
11	26	24	61	14	17	53	84	61	95	19	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		NE	29	94
Mute Swan			5	29
Wood Duck	S	FY	56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard	V	FY	94	94
Blue-winged Teal		AE	54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser		P	8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant	T	T	43	43
Ruffed Grouse	S		29	13
Wild Turkey		P	0	54
Northern Bobwhite †			27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §	H	H	70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §		H	67	78
Black-crown N.-Heron † §	H		40	21
Turkey Vulture		FY	54	78
Bald Eagle †			8	29
Northern Harrier		H	45	67
Sharp-shinned Hawk		FY	10	45
Cooper's Hawk			8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	NU	FY	83	83
American Kestrel	P	CF	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	FY	NY	94	94
Rock Dove	NE	AE	83	89
Spotted Sandpiper	D	FY	91	97
Upland Sandpiper			18	5
Common Snipe			16	18
American Woodcock		H	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §	H		18	16
Forster's Tern † §			29	27
Mourning Dove	T	NY	91	97
Yellow-billed Cuckoo	T		70	81
Black/Yell-billed Cuckoo		S	0	32
Black-billed Cuckoo			62	54
Eastern Screech-Owl	FY	T	83	91
Great Horned Owl	T	AE	86	83
Long-eared Owl		P	2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk		H	27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift		H	67	75
Ruby-thr Hummingbird		H	59	89
Belted Kingfisher	AE	CF	83	78
Red-headed Woodpecker †			83	62
Red-bell Woodpecker		AE	32	86
Yellow-bellied Sapsucker ‡		X	5	2
Downy Woodpecker	P	NY	89	94
Hairy Woodpecker		H	64	64
Northern Flicker	P	D	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	T	A	91	94
Acadian Flycatcher †			16	5
Alder Flycatcher			2	16
Willow Flycatcher	A	NE	78	81
Least Flycatcher		P	56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17LG98 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe		A	37	86	Veery	H	T	59	43	Clay-colored Sparrow			2	2
Gr Crested Flycatcher	P	CF	86	89	Wood Thrush	CF	NY	89	83	Field Sparrow	P	NE	81	78
Eastern Kingbird	A	CF	97	97	American Robin	NU	NY	97	100	Vesper Sparrow	S	FY	81	86
White-eyed Vireo †		NY	16	21	Gray Catbird	CF	NY	91	97	Savannah Sparrow	P	FY	91	89
Yellow-throated Vireo	P		43	40	Northern Mockingbird			10	59	Grasshopper Sparrow			10	8
Warbling Vireo	FY	A	91	97	Brown Thrasher	T	CF	89	91	Song Sparrow	CF	CF	94	100
Red-eyed Vireo	A	AE	86	97	European Starling	NY	NY	94	94	Swamp Sparrow		S	51	43
Blue Jay	FY	AE	91	91	Cedar Waxwing	P	P	91	89	Summer Tanager ‡			2	0
American Crow	T	P	94	94	Blue-winged Warbler			18	24	Scarlet Tanager	T	NB	62	54
Horned Lark	D	NE	86	86	Golden-winged Warbler			16	2	Northern Cardinal	T	AE	91	91
Purple Martin	AE	P	97	100	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	H	A	81	86
Tree Swallow	H	NY	97	100	Yellow Warbler	NE	CF	94	100	Indigo Bunting	CF	FS	91	94
North Rgh-wing Swallow	P	CF	91	89	Chestn-sided Warbler			27	29	Bobolink	NE	DD	81	83
Bank Swallow §		FS	89	78	Black-thr Green Warbler			2	8	Red-wing Blackbird	FY	NY	100	100
Cliff Swallow §		AE	37	75	Pine Warbler			10	16	Eastern Meadowlark		NU	75	70
Barn Swallow	NE	NY	100	100	Cerulean Warbler †			13	5	Western Meadowlark ‡			5	2
Black-capped Chickadee		D	56	72	American Redstart		S	51	70	Yellow-h Blackbird †			8	8
Tufted Titmouse †			5	13	Prothonotary Warbler †			10	13	Common Grackle	FY	NY	97	100
Red-breast Nuthatch ‡			2	2	Ovenbird			48	35	Brown-head Cowbird	FY	NE	91	91
White-breast Nuthatch			54	59	North Waterthrush			10	10	Orchard Oriole			18	75
Brown Creeper		H	10	10	Louis Waterthrush †			8	2	Baltimore Oriole	NY	NU	94	100
Carolina Wren			13	59	Kentucky Warbler †			8	0	Purple Finch			8	0
House Wren	FY	NY	91	97	Mourning Warbler			35	27	House Finch		NY	24	91
Winter Wren ‡			5	2	Common Yellowthroat	A	CF	97	97	American Goldfinch	A	AE	91	97
Sedge Wren			13	13	Hooded Warbler †			2	5	House Sparrow	NY	NY	91	94
Marsh Wren			29	43	Canada Warbler			13	18					
Golden-crown Kinglet ‡		X	0	2	Yellow-breast Chat †	S		21	18					
Blue-gr Gnatcatcher		S	37	59	Eastern Towhee	S	A	64	75					
Eastern Bluebird		H	13	56	Chipping Sparrow	NE	FY	89	91					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17LG98 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17LG98>

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**Square Summary (17LG97)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
19	21	34	74	11	21	35	67	20	32	25	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		NE	29	94
Mute Swan			5	29
Wood Duck	H	H	56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck	P		21	16
Mallard	P	AE	94	94
Blue-winged Teal			54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser			8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant	FY		43	43
Ruffed Grouse			29	13
Wild Turkey		H	0	54
Northern Bobwhite †			27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §			70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §		H	67	78
Black-crown N.-Heron † §	H		40	21
Turkey Vulture		AE	54	78
Bald Eagle †			8	29
Northern Harrier	H	H	45	67
Sharp-shinned Hawk			10	45
Cooper's Hawk			8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	P	P	83	83
American Kestrel	H	V	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	DD	FY	94	94
Rock Dove	AE	NE	83	89
Spotted Sandpiper	H	D	91	97
Upland Sandpiper			18	5
Common Snipe		S	16	18
American Woodcock	H	T	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §			18	16
Forster's Tern † §			29	27
Mourning Dove	AE	FY	91	97
Yellow-billed Cuckoo	CF	S	70	81
Black/Yell-billed Cuckoo			0	32
Black-billed Cuckoo	P	P	62	54
Eastern Screech-Owl	S	P	83	91
Great Horned Owl	H		86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk	P		27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift	P		67	75
Ruby-thr Hummingbird	H	P	59	89
Belted Kingfisher	AE		83	78
Red-headed Woodpecker †	AE		83	62
Red-bell Woodpecker	S	NU	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker	AE	CF	89	94
Hairy Woodpecker	H		64	64
Northern Flicker	D	CF	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	P	P	91	94
Acadian Flycatcher †			16	5
Alder Flycatcher			2	16
Willow Flycatcher	CF	P	78	81
Least Flycatcher	S		56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17LG97 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe		H	37	86	Wood Thrush	A	S	89	83	Field Sparrow	CF		81	78
Gr Crested Flycatcher	FY	A	86	89	American Robin	NY	CF	97	100	Vesper Sparrow	P	FY	81	86
Eastern Kingbird	NY	AE	97	97	Gray Catbird	CF	CF	91	97	Savannah Sparrow	CF	P	91	89
White-eyed Vireo †			16	21	Northern Mockingbird		T	10	59	Grasshopper Sparrow			10	8
Yellow-throated Vireo			43	40	Brown Thrasher	A	CF	89	91	Song Sparrow	FY	CF	94	100
Warbling Vireo	AE	P	91	97	European Starling	CF	CF	94	94	Swamp Sparrow	S		51	43
Red-eyed Vireo	A	P	86	97	Cedar Waxwing	P	P	91	89	Summer Tanager ‡			2	0
Blue Jay	A	P	91	91	Blue-winged Warbler			18	24	Scarlet Tanager			62	54
American Crow	AE	H	94	94	Golden-winged Warbler			16	2	Northern Cardinal	CF	CF	91	91
Horned Lark	P	FY	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	P	S	81	86
Purple Martin	NY	AE	97	100	Yellow Warbler	NE	CF	94	100	Indigo Bunting	DD	CF	91	94
Tree Swallow	AE	CF	97	100	Chestn-sided Warbler	P		27	29	Dickcissel †		D	0	2
North Rgh-wing Swallow	FY	P	91	89	Black-thr Green Warbler			2	8	Bobolink	D	CF	81	83
Bank Swallow §	AE	FY	89	78	Pine Warbler			10	16	Red-wing Blackbird	CF	CF	100	100
Cliff Swallow §	NY	AE	37	75	Cerulean Warbler †			13	5	Eastern Meadowlark	S	P	75	70
Barn Swallow	NY	FY	100	100	American Redstart	S		51	70	Western Meadowlark ‡			5	2
Black-capped Chickadee			56	72	Prothonotary Warbler †			10	13	Yellow-h Blackbird †			8	8
Tufted Titmouse †			5	13	Ovenbird			48	35	Common Grackle	FY	CF	97	100
Red-breast Nuthatch ‡			2	2	North Waterthrush			10	10	Brown-head Cowbird	P	P	91	91
White-breast Nuthatch	S		54	59	Louis Waterthrush †			8	2	Orchard Oriole		CF	18	75
Brown Creeper			10	10	Kentucky Warbler †			8	0	Baltimore Oriole	AE	AE	94	100
Carolina Wren			13	59	Mourning Warbler	S		35	27	Purple Finch			8	0
House Wren	CF	S	91	97	Common Yellowthroat	DD	CF	97	97	House Finch		P	24	91
Winter Wren ‡			5	2	Hooded Warbler †			2	5	American Goldfinch	N	FY	91	97
Sedge Wren			13	13	Canada Warbler			13	18	House Sparrow	FY	AE	91	94
Marsh Wren			29	43	Yellow-breast Chat †	S		21	18					
Blue-gr Gnatcatcher		CF	37	59	Eastern Towhee	S		64	75					
Eastern Bluebird			13	56	Chipping Sparrow	P	CF	89	91					
Veery			59	43	Clay-colored Sparrow			2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17LG97 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17LG97>

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**Square Summary (17MG09)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
20	22	27	69	15	19	39	73	41	28	0	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 24 road side, 1 off road (1 in cropland). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		FY	29	94
Mute Swan			5	29
Wood Duck			56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard	FY	P	94	94
Blue-winged Teal			54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser			8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant			43	43
Ruffed Grouse			29	13
Wild Turkey			0	54
Northern Bobwhite †			27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §	S	H	70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §	H	P	67	78
Black-crown N.-Heron † §			40	21
Turkey Vulture	H	P	54	78
Bald Eagle †			8	29
Northern Harrier			45	67
Sharp-shinned Hawk			10	45
Cooper's Hawk		CF	8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	AE	H	83	83
American Kestrel	S	H	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	A	FY	94	94
Rock Dove	NE	NE	83	89
Spotted Sandpiper	H	H	91	97
Upland Sandpiper			18	5
Common Snipe			16	18
American Woodcock		S	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §			18	16
Forster's Tern † §			29	27
Mourning Dove	NE	FY	91	97
Yellow-billed Cuckoo	T	P	70	81
Black/Yell-billed Cuckoo			0	32
Black-billed Cuckoo	S		62	54
Eastern Screech-Owl	FY	T	83	91
Great Horned Owl	T	NY	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk	S	T	27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift	P	P	67	75
Ruby-thr Hummingbird	S	H	59	89
Belted Kingfisher	AE	NU	83	78
Red-headed Woodpecker †	AE		83	62
Red-bell Woodpecker		A	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker	T	CF	89	94
Hairy Woodpecker	T	H	64	64
Northern Flicker	AE	AE	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	T	CF	91	94
Acadian Flycatcher †	H		16	5
Alder Flycatcher			2	16
Willow Flycatcher		P	78	81
Least Flycatcher	S		56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG09 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe		NY	37	86	Wood Thrush	NE	CF	89	83	Field Sparrow	P	S	81	78
Gr Crested Flycatcher	AE	T	86	89	American Robin	CF	NY	97	100	Vesper Sparrow	P	H	81	86
Eastern Kingbird	S	P	97	97	Gray Catbird	NE	NY	91	97	Savannah Sparrow	T	AE	91	89
White-eyed Vireo †			16	21	Northern Mockingbird		P	10	59	Grasshopper Sparrow			10	8
Yellow-throated Vireo		S	43	40	Brown Thrasher	S	P	89	91	Song Sparrow	CF	CF	94	100
Warbling Vireo	P	A	91	97	European Starling	FY	NY	94	94	Swamp Sparrow			51	43
Red-eyed Vireo	T	CF	86	97	Cedar Waxwing	P	CF	91	89	Summer Tanager ‡			2	0
Blue Jay	A	FY	91	91	Blue-winged Warbler			18	24	Scarlet Tanager	FY		62	54
American Crow	A	FY	94	94	Golden-winged Warbler			16	2	Northern Cardinal	CF	CF	91	91
Horned Lark	T	P	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	S	FY	81	86
Purple Martin	AE	AE	97	100	Yellow Warbler	S	CF	94	100	Indigo Bunting	CF	CF	91	94
Tree Swallow	T	P	97	100	Chestn-sided Warbler			27	29	Bobolink		S	81	83
North Rgh-wing Swallow	H	AE	91	89	Black-thr Green Warbler			2	8	Red-wing Blackbird	FY	CF	100	100
Bank Swallow §	AE		89	78	Pine Warbler			10	16	Eastern Meadowlark	S	S	75	70
Cliff Swallow §		NY	37	75	Cerulean Warbler †			13	5	Western Meadowlark ‡			5	2
Barn Swallow	FY	AE	100	100	American Redstart	S	H	51	70	Yellow-h Blackbird †			8	8
Black-capped Chickadee	S	S	56	72	Prothonotary Warbler †			10	13	Common Grackle	FY	CF	97	100
Tufted Titmouse †			5	13	Ovenbird			48	35	Brown-head Cowbird	P	NY	91	91
Red-breast Nuthatch ‡			2	2	North Waterthrush			10	10	Orchard Oriole		H	18	75
White-breast Nuthatch	S	T	54	59	Louis Waterthrush †			8	2	Baltimore Oriole	NU	CF	94	100
Brown Creeper			10	10	Kentucky Warbler †			8	0	Purple Finch			8	0
Carolina Wren		CF	13	59	Mourning Warbler	S		35	27	House Finch	AE	FY	24	91
House Wren	FY	NY	91	97	Common Yellowthroat	A	CF	97	97	American Goldfinch	P	CF	91	97
Winter Wren ‡			5	2	Hooded Warbler †			2	5	House Sparrow	NY	AE	91	94
Sedge Wren			13	13	Canada Warbler			13	18					
Marsh Wren			29	43	Yellow-breast Chat †			21	18					
Blue-gr Gnatcatcher			37	59	Eastern Towhee		P	64	75					
Eastern Bluebird			13	56	Chipping Sparrow	FY	A	89	91					
Veery	P		59	43	Clay-colored Sparrow	T		2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG09 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG09>

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**Square Summary (17MG08)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
12	18	30	60	12	17	42	71	27	81	25	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		FY	29	94
Mute Swan			5	29
Wood Duck			56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard		P	94	94
Blue-winged Teal	S		54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser			8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant			43	43
Ruffed Grouse			29	13
Wild Turkey		FY	0	54
Northern Bobwhite †			27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §	H	H	70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §			67	78
Black-crown N.-Heron † §			40	21
Turkey Vulture		V	54	78
Bald Eagle †			8	29
Northern Harrier			45	67
Sharp-shinned Hawk		H	10	45
Cooper's Hawk		H	8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	AE	P	83	83
American Kestrel	H	FY	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	DD	FY	94	94
Rock Dove	AE	D	83	89
Spotted Sandpiper	P	H	91	97
Upland Sandpiper	T		18	5
Common Snipe			16	18
American Woodcock	H	P	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §			18	16
Forster's Tern † §			29	27
Mourning Dove	FY	FY	91	97
Yellow-billed Cuckoo	CF	T	70	81
Black/Yell-billed Cuckoo			0	32
Black-billed Cuckoo	H		62	54
Eastern Screech-Owl	H	S	83	91
Great Horned Owl	FY	H	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk			27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift		AE	67	75
Ruby-thr Hummingbird		P	59	89
Belted Kingfisher	AE		83	78
Red-headed Woodpecker †	H	P	83	62
Red-bell Woodpecker		FY	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker	A	FY	89	94
Hairy Woodpecker	H	H	64	64
Northern Flicker	CF	NY	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	S	CF	91	94
Acadian Flycatcher †			16	5
Alder Flycatcher			2	16
Willow Flycatcher	CF	CF	78	81
Least Flycatcher			56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG08 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe	H	AE	37	86	Wood Thrush	A	S	89	83	Field Sparrow	P	S	81	78
Gr Crested Flycatcher	CF	P	86	89	American Robin	CF	AE	97	100	Vesper Sparrow	P	CF	81	86
Eastern Kingbird	CF	FY	97	97	Gray Catbird	CF	CF	91	97	Savannah Sparrow	P	CF	91	89
White-eyed Vireo †			16	21	Northern Mockingbird		AE	10	59	Grasshopper Sparrow			10	8
Yellow-throated Vireo			43	40	Brown Thrasher	A	FY	89	91	Song Sparrow	CF	CF	94	100
Warbling Vireo	S	P	91	97	European Starling	FY	CF	94	94	Swamp Sparrow			51	43
Red-eyed Vireo	CF	A	86	97	Cedar Waxwing	P	FY	91	89	Summer Tanager ‡			2	0
Blue Jay	DD	CF	91	91	Blue-winged Warbler			18	24	Scarlet Tanager			62	54
American Crow	P	FY	94	94	Golden-winged Warbler			16	2	Northern Cardinal	FY	A	91	91
Horned Lark	P	FY	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	A	A	81	86
Purple Martin	AE	NY	97	100	Yellow Warbler	A	CF	94	100	Indigo Bunting	CF	A	91	94
Tree Swallow	AE	AE	97	100	Chestn-sided Warbler			27	29	Dickcissel †		H	0	2
North Rgh-wing Swallow	AE	FY	91	89	Black-thr Green Warbler			2	8	Bobolink	D	CF	81	83
Bank Swallow §	H	H	89	78	Pine Warbler			10	16	Red-wing Blackbird	CF	CF	100	100
Cliff Swallow §		FY	37	75	Cerulean Warbler †			13	5	Eastern Meadowlark	T	P	75	70
Barn Swallow	NY	AE	100	100	American Redstart			51	70	Western Meadowlark ‡			5	2
Black-capped Chickadee			56	72	Prothonotary Warbler †			10	13	Yellow-h Blackbird †			8	8
Tufted Titmouse †			5	13	Ovenbird			48	35	Common Grackle	FY	CF	97	100
Red-breast Nuthatch ‡			2	2	North Waterthrush			10	10	Brown-head Cowbird	P	FY	91	91
White-breast Nuthatch			54	59	Louis Waterthrush †			8	2	Orchard Oriole		P	18	75
Brown Creeper			10	10	Kentucky Warbler †			8	0	Baltimore Oriole	NY	FY	94	100
Carolina Wren			13	59	Mourning Warbler			35	27	Purple Finch			8	0
House Wren	CF	AE	91	97	Common Yellowthroat	DD	S	97	97	House Finch		FY	24	91
Winter Wren ‡			5	2	Hooded Warbler †			2	5	American Goldfinch	A	FY	91	97
Sedge Wren			13	13	Canada Warbler			13	18	House Sparrow	NY	FY	91	94
Marsh Wren			29	43	Yellow-breast Chat †			21	18					
Blue-gr Gnatcatcher			37	59	Eastern Towhee	A	A	64	75					
Eastern Bluebird		AE	13	56	Chipping Sparrow	CF	CF	89	91					
Veery			59	43	Clay-colored Sparrow			2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG08 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG08>

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**Square Summary (17MG07)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
15	22	37	74	18	26	44	88	23	55	0	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Canada Goose		FY	29	94	Cattle Egret †			2	0	Black Tern † §			27	27
Mute Swan			5	29	Green Heron §			67	78	Common Tern §			18	16
Wood Duck			56	81	Black-crown N.-Heron † §			40	21	Forster's Tern † §			29	27
Gadwall			18	24	Turkey Vulture	H	P	54	78	Mourning Dove	FY	NU	91	97
American Wigeon			13	13	Bald Eagle †		NY	8	29	Yellow-billed Cuckoo	A	CF	70	81
American Black Duck			21	16	Northern Harrier		P	45	67	Black/Yell-billed Cuckoo			0	32
Mallard	P		94	94	Sharp-shinned Hawk		CF	10	45	Black-billed Cuckoo	S	A	62	54
Blue-winged Teal			54	43	Cooper's Hawk		CF	8	56	Barn Owl †		FY	0	2
Northern Shoveler			16	16	Broad-winged Hawk			18	13	Eastern Screech-Owl	FY	T	83	91
Northern Pintail			10	8	Red-tailed Hawk	H	P	83	83	Great Horned Owl	P	S	86	83
Green-winged Teal			0	13	American Kestrel	H	FY	75	81	Long-eared Owl			2	5
Canvasback †			13	5	King Rail †			16	13	North Saw-whet Owl ‡			2	0
Redhead †			21	18	Virginia Rail			16	24	Common Nighthawk			27	37
Lesser Scaup ‡			5	5	Sora			24	29	Chuck-will's-widow †			10	2
Hooded Merganser		H	8	32	Common Moorhen			29	27	Whip-poor-will			13	13
Common Merganser ‡			5	0	American Coot			29	24	Chimney Swift	P	H	67	75
Red-breast Merganser ‡			2	0	Coot/Moorhen			0	5	Ruby-thr Hummingbird	H	T	59	89
Ruddy Duck †			18	16	Sandhill Crane			5	13	Belted Kingfisher			83	78
Ring-necked Pheasant	FY	H	43	43	Killdeer	FY	P	94	94	Red-headed Woodpecker †	AE	H	83	62
Ruffed Grouse			29	13	Rock Dove	AE	P	83	89	Red-bell Woodpecker	H	AE	32	86
Wild Turkey		FY	0	54	Spotted Sandpiper	H	D	91	97	Yellow-bellied Sapsucker ‡			5	2
Northern Bobwhite †			27	8	Upland Sandpiper			18	5	Downy Woodpecker	AE	CF	89	94
Pied-billed Grebe			29	32	Common Snipe			16	18	Hairy Woodpecker	H	A	64	64
Horned Grebe †			5	0	American Woodcock	FY	FY	67	86	Northern Flicker	D	P	91	94
Double-crest Cormorant §			2	21	Wilson's Phalarope †			2	2	Pileated Woodpecker			18	27
American Bittern			24	29	Little Gull †			5	5	Eastern Wood-Pewee	FY	CF	91	94
Least Bittern †			24	29	Ring-billed Gull §			5	29	Acadian Flycatcher †			16	5
Great Blue Heron §		H	70	70	Herring Gull §			27	27	Alder Flycatcher			2	16
Great Egret †			21	13	Caspian Tern †			2	0	Willow Flycatcher	S	P	78	81

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG07 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Least Flycatcher	S	S	56	37	Veery	A	S	59	43	Chipping Sparrow	CF	CF	89	91
Eastern Phoebe		NY	37	86	Wood Thrush	NE	AE	89	83	Clay-colored Sparrow			2	2
Gr Crested Flycatcher	P	AE	86	89	American Robin	FY	CF	97	100	Field Sparrow	A	CF	81	78
Eastern Kingbird	A	D	97	97	Gray Catbird	CF	CF	91	97	Vesper Sparrow	DD	FY	81	86
White-eyed Vireo †			16	21	Northern Mockingbird	FY		10	59	Savannah Sparrow	S	FY	91	89
Yellow-throated Vireo	S		43	40	Brown Thrasher	CF	FY	89	91	Grasshopper Sparrow			10	8
Warbling Vireo	S	P	91	97	European Starling	FY	CF	94	94	Henslow's Sparrow †		T	0	2
Red-eyed Vireo	T	CF	86	97	Cedar Waxwing	P	P	91	89	Song Sparrow	CF	FY	94	100
Blue Jay	FY	T	91	91	Blue-winged Warbler		S	18	24	Swamp Sparrow	A		51	43
American Crow	FY	FY	94	94	Golden-winged Warbler			16	2	Summer Tanager ‡			2	0
Horned Lark	P	FY	86	86	Blue/Gold-wing Warbler			0	2	Scarlet Tanager	A	S	62	54
Purple Martin	AE	AE	97	100	Yellow Warbler	CF	FY	94	100	Northern Cardinal	A	CF	91	91
Tree Swallow	P	AE	97	100	Chestn-sided Warbler			27	29	Rose-breast Grosbeak	CF	CF	81	86
North Rgh-wing Swallow	AE	AE	91	89	Black-thr Green Warbler			2	8	Indigo Bunting	CF	T	91	94
Bank Swallow §	AE	H	89	78	Pine Warbler			10	16	Dickcissel †		NE	0	2
Cliff Swallow §	AE	NB	37	75	Cerulean Warbler †		S	13	5	Bobolink	D	CF	81	83
Barn Swallow	NE	P	100	100	Black-white Warbler ‡		S	0	2	Red-wing Blackbird	NE	FY	100	100
Black-capped Chickadee	S	H	56	72	American Redstart	S	S	51	70	Eastern Meadowlark	T	T	75	70
Tufted Titmouse †			5	13	Prothonotary Warbler †			10	13	Western Meadowlark ‡			5	2
Red-breast Nuthatch ‡			2	2	Ovenbird	T	S	48	35	Yellow-h Blackbird †			8	8
White-breast Nuthatch	CF		54	59	North Waterthrush			10	10	Common Grackle	CF	FY	97	100
Brown Creeper			10	10	Louis Waterthrush †			8	2	Brown-head Cowbird	D	P	91	91
Carolina Wren		A	13	59	Kentucky Warbler †			8	0	Orchard Oriole		CF	18	75
House Wren	CF	CF	91	97	Mourning Warbler	CF		35	27	Baltimore Oriole	NY	CF	94	100
Winter Wren ‡			5	2	Common Yellowthroat	NE	S	97	97	Purple Finch			8	0
Sedge Wren		S	13	13	Hooded Warbler †			2	5	House Finch		P	24	91
Marsh Wren			29	43	Canada Warbler			13	18	American Goldfinch	P	P	91	97
Blue-gr Gnatcatcher	A	CF	37	59	Yellow-breast Chat †			21	18	House Sparrow	FY	P	91	94
Eastern Bluebird		NY	13	56	Eastern Towhee	CF	T	64	75					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG07 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG07>

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**Square Summary (17MG19)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
15	22	30	67	19	24	36	79	41	24	25	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose	P	FY	29	94
Mute Swan			5	29
Wood Duck		H	56	81
Gadwall			18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard	FY	P	94	94
Blue-winged Teal			54	43
Northern Shoveler			16	16
Northern Pintail			10	8
Green-winged Teal			0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser			8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †			18	16
Ring-necked Pheasant	H		43	43
Ruffed Grouse	NE		29	13
Wild Turkey		FY	0	54
Northern Bobwhite †			27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §	H		70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cattle Egret †			2	0
Green Heron §	A		67	78
Black-crown N.-Heron † §			40	21
Turkey Vulture	H	H	54	78
Bald Eagle †			8	29
Northern Harrier		H	45	67
Sharp-shinned Hawk		NY	10	45
Cooper's Hawk		NY	8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	A	FY	83	83
American Kestrel	P	FY	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	A	FY	94	94
Rock Dove	AE	P	83	89
Spotted Sandpiper	H	H	91	97
Upland Sandpiper			18	5
Common Snipe			16	18
American Woodcock	H	S	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black Tern † §			27	27
Common Tern §			18	16
Forster's Tern † §			29	27
Mourning Dove	NY	FY	91	97
Yellow-billed Cuckoo	S	S	70	81
Black/Yell-billed Cuckoo		S	0	32
Black-billed Cuckoo	S		62	54
Eastern Screech-Owl	S	S	83	91
Great Horned Owl	FY	S	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk			27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift			67	75
Ruby-thr Hummingbird	H	A	59	89
Belted Kingfisher	P		83	78
Red-headed Woodpecker †	AE		83	62
Red-bell Woodpecker		P	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker		CF	89	94
Hairy Woodpecker		A	64	64
Northern Flicker	CF	P	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	A	A	91	94
Acadian Flycatcher †			16	5
Alder Flycatcher			2	16
Willow Flycatcher	FY	S	78	81
Least Flycatcher			56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG19 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe		AE	37	86	Wood Thrush	A	CF	89	83	Field Sparrow	A	P	81	78
Gr Crested Flycatcher	S	D	86	89	American Robin	NY	CF	97	100	Vesper Sparrow	P	H	81	86
Eastern Kingbird	A	CF	97	97	Gray Catbird	A	CF	91	97	Savannah Sparrow	CF	CF	91	89
White-eyed Vireo †			16	21	Northern Mockingbird		P	10	59	Grasshopper Sparrow	S		10	8
Yellow-throated Vireo		S	43	40	Brown Thrasher	CF	CF	89	91	Song Sparrow	CF	CF	94	100
Warbling Vireo	A	A	91	97	European Starling	NY	FY	94	94	Swamp Sparrow			51	43
Red-eyed Vireo	A	A	86	97	Cedar Waxwing	H	P	91	89	Summer Tanager ‡			2	0
Blue Jay	CF	FY	91	91	Blue-winged Warbler			18	24	Scarlet Tanager	D	A	62	54
American Crow	P	P	94	94	Golden-winged Warbler			16	2	Northern Cardinal	FY	A	91	91
Horned Lark	P	CF	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	P	FY	81	86
Purple Martin	NY	AE	97	100	Yellow Warbler	CF	CF	94	100	Indigo Bunting	A	CF	91	94
Tree Swallow	AE	AE	97	100	Chestn-sided Warbler			27	29	Bobolink	CF	CF	81	83
North Rgh-wing Swallow	AE		91	89	Black-thr Green Warbler			2	8	Red-wing Blackbird	NE	CF	100	100
Bank Swallow §	AE	AE	89	78	Pine Warbler			10	16	Eastern Meadowlark	CF	CF	75	70
Cliff Swallow §		CF	37	75	Cerulean Warbler †			13	5	Western Meadowlark ‡			5	2
Barn Swallow	NY	AE	100	100	American Redstart		S	51	70	Yellow-h Blackbird †			8	8
Black-capped Chickadee		P	56	72	Prothonotary Warbler †			10	13	Common Grackle	CF	CF	97	100
Tufted Titmouse †		P	5	13	Ovenbird	T		48	35	Brown-head Cowbird	D	D	91	91
Red-breast Nuthatch ‡			2	2	North Waterthrush		A	10	10	Orchard Oriole	S	H	18	75
White-breast Nuthatch		CF	54	59	Louis Waterthrush †			8	2	Baltimore Oriole	CF	NY	94	100
Brown Creeper			10	10	Kentucky Warbler †			8	0	Purple Finch			8	0
Carolina Wren			13	59	Mourning Warbler		S	35	27	House Finch		P	24	91
House Wren	NE	A	91	97	Common Yellowthroat	CF	S	97	97	American Goldfinch	T	P	91	97
Winter Wren ‡			5	2	Hooded Warbler †			2	5	House Sparrow	NY	AE	91	94
Sedge Wren			13	13	Canada Warbler		S	13	18					
Marsh Wren			29	43	Yellow-breast Chat †			21	18					
Blue-gr Gnatcatcher		H	37	59	Eastern Towhee	S	A	64	75					
Eastern Bluebird			13	56	Chipping Sparrow	CF	CF	89	91					
Veery	S	S	59	43	Clay-colored Sparrow			2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG19 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG19>

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**Square Summary (17MG18)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
10	24	43	77	11	21	60	92	48	71	0	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Canada Goose		NE	29	94	Cattle Egret †			2	0	Black Tern † §			27	27
Mute Swan			5	29	Green Heron §	H	A	67	78	Common Tern §			18	16
Wood Duck		FY	56	81	Black-crown N.-Heron † §			40	21	Forster's Tern † §			29	27
Gadwall		P	18	24	Turkey Vulture	FY	NE	54	78	Mourning Dove	NE	FY	91	97
American Wigeon		P	13	13	Bald Eagle †			8	29	Yellow-billed Cuckoo		P	70	81
American Black Duck			21	16	Northern Harrier	FY		45	67	Black/Yell-billed Cuckoo			0	32
Mallard	FY	FY	94	94	Sharp-shinned Hawk		H	10	45	Black-billed Cuckoo	H	CF	62	54
Blue-winged Teal	FY	FY	54	43	Cooper's Hawk		CF	8	56	Eastern Screech-Owl	FY	T	83	91
Northern Shoveler	P	FY	16	16	Broad-winged Hawk			18	13	Great Horned Owl	T	T	86	83
Northern Pintail	S		10	8	Red-tailed Hawk	P	FY	83	83	Long-eared Owl			2	5
Green-winged Teal			0	13	American Kestrel	T	FY	75	81	North Saw-whet Owl ‡			2	0
Canvasback †			13	5	King Rail †			16	13	Common Nighthawk	P	H	27	37
Redhead †			21	18	Virginia Rail			16	24	Chuck-will's-widow †			10	2
Lesser Scaup ‡			5	5	Sora			24	29	Whip-poor-will			13	13
Hooded Merganser			8	32	Common Moorhen			29	27	Chimney Swift	P	P	67	75
Common Merganser ‡			5	0	American Coot			29	24	Ruby-thr Hummingbird	NY	NE	59	89
Red-breast Merganser ‡			2	0	Coot/Moorhen			0	5	Belted Kingfisher	H	CF	83	78
Ruddy Duck †	S	P	18	16	Sandhill Crane			5	13	Red-headed Woodpecker †	AE	AE	83	62
Ring-necked Pheasant	NE	H	43	43	Killdeer	FY	FY	94	94	Red-bell Woodpecker		AE	32	86
Ruffed Grouse	H		29	13	Rock Dove	P	T	83	89	Yellow-bellied Sapsucker ‡			5	2
Wild Turkey		FY	0	54	Spotted Sandpiper	FY	FY	91	97	Downy Woodpecker	T	T	89	94
Northern Bobwhite †	H		27	8	Upland Sandpiper	A		18	5	Hairy Woodpecker	T	H	64	64
Pied-billed Grebe	H		29	32	Common Snipe			16	18	Northern Flicker	AE	AE	91	94
Horned Grebe †			5	0	American Woodcock	NE	H	67	86	Pileated Woodpecker			18	27
Double-crest Cormorant §			2	21	Wilson's Phalarope †	NE	FY	2	2	Eastern Wood-Pewee	P	T	91	94
American Bittern			24	29	Little Gull †			5	5	Acadian Flycatcher †			16	5
Least Bittern †			24	29	Ring-billed Gull §		NE	5	29	Alder Flycatcher			2	16
Great Blue Heron §			70	70	Herring Gull §		NE	27	27	Willow Flycatcher	CF	T	78	81
Great Egret †			21	13	Caspian Tern †			2	0	Least Flycatcher			56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG18 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe		CF	37	86	Wood Thrush	T	T	89	83	Field Sparrow	T	S	81	78
Gr Crested Flycatcher	P	S	86	89	American Robin	NY	NE	97	100	Vesper Sparrow	DD	FY	81	86
Eastern Kingbird	P	FY	97	97	Gray Catbird	NU	CF	91	97	Savannah Sparrow	CF	FY	91	89
White-eyed Vireo †		S	16	21	Northern Mockingbird		NY	10	59	Grasshopper Sparrow			10	8
Yellow-throated Vireo			43	40	Brown Thrasher	NU	P	89	91	Song Sparrow	CF	FY	94	100
Warbling Vireo	T	T	91	97	European Starling	AE	NU	94	94	Swamp Sparrow			51	43
Red-eyed Vireo	A	T	86	97	Cedar Waxwing	P	FY	91	89	Summer Tanager ‡			2	0
Blue Jay	FY	NY	91	91	Blue-winged Warbler			18	24	Scarlet Tanager			62	54
American Crow	P	FY	94	94	Golden-winged Warbler			16	2	Northern Cardinal	CF	CF	91	91
Horned Lark	FY	FY	86	86	Blue/Gold-wing Warbler			0	2	Rose-breast Grosbeak	P	CF	81	86
Purple Martin	AE	AE	97	100	Yellow Warbler	CF	FY	94	100	Indigo Bunting	CF	FY	91	94
Tree Swallow	AE	AE	97	100	Chestn-sided Warbler			27	29	Dickcissel †		NE	0	2
North Rgh-wing Swallow	P	NE	91	89	Black-thr Green Warbler			2	8	Bobolink	FY	AE	81	83
Bank Swallow §	AE	AE	89	78	Pine Warbler			10	16	Red-wing Blackbird	NE	CF	100	100
Cliff Swallow §	NY	AE	37	75	Cerulean Warbler †			13	5	Eastern Meadowlark	CF	FY	75	70
Barn Swallow	NY	NU	100	100	American Redstart			51	70	Western Meadowlark ‡		FY	5	2
Black-capped Chickadee		FY	56	72	Prothonotary Warbler †			10	13	Yellow-h Blackbird †			8	8
Tufted Titmouse †			5	13	Ovenbird			48	35	Common Grackle	CF	CF	97	100
Red-breast Nuthatch ‡			2	2	North Waterthrush			10	10	Brown-head Cowbird	FY	FY	91	91
White-breast Nuthatch			54	59	Louis Waterthrush †			8	2	Orchard Oriole	H	NU	18	75
Brown Creeper			10	10	Kentucky Warbler †			8	0	Baltimore Oriole	CF	CF	94	100
Carolina Wren		A	13	59	Mourning Warbler			35	27	Purple Finch			8	0
House Wren	AE	AE	91	97	Common Yellowthroat	CF	S	97	97	House Finch	FY	P	24	91
Winter Wren ‡			5	2	Hooded Warbler †			2	5	American Goldfinch	P	FY	91	97
Sedge Wren		A	13	13	Canada Warbler			13	18	House Sparrow	AE	FY	91	94
Marsh Wren		A	29	43	Yellow-breast Chat †		T	21	18					
Blue-gr Gnatcatcher		S	37	59	Eastern Towhee	A		64	75					
Eastern Bluebird		NU	13	56	Chipping Sparrow	FY	FY	89	91					
Veery	P	S	59	43	Clay-colored Sparrow			2	2					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG18 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG18>

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**Square Summary (17MG29)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
26	24	30	80	9	23	53	85	38	38	0	0

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 25 road side, 0 off road.

SPECIES	Code		%	
	1st	2nd	1st	2nd
	Canada Goose	H	NY	29
Mute Swan			5	29
Wood Duck	S	FY	56	81
Gadwall		H	18	24
American Wigeon			13	13
American Black Duck			21	16
Mallard	FY	FY	94	94
Blue-winged Teal	H	FY	54	43
Northern Shoveler		P	16	16
Northern Pintail			10	8
Green-winged Teal		P	0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser		H	8	32
Common Merganser ‡			5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †		D	18	16
Ring-necked Pheasant	T		43	43
Ruffed Grouse			29	13
Wild Turkey			0	54
Northern Bobwhite †	T		27	8
Pied-billed Grebe			29	32
Horned Grebe †			5	0
Double-crest Cormorant §			2	21
American Bittern			24	29
Least Bittern †			24	29
Great Blue Heron §	H		70	70
Great Egret †			21	13

SPECIES	Code		%	
	1st	2nd	1st	2nd
	Cattle Egret †			2
Green Heron §		T	67	78
Black-crown N.-Heron † §			40	21
Turkey Vulture	P	T	54	78
Bald Eagle †			8	29
Northern Harrier	CF	NE	45	67
Sharp-shinned Hawk			10	45
Cooper's Hawk		NY	8	56
Broad-winged Hawk			18	13
Red-tailed Hawk	NY	T	83	83
American Kestrel	CF	CF	75	81
King Rail †			16	13
Virginia Rail			16	24
Sora			24	29
Common Moorhen			29	27
American Coot			29	24
Coot/Moorhen			0	5
Sandhill Crane			5	13
Killdeer	NE	FY	94	94
Rock Dove	AE	AE	83	89
Spotted Sandpiper	A	DD	91	97
Upland Sandpiper			18	5
Common Snipe	H		16	18
American Woodcock	FY	T	67	86
Wilson's Phalarope †			2	2
Little Gull †			5	5
Ring-billed Gull §			5	29
Herring Gull §			27	27
Caspian Tern †			2	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
	Black Tern † §			27
Common Tern §			18	16
Forster's Tern † §			29	27
Mourning Dove	T	FY	91	97
Yellow-billed Cuckoo	P	S	70	81
Black/Yell-billed Cuckoo			0	32
Black-billed Cuckoo	S	S	62	54
Eastern Screech-Owl	H	T	83	91
Great Horned Owl	NY	FY	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡			2	0
Common Nighthawk			27	37
Chuck-will's-widow †			10	2
Whip-poor-will			13	13
Chimney Swift	FY	AE	67	75
Ruby-thr Hummingbird	H	T	59	89
Belted Kingfisher	H	T	83	78
Red-headed Woodpecker †	S	CF	83	62
Red-bell Woodpecker		FY	32	86
Yellow-bellied Sapsucker ‡			5	2
Downy Woodpecker	S	AE	89	94
Hairy Woodpecker	H	P	64	64
Northern Flicker	CF	CF	91	94
Pileated Woodpecker			18	27
Eastern Wood-Pewee	T	T	91	94
Acadian Flycatcher †			16	5
Alder Flycatcher		T	2	16
Willow Flycatcher	T	T	78	81
Least Flycatcher	H	S	56	37

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG29 (page 2 of 2)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Eastern Phoebe	H	CF	37	86	Wood Thrush	T	T	89	83	Chipping Sparrow	NY	CF	89	91
Gr Crested Flycatcher	H	P	86	89	American Robin	NY	NY	97	100	Clay-colored Sparrow			2	2
Eastern Kingbird	NE	FY	97	97	Gray Catbird	A	CF	91	97	Field Sparrow	A	NY	81	78
White-eyed Vireo †			16	21	Northern Mockingbird	H	S	10	59	Vesper Sparrow	CF	CF	81	86
Yellow-throated Vireo	P	S	43	40	Brown Thrasher	CF	CF	89	91	Savannah Sparrow	CF	CF	91	89
Warbling Vireo	T	T	91	97	European Starling	AE	FY	94	94	Grasshopper Sparrow	H		10	8
Red-eyed Vireo	H	T	86	97	Cedar Waxwing	H	P	91	89	Song Sparrow	FY	CF	94	100
Blue Jay	CF	FY	91	91	Blue-winged Warbler			18	24	Swamp Sparrow			51	43
American Crow	AE	FY	94	94	Golden-winged Warbler			16	2	Summer Tanager ‡			2	0
Horned Lark	P	FY	86	86	Blue/Gold-wing Warbler			0	2	Scarlet Tanager	S		62	54
Purple Martin	AE	AE	97	100	Tennessee Warbler ‡		X	0	2	Northern Cardinal	A	FY	91	91
Tree Swallow	H	AE	97	100	Yellow Warbler	AE	NY	94	100	Rose-breast Grosbeak	P	CF	81	86
North Rgh-wing Swallow	P	V	91	89	Chestn-sided Warbler			27	29	Indigo Bunting	A	NE	91	94
Bank Swallow §	AE	AE	89	78	Black-thr Green Warbler			2	8	Dickcissel †		AE	0	2
Cliff Swallow §		AE	37	75	Pine Warbler	H		10	16	Bobolink	CF	CF	81	83
Barn Swallow	AE	NY	100	100	Cerulean Warbler †			13	5	Red-wing Blackbird	CF	NE	100	100
Black-capped Chickadee	H	FY	56	72	Black-white Warbler ‡		S	0	2	Eastern Meadowlark	CF	CF	75	70
Tufted Titmouse †			5	13	American Redstart		P	51	70	Western Meadowlark ‡			5	2
Red-breast Nuthatch ‡			2	2	Prothonotary Warbler †			10	13	Yellow-h Blackbird †			8	8
White-breast Nuthatch	S		54	59	Ovenbird	S		48	35	Common Grackle	CF	CF	97	100
Brown Creeper			10	10	North Waterthrush			10	10	Brown-head Cowbird	P	NY	91	91
Carolina Wren			13	59	Louis Waterthrush †			8	2	Orchard Oriole		CF	18	75
House Wren	T	AE	91	97	Kentucky Warbler †			8	0	Baltimore Oriole	NY	NY	94	100
Winter Wren ‡			5	2	Mourning Warbler			35	27	Purple Finch			8	0
Sedge Wren			13	13	Common Yellowthroat	P	A	97	97	House Finch	T	V	24	91
Marsh Wren			29	43	Hooded Warbler †			2	5	American Goldfinch	P	FY	91	97
Blue-gr Gnatcatcher	H		37	59	Canada Warbler			13	18	House Sparrow	CF	NY	91	94
Eastern Bluebird		CF	13	56	Yellow-breast Chat †			21	18					
Veery	T		59	43	Eastern Towhee		S	64	75					

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG29 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG29>

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**Square Summary (17MG28)**

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
26	34	86	146	28	27	83	138	256	220	29	43

**Region summary (#2: Chatham-Kent)**

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
37	37	37	165	171	777	462

Target number of point counts in this square: 24 road side, 1 off road (1 in open wetlands). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose	FY	NE	29	94
Mute Swan	H	FY	5	29
Tundra Swan †		X	0	2
Wood Duck	AE	FY	56	81
Gadwall	S	H	18	24
American Wigeon	P		13	13
American Black Duck	P	P	21	16
Mallard	FY	NE	94	94
Blue-winged Teal	FY	H	54	43
Northern Shoveler	H		16	16
Northern Pintail	P		10	8
Green-winged Teal		H	0	13
Canvasback †			13	5
Redhead †			21	18
Lesser Scaup ‡			5	5
Hooded Merganser	P	FY	8	32
Common Merganser ‡	H		5	0
Red-breast Merganser ‡			2	0
Ruddy Duck †	H		18	16
Ring-necked Pheasant	FY	S	43	43
Ruffed Grouse	P	FY	29	13
Wild Turkey		NE	0	54
Northern Bobwhite †	T		27	8
Pied-billed Grebe	T	P	29	32
Horned Grebe †			5	0
Double-crest Cormorant §		AE	2	21
American Bittern	D	T	24	29
Least Bittern †	NY	NE	24	29
Great Blue Heron §	H	NY	70	70

SPECIES	Code		%	
	1st	2nd	1st	2nd
Great Egret †	H		21	13
Cattle Egret †			2	0
Green Heron §	A	FY	67	78
Black-crown N.-Heron † §	S	H	40	21
Turkey Vulture	P	P	54	78
Bald Eagle †	NY	NY	8	29
Northern Harrier	P	H	45	67
Sharp-shinned Hawk	H	H	10	45
Cooper's Hawk	H	NY	8	56
Red-should Hawk †		NY	0	2
Broad-winged Hawk	H	H	18	13
Red-tailed Hawk	T	S	83	83
American Kestrel	NY	H	75	81
King Rail †	T	S	16	13
Virginia Rail	NE	T	16	24
Sora	T	S	24	29
Common Moorhen	FY	H	29	27
American Coot	P	S	29	24
Coot/Moorhen			0	5
Sandhill Crane	P	FY	5	13
Killdeer	FY	NY	94	94
Rock Dove	NY	P	83	89
Spotted Sandpiper	P	P	91	97
Upland Sandpiper	FY	H	18	5
Common Snipe	D	H	16	18
American Woodcock	NE	FY	67	86
Wilson's Phalarope †			2	2
Little Gull †	H	D	5	5
Ring-billed Gull §	H	FY	5	29

SPECIES	Code		%	
	1st	2nd	1st	2nd
Herring Gull §	P	FY	27	27
Great Black-backed Gull †		X	0	2
Caspian Tern †		X	2	0
Black Tern † §	NE	CF	27	27
Common Tern §	P	P	18	16
Forster's Tern † §	NE	P	29	27
Mourning Dove	NY	NE	91	97
Yellow-billed Cuckoo	NE	CF	70	81
Black/Yell-billed Cuckoo		T	0	32
Black-billed Cuckoo	CF	S	62	54
Barn Owl †		FY	0	2
Eastern Screech-Owl	FY	FY	83	91
Great Horned Owl	FY	FY	86	83
Long-eared Owl			2	5
North Saw-whet Owl ‡	H		2	0
Common Nighthawk	P	H	27	37
Chuck-will's-widow †	T		10	2
Whip-poor-will	P	FY	13	13
Chimney Swift	AE	AE	67	75
Ruby-thr Hummingbird	A	NE	59	89
Belted Kingfisher	AE	H	83	78
Red-headed Woodpecker †	AE	CF	83	62
Red-bell Woodpecker	FY	NY	32	86
Yellow-bellied Sapsucker ‡	H		5	2
Downy Woodpecker	FY	CF	89	94
Hairy Woodpecker	NY	AE	64	64
Northern Flicker	NY	AE	91	94
Pileated Woodpecker	AE	AE	18	27
Eastern Wood-Pewee	AE	NE	91	94

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG28 (page 2 of 3)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Acadian Flycatcher †	NY	AE	16	5	Sedge Wren	H	T	13	13	Common Yellowthroat	NY	CF	97	97
Alder Flycatcher		P	2	16	Marsh Wren	FY	A	29	43	Hooded Warbler †	S		2	5
Willow Flycatcher	NE	NY	78	81	Blue-gr Gnatcatcher	AE	CF	37	59	Canada Warbler	T	S	13	18
Least Flycatcher	NY	A	56	37	Eastern Bluebird	CF	FY	13	56	Yellow-breast Chat †	S	S	21	18
Eastern Phoebe	AE	NY	37	86	Veery	CF	CF	59	43	Eastern Towhee	NE	DD	64	75
Gr Crested Flycatcher	CF	AE	86	89	Wood Thrush	NY	NE	89	83	Chipping Sparrow	NY	NY	89	91
Western Kingbird †		X	0	2	American Robin	NY	NY	97	100	Clay-colored Sparrow			2	2
Eastern Kingbird	NE	FY	97	97	Gray Catbird	NE	NE	91	97	Field Sparrow	NE	P	81	78
White-eyed Vireo †	T	P	16	21	Northern Mockingbird	H	T	10	59	Vesper Sparrow	CF	P	81	86
Yellow-throated Vireo	CF	P	43	40	Brown Thrasher	NY	T	89	91	Savannah Sparrow	CF	CF	91	89
Warbling Vireo	AE	FY	91	97	European Starling	CF	CF	94	94	Grasshopper Sparrow	S	S	10	8
Red-eyed Vireo	NY	NE	86	97	Cedar Waxwing	CF	P	91	89	Song Sparrow	CF	NE	94	100
Blue Jay	AE	FY	91	91	Blue-winged Warbler	H		18	24	Swamp Sparrow	CF	CF	51	43
American Crow	AE	FY	94	94	Golden-winged Warbler	H		16	2	Summer Tanager ‡	A		2	0
Horned Lark	NE	P	86	86	Blue/Gold-wing Warbler			0	2	Scarlet Tanager	FY	FY	62	54
Purple Martin	NE	AE	97	100	Yellow Warbler	NY	NY	94	100	Northern Cardinal	NE	AE	91	91
Tree Swallow	AE	NY	97	100	Chestn-sided Warbler	P	NE	27	29	Rose-breast Grosbeak	CF	FY	81	86
North Rgh-wing Swallow	AE	H	91	89	Black-thr Blue Warbler ‡		S	0	2	Indigo Bunting	CF	NE	91	94
Bank Swallow §	AE		89	78	Black-thr Green Warbler		T	2	8	Bobolink	CF	S	81	83
Cliff Swallow §	NY	S	37	75	Blackburnian Warbler ‡		T	0	2	Red-wing Blackbird	NY	NY	100	100
Barn Swallow	NY	NY	100	100	Pine Warbler			10	16	Eastern Meadowlark	CF	S	75	70
Black-capped Chickadee	CF	NY	56	72	Cerulean Warbler †	CF		13	5	Western Meadowlark ‡			5	2
Tufted Titmouse †		FY	5	13	American Redstart	CF	CF	51	70	Yellow-h Blackbird †	S		8	8
Red-breast Nuthatch ‡			2	2	Prothonotary Warbler †	NY	NY	10	13	Common Grackle	CF	CF	97	100
White-breast Nuthatch	NY	FY	54	59	Ovenbird	T	T	48	35	Brown-head Cowbird	NY	NE	91	91
Brown Creeper	CF	S	10	10	North Waterthrush		NE	10	10	Orchard Oriole	S	NE	18	75
Carolina Wren	T	NY	13	59	Louis Waterthrush †	H		8	2	Baltimore Oriole	NY	NY	94	100
House Wren	AE	NY	91	97	Kentucky Warbler †	S		8	0	Purple Finch			8	0
Winter Wren ‡	T	T	5	2	Mourning Warbler	T	DD	35	27	House Finch	P	FY	24	91

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Ontario Breeding Bird Atlas - Summary Sheet for Square 17MG28 (page 3 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
American Goldfinch	CF	FY	91	97
House Sparrow	NY	AE	91	94

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #2 (Chatham-Kent). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17MG28 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 3/09/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17MG28>

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**Appendix III**  
Mid-winter Waterfowl Survey Results and Route Locations

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**Mid-Winter Waterfowl Inventory - January 2011**

Species	(add more columns as required)							GRAND TOTAL
	Survey Point /Route 1	Survey Point /Route 2	Survey Point /Route 3	Survey Point /Route 4	Survey Point /Route 5	Survey Point /Route 6	Survey Point /Route 7	
Red-throated Loon								
Common Loon								
Pied-billed Grebe								
Horned Grebe								
Red-necked Grebe								
Double-crested Cormorant			2			1		3
Tundra Swan		8	398	95	1	45		547
Trumpeter Swan								
Mute Swan		119	9	53	3	23		207
Greater White-Fronted Goose								
Snow Goose								
Brant								
Canada Goose	600	670	3,098	2,168	4,147	1,650		12333
Cackling Goose			2			1		3
Wood Duck		1		2				3
Green-winged Teal			2					2
American Black Duck	4	1	2,800	47	57	105		3014
Mallard	350	107	19,500	1,220	340	23		21540
Northern Pintail			73	1	12			86
Blue-winged Teal								
Northern Shoveler			21	1	1			23
Gadwall		2	8	6		1		17
American Wigeon				1		1		2
Canvasback	32	2,965	30	3,984	58	1		7070
Redhead	300	7,565	33	1,783	2	3		9686
Ring-necked Duck	3	6		1				10
Tufted Duck								
Greater Scaup	30	102	5	45	6,016			6198
Lesser Scaup		6	1	294	3,001			3302
Scaup sp.				2,251		20		2271
King Eider								
Harlequin Duck								
Long-tailed Duck	650	153		1				804

<b>Black Scoter</b>								
<b>Surf Scoter</b>								
<b>White-winged Scoter</b>	1	2						<b>3</b>
<b>Common Goldeneye</b>	100	55		1,030	1,247	20		<b>2452</b>
<b>Barrow's Goldeneye</b>								
<b>Bufflehead</b>	35	74		86	3	17		<b>215</b>
<b>Hooded Merganser</b>		29		19		1		<b>49</b>
<b>Common Merganser</b>	10		2	1,429	4,798	450		<b>6689</b>
<b>Red-breasted Merganser</b>	2			549	300	5		<b>856</b>
<b>Ruddy Duck</b>			3	1		7		<b>11</b>
<b>American Coot</b>			1					<b>1</b>
<b>Swan sp.</b>								
<b>Merganser sp.</b>								
<b>Duck sp.</b>								
<b>Large Dabbling sp.</b>								
<b>Diver sp.</b>	500							<b>500</b>
<b>Scoter sp.</b>								
<b>Mallard X Black Duck</b>								
<b>Total Birds</b>	<b>2,617</b>	<b>11,865</b>	<b>25,988</b>	<b>15,067</b>	<b>19,986</b>	<b>2,374</b>		<b>77,897</b>
<b>Total Species</b>	<b>13</b>	<b>17</b>	<b>16</b>	<b>22</b>	<b>15</b>	<b>17</b>		<b>26</b>
<b>Date of Survey</b>	Jan 5	Jan 5	Jan 1	Jan 6	Jan 1 & 2	Jan 9		
<b>Participants</b>	<b>2</b>	<b>1</b>	<b>13</b>	<b>3</b>	<b>2</b>	<b>2</b>		
<b>Party-hours</b>	<b>2.5</b>	<b>4</b>	<b>52</b>	<b>6</b>	<b>6</b>	<b>6</b>		
<b>Bald Eagle</b>	<b>0</b>	<b>0</b>	<b>2 (1a, 1i)</b>	<b>4 (2a, 2i)</b>	<b>0</b>	<b>5 (2a, 3i)</b>		<b>11 (5a, 6i)</b>
<b>Surveyed (Submitted) by:</b>								

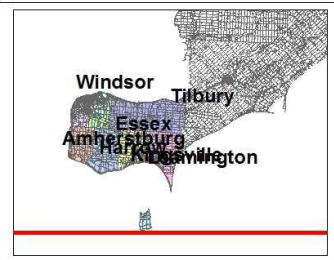




			2					2
<b>Northern Shoveler</b>			30	1		18		49
<b>Gadwall</b>			55	1	1		7	64
<b>American Wigeon</b>			12	1		1		14
<b>Canvasback</b>			16,903	2,245		62	1,150	20,360
<b>Redhead</b>	100	1	324	760		522	3,400	5,107
<b>Ring-necked Duck</b>			88	2			1	91
<b>Tufted Duck</b>								-
<b>Greater Scaup</b>		67	11	83	5,000	341		5,502
<b>Lesser Scaup</b>		4	591	707	3,500	68		4,870
<b>Scaup sp.</b>				2,499		3,800	100	6,399
<b>King Eider</b>								-
<b>Harlequin Duck</b>								-
<b>Long-tailed Duck</b>	1,075	2		1				1,078
<b>Black Scoter</b>				5	3			8
<b>Surf Scoter</b>				1	11	1		13
<b>White-winged Scoter</b>				7	22			29
<b>Common Goldeneye</b>	20	11		932	2,000	77		3,040
<b>Barrow's Goldeneye</b>								-
<b>Bufflehead</b>	62	12	37	89	2	22		224
<b>Hooded Merganser</b>			7	5	16	5		33
<b>Common Merganser</b>		64	21	3,040	1,000	142		4,267
<b>Red-breasted Merganser</b>	80		5	91	10,000	1,913		12,089
<b>Ruddy Duck</b>	2		470	2	1	79		554
<b>American Coot</b>	4			10		1,900		1,914

<b>Swan sp.</b>									-
<b>Merganser sp.</b>									-
<b>Duck sp.</b>			3,500						3,500
<b>Large Dabbling sp.</b>									-
<b>Diver sp.</b>									-
<b>Scoter sp.</b>									-
<b>Mallard X Black Duck</b>					2				2
<b>Total Birds</b>	<b>3,300</b>	<b>315</b>	<b>52,149</b>	<b>17,438</b>	<b>23,752</b>	<b>17,785</b>	<b>8</b>	<b>4,812</b>	<b>119,559</b>
<b>Total Species</b>									-
<b>Date of Survey</b>	6-Jan-12	10-Jan-12	1-Jan-12	8-Jan-12	1-Jan-12	2-Jan-12	2-Jan-12	8-Jan-12	
<b>Participants</b>		1	13	2	3	2		1	
<b>Party-hours</b>	3.5			10				2.5	
<b>Bald Eagle</b>			10		2 ad		14		
<b>Surveyed (Submitted) by:</b>	LC	Awd	Awd	BG	DW, AW, AP	SC, JB		Awd	

# MID-WINTER WATERFOWL ROUTES - CHATHAM AREA MNR



**Legend**

- 400 Series Highway
- Upper Tier Municipality
- Lower Tier Municipality
- Great Lakes

N  
SCALE: 1:700,000

0 5000 1000 1500 2000 METERS

UTM NAD83 18N Zone 17  
Map data derived from the National Hydrographic Information System (NHIS), Scale: 1:50,000  
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**Appendix IV**  
Waterfowl Flyway and Roost/Staging Locations

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