Appendix D
Bird Study Report

Northland Power Inc.
McLean's Mountain
Wind Farm Avian Report

June 2009

09-1983

Submitted by

Dillon Consulting
Limited

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Executive Summary

This Technical Appendix provides a review of the existing environmental conditions as it relates to birds based on detailed background research and field work carried out from 2004 to 2008. Seasonal field work documented in the report generally follows methods and survey effort outlined in *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds* (Environment Canada 2007a). An effects assessment of the proposed undertaking with respect to birds and their habitat as well as recommendations for mitigation are provided in the Environmental Review Report (ESR).

When compared to other areas of southern Ontario, a relatively low number of birds were observed in the study areas throughout the year. Very few shorebirds were observed during field work. Some of these species are known to display aerially during the breeding season. The number of waterfowl observed during field work was also small and are unlikely to be affected by the wind farm project. Landbirds accounted for the majority of all species observed. Of the waterbirds recorded during bird surveys, gulls were the most abundant species group. Sandhill Cranes observed in the study area were generally feeding and a few were seen nesting. However, there were large numbers of Sandhill Cranes observed elsewhere on Manitoulin Island outside of the project boundary and the study site does not seem to support a large number of this species.

A few Bald Eagles and 1 Red-shouldered Hawk were observed during field work, flying high above the study site. Several Bird Conservation Region 13 priority bird species have been observed in the study area.

In addition to buffer recommendations that were implemented during the turbine layout planning, Dillon is recommending that construction occur outside of the core breeding period for area birds - May 1 to July 23 in open areas and May 9 to July 23 in forested areas. If construction does take place during the core breeding season, it is recommended that a qualified biologist conduct nest searches in areas to be cleared to identify nests that require protection until young have fledged. Appropriate buffers should be provided for nests based on the biologist's determination.

1.0 INTRODUCTION

Dillon Consulting Limited (Dillon) has been retained by Northland Power Inc. to complete an Environmental Screening/Review under the *Ontario Environmental Assessment Act* for a proposed utility scale wind farm. The project is located south of Little Current in the Town of Northeastern Manitoulin and the Islands, Ontario on McLean's Mountain, as illustrated in Figure 1. The project proposes to develop approximately 50 turbines for approximately 80 megawatts (MW) of power generation.

This Technical Appendix provides a review of the existing environmental conditions as it relates to birds based on detailed background research and field work carried out intermittently from 2004-2008. The methods and survey effort outlined for bird fieldwork rely on those presented in *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds* (Environment Canada 2007a) and preceding versions.

The result of bird studies have been used in combination with other environmental information and technical disciplines to direct the wind farm layout, evaluation of potential impacts and mitigation as well as environmental management and monitoring plans. This information is detailed in the Environmental Study Report (ESR)

NORTHLAND POWER

Mcleans Mountain Windfarm
Figure 1 Wind Farm Layout and Infrastructure

Legend

- Turbine
- Substation
- Residence
- Building
- Radio Tower
- Water Treatment Plant
- Secondary Roads
- Highway
- Cabling (34kv)
- Access Roads
- Proposed Tranmission Line (115kv)
- Rivers
- Project Area
- Lots
- Waterbody

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2.0 BACKGROUND INFORMATION AND NATURAL ENVIRONMENT SETTING RELEVANT TO BIRDS

2.1 Background Bird Data for the Study Area

2.1.1 Breeding Birds – Breeding Bird Atlas Data

The study area is part of Breeding Bird Atlas Region 33 – Manitoulin Island, with the atlas squares 17ML18, 17ML28, 17ML29 and 17ML38 being found in the study area. A total of 150 species of birds were observed as possible, probable or confirmed breeding in the four 10km x 10km atlas squares for the Ontario Breeding Bird Atlas (Appendix A).

A total of 91, 129, 95 and 103 species of birds were observed as possible, probable or confirmed breeding in each of the squares, respectively. When atlas square information is combined the area has a total of 150 breeding bird species in or adjacent to the study area. As a comparison, the Breeding Bird Atlas has 189 breeding species documented for the entire Manitoulin region.

Appendix A contains a summary of all breeding species observed during the second Breeding Bird Atlas program in the atlas squares that overlap the study area. This also provides a summary of regional, provincial and national rare species.

2.1.2 Resident Birds – Christmas Bird Count Data

Christmas Bird Count data from 2002 to 2008 (Count year 102-108) for the Manitoulin Island count circle (Centre: 45.85 degrees North x -82.4333 degrees West) shows a minimum of 40 and maximum of 50 species observed during any one year (average = 47 ± 3.4 species). In total, 83 species have been observed between 2002 and 2008.

Overall, CBC data does not show an abundance of raptors in the Manitoulin Island count circle. High numbers of Bald Eagle (Min: 18; Max: 36; Ave: 25.4) and Rough-legged Hawk (Min: 0; Max: 42; Ave: 12.7) have been observed. For most raptor species, the number of individuals observed was low with 4 or fewer species occurring in any given year.

Species observed in higher numbers during multiple years are included in Table 1 below. See Appendix B for a summary of all species that have been observed during the 2002 to 2008 Christmas Bird Counts.

Table 1: Christmas Bird Count resident winter bird species observed in abundance relative to other species from 2002-2008.

Species Common Name	Minimum Individuals Observed	Maximum Individuals Observed	Average Number of Individuals per year
Mallard	0	382	71.0
Common Goldeneye	6	941	267
Common Merganser	0	1508	391
Ring-billed Gull	0	114	26
Herring Gull	18	385	157
Rock Pigeon	0	155	78
Mourning Dove	123	272	181
Blue Jay	132	247	179
American Crow	44	200	102
Common Raven	123	387	225
Black-capped Chickadee	198	486	385
European Starling	162	1178	399
Snow Bunting	0	625	123
Common Redpoll	0	398	153
American Goldfinch	19	917	209
House Sparrow	34	134	81
Pine Grosbeak	0	318	62

2.2 Study Area Location in Relation to Important Bird Areas

The study area overlaps with one Important Bird Area (IBA), the Manitoulin Island North Shore.

2.2.1 Manitoulin Island North Shore Important Bird Area – ON150

This IBA follows the northern Manitoulin Island shoreline from Cole Bay to West Bay and overlaps with a portion of the western edge of the study area as seen in Figure 2. This site is characterized by sloping shorelines and includes a number of bays and inlets. Large numbers of moulting red-necked grebes are found in this IBA between September and December. Total numbers of red-necked grebes recorded here have been as high as 1,163 in 1995 and 2,000 in 1996 which represents approximately 4% of the North American population of the species. The moulting locations that red-necked grebes use share several characteristic such as they are generally between 100 to 2,000 meters away from the shoreline, the water depth varies from 3 to 55 m, they are partially sheltered, and they have varied late bottom topography containing shelves or holes. Other open water birds observed here include common loons, horned grebes, scoters and oldsquaw (Birdlife International 2007).

2.3 Landscape Setting and Major Habitat Types

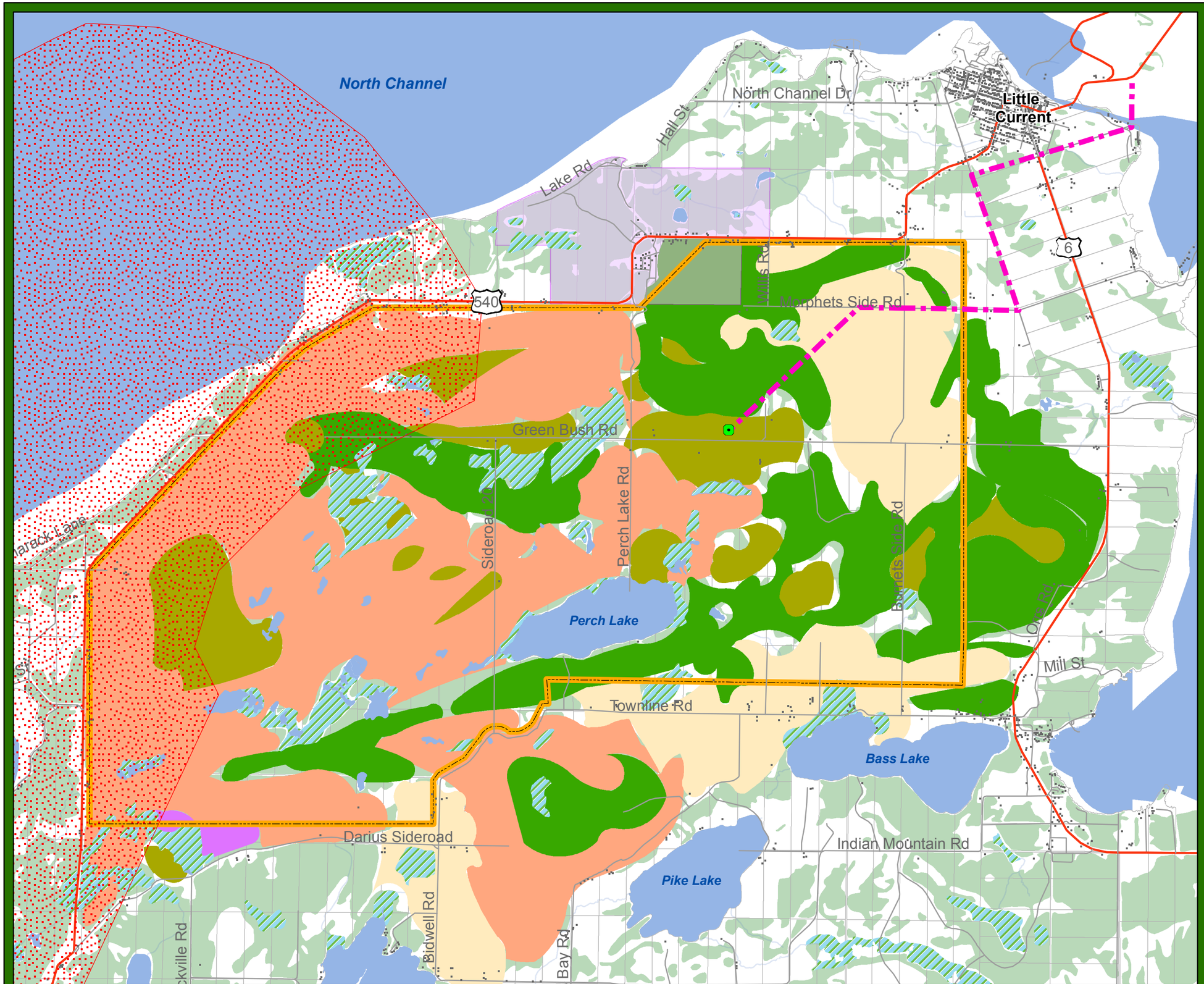
According to Chapman and Putnam (1984), Manitoulin Island is 129 km long and from 5 to 48 km wide, covering 4113 km^2. Manitoulin contains over 100 lakes with the 3 largest covering 168 km^2. The island is part of the Niagara cuesta, a dolomitic saucer underlying the Lake Michigan basin. With exception to escarpment areas, where elevation changes drastically over a short distance, the topography of the area is comprised of limestone tablelands tilted slightly to the south-southwest, generally appearing flat.

The underlying bedrock, shallow and seasonally wet soils has influenced local land-use and vegetation and prevented agricultural crops from being grown. Due to these conditions, historical and current land use in the surrounding area has been primarily pastureland for beef cattle, which is sometimes cut for hay. Forests are general confined to steep slopes or lowland areas. Major habitat types observed in the study area are provided on Figure 2 and summarized below.

On pastureland, subtle changes in elevation modify drainage characteristics, which results in a complex pattern of Old Field Meadow (pasture) (CUM 1) and Meadow Marsh (MAM 1) community types. The influence of elevation changes is magnified by the relatively thin soil (#0.3m) overlying the limestone bedrock. All Old Field Meadow (pasture) including many Meadow Marsh areas are maintained by cultural uses (grazing cattle). The more culturally maintained and impacted Meadow Marsh areas have not been included in wetland boundaries but rather remain part of the larger Old Field Meadow (pasture) designation due to their small size.

Forests are generally confined to steep slopes or lowland areas. Cattle regularly graze in the forested areas, which has resulted in a reduction in ground layer plant regeneration. Generally, forest cover on or immediately adjacent to lease sites is dominated by a Sugar Maple Deciduous Forest (FOD5, FOD6) with small isolated areas of Dry Cedar Coniferous Forest (FOC 2) and Fresh White Cedar Mixed Forest (FOM 4) with white spruce, white birch and trembling aspen as co-dominant species.

Multiple small-unevaluated wetlands comprised of mostly White Cedar Mineral Mixed Swamp (SWM 1) and Red Maple Mineral Deciduous Swamp (SWD 3), with some smaller isolated portions of Mineral Thicket Swamp (SWT 2) and Shallow Meadow Marsh (MAS 2) communities are contained in the study area. These areas are primarily identified from MNR base mapping (2002), with additional areas being added as a result of field observations.



NORTHLAND POWER

Mcleans Mountain Windfarm Habitat Map

Legend

- Building
- Substation
- Secondary Roads
- Highway
- Rivers
- Transmission Line
- Study Area
- Manitoulin Island North Shore Important Bird Area (ON150)
- Lots
- First Nation Reserve
- Deciduous Forest
- Grassland/Pasture
- Mixed Forest
- Old Field
- Bog
- Swamp/Wetland
- Waterbody
- Woodlots

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3.0 AGENCY CORRESPONDENCE AND CONSULTATION

Fieldwork was initiated in early 2004 prior to the establishment of the majority of standard protocols for wind development in Ontario. Intermittent consultation has occurred with the Ministry of Natural Resources (MNR) from inception of the project. Scott Dingwall (Sudbury District Planner, MNR) and Bruce Richard (Information and Resource Management Supervisor, MNR) were contacted in June and November of 2004, respectively, to attain natural features and species at risk information. This was followed up with a letter to Mr. Dingwall in July 2004 detailing the possible natural environment issues identified for the study area. During 2004 and 2005 Dr. Ross James had ongoing conversations with Environment Canada biologists regarding the sight, specifically potential habitat and historical occurrences of Loggerhead Shrikes in the area.

An October 7, 2008, letter was sent to the MNR as well as Environment Canada (EC), which summarized the information collected during a review of background information and field work. A reply from Caleigh Sinclair (Assistant Planning Biologist), Eric Cobb (Renewable Energy Planner, MNR), and Deb Jacobs (Species at Risk Biologist, MNR) in March 2009 provided useful comments from and identified species that required additional documentation and assessment of effects. Email discussions with Sheryl Lusk at EC occurred in June 2009 to confirm that EC would not be commenting on the October 7, 2008 letter due to other staffing commitments.

4.0 DETERMINATION LEVEL OF CONCERN CATEGORY

During the initial stages of the project the study area was best described as having a very high site sensitivity designation based on Table 1 in *Wind Turbines and Birds: A Guidance Document for Environmental Assessments* (Environment Canada March 2007b). This designation occurs as a result of the:

- Presence of bird species listed as at risk by COSEWIC and/or COSSARO
    - Historical observations of Loggerhead Shrike;
    - Presence of Short-eared Owl in the general area (BBA data);
    - Presence of Bald Eagle (observations, historical and BBA data);
- Site contains a ridge feature that may funnel bird movement through the study area;
- Site is partially located in the Manitoulin Island North Shore Important Bird Area (ON150), and;
- Presence of some BCR 13 priority species and species with aerial displays such as Upland Sandpipers.

The proposed size of the wind farm is considered “large”, with 50 turbines. Initially, this in conjunction with the site sensitivity score of very high puts this project in Level of Concern Category 4. Upon further data collection, this site is more appropriately described as being a Level of Concern Category 2 or 3.

5.0 METHODS

5.1 Background Review

Several sources, including: Natural Heritage Information Centre database; Breeding Bird Atlas (http://www.birdsontario.org/atlas/atlasmain.html); Important Bird Areas (http://www.ibacanada.ca); federal Species at Risk Act (SARA) Public Registry (http://www.sararegistry.gc.ca/default_e.cfm); and provincial Species at Risk (SAR) (http://www.mnr.gov.on.ca/MNR/speciesatrisk/status.html) formed the basis of the background review.

5.2 Spring Migration

Spring migration surveys were conducted during 2005 by Dr. Ross James and again in 2008 by Dillon. Spring 2005 observations took place over 12 days (April 18-21, May 3-6 and May 23-26) to provide adequate temporal coverage of the spring migration period. Observations for 2008 were completed on April 23, 30, May 8 and 16. The entire study area was assessed for areas that may contain habitats important for migrants as stopover sites and determine if the area supports large numbers of birds during the spring season. This assessment of spring migration employed a point count and stopover count survey protocol (Figure 3). These surveys involved driving all or most roads slowly at 20 to 30 km/hr with the windows open and recording all birds seen or heard. These transects generally were placed in all major habitat types. Any areas observed to contain concentrations of a single species or group (e.g. waterfowl) were identified. Owl surveys were also conducted in April 2005 using a playback method with a recording of a Screech Owl at various locations as indicated on Figure 3.

5.3 5.3 Breeding Birds

Breeding bird surveys were conducted in June and July, 2007 and 2008 between dawn and 5 hours after sunrise. Combined 10-minute fixed/non-fixed radius interior point count methodology (>100m from road/habitat edge) was used to establish quantitative estimates of bird abundance in major habitat types of the study area (Figure 4). Where land access was insufficient to facilitate interior point counts, roadside point counts were spaced appropriately to provide sufficient coverage of major habitat type within the study area. Point counts were repeated twice over the course of each breeding season (Visit 1 – late May to mid-June, Visit 2 – mid-June to early July) to ensure that both early and late breeders were detected.

In addition to the above, surveys employed area search methodology. Area searches were conducted by visiting each major habitat type during the 2007 and 2008 breeding season, at various times of day (primarily between dawn and 5hrs after sunrise) (Figure 4). In some cases, area searches were conducted along the roadside and by car noting species observed between point count locations.

Mcleans Mountain Windfarm
Spring 2008 Wandering/ Driving Transect Route

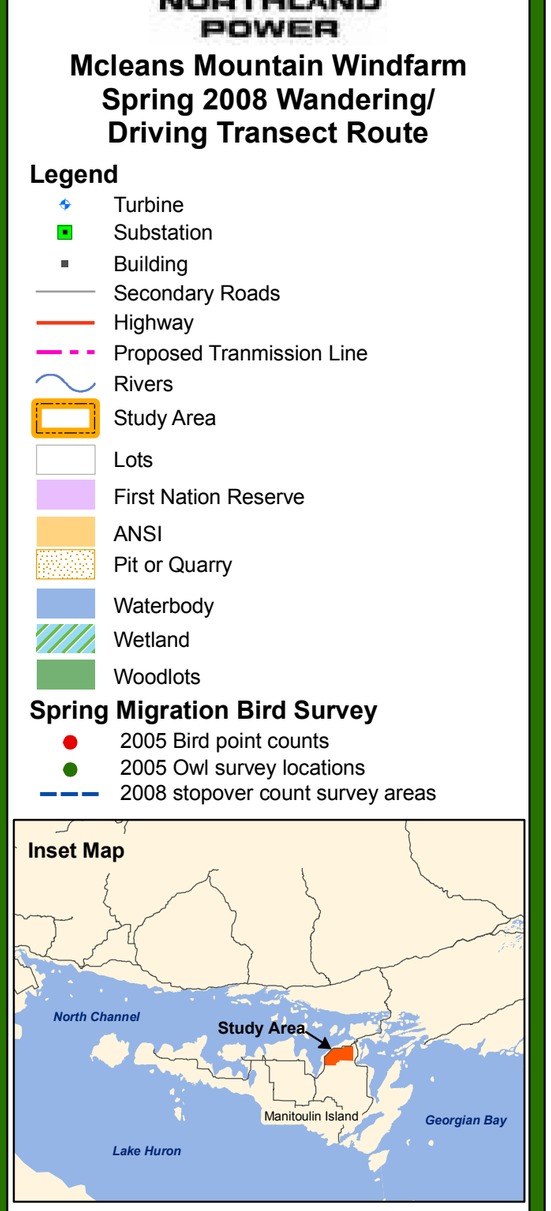
NORTHLAND POWER

Legend

- Turbine
- Substation
- Building
- Secondary Roads
- Highway
- Proposed Tranmission Line
- Rivers
- Study Area
- Lots
- First Nation Reserve
- ANSI
- Pit or Quarry
- Waterbody
- Wetland
- Woodlots

Spring Migration Bird Survey

- 2005 Bird point counts
- 2005 Owl survey locations
- 2008 stopover count survey areas



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North Channel Dr
Little Current
Hall St
Lake Rd
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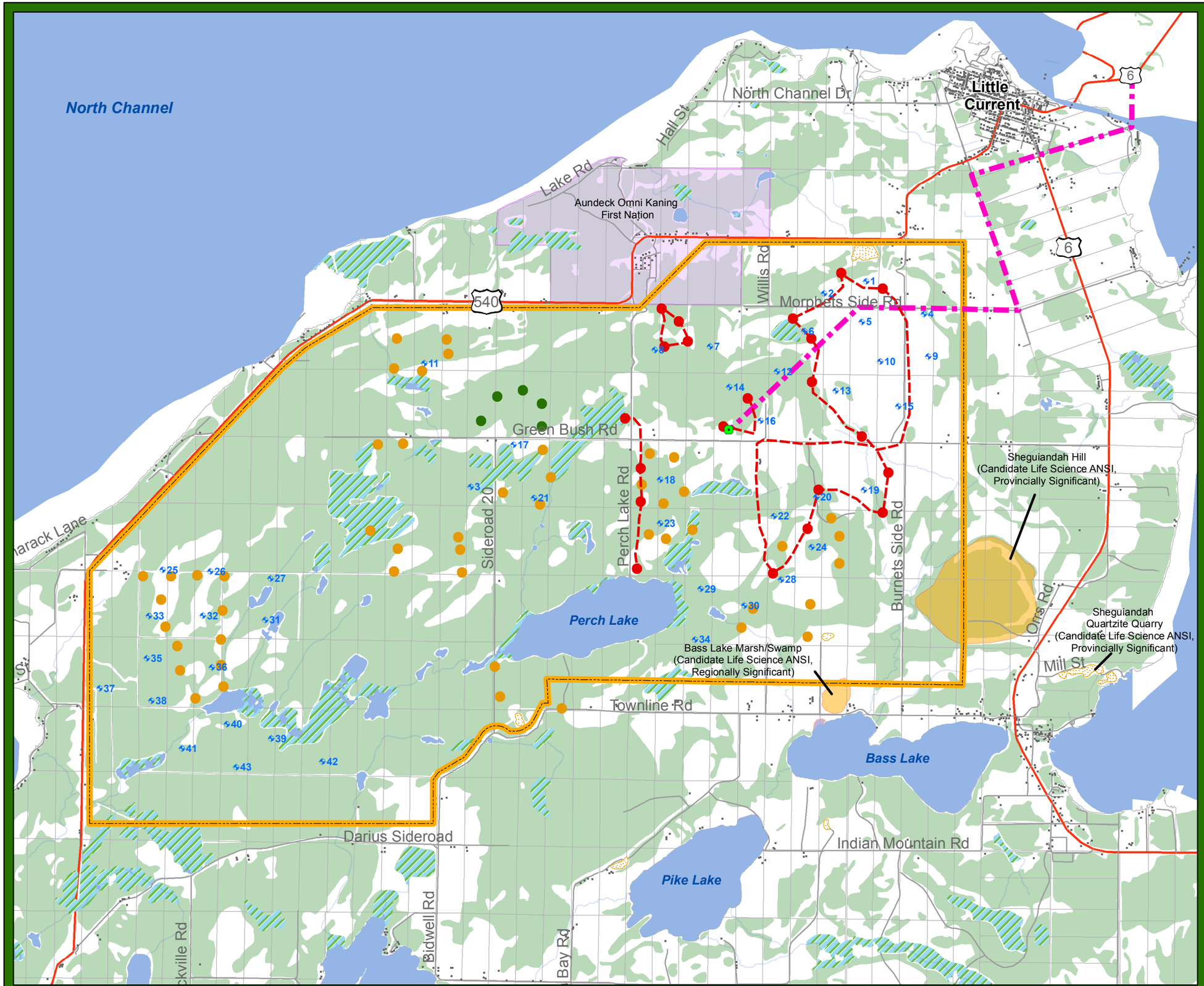
Willis Rd
Morphets Side Rd
Green Bush Rd
Perch Lake Rd
Sideroad 20
Burnets Side Rd
Ora's Rd
Mill St
Tamarack Lane
Townline Rd
Darius Sideroad
Indian Mountain Rd
Bidwell Rd
Bay Rd
Perch Lake
Bass Lake
Pike Lake
Sheguiandah Hill (Candidate Life Science ANSI, Provincially Significant)
Sheguiandah Quartzite Quarry (Candidate Life Science ANSI, Provincially Significant)
Bass Lake Marsh/Swamp (Candidate Life Science ANSI, Regionally Significant)



NORTHLAND POWER

Mcleans Mountain Windfarm Breeding Bird Survey

Legend

- Substation
- Turbine
- Building
- Secondary Roads
- Highway
- Proposed Tranmission Line
- Rivers
- Study Area
- Lots
- First Nation Reserve
- ANSI
- Pit or Quarry
- Waterbody
- Wetland
- Woodlots

Breeding Bird Survey

- 2007 point counts
- 2008 point counts
- 2008 point counts & overlap #1 & #2
- 2007 Transect Routes

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Where appropriate habitat existed or Breeding Bird Atlas information suggested the presence of secretive bird species, such as marsh birds, raptors or owls, a playback method was used to determine presence / absence / estimate numbers.

5.4 Fall Migration - Diurnal Migration and Staging Areas

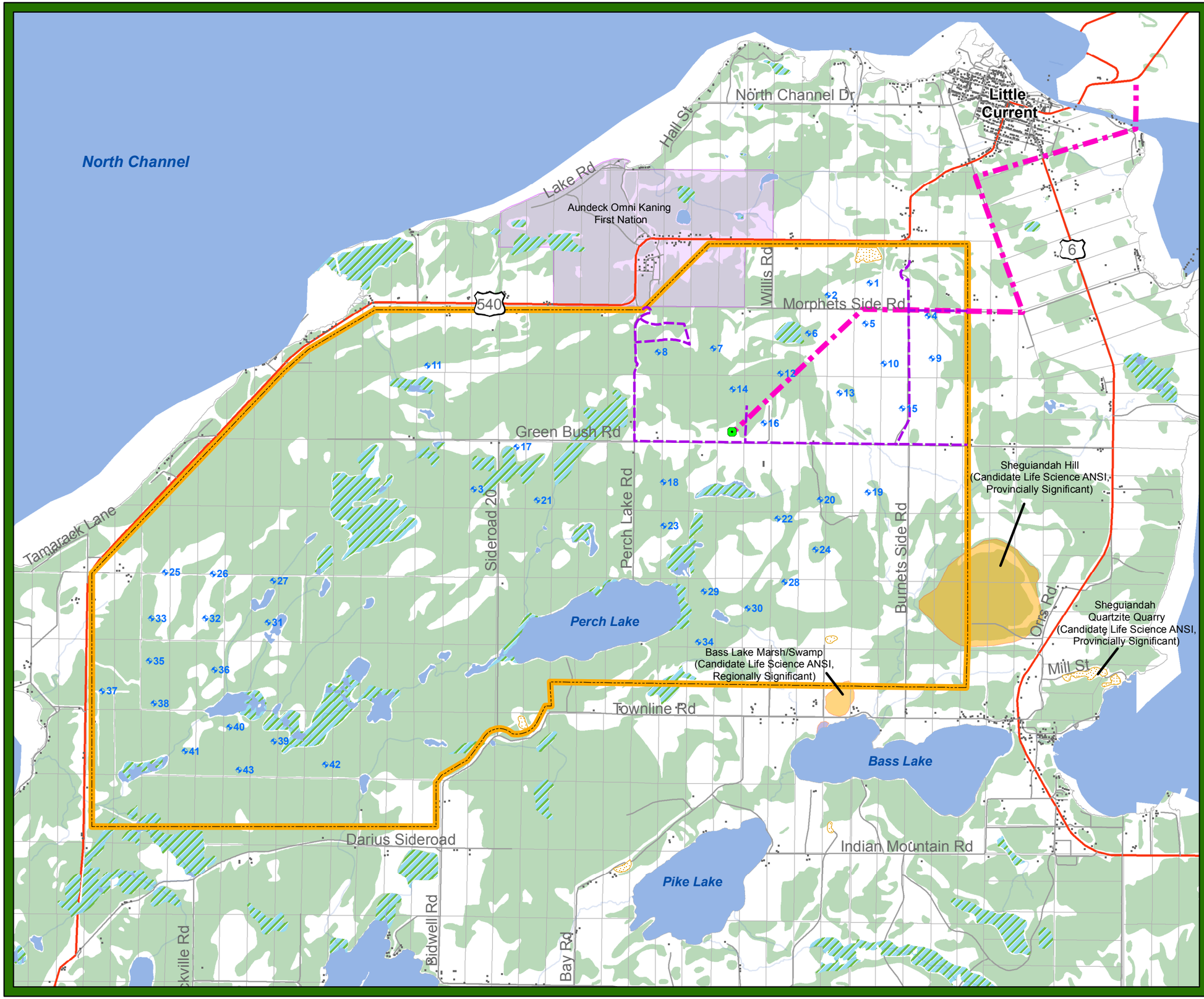
The possibility for concentration of migrating birds was evaluated at the study area during September and October 2004 using a combination of passage migration and stopover counts to determine the number of birds flying through or over the study area. Passage migration counts involve standing at a suitable vantage point and recording the numbers of each species passing by, taking note of flight height and direction. Stopover counts involve driving all or most roads slowly at 20 to 30 km/hr with the windows open and watching and listening. The abundance of birds using the project area as a stopover site during migration, whether for resting or foraging, was estimated.

Assessment of diurnal migrants was conducted as they were observed throughout the day. Only individuals flying through the project area or individuals starting from the project area and flying high and out of the project area were counted as diurnal migrants. Individuals of the same species (i.e. red-winged blackbirds) that were observed on the ground or flying very low from one habitat to another were not considered diurnal migrants.

5.5 Winter Residents

Consultation and background information did not identify any specific bird species or guilds that required specific observation during the winter season. Winter surveys were carried out for the purpose of providing a complete assessment of all seasons and to qualify any concentration of raptors, gulls and/or waterfowl.

Six area searches were conducted on January 25, 26, February 20, 21 and March 15 and 16 of 2007 (Figure 5). On average, each area search consisted of approximately 30 km of road transect or 8.5 hrs of observation. Local roads were driven slowly and every bird heard or observed was documented. Transects were walked/driven and all birds seen or heard were recorded. Any areas observed to contain concentrations of a single species or group (e.g. waterfowl) were identified. Where access to major habitat types was available, transects were walked. Where no site access was permissible, or inclement weather prevented access, observations were collected from the road.



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Mcleans Mountain Windfarm Winter 2007 Wandering/ Driving Transect Route

Legend

- Turbine
- Substation
- Building
- Secondary Roads
- Highway
- Proposed Tranmission Line
- 2007 Area search route
- Rivers
- Study Area
- Lots
- First Nation Reserve
- ANSI
- Pit or Quarry
- Waterbody
- Wetland
- Woodlots

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6.0 SURVEY RESULTS

6.1 Overview

6.1.1 Surveys Completed

Fieldwork was conducted between 2004 and 2008 and involved the collection of seasonal bird data including:

1. Spring Survey
    - April – May 2005
        - Area searches using wandering transects
        - 5-minute non-fixed radius roadside point counts
    - April – May 2008
        - Point Counts
        - Stopover Counts
2. Breeding Birds
    - June/July 2007/2008
        - Combined 10-minute fixed/non-fixed radius point counts
        - Area searches using wandering transects
3. Fall Migration
    - September, October and November 2004
        - Area searches using wandering transects
        - Roadside Surveys
        - Passage Migration
        - Stopover Counts
4. Winter
    - January, February and March 2007
        - Area searches using wandering transects
        - Stopover counts

6.1.2 Results

Throughout the field investigations from 2004 to 2008, a total of 11,553 individual birds were recorded during spring and fall migration surveys, winter resident surveys and breeding bird surveys. This represented approximately 105 different species in 5 major bird groups. Landbirds were the most abundant birds in the study area, with 82.1% of the individuals recorded belonging to this group. Waterbirds were also abundant in the study area comprising 14.9% of the individuals recorded with gulls being the most numerous species observed in this group.

Table 2 provides a summary of annual observations by bird groups including, shorebirds, waterfowl, waterbirds, landbirds and raptors. The waterbird group is a combination of species that are closely tied to water environments for part or most of their life history. The raptors category combines vultures and owls with diurnal raptors .

Table 2: Summary of all total individuals, maximum number of species recorded at one time and their percent of total observations in the McLean's Mountain study area categorized by major bird groups

Species or Group	Total Number of Individuals Observed	Maximum Number of Species	Percent (%) of Total Observation
Shorebirds	100	6	0.8
Waterfowl	132	7	1.1
Waterbirds	1719	15	14.9
Landbirds	9484	63	82.1
Raptors	118	14	1.0

6.1.3 Shorebirds

Shorebirds accounted for 0.8% or 100 individuals observed during all surveys. These sightings were primarily in the spring and during the breeding survey.

6.1.4 Waterfowl

A variety of duck species were observed and accounted for 132 individuals which represents 1.1% of all birds observed.

6.1.5 Waterbirds

Waterbirds made up approximately 15% of observations with gulls making up the majority. Canada Geese were observed migrating through the study area. Sandhill Cranes were recorded at a few sites, both foraging and nesting. However, the populations observed in the study site were low compared to the numbers recorded on Manitoulin Island outside of the project boundary.

6.1.6 Landbirds

Landbirds accounted for 82.1% of all observations made during bird surveys. Although some species were present in slightly elevated numbers in comparison to other species, the proportions of landbirds remained similar during each season.

6.1.7 Raptors

Raptors, including owls and Turkey Vultures comprised 1% of all birds recorded.
Most of the species were seldom to rarely encountered.

6.2 Spring Migration

In spring 2005, a total of 1 674 individuals and 97 species were observed. The majority of species were landbirds (59.3%) and waterbirds (36%). Table 3 provides a summary of all bird observations during spring 2005 migration monitoring, broken down by major species guilds. The most numerous species groups were gulls (21.1%), Sparrows (12.4%) and Jays, Crows and Ravens (12.1%).

In spring 2008, a total of 1 650 individuals and 75 species were observed. Table 4 provides a summary of all bird observations during spring 2008 migration monitoring, broken down by major species guilds. Similar to 2005, landbirds (51.3%) and waterbirds (41.7%) made up the majority of observations.

When the spring migration survey data from 2005 and 2008 are combined, landbirds account for 55.4% of all individuals recorded and waterbirds make up 38.8%.

6.2.1 Shorebirds

Shorebirds made up a very small percentage of spring observations (approximately 1.4%) with only 38 individuals documented in 2005 and 9 in 2008. The majority of these individuals represent Sandpipers (~25%) and Snipes (~50%).

Wilson's Snipe was observed during all point counts in 2005. They were seen in small numbers (17 individuals) displaying aerially, a likely sign of courtship and/or nesting. This species typically nests in wet, grassy habitats such as in wet fields, along ponds or rivers, near streams or ditches and in hummocks of grass close to water.

Upland Sandpipers were also observed in May, but were not abundant (8 individuals observed on 2 occasions). This species is unlike other sandpipers as it prefers to nest in grassland areas away from water sources. It nests in scraped-out depressions in the ground and feeds while walking. During courtship, this bird often perches on fences and/or telephone poles and performs aerial displays first for courtship and to distract potential predators from its nest. This species has been steadily declining since the mid-19th century as is listed as a BCR 13 priority species.

6.2.2 Waterfowl

Waterfowl accounted for 2.4% of all individuals observed during spring surveys (0.9% in 2005 and 3.9% in 2008). The majority of individuals recorded in 2008 were pelagic species and dabblers. Two groups of Common Merganser were observed during spring migration monitoring; one group of 19 birds flying south on April 30, 2008 and one group of 6 on Perch Lake on May 16, 2008.

Of the waterfowl species observed, some, such as the Common Merganser and Wood Duck, breed along lakes and rivers bordering forests, usually in tree cavities.

Table 3: Summary of individuals, species and their percent of total observations during spring 2005 migration surveys by major bird groupings.

Species or Group	Number of Individuals Observed	Number of Species	Percent (%) of Seasonal Observations
Shorebirds	**38**	**6**	**2.3%**
Sandpiper	10	2	0.6
Snipe	17	1	1.0
Other	11	3	0.7
Waterfowl	**15**	**5**	**0.9%**
Waterbirds	**602**	**9**	**36%**
Gulls	433	2	25.9
Geese	49	1	2.9
Herons and Bitterns	6	2	0.4
Loons and Cormorants	13	2	0.8
Cranes	96	1	5.7
Kingfishers	5	1	0.3
Landbirds	**993**	**63**	**59.3%**
Woodpeckers	122	5	7.3
Grouse	39	2	2.3
Vireo	22	3	1.3
Crows and Ravens	170	2	10.2
Jay	20	1	1.2
Warbler	67	10	4.0
Sparrows	194	8	11.6
Finches	7	2	0.4
Thrushes and Thrashers	159	7	9.5
Blackbirds, Starlings and Grackles	75	5	4.5
Dove	3	1	0.2
Flycatcher	17	3	1.0
Swallows	3	2	0.2
Chickadee	14	1	0.8
Nuthatch	8	2	0.5
Ovenbird	32	1	1.9
Other	41	10	2.4
Raptors	**26**	**14**	**1.6%**
Vultures	2	1	0.1
Owls	3	3	0.2
Eagles	4	1	0.2
Hawks	8	6	0.5
Diurnal Raptors	9	3	0.5

Table 4: Summary of individuals, species and their percent of total observations during spring 2008 migration surveys by major bird groupings.

Species or Group	Number of Individuals Observed	Number of Species	Percent (%) of Seasonal Observations
Shorebirds	**9**	**4**	**0.5%**
Waterfowl	**65**	**7**	**3.9%**
Pelagic	31	4	1.9%
Dabblers	32	3	1.9%
Unidentified	2	n/a	0.1%
Waterbirds	**688**	**9**	**41.7%**
Gulls	616	2	37.3%
Terns	1	1	0.1%
Geese	11	1	0.7%
Swans	0	0	0.0%
Herons Bitterns and Egrets	1	1	0.1%
Loons Grebes and Cormorants	8	2	0.5%
Cranes	50	1	3.0%
Coots, Rails and Moorhens	1	1	0.1%
Landbirds	**847**	**47**	**51.3%**
Woodpeckers	26	5	1.6%
Jays, Crows and Ravens	121	3	7.3%
Blackbirds and Orioles	91	6	5.5%
Larks, Pipits Snow Buntings and Longspurs	0	0	0.0%
Swallows	8	2	0.5%
Sparrows, Juncos and Towhees	195	8	11.8%
Thrushes, Mockingbirds and Thrashers	84	4	5.1%
Flycatchers	24	4	1.5%
Vireos	1	1	0.1%
Wood Warblers	168	11	10.2%
Finches	6	3	0.4%
Other	123	10	7.5%
Raptors	**41**	**8**	**2.5%**
Vultures	22	1	1.3%
Owls	0	0	0.0%
Diurnal Raptors	19	7	1.2%

This type of habitat occurs in the study area (such as along the shores of Perch Lake). Others, such as the Mallard and Blue-winged Teal, nest on the ground in grassy wetland areas near water. Many of the species of waterfowl observed in the spring migration survey are listed as BCR 13 priority species.

6.2.3 Waterbirds

Waterbirds contributed to approximately 39% of all individuals observed during the spring (36% in 2005; 41.7% in 2008). Gulls (25.9% in 2005; 37.3% in 2008) made up the majority of these sightings. Ringed-billed Gulls were observed most often in comparison to other gulls in both years and likely account for the majority of unidentified gulls as well. Most gulls were observed over fields near the landfill site close to the town of Little Current. Gulls were also observed in several flocks, ranging in size from 15 to 275 birds, in pastures throughout the study area during spring migration on several occasions. Ring-billed Gulls often nest in colonies on the ground or in vegetation around areas such as fresh water, agricultural fields and coastal beaches.

Flocks of Sandhill Cranes were observed in both 2005 and 2008 in fields along Greenbush Road near Columbus Mountain Road. In 2005 approximately 3-4 breeding pairs were observed . Sandhill Cranes breed in open marshes or wet grasslands and meadows where their nests are large mounds of vegetation either floating in the water or attached to aquatic vegetation. These nests were observed at several wetland areas in the northeastern portion of the study site. The individuals observed during these surveys were regularly seen feeding in the fields; they mostly eat grains and seeds.

Many of the waterbirds observed are listed as BCR 13 priority species, including the Sandhill Crane, Common Loon and Ring-billed Gull.

6.2.4 Landbirds

This group corresponds to approximately 55.4% of all individuals observed (59.3% in 2005; 51.3% in 2008). During both the 2005 and 2008 surveys, sparrows occurred in the highest numbers (11.6% and 11.8% of all individuals, respectively). On average, 10 warbler species were identified and comprised 4% of all individuals in 2005 and 10.2% in 2008. Other abundant species groups to note include jays, ravens and crows (11.4% and 7.3% respectively) and thrushes and thrashers (9.5% and 5.1% respectively), of which more than half were American Robins. Many landbirds will breed in trees and occupy a wide variety of habitats.

In 2005, a Sharp-tailed Grouse lek was identified about 200 m west of Burnett's Side Road and 300 m south of Green Bush Road, in the middle of a field.

6.2.5 Raptors

In total, raptors made up only approximately 2% of birds observed during the spring. In 2008, Turkey Vultures made up more than half of all raptors observed. The other half

was a mix of diurnal raptors, seen in numbers similar to data collected in 2005. In 2005, this included 5 American Kestrels (2 pairs), 4 Bald Eagles (all seen circling high on the eastern boundary of the study area, near a landfill site), a pair of nesting Red-tailed Hawks and a single Red-shouldered Hawk flying northward high overhead. Three species of owls were observed in 2005, but not in 2008. These included the Great Horned Owl, the Barred Owl and the Saw-whet owl.

6.3 Breeding Birds

A total of 2,910 individuals and 87 species were observed during 2007 and 2008 breeding bird surveys. The number of individuals and species observed over the two seasons remained fairly consistent with 1,583 (76 species) observed during 2007 and 1,327 (76 species) during 2008.

Table 5 provides a summary of all breeding bird observations during 2007 and 2008. Observations are broken down by major habitat type, number of individuals, species and percent of total observations for the particular season. Habitat type described in the table is adapted from Couturier 1999 and reflects the major habitat documented in Figure 2. Reporting breeding bird observations by habitat was chosen to allow for potential identification of important habitat types requiring protection during constraint mapping and the turbine siting process.

During 2007 and 2008 surveys, forest breeding species ranged between 59.2% and 70.6% of all individuals observed. One Red-shouldered Hawk was observed in 2008. Wetland habitat contributed approximately 20% of all species observed and included a total of 127 Sandhill Cranes and 9 Wilson's Snipes. Open country birds contributed between 6.6% and 14.1% of individuals observed and included 16 Upland Sandpipers and 2 Sharp-tailed Grouse. European Starlings were the only non-native species observed and accounted for 3% to 7.3% of all individuals documented. Similarly, Turkey Vultures were the only cliff species observed and accounted for less than 1% of possible breeding individuals.

The majority of species observed over the two years were landbirds, which accounted for 85% of all observations (66 of the 87 species. Five species of waterbirds were observed and accounted for 10.6% of all observations. Shorebirds, waterfowl, raptors and upland gamebirds comprised 4.4% of the remaining observations.

Table 5: Summary of breeding birds observed in the study area by habitat type 2007/2008

Habitat Type	Total Individuals Observed 2007/2008	Number Species Observed 2007/2008	Percent Seasonal Observations 2007/2008	Species (2007 # observed/ 2008 # observed)
Forest	**932/ 931**	**46/ 43**	**59.2/ 70.6**	
Woodland	683/ 725	38/ 38	43.4/ 55.0	ALFL(4/2), AMCR(132/98), AMRE(40), BAOR(1), BAWW(24/36), BCCH(39/24), BLJA(28/42), BTNW(48/54), BWHA(1/1), CAWA(0/4), CEDW(33/34), CHSP(34/23), CORA(16/23), DOWO(7/1), EAPH(5/6), EAWP(28/6), GCFL(9/9), HAWO(0/ 7), HETH(18/45), INBU(9/1), LEFL (9/9), MAWA(2/18), MERL(0/1), NAWA(12/32), NOCA(1/0), NOFL(15/14), NOWA (0/4), OVEN(44/91), PIWO(1/2), PUFI(7/2), RBGR(3/2), RBNU(11/6), REVI(45/71), RSHA(0/1), RTHU(2/0), RUGR(4/2), SCTA(1/2), TRES(0/1), VEER(24/11), WAVI(2/0), WBNU(19/0), WIWR(2/10), WOTH(2/0), YBSA(1/8), YRWA(3/0)
Urban Woodland	65/ 69	1/1	4.1/ 5.2	AMRO(65/69)
Shrubby Successional	178/ 137	6/4	11.3/ 10.4	BBCU(2/0), CSWA(6/6), SOSP(122/82), WTSP(32/48), YBCU(1/0), YWAR(15/1)
Marsh/Wetland	6/ 0	1/ 0	0.4/ 0	WODU(6/0)
Cliff	**9/ 6**	**1/ 1**	**0.6/ 0.5**	TUVU (9/6)
Open country	**222/ 87**	**13/ 14**	**14.1/ 6.6**	
Agricultural	164/ 41	7/8	10.4/ 3.1	BHCO(13/7), BOBO(7/0), EABL(10/2), EAME(5/1), KILL(1/3), SAVS(127/7), UPSA(1/15), VESP(0/5)
Open woodlands	0/ 2	0/ 1	0/ 0.2	CONI(0/2)
Early Successional	58/ 44	6/ 5	3.7/ 3.3	AMGO(30/20), BRTH(2/12), CCSP(2/2), EAKI(15/2), MODO(7/8), STGR(2/0)
Wetland	**305/ 263**	**15/ 13**	**19.4/ 20**	
Lakes/Ponds/ Rivers	33/ 150	4/ 4	2.1/ 11.4	BEKI(1/3), CAGO(7/17), COLO(2/1), RBGU(23/129)
Marsh	244/ 99	8/ 7	15.5/ 7.5	COYE(22/29), MALL(44/2), NOHA(7/0), RNDU(2/0), RWBL(42/16), SACR(94/33), SORA(1/1), SWSP(32/9), WISN(0/9)
Wooded/ Shrubby Swamp	20/ 14	2/ 2	1.3/ 1.1	COGR(18/13), GBHE(2/1)
Agricultural	8/ 0	1/ 0	0.5/ 0	BWTE(8/0)
Non Native	**115**	**1**	**7.3%**	EUST (115/40)
Total birds	**1583/ 1327**	**76/ 72**		

6.4 Fall Migration

A total of 29 man-hours were spent conducting roadside, forest and diurnal migration surveys during the fall of 2004, with approximately 22 species recorded. Observation time in September totaled 21 hours over 4 days while in October 8 hours were logged over 2 days. Approximately a few thousand individuals were observed in or flying over the project area. High numbers of American Pipits (1100-5000; ~82%), American Crows (700; ~14%), European Starlings (100; 1.6%) and Gulls (80; 1%) were observed. The majority of species were observed either flying over the study site or using the site for foraging.

6.4.1 Shorebirds

No shorebirds were observed during fall surveys.

6.4.2 Waterfowl

Waterfowl was rare in the project site. This may have been due to drier conditions at the site during this time. Only 1 duck was noted.

6.4.3 Waterbirds

On one occasion a group of 30 Canada Geese were observed flying through the study area, high above the projected sweep of the turbine blades. Numerous gulls were also observed. Of the two largest groups of gulls observed, one group (50 individuals) was situated in a field for an extended period of time and another group (30 individuals) moved slowly along a road and its adjacent fields.

Two Great Blue Herons were noted east of the project area on one occasion, flying low over fields. Sandhill Cranes were seen in September but were not observed in October when numerous individuals were staging elsewhere on Manitoulin Island.

6.4.4 Landbirds

American Pipits were abundant during fall migration surveys, with large groups of 50-60 individuals frequently observed passing through the project site. In one day, approximately 1100 individuals were recorded. Most groups foraged in fields and along roads throughout the study site. The groups tended to move slowly and fly close to the ground to forage as they moved. A few Horned Larks were observed to be moving with the groups of pipits.

American Crows were also seen in large numbers. Approximately 500 were tallied on a single day in September and a group of 200 remained into October. They were mostly observed foraging on or near to the ground.
Small mixed groups of European Starlings and Red-winged Blackbirds, totaling approximately 150 individuals, were observed moving within the project boundaries.

Compared to numbers generally observed in southern Ontario, this was a small concentration. All were on or close to the ground foraging as they moved. In addition, a few sparrows and juncos were seen in the fields and woodpeckers were heard calling from wooded areas.

One small group of Sharp-tailed Grouse was seen walking along a road; when they were disturbed by a passing car they flew low to the ground.

6.4.5 Raptors

No large migration of hawks in the project area was observed. Species noted during September observations included: 5 American Kestrels hunting along roadsides, 2 Northern Harriers hunting low over fields on 5 occasions, a Sharp-shinned Hawk flying low and hunting along the forest's edge and a single Bald Eagle that few high above the project site above the height turbine blades reach. 14 Turkey Vultures were seen over the 4 days.

Hawks observed during October's diurnal migrant observations were very rare. Only 2 Rough-legged Hawks and 1 Northern Harrier was observed. The number of raptors observed in the project site is very low in comparison with the rest of southern Ontario.

6.5 Wintering Birds

A total of 319 individuals of 17 species were observed during 2007 winter bird surveys, which represents 2.8% of all birds observed over the course of the study. Table 6 provides a summary of all bird observations during 2007 winter bird monitoring, broken down by major species guilds.

Landbirds made up 99.4 % of winter bird observations. Of the 317 landbirds observed, comprised of 15 species, 89 (27.9%) were Common Ravens, 82 (25.7%) were Black-capped Chickadees, 59 (18.5%) were Snow Buntings, 25 (7.8%) were nuthatches, 15 (4.7%) European Starlings and 14 (4.4%) were woodpeckers. Various species making up the remaining individuals include 1 Red-Tailed Hawk,1 Ring-Billed Gull, 3 Ruffed Grouse, 9 Blue Jays and 13 American Crows. No waterfowl were observed during winter surveys as ice was observed on all watercourses in the study area. Winter resident birds were primarily observed in forest habitat, while a few observations were made in open country and marsh habitats

Table 6: Summary of winter 2007 bird surveys

Species or Group	Number of Individuals Observed	Number of Species	Percent (%) of Seasonal Observations
Shorebirds	**0**	**0**	**0**
Waterfowl	**0**	**0**	**0**
Waterbirds (Gulls)	**1**	**1**	**0.3%**
Landbirds	**317**	**15**	**99.4%**
Woodpeckers	14	3	4.4%
Jays, Crows and Ravens	111	3	34.8%
Chickadees	82	1	0.3%
Snow Buntings	59	1	25.7%
Starlings	15	1	4.7%
Nuthatches	25	2	7.8%
Finches	7	2	2.2%
Blackbird	1	1	0.3%
Grouse	3	1	0.9%
Raptors (Hawk)	**1**	**1**	**0.3%**
Total birds	**319**	**17**	

7.0 SPECIES AT RISK

The Breeding Bird Atlas identified eight nationally/provincially rare species within or adjacent to the study area (four 10 x 10 km squares) (Appendix A). Of these species, only three, including bald eagle (*Haliaeetus leucocephalus - S4B,SZN, ESA – population North of French and Mattawa Rivers is considered Special Concern*), short-eared owl (*Asio flammeus* - S3S4B,SZN, *SARA* and *ESA – Special Concern*) and loggerhead shrike (S2B,SZN, *SARA* and *ESA - Endangered*), are considered as having potential to occur based on habitat requirements. None of these species were observed during breeding bird surveys.

Many of the rare species discussed are not expected to be impacted by the development of wind turbines in the study area, either because of lack of suitable habitat or due to the turbine siting having no impact on habitat present. Provided appropriate steps are taken to identify the location of important habitat areas for rare species relevant to the area, impacts to these species can be avoided. A description of basic habitat information and general relevance to the study area are provided below.

7.1 Bald Eagle

The Bald Eagle is Not at Risk (NAR) in Canada but is considered of Special Concern North of the French and Mattawa Rivers in Ontario under the provincial Endangered Species Act. Breeding activity for this species was observed in squares 17ML28, 17ML29 and 17ML38 during the second Ontario Breeding Bird Atlas project but was not observed on Breeding Bird Surveys in the area. No bald eagles were observed during winter monitoring but a single bird was observed during spring migration monitoring in April 2008 at the Townline Road - Greenbay Road Junction area soaring from 50-100m in the air and a single bald eagle was observed during fall migration monitoring in September 2004 but was flying well above turbine height.

7.2 Short-eared Owl

A Short-eared owl was observed in suitable breeding habitat during the second Ontario Breeding Bird Atlas project in squares 17ML28 and 17ML29 but breeding bird surveys in the study area did not locate this species.

7.3 Loggerhead Shrike

One historical record for a loggerhead shrike (*Lanius ludovicianus*) in the year 2000 exists for the southeast portion of the study area. This species is listed as an endangered species in Schedule 1 of the Species at Risk Act. During fieldwork, the historical presence of loggerhead shrikes was known and the species was actively searched for in areas where potential habitat might exist. No observation of the species was documented for the area during fieldwork.

8.0 PARTNERS IN FLIGHT PRIORITY LANDBIRD SPECIES FOR BIRD CONSERVATION REGION 13

The study area is part of Bird Conservation Region 13 (BCR 13), which encompasses 201,300 square kilometres of generally flat, low-lying land to the south of the Canadian Shield in Ontario and Quebec, and north of various highland systems in the four eastern U.S. states (New York, Ohio, Pennsylvania and Vermont). The Ontario portion is the largest, comprising 42% of the total BCR and encompasses 84,700 km^2 (9%) of Ontario's total area (Ontario Partners in Flight, 2006).

BCR 13 has been further divided into 4 sub-regions including the southwest sub-region, which corresponds to this study area. The distribution of land cover in the area differs from other sub-regions of BCR 13 in that the agricultural and urban land cover composition is more prevalent, representing 75% and 7% of the total land cover, respectively (Ontario Partners in Flight, 2006). The remaining land composition in the southwest sub-region is 14% forest, 4% field and 1% marsh.

Forty-two (23%) of the 168 species of landbirds that regularly breed or winter in southern Ontario are identified as priority species (Ontario Partners in Flight, 2006). The reasons for listing species as priority are diverse. Some species are of concern continent-wide and have important populations in southern Ontario. A few have small global range and populations, so are considered vulnerable to future change, while many are relatively abundant and widespread but are declining rapidly with continued declines a strong possibility. Other species are listed because southern Ontario has a high global responsibility for the species' population in combination with other concerns. Southern Ontario is also home to many of Canada's, and Ontario's, listed Endangered and Threatened species, which are also included as priority species in BCR 13.

All priority species occur in southern Ontario during the breeding season. The Northern Bobwhite is the only priority species that is a permanent resident in this region. Two migratory species including the Short-eared Owl and Bald Eagle are priority species in this region during both the breeding and winter seasons. No species was identified as a priority species only in winter (Ontario Partners in Flight, 2006).

Most species on the priority list are included because they are of conservation concern at the regional (21 species) or continental (11 species) level. Only five of the priority species are of high regional stewardship responsibility. None of the continental stewardship species has more than 5% of its North American population within BCR 13. Eighteen (42.9%) of the priority species are designated as Species at Risk (SAR) in Canada and Ontario. One additional species (Bald Eagle) is listed as a Species at Risk in Ontario (SARO) but not nationally. Three species (Chimney Swift, Grasshopper Sparrow, and Vesper Sparrow) are included as species of regional management interest because of steep regional declines (Ontario Partners in Flight, 2006). In 2007, the Chimney Swift was listed as Threatened under the *Species at Risk Act.* The large number of high concern and SAR species in this region is a reflection of the high pressures on landbirds and their habitats in this intensively settled landscape.

Table 7 provides a summary of species that have been identified as a priority in Bird Conservation Region 13 for various reasons and observed during fieldwork for this project. The table identifies the total number of individuals observed in the study area and the points where they were observed. In total, 273 individuals representing seventeen priority species were observed during the 2007 and 2008 breeding bird surveys. Savannah Sparrows observed in agricultural fields represented approximately half (49%) of all individuals.

Table 7: Bird Conservation Region 13 birds observed in the study area during June 21-22, July 3-6, 2007 and June 10-12 and July 2-4, 2008 summarized by habitat guild and point count observed

Habitat Guild	Primary Nesting Habitat	BCR 13 Species	Total Observed In Study Area 2007	Total Observed In Study Area 2008	2007 Point Count & Wandering Transect Observed On (# Observed)	2008 Point Count & Wandering Transect Observed On (# Observed)
Forest	Deciduous Woodland	Wood Thrush	2	0	WT 9-10(1), 13(1)	
		Baltimore Oriole	1	0	3(1)	
		Rose-breasted Grosbeak	3	2	8(1), WT12-13(2)	WT20-21(1), 49(1)
		Red-shouldered hawk	0	1		66(1)
		Canada warbler	0	4		52(1), 53(1), 29(1), 31(1)
		Eastern Wood-Pewee	28	6	4(2), WT 5-6b(1), 6(1), MM(1), 8(1), WT 11-12a(2), 12(1), 13(3), WT20-21a(1), WT1-2(1), 4(1), 5(1), WT5-6c(1), 6(1), WT8-9(1), WT11-12a(2), 12(2), 13(3), 19(1), 21(1)	24(1), 44(1), WT27-58(1), 58(1), 24(1), 65(1)
	Early Succesional	Black-billed Cuckoo	2	0	WT 8-9(1), WT 5-6a(1)	
	Mixed Woodlands	Northern Flicker	15	14	WT 6-7a(1), 7(1), 10(2), 11(1), 16(1), WT17-18(1), 20(1), WT12-13(1), WT 14-15(1), WT15-16(1), 18(3), 19(1)	7(1), 8(1), 9(1), 11(1), WTpost22(1), 29(1), 46(2), 52(1), 57(1), WT8-9(1), 10(1), WTpost10(1), 32(1)
Open Country	Agricultural	Bobolink	7	0	WT 4-5(1), WT 6-7a (2), WT 8-9 (4)	
		American Kestrel	0	1		WT driving to 52(1)
		Eastern Meadowlark	5	1	WT 6-7a (4), 1(1)	19(1)
		Savannah Sparrow	127	7	WT 0-1(2), 1(2), WT1-2 (3), WT 4-5 (2), WT 5-6a(8), WT6-7a(35), WT7-8 (1), WT 8-9 (5), WT11-12b (1), 16(1), WT0-1(1), 1(3), WT1-2(4), WT4-5 (1), WT5-6a(2), WT6-7a(30), WT6-7c(1), 7(2), WT8-9(3), WT11-12b(20)	36(1), 54(1), 56(2), 54(1), 34(1), wt22-19(1)
		Vesper Sparrow	0	5		36(1), WT44-45(1), WT 44-45(1), WT8-9(1), 63(1)
	Early Successional	Brown Thrasher	2	12	WT8-9(2)	2(1), 4(1), 5(1), 7(1),8(1), 12(1), 29(1), 36(1), WT45-46(1), 47(1), WT60-61(1), 32(1)
		Eastern Kingbird	15	2	WT2-3(3), WT4-5(1), WT5-6b(2), 3(2), WT5-6a(2), WT11-12(3), WT13-14b(2)	WT30-31(1), 46(1)
Marsh/Water	Lakes/Ponds/Rivers	Belted Kingfisher	1	3	WT13-14a(1)	26(1), 44(1), 26(1)
	Marsh	Northern Harrier	7	0	1(1), WT 5-6a(1), WT6-7a(1), WT8-9(1), 1(1), WT6-7a(1), WT11-12b(1)	

9.0 SUMMARY

In summary, numerous surveys were conducted between 2004-2008 for the purpose of documenting bird usage of the study area during all seasons. The specific target species or groups of these surveys and the methods used were the result of issues identified during a background information review and local knowledge of the area.

Overall, a total of 14 349 individual birds were observed during surveys, which were made up of 105 species. High numbers were observed for a select few groups including: landbirds (10 176 [70.8%]), and waterbirds (2 455 [17.1%]). The latter is primarily a result of high numbers of Ring-billed Gulls.

During spring bird surveys in 2005 and 2008, gulls and landbirds such as sparrows, crows, ravens and warblers made up the majority of species numbers. These species use both grassland and forest habitat and may be displaced by turbine placement. Additionally, a Sharp-tailed Grouse lek was identified in a field within the study site.

Breeding bird surveys in 2007 and 2008 revealed that forest habitats supported the greatest number of species in the study area. In woodland areas, amoung the most abundant species were Red-eyed Vireos, Song Sparrows, American Robins and Ovenbirds. In marsh areas, a few pairs of Sandhill Cranes were seen nesting, however this portion of Manitoulin Island does not appear to support the larger numbers seen outside of the study area. Little information is available to predict the effects of turbines on Sandhill Cranes, but it is anticipated that they will behave similarly to geese and waterfowl and will be fairly adaptable to the turbines if they are spaced widely apart.

During fall migration the largest numbers observed were flocks of American Pipits. These flocks were seen frequently during surveys foraging in fields and along roadways. A few other landbird species such as European Starlings, Red-winged Blackbirds and American Crows were also recorded in high numbers. No large migration of hawks in the project area was observed.

In the winter, approximately 300 individuals were recorded during survey studies. Although 15 species were reported, half of the individuals observed were Common Ravens and Black-capped Chickadees.

Due to the low number of species observed during many of the bird surveys, there is limited potential for significant negative impacts on their populations. Species at risk observed in the study area did not occur in any significant numbers. Impacts likely to remain in some capacity include some potential for interaction between BCR 13 Open Country habitat birds due to aerial display behaviour and displacement. These impacts, summarized in the ESR, are considered to have a low impact with no population significance. It is recommended that, where possible, construction occur outside of the core breeding period for birds in the area.

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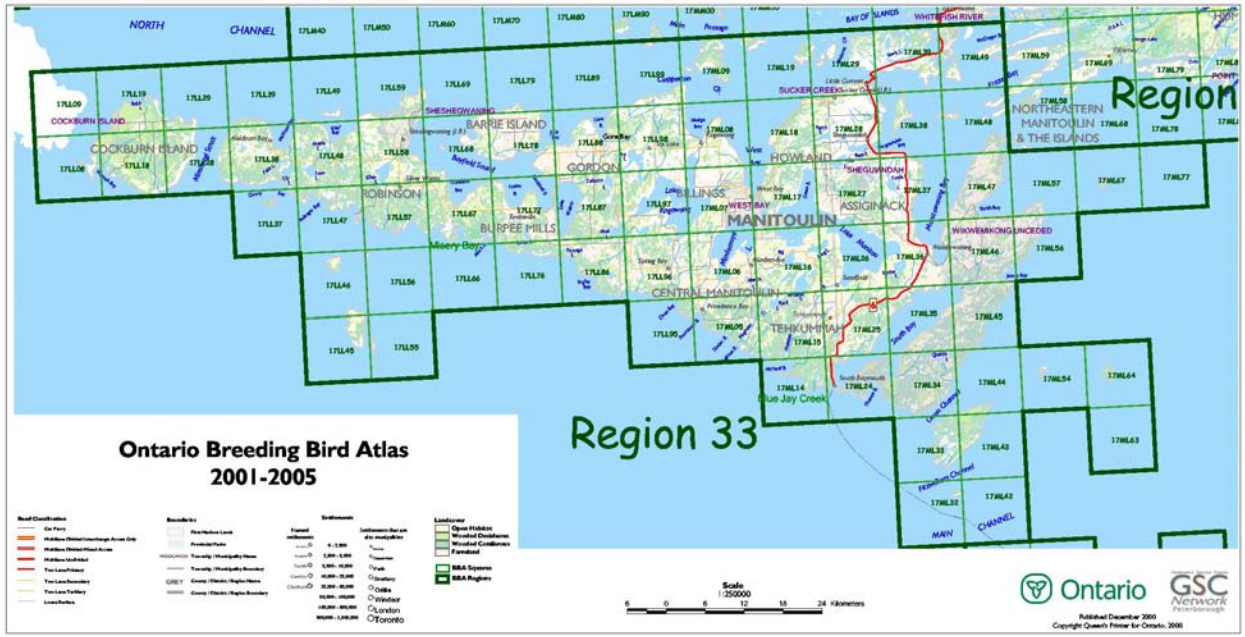
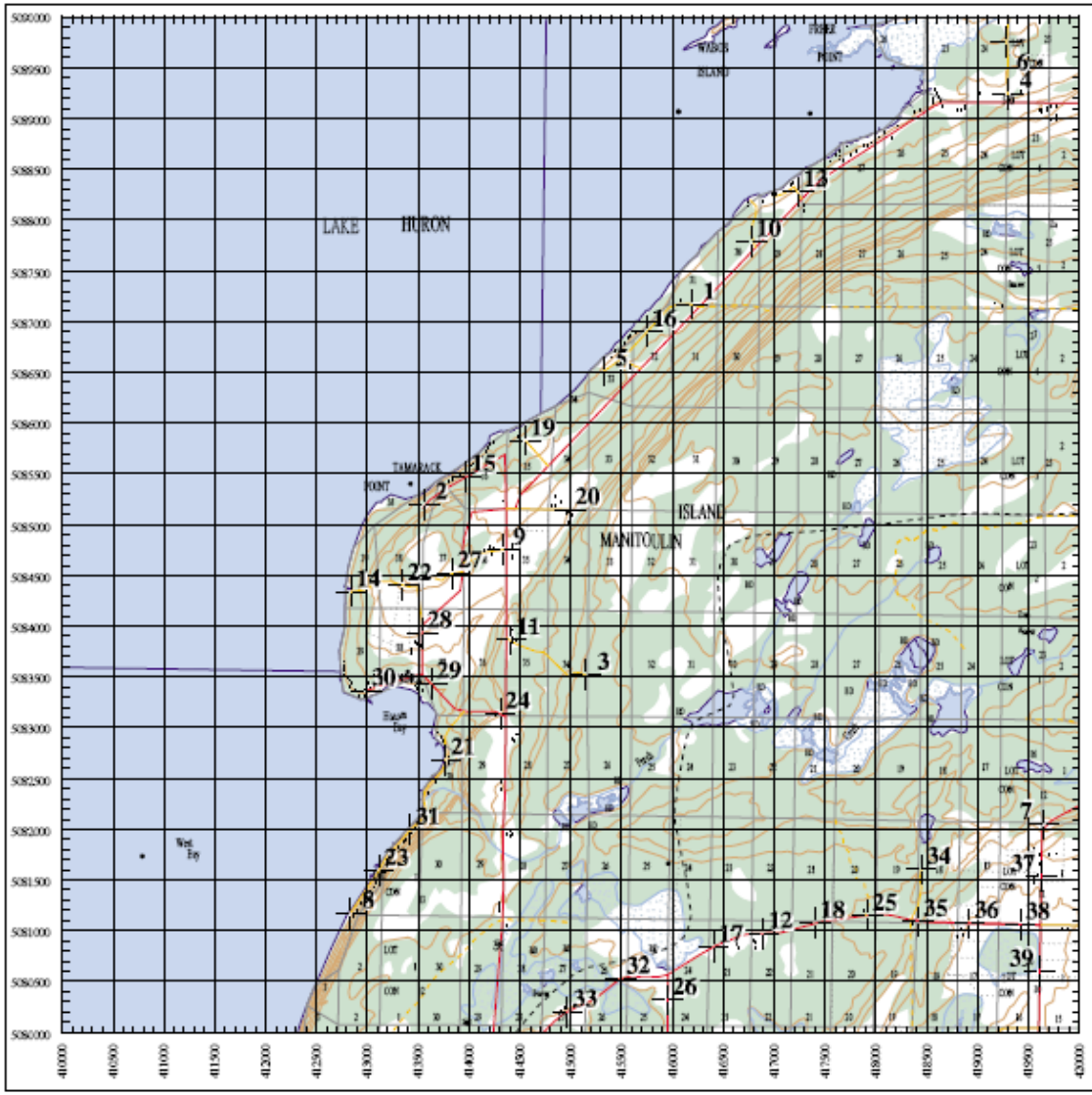
Appendix A
Breeding Bird Atlas Data



Region	Square	Breeding Evidence									Point Counts		
		#Cards	TotHrs	#Poss	#Prob	#Conf	#Spec	#Sq	#Rec	#Points	#Spec	#Sq	#Rec
33	17ML18	12	22.035	50	19	21	90	1	142	25	46	1	186
33	17ML28	10	56	20	36	73	129	1	265	87	77	1	615
33	17ML29	12	21.333	44	22	27	93	1	214	27	58	1	255
33	17ML38	10	114.25	36	23	43	102	1	244	9	35	1	52



Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
01	416189	5087149
02	413559	5085197
03	415146	5083523
04	419300	5089245
05	415323	5086510
06	419285	5089755
07	419653	5092046
08	412857	5081173
09	414323	5084753
10	416777	5087790
11	414414	5083867
12	416894	5090073
13	417237	5088277
14	412840	5084337
15	413974	5085473
16	415751	5086002
17	416404	5082840
18	417407	5081077
19	414557	5085828
20	414097	5085146
21	413773	5082681
22	413349	5084401
23	413114	5081509
24	414306	5083138
25	417915	5081149
26	415953	5083038
27	413835	5084522
28	413541	5083992
29	413632	5083435
30	412989	5083368
31	413423	5081996
32	415405	5080527
33	414968	5080200
34	418447	5081628
35	418416	5081099
36	418919	5081075
37	419626	5081534
38	419419	5081064
39	419611	5080699
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0

Legend

- Wooded Areas
- Water Bodies Water Areas
- Water Bodies Wetland Areas
- Wetlands
- ANSI
- Pits and Quarries
- Parks and Reserves
- Public Road
- Private Road
- Track
- Trail
- Railway
- Contour Lines
- Lots
- Roadside Point Count Locations
- Fences
- Walls
- Hedges
- Feature Outline
- Race Track
- Building Points
- Building Polygons
- Airports
- Petroleum Tanks
- Water Tanks
- Survey Monuments
- Smoke Stacks
- Towers
- Named Places
- Pipelines
- Transmission Lines

North American Datum 1983
Universal Transverse Mercator (6 degree) projection
Zone 17, Central Meridian 81 degrees W.
Grid Interval: 1000 metres
Contour Interval 10 metres
Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17ML18
Region: 33

(NAD27 - 17MA18)

0km 1km 2km
0mi 1mi

Ontario Breeding Bird Atlas

Ontario

Square Summary (17ML18)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
49	21	7	77	50	19	21	90	13	22	25	0

Region summary (#33: Manitoulin)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
77	74	76	177	184	970	481

Target number of point counts in this square: 18 road side, 7 off road (3 in deciduous forest, 1 in coniferous forest, 2 in mixed forest, 1 in alvar). 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
Common Loon		P	78	68
Pied-billed Grebe			20	26
Red-necked Grebe †			1	3
Double-crest Cormorant §			24	50
American Bittern		S	33	53
Least Bittern †			5	1
Great Blue Heron §	H	H	71	35
Green Heron §		H	17	15
Black-crown N.-Heron † §			5	11
Turkey Vulture	P		54	35
Canada Goose		FY	24	82
Trumpeter Swan †			0	0
Wood Duck		V	37	42
Gadwall			22	19
American Wigeon			8	15

SPECIES	Code		%	
	1st	2nd	1st	2nd
Red-breast Merganser			56	61
Ruddy Duck †			0	2
Osprey		NY	44	47
Bald Eagle †			2	35
Northern Harrier		T	35	51
Sharp-shinned Hawk			40	21
Cooper's Hawk			4	17
Northern Goshawk			12	7
Red-should Hawk †			6	18
Broad-winged Hawk	H	H	56	64
Red-tailed Hawk	H	H	37	26
American Kestrel	P	P	56	51
Merlin			31	56
Ring-necked Pheasant ‡			0	10
Ruffed Grouse	S		58	72

SPECIES	Code		%	
	1st	2nd	1st	2nd
Ring-billed Gull §		H	13	47
Herring Gull §		H	64	63
Great Black-backed Gull †			1	5
Caspian Tern †		X	4	3
Common Tern §		H	39	55
Black Tern † §			17	15
Rock Dove		V	10	38
Mourning Dove	H	P	45	63
Black-billed Cuckoo		S	48	55
Yellow-billed Cuckoo ‡	H		2	1
Black/Yell-billed Cuckoo			0	26
Great Horned Owl		S	22	25
Barred Owl	H	S	20	28
Long-eared Owl			4	5
Short-eared Owl †			1	6

Mallard	P	D	85	90
Blue-winged Teal	P	H	41	40
Northern Shoveler			6	9
Northern Pintail	P		12	6
Green-winged Teal			0	27
Redhead †			0	2
Ring-necked Duck			29	30
Lesser Scaup			8	3
White-winged Scoter †			0	0
Bufflehead †			0	0
Common Goldeneye		H	35	53
Hooded Merganser		P	24	46

Wild Turkey ‡			0	3
Yellow Rail †			1	1
Virginia Rail	P		27	25
Sora			17	22
American Coot ‡			1	3
Sandhill Crane		FY	17	73
Killdeer	A	DD	77	73
Solitary Sandpiper			4	1
Spotted Sandpiper	DD	H	78	85
Upland Sandpiper	A		35	21
Common Snipe	D	T	45	47
American Woodcock	D	S	43	31

Common Nighthawk		P	39	15
Whip-poor-will	S		43	17
Chimney Swift			36	11
Ruby-thr Hummingbird		H	63	67
Belted Kingfisher			60	50
Red-head Woodpecker †			28	11
Red-bell Woodpecker ‡			1	15
Yellow-bellied Sapsucker	S	H	60	60
Downy Woodpecker		H	63	60
Hairy Woodpecker		D	56	71
Black-back Woodpecker			4	2
Northern Flicker	P	CF	83	82

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML18

SPECIES	Code		%	
	1st	2nd	1st	2nd
Olive-sided Flycatcher	H		21	11
Eastern Wood-Pewee	S	S	71	64
Yellow-bellied Flycatcher			4	6
Alder Flycatcher	H	S	54	67
Willow Flycatcher ‡			1	9
Least Flycatcher	S	S	64	59
Eastern Phoebe		CF	45	69
Gr Crested Flycatcher	A	S	82	73
Eastern Kingbird	S	H	77	64
Loggerhead Shrike †			4	0
Yellow-throated Vireo ‡			2	7
Blue-headed Vireo			20	34

SPECIES	Code		%	
	1st	2nd	1st	2nd
Brown Creeper			24	15
House Wren			28	50
Winter Wren		S	52	78
Sedge Wren		S	14	25
Marsh Wren			16	5
Golden-crown Kinglet			31	21
Ruby-crown Kinglet			18	10
Blue-gr Gnatcatcher ‡			0	2
Eastern Bluebird	P	NY	39	61
Veery	S	H	91	80
Swainson's Thrush	H	S	58	48
Hermit Thrush		H	63	76

SPECIES	Code		%	
	1st	2nd	1st	2nd
Yellow-rumped Warbler	S	S	83	80
Black-thr Green Warbler	S	S	87	90
Blackburnian Warbler		S	60	52
Pine Warbler			9	25
Prairie Warbler †			0	0
Bay-breasted Warbler			9	6
Black-white Warbler	S	S	86	92
American Redstart	S	S	94	96
Ovenbird	S	S	93	84
North Waterthrush	S		33	39
Connecticut Warbler ‡			0	0
Mourning Warbler	S	S	54	52

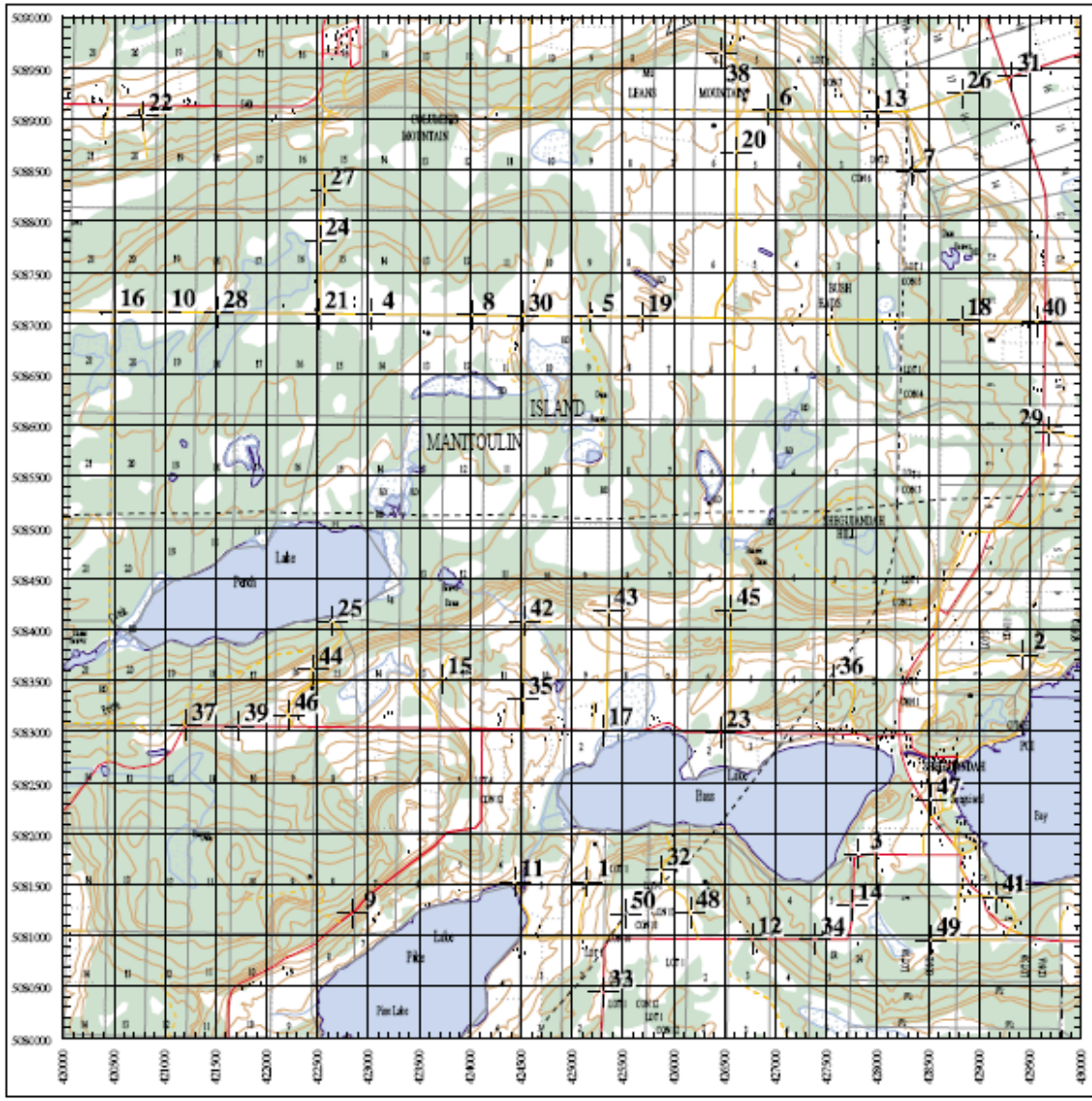
Warbling Vireo			27	28	Wood Thrush			35	34	Common Yellowthroat	A	S	82	81
Philadelphia Vireo ‡			0	18	American Robin	A	CF	86	84	Canada Warbler	S		43	28
Red-eyed Vireo	S	S	86	93	Gray Catbird		CF	63	63	Scarlet Tanager	P	S	45	36
Gray Jay			16	14	Northern Mockingbird			6	6	Eastern Towhee			16	6
Blue Jay	H	CF	74	88	Brown Thrasher	S		55	59	Chipping Sparrow	S	S	85	78
American Crow	H	H	90	92	European Starling	CF	CF	70	68	Clay-colored Sparrow ‡			1	17
Common Raven	H	P	72	88	Cedar Waxwing	P	P	90	88	Field Sparrow			6	5
Horned Lark			10	1	Golden-winged Warbler			12	6	Vesper Sparrow	S	FY	56	38
Purple Martin			28	9	Blue/Gold-wing Warbler			0	3	Savannah Sparrow	A	FY	62	63
Tree Swallow	H	CF	82	68	Tennessee Warbler			13	6	Grasshopper Sparrow			5	7
North Rgh-wing Swallow	AE		29	30	Nashville Warbler	S	S	77	80	Song Sparrow	S	CF	91	92
Bank Swallow §			27	10	Northern Parula			17	38	Lincoln's Sparrow ‡			2	6
Cliff Swallow §	AE		45	34	Yellow Warbler	S	S	87	96	Swamp Sparrow		FY	59	65
Barn Swallow	AE	AE	64	51	Chestn-sided Warbler	S	S	75	85	White-throat Sparrow	S	S	86	81
Black-capp Chickadee	S	H	87	85	Magnolia Warbler		S	54	85	Northern Cardinal			6	30
Red-breast Nuthatch	H		63	73	Cape May Warbler			20	6	Rose-breast Grosbeak	S	S	64	51
White-breast Nuthatch	H	H	24	38	Black-thr Blue Warbler			27	35	Indigo Bunting	S	A	70	71

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML18

SPECIES	Code		%	
	1st	2nd	1st	2nd
Bobolink	P	NY	52	60
Red-wing Blackbird	CF	P	81	68
Eastern Meadowlark	H	T	51	46
Western Meadowlark			6	2
Rusty Blackbird ‡			1	1
Brewer's Blackbird			16	13
Common Grackle	CF	NU	72	73
Brown-head Cowbird	H	P	64	59

Baltimore Oriole	H	S	43	50
Purple Finch	S	FY	58	60
House Finch			0	7
Red Crossbill			5	0
White-winged Crossbill			5	6
Pine Siskin			16	7
American Goldfinch	S	H	67	73
Evening Grosbeak			32	7
House Sparrow	P	CF	27	21

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #33 (Manitoulin). 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 17ML18 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 #33). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 8/06/2009. An up-to-date version of this sheet is available from http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17ML18



Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
01	425144	5081526
02	429428	5083751
03	427814	5081802
04	429024	5087000
05	425184	5087066
06	426926	5085089
07	428385	5088406
08	424012	5087089
09	422848	5081208
10	421012	5087112
11	424441	5081528
12	426775	5080066
13	428002	5085073
14	427757	5081206
15	423728	5085513
16	420512	5087117
17	425307	5085002
18	428834	5087027
19	425691	5087062
20	426615	5088672
21	422524	5087006
22	420792	5085083
23	426463	5082999
24	422529	5087811
25	422648	5084080
26	428833	5089253
27	422575	5088503
28	421528	5087106
29	429492	5085042
30	424522	5087004
31	429322	5089408
32	425879	5081689
33	425811	5080445
34	427390	5080063
35	424521	5083508
36	427571	5083511
37	421208	5085060
38	426471	5089647
39	421731	5085096
40	429567	5087001
41	429172	5081377
42	424534	5084099
43	425308	5084186
44	422459	5083608
45	426963	5084186
46	422220	5083157
47	428525	5082939
48	426162	5081224
49	428522	5080096
50	425532	5081215

Legend

- Wooded Areas
- Water Bodies / Water Areas
- Water Bodies / Wetland Areas
- Wetlands
- ANSI
- Pits and Quarries
- Parks and Reserves
- Public Road
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- Building Polygons
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- Survey Monuments
- Smoke Stacks
- Towers
- Named Places
- Pipelines
- Transmission Lines

North American Datum 1983
Universal Transverse Mercator (6 degree) projection
Zone 17, Central Meridian 81 degrees W.
Grid Interval 1000 metres
Contour Interval 10 metres
Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17ML28
Region: 33

(NAD27 - 17MA28)

0km 1km 2km
0mi 1mi

Ontario Breeding Bird Atlas

Ontario

Square Summary (17ML28)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
34	37	44	115	20	36	73	129	44	56	45	42

Region summary (#33: Manitoulin)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
77	74	76	177	184	970	481

Target number of point counts in this square: 19 road side, 6 off road (3 in deciduous forest, 1 in coniferous forest, 2 in mixed forest). 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
Common Loon	FY	NE	78	68
Pied-billed Grebe	T	FY	20	26
Red-necked Grebe †	NE		1	3
Double-crest Cormorant §			24	50
American Bittern	S	FY	33	53
Least Bittern †	H		5	1
Great Blue Heron §	H		71	35
Green Heron §	H	H	17	15
Black-crown N.-Heron † §			5	11
Turkey Vulture	H	NY	54	35
Canada Goose		FY	24	82
Trumpeter Swan †			0	0
Wood Duck	FY	FY	37	42
Gadwall	H	P	22	19
American Wigeon	P	P	8	15
American Black Duck	H	H	52	27

SPECIES	Code		%	
	1st	2nd	1st	2nd
Red-breast Merganser		P	56	61
Ruddy Duck †			0	2
Osprey	AE	NB	44	47
Bald Eagle †		AE	2	35
Northern Harrier	T	T	35	51
Sharp-shinned Hawk		CF	40	21
Cooper's Hawk			4	17
Northern Goshawk			12	7
Red-should Hawk †			6	18
Broad-winged Hawk	AE	D	56	64
Red-tailed Hawk	T	NY	37	26
American Kestrel	AE	AE	56	51
Merlin		A	31	56
Ring-necked Pheasant ‡			0	10
Ruffed Grouse	T	FY	58	72
Sharp-tailed Grouse †		D	6	17

SPECIES	Code		%	
	1st	2nd	1st	2nd
Ring-billed Gull §			13	47
Herring Gull §			64	63
Great Black-backed Gull †			1	5
Caspian Tern †			4	3
Common Tern §			39	55
Black Tern † §	H	T	17	15
Rock Dove		H	10	38
Mourning Dove	P	FY	45	63
Black-billed Cuckoo	T	T	48	55
Yellow-billed Cuckoo ‡			2	1
Black/Yell-billed Cuckoo			0	26
Great Horned Owl			22	25
Barred Owl	A	P	20	28
Great Gray Owl †		H	0	1
Long-eared Owl			4	5
Short-eared Owl †		H	1	6

Mallard	NE	FY	85	90	Wild Turkey ‡			0	3	North Saw-whet Owl	S	T	9	14
Blue-winged Teal	NE	P	41	40	Yellow Rail †			1	1	Common Nighthawk		H	39	15
Northern Shoveler	P	P	6	9	Virginia Rail	T	T	27	25	Whip-poor-will	T		43	17
Northern Pintail	P		12	6	Sora	T	T	17	22	Chimney Swift	D		36	11
Green-winged Teal		P	0	27	American Coot ‡	H	T	1	3	Ruby-thr Hummingbird	H	FY	63	67
Redhead †			0	2	Sandhill Crane		FY	17	73	Belted Kingfisher	P	AE	60	50
Ring-necked Duck	S	FY	29	30	Killdeer	FY	FY	77	73	Red-head Woodpecker †	T		28	11
Lesser Scaup	H		8	3	Solitary Sandpiper			4	1	Red-bell Woodpecker ‡		FY	1	15
White-winged Scoter †			0	0	Spotted Sandpiper	P	NE	78	85	Yellow-bellied Sapsucker	FY	FY	60	60
Bufflehead †			0	0	Upland Sandpiper	T	A	35	21	Downy Woodpecker	CF	CF	63	60
Common Goldeneye		FY	35	53	Common Snipe	H	S	45	47	Hairy Woodpecker	NY	FY	56	71
Hooded Merganser	H	FY	24	46	American Woodcock	P	T	43	31	Black-back Woodpecker			4	2
Common Merganser	FY	FY	85	72	Wilson's Phalarope †			1	0	Northern Flicker	AE	FY	83	82

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML28 (page 2 of 3)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Pileated Woodpecker	T	AE	48	73	White-breast Nuthatch	P	FY	24	38	Black-thr Blue Warbler	T	S	27	35
Olive-sided Flycatcher	T		21	11	Brown Creeper	P	P	24	15	Yellow-rumped Warbler	H	S	83	80
Eastern Wood-Pewee	NU	T	71	64	House Wren	S	T	28	50	Black-thr Green Warbler		FY	87	90
Yellow-bellied Flycatcher			4	6	Winter Wren		A	52	78	Blackburnian Warbler	H	S	60	52
Alder Flycatcher	S	A	54	67	Sedge Wren		T	14	25	Pine Warbler		S	9	25
Willow Flycatcher ‡			1	9	Marsh Wren	S		16	5	Prairie Warbler †			0	0
Least Flycatcher	T	S	64	59	Golden-crown Kinglet		H	31	21	Bay-breasted Warbler	H		9	6
Eastern Phoebe	NY	NY	45	69	Ruby-crown Kinglet			18	10	Black-white Warbler	S	CF	86	92
Gr Crested Flycatcher	T	CF	82	73	Blue-gr Gnatcatcher ‡			0	2	American Redstart	CF	FY	94	96
Eastern Kingbird	AE	FY	77	64	Eastern Bluebird	P	AE	39	61	Ovenbird	CF	CF	93	84
Loggerhead Shrike †			4	0	Veery	T	NY	91	80	North Waterthrush	T	T	33	39
Yellow-throated Vireo ‡		T	2	7	Swainson's Thrush		S	58	48	Connecticut Warbler ‡			0	0

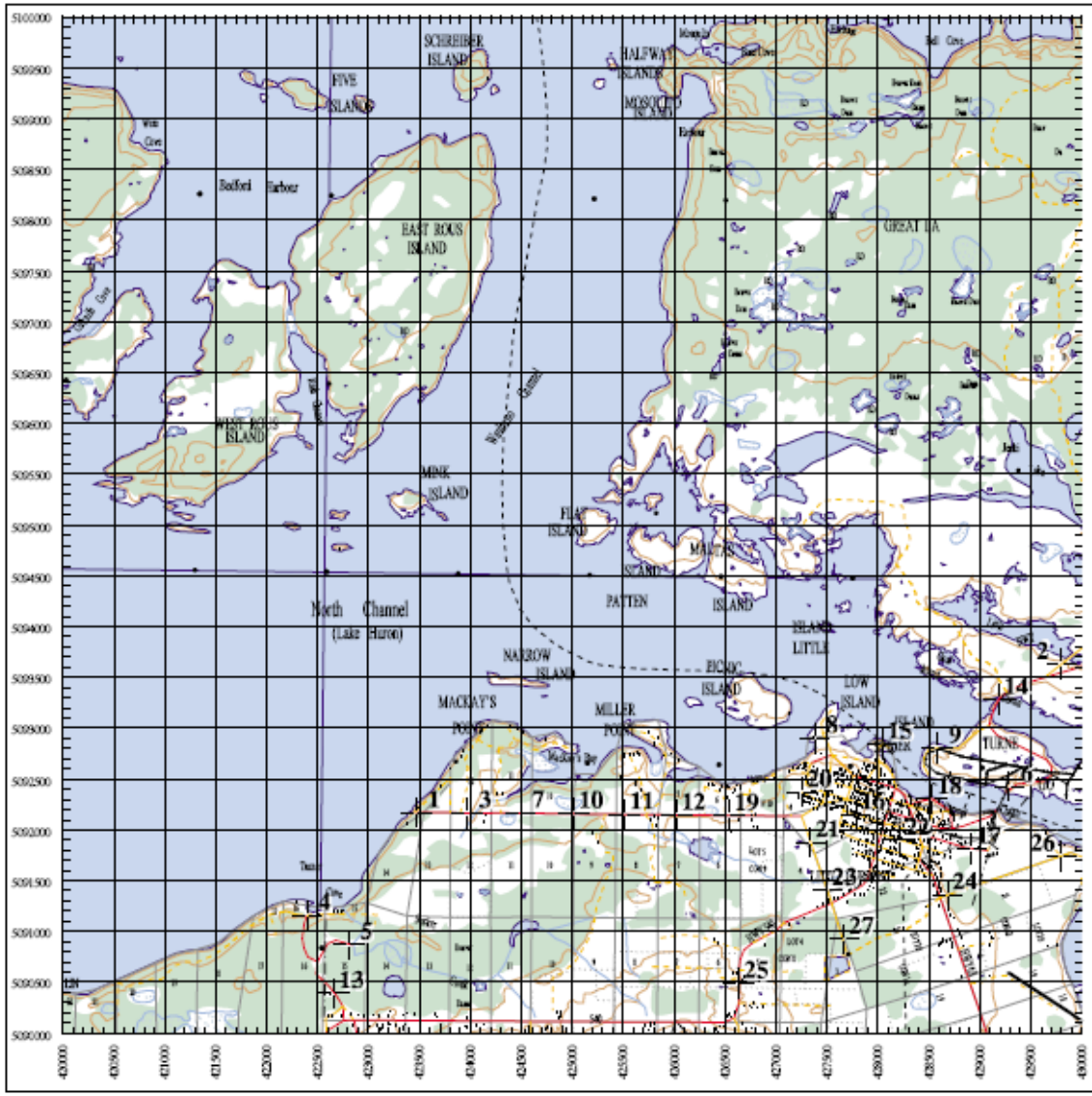
Blue-headed Vireo			20	34	Hermit Thrush	P	T	63	76	Mourning Warbler	S	T	54	52
Warbling Vireo	S	T	27	28	Wood Thrush		T	35	34	Common Yellowthroat	CF	FY	82	81
Philadelphia Vireo ‡			0	18	American Robin	CF	CF	86	84	Canada Warbler	H	A	43	28
Red-eyed Vireo	T	FY	86	93	Gray Catbird	FY	FY	63	63	Scarlet Tanager		S	45	36
Gray Jay			16	14	Northern Mockingbird	H		6	6	Eastern Towhee			16	6
Blue Jay	T	FY	74	88	Brown Thrasher	P	P	55	59	Chipping Sparrow	CF	CF	85	78
American Crow	AE	NU	90	92	European Starling	CF	CF	70	68	Clay-colored Sparrow ‡		S	1	17
Common Raven	AE	NY	72	88	Cedar Waxwing	FY	FY	90	88	Field Sparrow			6	5
Horned Lark			10	1	Golden-winged Warbler		S	12	6	Vesper Sparrow	H	CF	56	38
Purple Martin	AE	AE	28	9	Blue/Gold-wing Warbler			0	3	Savannah Sparrow	S	CF	62	63
Tree Swallow	AE	AE	82	68	Tennessee Warbler			13	6	Grasshopper Sparrow			5	7
North Rgh-wing Swallow	P	AE	29	30	Nashville Warbler	H	CF	77	80	Song Sparrow	CF	CF	91	92
Bank Swallow §	NY	AE	27	10	Northern Parula		S	17	38	Lincoln's Sparrow ‡			2	6
Cliff Swallow §	NU		45	34	Yellow Warbler	NE	CF	87	96	Swamp Sparrow	S	FY	59	65
Barn Swallow	NE	FY	64	51	Chestn-sided Warbler	FY	FY	75	85	White-throat Sparrow	S	CF	86	81
Black-capp Chickadee	D	FY	87	85	Magnolia Warbler	S	A	54	85	Northern Cardinal		S	6	30
Red-breast Nuthatch	H	FY	63	73	Cape May Warbler			20	6	Rose-breast Grosbeak	CF	T	64	51

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML28 (page 3 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Indigo Bunting	CF	FY	70	71
Bobolink	NE	FY	52	60
Red-wing Blackbird	CF	CF	81	68

Eastern Meadowlark	CF	FY	51	46
Western Meadowlark			6	2
Rusty Blackbird ‡			1	1
Brewer's Blackbird	CF		16	13
Common Grackle	NY	CF	72	73
Brown-head Cowbird	P	FY	64	59
Baltimore Oriole	AE	NU	43	50
Purple Finch	S	CF	58	60
House Finch			0	7
Red Crossbill			5	0
White-winged Crossbill			5	6
Pine Siskin			16	7
American Goldfinch	P	FY	67	73
Evening Grosbeak		H	32	7
House Sparrow	AE	T	27	21

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #33 (Manitoulin). 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 17ML28 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 #33). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 8/06/2009. An up-to-date version of this sheet is available from http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17ML28



Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
01	425469	5002168
02	429800	5003692
03	426970	5002165
04	422694	5001158
05	422815	5000871
06	429286	5000425
07	424491	5002165
08	427376	5002905
09	428586	5002806
10	425013	5002162
11	425516	5002151
12	426021	5002146
13	422663	5000802
14	429185	5003282
15	428043	5002647
16	427781	5002151
17	428920	5000812
18	428532	5002502
19	426540	5002141
20	427254	5002372
21	427339	5001876
22	428221	5001899
23	427502	5001404
24	428682	5001359
25	426634	5000490
26	429800	5001743
27	427669	5000024
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0

Legend

- Wooded Areas
- Water Bodies/Water Areas
- Water Bodies/Wetland Areas
- Wetlands
- ANSI
- Fits and Quarries
- Parks and Reserves
- Public Road
- Private Road
- Track
- Trail
- Railway
- Contour Lines
- Lots
- Roadside Point Count Locations
- Fences
- Walls
- Hedges
- Feature Outline
- Race Track
- Building Points
- Building Polygons
- Airports
- Petroleum Tanks
- Water Tanks
- Survey Monuments
- Smoke Stacks
- Towers
- Named Places
- Pipelines
- Transmission Lines

North American Datum 1983
Universal Transverse Mercator (6 degree) projection
Zone 17, Central Meridian 81 degrees W.
Grid Interval 1000 metres
Contour Interval 10 metres
Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17ML29
Region: 33

(NAD27 - 17MA29)

0km 1km 2km
0mi 1mi

Ontario Breeding Bird Atlas

Ontario

Square Summary (17ML29)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
49	16	18	83	44	22	27	93	16	21	27	0

Region summary (#33: Manitoulin)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
77	74	76	177	184	970	481

Target number of point counts in this square: 17 road side, 8 off road (5 in coniferous forest, 3 in mixed forest). 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
Common Loon	H	FY	78	68
Pied-billed Grebe			20	26
Red-necked Grebe †		P	1	3
Double-crest Cormorant §		H	24	50
American Bittern	P	S	33	53
Least Bittern †			5	1
Great Blue Heron §			71	35
Green Heron §			17	15
Black-crown N.-Heron † §			5	11
Turkey Vulture	H	H	54	35
Canada Goose	P	P	24	82
Trumpeter Swan †			0	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Red-breast Merganser		P	56	61
Ruddy Duck †		H	0	2
Osprey		H	44	47
Bald Eagle †		H	2	35
Northern Harrier	S	T	35	51
Sharp-shinned Hawk			40	21
Cooper's Hawk			4	17
Northern Goshawk			12	7
Red-should Hawk †			6	18
Broad-winged Hawk	H		56	64
Red-tailed Hawk			37	26
American Kestrel	NY	H	56	51

SPECIES	Code		%	
	1st	2nd	1st	2nd
Ring-billed Gull §		H	13	47
Herring Gull §	H	NE	64	63
Great Black-backed Gull †			1	5
Caspian Tern †		X	4	3
Common Tern §		A	39	55
Black Tern † §	H		17	15
Rock Dove	H	D	10	38
Mourning Dove	S	FY	45	63
Black-billed Cuckoo	S	V	48	55
Yellow-billed Cuckoo ‡			2	1
Black/Yell-billed Cuckoo			0	26
Great Horned Owl			22	25

Gadwall	P	FY	22	19	Ring-necked Pheasant ‡			0	10	Long-eared Owl			4	5
American Wigeon	FY	FY	8	15	Ruffed Grouse		T	58	72	Short-eared Owl †		H	1	6
American Black Duck	FY	FY	52	27	Sharp-tailed Grouse †			6	17	North Saw-whet Owl			9	14
Mallard	FY	FY	85	90	Wild Turkey ‡			0	3	Common Nighthawk			39	15
Blue-winged Teal	FY	P	41	40	Yellow Rail †			1	1	Whip-poor-will			43	17
Northern Shoveler	P	FY	6	9	Virginia Rail			27	25	Chimney Swift	H	T	36	11
Northern Pintail	FY		12	6	Sora			17	22	Ruby-thr Hummingbird	H	H	63	67
Green-winged Teal		FY	0	27	American Coot ‡		S	1	3	Belted Kingfisher	H		60	50
Redhead †		P	0	2	Sandhill Crane		FY	17	73	Red-head Woodpecker †			28	11
Ring-necked Duck		P	29	30	Killdeer	P	DD	77	73	Red-bell Woodpecker ‡			1	15
Lesser Scaup	P	P	8	3	Solitary Sandpiper			4	1	Yellow-bellied Sapsucker		H	60	60
White-winged Scoter †			0	0	Spotted Sandpiper	P	D	78	85	Downy Woodpecker	H		63	60
Bufflehead †		X	0	0	Upland Sandpiper	P	S	35	21	Hairy Woodpecker	H	S	56	71
Common Goldeneye		FY	35	53	Common Snipe		T	45	47	Black-back Woodpecker			4	2
Hooded Merganser		FY	24	46	American Woodcock			43	31	Northern Flicker	AE	S	83	82

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML29 (page 2 of 3)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Olive-sided Flycatcher			21	11	Brown Creeper			24	15	Yellow-rumped Warbler	S	S	83	80
Eastern Wood-Pewee			71	64	House Wren	S	V	28	50	Black-thr Green Warbler	S		87	90
Yellow-bellied Flycatcher			4	6	Winter Wren		S	52	78	Blackburnian Warbler			60	52
Alder Flycatcher	S	S	54	67	Sedge Wren			14	25	Pine Warbler			9	25
Willow Flycatcher ‡		S	1	9	Marsh Wren			16	5	Prairie Warbler †			0	0
Least Flycatcher			64	59	Golden-crown Kinglet	S		31	21	Bay-breasted Warbler	S		9	6
Eastern Phoebe			45	69	Ruby-crown Kinglet			18	10	Black-white Warbler	S	S	86	92
Gr Crested Flycatcher	S	H	82	73	Blue-gr Gnatcatcher ‡			0	2	American Redstart	S	FY	94	96
Eastern Kingbird	H	AE	77	64	Eastern Bluebird			39	61	Ovenbird	S	T	93	84
Loggerhead Shrike †			4	0	Veery	S	T	91	80	North Waterthrush		S	33	39

Yellow-throated Vireo ‡			2	7
Blue-headed Vireo			20	34
Warbling Vireo		S	27	28
Philadelphia Vireo ‡			0	18
Red-eyed Vireo	S	T	86	93
Gray Jay			16	14
Blue Jay		H	74	88
American Crow	CF	AE	90	92
Common Raven	H	AE	72	88
Horned Lark			10	1
Purple Martin	AE		28	9
Tree Swallow	D	NE	82	68
North Rgh-wing Swallow	P		29	30
Bank Swallow §	D		27	10
Cliff Swallow §	NY	NB	45	34
Barn Swallow	H	H	64	51
Black-capp Chickadee	P	FY	87	85
Red-breast Nuthatch			63	73
White-breast Nuthatch		H	24	38

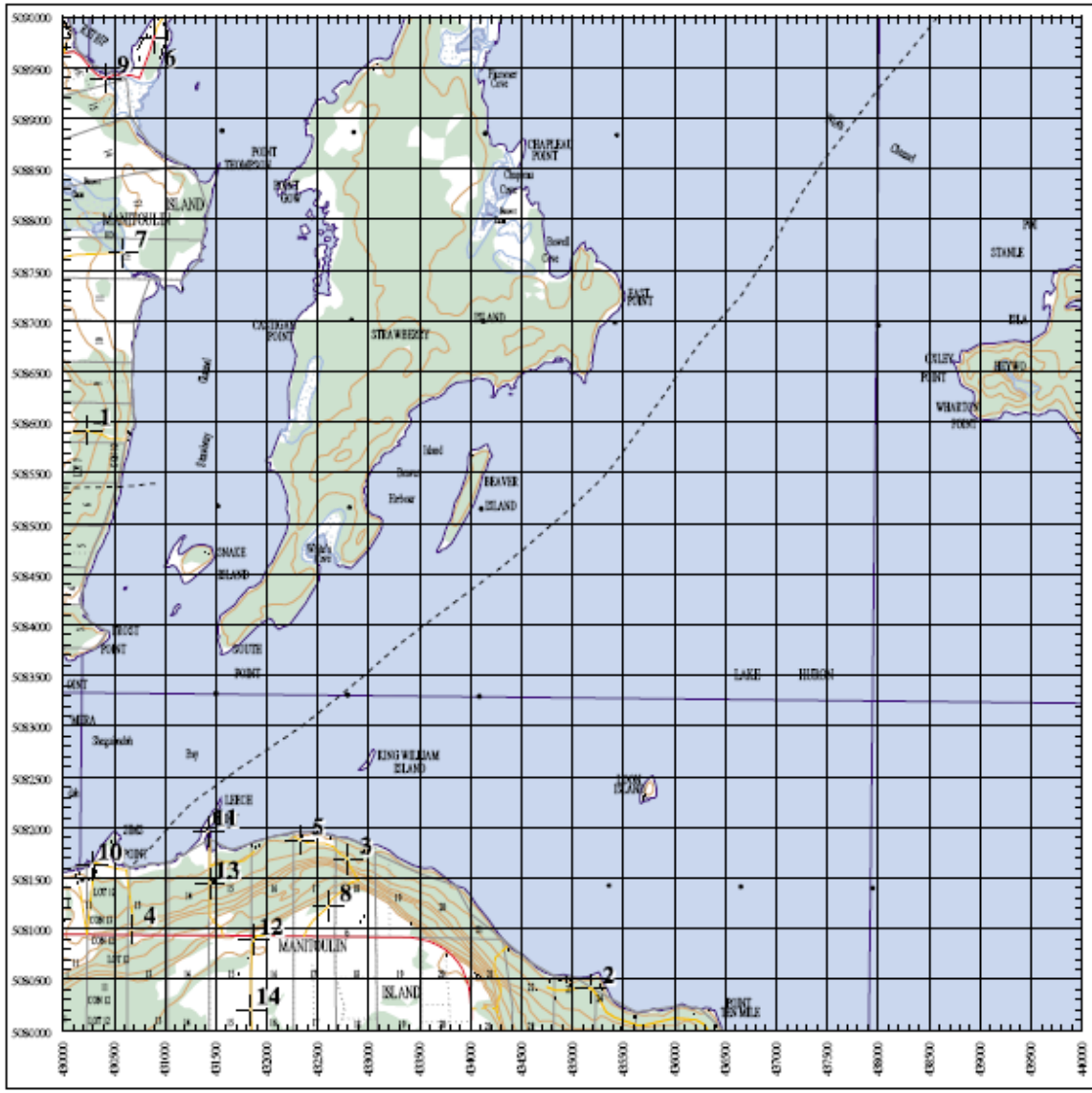
Swainson's Thrush		H	58	48
Hermit Thrush			63	76
Wood Thrush			35	34
American Robin	CF	CF	86	84
Gray Catbird	H	S	63	63
Northern Mockingbird			6	6
Brown Thrasher	S	S	55	59
European Starling	NY	CF	70	68
Cedar Waxwing	H	H	90	88
Golden-winged Warbler			12	6
Blue/Gold-wing Warbler			0	3
Tennessee Warbler			13	6
Nashville Warbler	S		77	80
Northern Parula			17	38
Yellow Warbler	S	A	87	96
Chestn-sided Warbler	S	S	75	85
Magnolia Warbler		S	54	85
Cape May Warbler	S		20	6
Black-thr Blue Warbler			27	35

Connecticut Warbler ‡			0	0
Mourning Warbler	S	S	54	52
Common Yellowthroat	S	FY	82	81
Canada Warbler			43	28
Scarlet Tanager			45	36
Eastern Towhee			16	6
Chipping Sparrow	P	S	85	78
Clay-colored Sparrow ‡			1	17
Field Sparrow			6	5
Vesper Sparrow	S	S	56	38
Savannah Sparrow	CF	S	62	63
Grasshopper Sparrow			5	7
Song Sparrow	CF	FY	91	92
Lincoln's Sparrow ‡			2	6
Swamp Sparrow	S	S	59	65
White-throat Sparrow	S	DD	86	81
Northern Cardinal			6	30
Rose-breast Grosbeak		H	64	51
Indigo Bunting	S		70	71

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML29

SPECIES	Code		%	
	1st	2nd	1st	2nd
Bobolink	D	T	52	60
Red-wing Blackbird	P	V	81	68
Eastern Meadowlark	S	S	51	46
Western Meadowlark			6	2
Rusty Blackbird ‡			1	1
Brewer's Blackbird	NY		16	13
Common Grackle	CF	CF	72	73
Brown-head Cowbird	H	S	64	59
Baltimore Oriole		S	43	50
Purple Finch			58	60
House Finch			0	7
Red Crossbill			5	0
White-winged Crossbill			5	6
Pine Siskin			16	7
American Goldfinch	H	S	67	73
Evening Grosbeak	H		32	7

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #33 (Manitoulin). 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 17ML29 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 #33). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 8/06/2009. An up-to-date version of this sheet is available from http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17ML29



Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
01	480240	5085919
02	485184	5080411
03	482795	5081688
04	480675	5082008
05	482526	5081879
06	480890	5085789
07	480590	5087653
08	482603	5081221
09	480417	5085936
10	480290	5081626
11	481427	5081965
12	481874	5082890
13	481488	5081446
14	481844	5082020
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0

Legend

- Wooded Areas
- Water Bodies/Water Areas
- Water Bodies/Wetland Areas
- Wetlands
- ANSI
- Pits and Quarries
- Parks and Reserves
- Public Road
- Private Road
- Track
- Trail
- Railway
- Contour Lines
- Lots
- Roadside Point Count Locations
- Fences
- Walls
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- Feature Outlines
- Race Tracks
- Building Points
- Building Polygons
- Airports
- Petroleum Tanks
- Water Tanks
- Survey Monuments
- Smoke Stacks
- Towers
- Named Places
- Pipelines
- Transmission Lines

North American Datum 1983
Universal Transverse Mercator (6 degree) projection
Zone 17, Central Meridian 81 degrees W.
Grid Interval 1000 metres
Contour Interval 10 metres
Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17ML38
Region: 33
(NAD27 - 17MA38)

0km 1km 2km
0mi 1mi

Ontario Breeding Bird Atlas

Ontario

Square Summary (17ML38)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
42	28	11	81	36	23	43	102	14	114	9	0

Region summary (#33: Manitoulin)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
77	74	76	177	184	970	481

Target number of point counts in this square: 13 road side, 12 off road (2 in deciduous forest, 1 in coniferous forest, 7 in mixed forest, 1 in pasture/grassland, 1 in alvar). 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
Common Loon	H	FY	78	68
Pied-billed Grebe		S	20	26
Red-necked Grebe †		FY	1	3
Double-crest Cormorant §		X	24	50
American Bittern		V	33	53
Least Bittern †			5	1
Great Blue Heron §	AE	H	71	35
Green Heron §			17	15
Black-crown N.-Heron † §			5	11
Turkey Vulture	H	H	54	35
Canada Goose		FY	24	82
Trumpeter Swan †			0	0
Wood Duck	S	H	37	42
Gadwall			22	19

SPECIES	Code		%	
	1st	2nd	1st	2nd
Red-breast Merganser	P	P	56	61
Ruddy Duck †			0	2
Osprey	NY	CF	44	47
Bald Eagle †	H	NY	2	35
Northern Harrier		V	35	51
Sharp-shinned Hawk			40	21
Cooper's Hawk			4	17
Northern Goshawk			12	7
Red-should Hawk †		H	6	18
Broad-winged Hawk	H	P	56	64
Red-tailed Hawk			37	26
American Kestrel	H	FY	56	51
Merlin		NY	31	56
Ring-necked Pheasant ‡			0	10

SPECIES	Code		%	
	1st	2nd	1st	2nd
Ring-billed Gull §		D	13	47
Herring Gull §	H		64	63
Great Black-backed Gull †			1	5
Caspian Tern †			4	3
Common Tern §	H	FY	39	55
Black Tern † §	H	FY	17	15
Rock Dove			10	38
Mourning Dove		D	45	63
Black-billed Cuckoo	S	S	48	55
Yellow-billed Cuckoo ‡			2	1
Black/Yell-billed Cuckoo			0	26
Great Horned Owl		S	22	25
Barred Owl			20	28
Long-eared Owl		S	4	5

American Wigeon			8	15
American Black Duck			52	27
Mallard	T	FY	85	90
Blue-winged Teal			41	40
Northern Shoveler			6	9
Northern Pintail			12	6
Green-winged Teal			0	27
Redhead †			0	2
Ring-necked Duck	P	P	29	30
Lesser Scaup			8	3
White-winged Scoter †			0	0
Bufflehead †			0	0
Common Goldeneye	S	P	35	53
Hooded Merganser		D	24	46
Common Merganser	P	FY	85	72

Ruffed Grouse		NE	58	72
Sharp-tailed Grouse †		FY	6	17
Wild Turkey ‡			0	3
Yellow Rail †			1	1
Virginia Rail	S		27	25
Sora	S		17	22
American Coot ‡			1	3
Sandhill Crane		FY	17	73
Killdeer	H	DD	77	73
Solitary Sandpiper		H	4	1
Spotted Sandpiper	P	FY	78	85
Upland Sandpiper	S	H	35	21
Common Snipe	S	A	45	47
American Woodcock			43	31
Wilson's Phalarope †			1	0

Short-eared Owl †			1	6
North Saw-whet Owl		S	9	14
Common Nighthawk			39	15
Whip-poor-will			43	17
Chimney Swift			36	11
Ruby-thr Hummingbird		NE	63	67
Belted Kingfisher	AE	AE	60	50
Red-head Woodpecker †			28	11
Red-bell Woodpecker ‡			1	15
Yellow-bellied Sapsucker	NY	H	60	60
Downy Woodpecker	H	T	63	60
Hairy Woodpecker	P	T	56	71
Black-back Woodpecker			4	2
Northern Flicker	AE	FY	83	82
Pileated Woodpecker		FY	48	73

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML38 (page 2 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Olive-sided Flycatcher		S	21	11
Eastern Wood-Pewee	S	S	71	64
Yellow-bellied Flycatcher			4	6
Alder Flycatcher	H	S	54	67
Willow Flycatcher ‡			1	9
Least Flycatcher	T	S	64	59
Eastern Phoebe	H	NY	45	69
Gr Crested Flycatcher	T	H	82	73
Eastern Kingbird	H	FY	77	64
Loggerhead Shrike †			4	0

SPECIES	Code		%	
	1st	2nd	1st	2nd
Brown Creeper			24	15
House Wren	S	H	28	50
Winter Wren		A	52	78
Sedge Wren		S	14	25
Marsh Wren	N	CF	16	5
Golden-crown Kinglet	S	P	31	21
Ruby-crown Kinglet	S		18	10
Blue-gr Gnatcatcher ‡			0	2
Eastern Bluebird		NY	39	61
Veery	T	S	91	80

SPECIES	Code		%	
	1st	2nd	1st	2nd
Yellow-rumped Warbler	T	S	83	80
Black-thr Green Warbler	T	CF	87	90
Blackburnian Warbler	S	S	60	52
Pine Warbler			9	25
Prairie Warbler †			0	0
Bay-breasted Warbler			9	6
Black-white Warbler	S	CF	86	92
American Redstart	T	CF	94	96
Ovenbird	N	T	93	84
North Waterthrush			33	39

Yellow-throated Vireo ‡			2	7	Swainson's Thrush			58	48	Connecticut Warbler ‡			0	0
Blue-headed Vireo			20	34	Hermit Thrush			63	76	Mourning Warbler	S		54	52
Warbling Vireo		S	27	28	Wood Thrush	T	S	35	34	Common Yellowthroat	S	NU	82	81
Philadelphia Vireo ‡		S	0	18	American Robin	H	NY	86	84	Canada Warbler		A	43	28
Red-eyed Vireo	T	NY	86	93	Gray Catbird		S	63	63	Scarlet Tanager	S		45	36
Gray Jay			16	14	Northern Mockingbird			6	6	Eastern Towhee			16	6
Blue Jay	T	T	74	88	Brown Thrasher	P	V	55	59	Chipping Sparrow	S	S	85	78
American Crow	P	NY	90	92	European Starling	CF	NY	70	68	Clay-colored Sparrow ‡			1	17
Common Raven	H	NY	72	88	Cedar Waxwing	H	H	90	88	Field Sparrow			6	5
Horned Lark			10	1	Golden-winged Warbler			12	6	Vesper Sparrow		S	56	38
Purple Martin			28	9	Blue/Gold-wing Warbler			0	3	Savannah Sparrow	CF	S	62	63
Tree Swallow	AE	NY	82	68	Tennessee Warbler			13	6	Grasshopper Sparrow			5	7
North Rgh-wing Swallow			29	30	Nashville Warbler	S	S	77	80	Song Sparrow	T	FY	91	92
Bank Swallow §	AE		27	10	Northern Parula			17	38	Lincoln's Sparrow ‡			2	6
Cliff Swallow §	AE	NB	45	34	Yellow Warbler	P	A	87	96	Swamp Sparrow	T	CF	59	65
Barn Swallow	H	NB	64	51	Chestn-sided Warbler	T	S	75	85	White-throat Sparrow	T	T	86	81
Black-capp Chickadee	H	FY	87	85	Magnolia Warbler		S	54	85	Northern Cardinal			6	30
Red-breast Nuthatch		H	63	73	Cape May Warbler			20	6	Rose-breast Grosbeak	S		64	51
White-breast Nuthatch		NB	24	38	Black-thr Blue Warbler			27	35	Indigo Bunting	S	S	70	71

Ontario Breeding Bird Atlas - Summary Sheet for Square 17ML38

SPECIES	Code		%	
	1st	2nd	1st	2nd
Bobolink	P	S	52	60
Red-wing Blackbird	CF	NE	81	68

Eastern Meadowlark	S	T	51	46
Western Meadowlark			6	2
Rusty Blackbird ‡			1	1
Brewer's Blackbird			16	13
Common Grackle	T	FY	72	73
Brown-head Cowbird	P	P	64	59
Baltimore Oriole	S	NB	43	50
Purple Finch	S		58	60
House Finch			0	7
Red Crossbill			5	0
White-winged Crossbill			5	6
Pine Siskin			16	7
American Goldfinch	P	P	67	73
Evening Grosbeak			32	7
House Sparrow			27	21

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #33 (Manitoulin). 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 17ML38 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 #33). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 8/06/2009. An up-to-date version of this sheet is available from http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17ML38

Appendix B
Christmas Bird Count

Manitoulin Island [ONMI]
45.85 degrees North x -82.4333 degrees West
Ontario Region
Christmas Bird Count
Count Years: 102 - 108

Species	Count Years	102	103	104	105	106	107
Canada Goose *(Branta canadensis)*	**Number**			2		3	2
	Number / Party Hr.			0.0385		0.0566	0.037
	Flags					**HC**	
American Black Duck *(Anas rubripes)*	**Number**	60	29	40	7	14	2
	Number / Party Hr.	1.0714	0.5	0.7692	0.2333	0.2642	0.037
	Flags	**HC**					**LC**
Mallard *(Anas platyrhynchos)*	**Number**	382	27	44		25	13
	Number / Party Hr.	6.8214	0.4655	0.8462		0.4717	0.2407
	Flags	**HC**					
Northern Pintail *(Anas acuta)*	**Number**		0				
	Number / Party Hr.		0				
	Flags		**CW**				
American Green-winged Teal *(Anas crecca)*	**Number**		2		1		
	Number / Party Hr.		0.0345		0.0333		
	Flags						
Canvasback *(Aythya valisineria)*	**Number**	0					
	Number / Party Hr.	0					
	Flags	**US CW**					
Lesser Scaup *(Aythya affinis)*	**Number**	19					
	Number / Party Hr.	0.3393					
	Flags	**HC**					
White-winged Scoter *(Melanitta fusca)*	**Number**			1			
	Number / Party Hr.			0.0192			
	Flags			**US**			

Long-tailed Duck *(Clangula hyemalis)*	**Number**	70					
	Number / Party Hr.	1.25					
	Flags	**HC**					
Bufflehead *(Bucephala albeola)*	**Number**	32	6	27	0	1	12
	Number / Party Hr.	0.5714	0.1034	0.5192	0	0.0189	0.2222
	Flags				**CW**		
Common Goldeneye *(Bucephala clangula)*	**Number**	276	99	941	6	51	375
	Number / Party Hr.	4.9286	1.7069	18.0962	0.2	0.9623	6.9444
	Flags			**HC**			
Hooded Merganser *(Lophodytes cucullatus)*	**Number**	24			1	1	8
	Number / Party Hr.	0.4286			0.0333	0.0189	0.1481
	Flags						
Common Merganser *(Mergus merganser)*	**Number**	970	1508	80	15		77
	Number / Party Hr.	17.3214	26	1.5385	0.5		1.4259
	Flags						
Red-breasted Merganser *(Mergus serrator)*	**Number**	2	2	8			0
	Number / Party Hr.	0.0357	0.0345	0.1538			0
	Flags						**CW**
Ring-necked Pheasant *(Phasianus colchicus)*	**Number**	2	3	4	13	14	29
	Number / Party Hr.	0.0357	0.0517	0.0769	0.4333	0.2642	0.537
	Flags				**HC**	**HC**	**HC**
Ruffed Grouse *(Bonasa umbellus)*	**Number**	9	7	10	7	3	16
	Number / Party Hr.	0.1607	0.1207	0.1923	0.2333	0.0566	0.2963
	Flags						**HC**
Sharp-tailed Grouse *(Tympanuchus phasianellus)*	**Number**	14	24	13	4	12	15
	Number / Party Hr.	0.25	0.4138	0.25	0.1333	0.2264	0.2778
	Flags						
Common Loon *(Gavia immer)*	**Number**	1	1		1	1	
	Number / Party Hr.	0.0179	0.0172		0.0333	0.0189	

	Flags							
Red-necked Grebe *(Podiceps grisegena)*	**Number**		17	5	14	0	4	33
	Number / Party Hr.		0.3036	0.0862	0.2692	0	0.0755	0.6111
	Flags					**CW**		
Double-crested Cormorant *(Phalacrocorax auritus)*	**Number**							1
	Number / Party Hr.							0.0185
	Flags							**US**
Great Blue Heron (Blue form) *(Ardea herodias)*	**Number**							0
	Number / Party Hr.							0
	Flags							**CW**
Turkey Vulture *(Cathartes aura)*	**Number**				1			
	Number / Party Hr.				0.0192			
	Flags				**US**			
Bald Eagle *(Haliaeetus leucocephalus)*	**Number**		25	24	36	20	18	23
	Number / Party Hr.		0.4464	0.4138	0.6923	0.6667	0.3396	0.4259
	Flags				**HC**			
Northern Harrier *(Circus cyaneus)*	**Number**				2			
	Number / Party Hr.				0.0385			
	Flags							
Sharp-shinned Hawk *(Accipiter striatus)*	**Number**			0				
	Number / Party Hr.			0				
	Flags			**CW**				
Northern Goshawk *(Accipiter gentilis)*	**Number**					1		
	Number / Party Hr.					0.0333		
	Flags							
Red-tailed Hawk *(Buteo jamaicensis)*	**Number**					1		3
	Number / Party Hr.					0.0333		0.0556
	Flags							
Rough-legged	**Number**		4	5	42	0	2	32

Hawk *(Buteo lagopus)*	***Number***	/	0.0714	0.0862	0.8077	0	0.0377	0.5926
	Party Hr.							
	Flags				**HC**	**CW**		
American Kestrel *(Falco sparverius)*	**Number**							2
	Number	/						0.037
	Party Hr.							
	Flags							
Merlin *(Falco columbarius)*	**Number**							0
	Number	/						0
	Party Hr.							
	Flags							**CW**
Gyrfalcon *(Falco rusticolus)*	**Number**				1			1
	Number	/			0.0192			0.0185
	Party Hr.							
	Flags				**US**			
Common Snipe *(Gallinago gallinago)*	**Number**		1					
	Number	/	0.0179					
	Party Hr.							
	Flags		**US**					
Ring-billed Gull *(Larus delawarensis)*	**Number**		114	9	11	6	0	32
	Number	/	2.0357	0.1552	0.2115	0.2	0	0.5926
	Party Hr.							
	Flags		**HC**				**CW**	
Herring Gull *(Larus argentatus)*	**Number**		280	177	150	18	60	385
	Number	/	5	3.0517	2.8846	0.6	1.1321	7.1296
	Party Hr.							
	Flags					**LC**		
Iceland Gull *(Larus glaucoides)*	**Number**		0					
	Number	/	0					
	Party Hr.							
	Flags		**CW**					
Glaucous Gull *(Larus hyperboreus)*	**Number**		0					2
	Number	/	0					0.037
	Party Hr.							
	Flags		**CW**					
Great Black-backed Gull *(Larus marinus)*	**Number**			1		0		1
	Number	/		0.0172		0		0.0185
	Party Hr.							
	Flags					**CW**		

Rock Dove *(Columba livia)*	**Number**	102	143				
	Number Party Hr. /	1.8214	2.4655				
	Flags						
Rock Pigeon *(Columba livia)*	**Number**			155	109	41	118
	Number Party Hr. /			2.9808	3.6333	0.7736	2.1852
	Flags						
Mourning Dove *(Zenaida macroura)*	**Number**	123	131	216	142	272	184
	Number Party Hr. /	2.1964	2.2586	4.1538	4.7333	5.1321	3.4074
	Flags			**HC**		**HC**	
Great Horned Owl *(Bubo virginianus)*	**Number**						
	Number Party Hr. /						
	Flags						
Snowy Owl *(Bubo scandiacus)*	**Number**	0					
	Number Party Hr. /	0					
	Flags	**CW**					
Northern Hawk Owl *(Surnia ulula)*	**Number**	0					
	Number Party Hr. /	0					
	Flags	**CW**					
Barred Owl *(Strix varia)*	**Number**	2		1			2
	Number Party Hr. /	0.0357		0.0192			0.037
	Flags						
Great Gray Owl *(Strix nebulosa)*	**Number**				1		
	Number Party Hr. /				0.0333		
	Flags				**US HC**		
Belted Kingfisher *(Ceryle alcyon)*	**Number**	2	2				
	Number Party Hr. /	0.0357	0.0345				
	Flags						
Red-bellied Woodpecker *(Melanerpes*	**Number**	3	1	1	6	2	4
	Number Party Hr. /	0.0536	0.0172	0.0192	0.2	0.0377	0.0741

carolinus)	**Flags**					**HC**		
Downy Woodpecker *(Picoides pubescens)*	**Number**	21	13	29	26	19	27
	Number / Party Hr.	0.375	0.2241	0.5577	0.8667	0.3585	0.5
	Flags						
Hairy Woodpecker *(Picoides villosus)*	**Number**	27	16	54	38	43	32
	Number / Party Hr.	0.4821	0.2759	1.0385	1.2667	0.8113	0.5926
	Flags			**HC**			
Northern (Yellow-shafted) Flicker *(Colaptes auratus)*	**Number**	1					
	Number / Party Hr.	0.0179					
	Flags						
Pileated Woodpecker *(Dryocopus pileatus)*	**Number**	11	4	11	1	6	12
	Number / Party Hr.	0.1964	0.069	0.2115	0.0333	0.1132	0.2222
	Flags						
Northern Shrike *(Lanius excubitor)*	**Number**	4	5	6	1	3	6
	Number / Party Hr.	0.0714	0.0862	0.1154	0.0333	0.0566	0.1111
	Flags						
Gray Jay *(Perisoreus canadensis)*	**Number**		1				
	Number / Party Hr.		0.0172				
	Flags						
Blue Jay *(Cyanocitta cristata)*	**Number**	167	136	141	234	247	197
	Number / Party Hr.	2.9821	2.3448	2.7115	7.8	4.6604	3.6481
	Flags						
American Crow *(Corvus brachyrhynchos)*	**Number**	59	44	105	89	74	145
	Number / Party Hr.	1.0536	0.7586	2.0192	2.9667	1.3962	2.6852
	Flags						
Common Raven *(Corvus corax)*	**Number**	215	274	210	170	198	123
	Number / Party Hr.	3.8393	4.7241	4.0385	5.6667	3.7358	2.2778
	Flags						
Horned Lark	**Number**					34	

(Eremophila alpestris)	***Number / Party Hr.***					0.6415	
	Flags						
Black-capped Chickadee *(Poecile atricapillus)*	**Number**	486	198	421	414	476	327
	Number / Party Hr.	8.6786	3.4138	8.0962	13.8	8.9811	6.0556
	Flags						
Red-breasted Nuthatch *(Sitta canadensis)*	**Number**	30	7	27	18	32	67
	Number / Party Hr.	0.5357	0.1207	0.5192	0.6	0.6038	1.2407
	Flags						**HC**
White-breasted Nuthatch *(Sitta carolinensis)*	**Number**	68	8	32	23	42	44
	Number / Party Hr.	1.2143	0.1379	0.6154	0.7667	0.7925	0.8148
	Flags	**HC**					
Golden-crowned Kinglet *(Regulus satrapa)*	**Number**			1			20
	Number / Party Hr.			0.0192			0.3704
	Flags						**HC**
Townsend's Solitaire *(Myadestes townsendi)*	**Number**				1		
	Number / Party Hr.				0.0333		
	Flags				**US HC**		
American Robin *(Turdus migratorius)*	**Number**				6	1	16
	Number / Party Hr.				0.2	0.0189	0.2963
	Flags						
Varied Thrush *(Ixoreus naevius)*	**Number**				1		
	Number / Party Hr.				0.0333		
	Flags				**US HC**		
Brown Thrasher *(Toxostoma rufum)*	**Number**				1		
	Number / Party Hr.				0.0333		
	Flags						
European Starling *(Sturnus vulgaris)*	**Number**	1178	364	249	170	162	310
	Number / Party Hr.	21.0357	6.2759	4.7885	5.6667	3.0566	5.7407
	Flags	**HC**					

American Pipit *(Anthus rubescens)*	**Number**					1	
	Number / Party Hr.					0.0189	
	Flags					**US HC**	
Bohemian Waxwing *(Bombycilla garrulus)*	**Number**	18				192	0
	Number / Party Hr.	0.3214				3.6226	0
	Flags						**CW**
Cedar Waxwing *(Bombycilla cedrorum)*	**Number**				6		
	Number / Party Hr.				0.2		
	Flags						
American Tree Sparrow *(Spizella arborea)*	**Number**	23	24	6	8	23	40
	Number / Party Hr.	0.4107	0.4138	0.1154	0.2667	0.434	0.7407
	Flags						**HC**
Chipping Sparrow *(Spizella passerina)*	**Number**				3		
	Number / Party Hr.				0.1		
	Flags				**HC**		
Song Sparrow *(Melospiza melodia)*	**Number**				3		
	Number / Party Hr.				0.1		
	Flags				**HC**		
White-throated Sparrow *(Zonotrichia albicollis)*	**Number**						1
	Number / Party Hr.						0.0185
	Flags						
Harris's Sparrow *(Zonotrichia querula)*	**Number**			1			
	Number / Party Hr.			0.0192			
	Flags			**US**			
Dark-eyed (Slate-colored) Junco *(Junco hyemalis)*	**Number**	5	12	8	5	16	21
	Number / Party Hr.	0.0893	0.2069	0.1538	0.1667	0.3019	0.3889
	Flags					**HC**	**HC**
Lapland Longspur *(Calcarius lapponicus)*	**Number**				2	2	
	Number / Party Hr.				0.0667	0.0377	

	Flags							
Snow Bunting *(Plectrophenax nivalis)*	**Number**	0	41	40	103	625	4
	Number / Party Hr.	0	0.7069	0.7692	3.4333	11.7925	0.0741
	Flags	**CW**				**HC**	**LC**
Northern Cardinal *(Cardinalis cardinalis)*	**Number**	39	16	20	33	30	16
	Number / Party Hr.	0.6964	0.2759	0.3846	1.1	0.566	0.2963
	Flags						
meadowlark sp. *(Sturnella)*	**Number**			1	0		
	Number / Party Hr.			0.0192	0		
	Flags			**US**	**CW**		
Rusty Blackbird *(Euphagus carolinus)*	**Number**					1	
	Number / Party Hr.					0.0189	
	Flags						
Common Grackle *(Quiscalus quiscula)*	**Number**	2		12	1	3	
	Number / Party Hr.	0.0357		0.2308	0.0333	0.0566	
	Flags						
Brown-headed Cowbird *(Molothrus ater)*	**Number**						6
	Number / Party Hr.						0.1111
	Flags						
Pine Grosbeak *(Pinicola enucleator)*	**Number**	30			5	318	
	Number / Party Hr.	0.5357			0.1667	6	
	Flags					**HC**	
Purple Finch *(Carpodacus purpureus)*	**Number**		6		5	79	9
	Number / Party Hr.		0.1034		0.1667	1.4906	0.1667
	Flags						
House Finch *(Carpodacus mexicanus)*	**Number**	3				2	7
	Number / Party Hr.	0.0536				0.0377	0.1296
	Flags						
White-winged	**Number**	1					

Crossbill *(Loxia leucoptera)*	***Number / Party Hr.***	0.0179					
	Flags						
Common Redpoll *(Carduelis flammea)*	**Number**	277		235	128	32	3
	Number / Party Hr.	4.9464		4.5192	4.2667	0.6038	0.0556
	Flags						
Hoary Redpoll *(Carduelis hornemanni)*	**Number**				1		
	Number / Party Hr.				0.0333		
	Flags						
Pine Siskin *(Carduelis pinus)*	**Number**	19		4		20	3
	Number / Party Hr.	0.3393		0.0769		0.3774	0.0556
	Flags						
American Goldfinch *(Carduelis tristis)*	**Number**	38	28	41	63	917	358
	Number / Party Hr.	0.6786	0.4828	0.7885	2.1	17.3019	6.6296
	Flags					**HC**	
Evening Grosbeak *(Coccothraustes vespertinus)*	**Number**	46		30	18	129	
	Number / Party Hr.	0.8214		0.5769	0.6	2.434	
	Flags						
House Sparrow *(Passer domesticus)*	**Number**	84	109	134	34	40	110
	Number / Party Hr.	1.5	1.8793	2.5769	1.1333	0.7547	2.037
	Flags						

APPENDIX C
Bird Conservation Region 13 Species

2006:

Table 3: Priority Landbird Species in Ontario BCR 13, sorted by Reasons for Priority Status, and showing Overall Objective, and Priority Suites Designation.

Species	Priority Reasons							Overall Objective	Guild(s) (**Boldface** indicates habitat obligates)
	Continental Concern	Regional Concern	Continental Stewardship	Regional Stewardship	At Risk – Canada	At Risk – Ontario	Management Interest		
Canada Warbler	Y	Y			UR			**Reverse Decline**	**Forest**
Cerulean Warbler	Y	Y			SC	SC		Assess Status	**Forest**
Golden-winged Warbler	Y	Y			UR			Maintain Current	**Shrub/Successional**
Henslow's Sparrow	Y	Y			EN	EN		Recovery	**Grass/Agriculture**
Red-headed Woodpecker	Y	Y			SC	SC		**Reverse Decline**	Forest
Wood Thrush	Y	Y						Maintain Current	**Forest**
Blue-winged Warbler	Y							Maintain Current	**Shrub/Successional**
Kirtland's Warbler	Y				EN	EN		Recovery	**Shrub/Successional**
Prairie Warbler	Y							Assess Status	**Shrub/Successional**
Short-eared Owl	Y				SC	SC		Assess Status	**Grass/Agriculture**
Willow Flycatcher	Y							Maintain Current	**Shrub/Successional**
Baltimore Oriole		Y		Y				**Reverse Decline**	Other Habitats
Black-billed Cuckoo		Y		Y				Halt Decline	Shrub/Successional
Bobolink		Y		Y				Halt Decline	**Grass/Agriculture**
American Kestrel		Y						Halt Decline	Grass/Agriculture
Belted Kingfisher		Y						**Reverse Decline**	Other Habitats
Brown Thrasher		Y						Halt Decline	**Shrub/Successional**
Eastern Kingbird		Y						Halt Decline	Grass/Agriculture
Eastern Meadowlark		Y						Halt Decline	**Grass/Agriculture**
Eastern Towhee		Y						Halt Decline	**Shrub/Successional**
Eastern Wood-Pewee		Y						**Reverse Decline**	Forest
Field Sparrow		Y						Halt Decline	**Shrub/Successional**
Northern Flicker		Y						**Reverse Decline**	Forest
Northern Harrier		Y						Maintain Current	Grass/Agriculture
Savannah Sparrow		Y						Halt Decline	**Grass/Agriculture**
Whip-poor-will		Y						**Reverse Decline**	Forest & Aerial
Bank Swallow				Y				**Reverse Decline**	Other & Aerial
Rose-breasted Grosbeak				Y				Maintain Current	Forest
Acadian Flycatcher					EN	EN		Recovery	**Forest**
Barn Owl					EN	EN		Recovery	**Grass/Agriculture**
Loggerhead Shrike					EN	EN		Recovery	Grass/Agriculture
Northern Bobwhite					EN	EN		Recovery	Grass/Agriculture
Prothonotary Warbler					EN	EN		Recovery	**Forest**
Bald Eagle						EN		Recovery	Other Habitats
Hooded Warbler					TH	TH		Recovery	**Forest**
Peregrine Falcon					TH	EN		Recovery	Other Habitats
Louisiana Waterthrush					SC	SC		Assess Status	**Forest**
Red-shouldered Hawk					SC	SC		Assess Status	**Forest**
Yellow-breasted Chat					SC	SC		Assess Status	**Shrub/Successional**
Chimney Swift					UR		Y	**Reverse Decline**	Other & Aerial
Grasshopper Sparrow							Y	Halt Decline	**Grass/Agriculture**
Vesper Sparrow							Y	Halt Decline	**Grass/Agriculture**

Notes: Priority Reasons: See Box 5 and **Error! Reference source not found.** for an explanation of the priority reasons categories. **At Risk Status: EN -** Endangered; **TH**- Threatened; **SC** - Special Concern, **UR** - Under review by COSEWIC. **Overall Objective:** Overall conservation objective for the species as established by this plan, see Chapters 5 to 9 for additional information. **Guild(s):** Breeding habitat guild and priority foraging guild; see sections 4.2, 4.2.2 and 4.2.4, and Chapters 5 to 9 for additional information. Boldface guild indicates species is a habitat obligate, and is dependent on that breeding habitat category.

2009: The status of the Canada Warbler, the Golden-winged Warbler, the Red-headed Woodpecker and the Chimney Swift was upgraded to Threatened since this table was published.