

# WILDLIFE MONITORING PROGRAM (LONG TERM)

Central Lake Ontario Conservation Authority



August 2008



*“What we do on the land is mirrored in the water.”*

# WILDLIFE MONITORING PROGRAM

## Table of Contents

<b>1.0</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Background.....	1
1.2	Terrestrial Monitoring Program .....	2
<b>2.0</b>	<b>Long-term Monitoring Partnerships .....</b>	<b>4</b>
2.1	Introduction.....	4
2.2	Forest Bird Monitoring Program.....	4
2.21	<i>Introduction.....</i>	4
2.22	<i>Methodology.....</i>	4
2.3	Durham Region Coastal Wetland Monitoring Project.....	5
2.31	<i>Introduction.....</i>	5
2.32	<i>MMP Methodology (Marsh Birds) .....</i>	6
2.33	<i>MMP Methodology (Amphibians).....</i>	8
<b>3.0</b>	<b>Watershed Management Planning .....</b>	<b>10</b>
3.1	Introduction.....	10
3.2	Methodology .....	10
3.21	<i>Introduction.....</i>	10
3.22	<i>Site Selection.....</i>	10
3.23	<i>Equipment .....</i>	10
3.24	<i>Survey .....</i>	11
3.25	<i>Resources Required.....</i>	11
3.26	<i>Data.....</i>	11
<b>4.0</b>	<b>Conservation Area Management.....</b>	<b>12</b>
4.1	Introduction.....	12
4.2	Bird Monitoring.....	12
4.21	<i>Introduction.....</i>	12
4.22	<i>Site Selection.....</i>	13
4.23	<i>Equipment .....</i>	13
4.24	<i>Methodology.....</i>	13
4.25	<i>Resources Required.....</i>	14
4.26	<i>Data.....</i>	14
4.3	Amphibian Monitoring (Frogs & Toads) .....	14
4.31	<i>Site Selection.....</i>	14
4.32	<i>Equipment .....</i>	14
4.33	<i>Methodology.....</i>	14
4.34	<i>Resources Required.....</i>	14
4.35	<i>Data.....</i>	14
4.4	Salamander Monitoring.....	15
4.41	<i>Site Selection.....</i>	15
4.42	<i>Equipment .....</i>	15
4.43	<i>Methodology.....</i>	15
4.44	<i>Resources Required.....</i>	16
4.45	<i>Data.....</i>	16

4.5	Special Programs .....	16
4.51	<i>Introduction</i> .....	16
4.52	<i>Nestboxes</i> .....	16
4.53	<i>Turtle Nest Protection</i> .....	17
4.54	<i>Raptor Watch</i> .....	17
<b>5.0</b>	<b>Special Projects</b> .....	<b>18</b>
5.1	Introduction .....	18
5.2	Victoria Road Widening Project .....	18
5.21	<i>Introduction</i> .....	18
5.22	<i>Site Selection</i> .....	18
5.23	<i>Equipment</i> .....	18
5.24	<i>Methodology</i> .....	18
5.25	<i>Resources Required</i> .....	19
5.26	<i>Data</i> .....	19
5.3	Mute Swan & Canada Goose Management .....	19
5.31	<i>Introduction</i> .....	19
5.32	<i>Site Selection</i> .....	19
5.33	<i>Equipment</i> .....	20
5.34	<i>Methodology</i> .....	20
5.35	<i>Resources Required</i> .....	20
5.36	<i>Data</i> .....	20
<b>6.0</b>	<b>Equipment</b> .....	<b>21</b>
6.1	Introduction .....	21
6.2	Location Information .....	21
<b>7.0</b>	<b>Reporting</b> .....	<b>24</b>
7.1	Annual Wildlife Monitoring Report.....	24
7.11	<i>Introduction</i> .....	24
7.12	<i>Framework</i> .....	24
7.2	Natural Heritage Information Centre .....	24
7.21	<i>Introduction</i> .....	24
7.22	<i>Reporting Schedule</i> .....	24
<b>8.0</b>	<b>References</b> .....	<b>25</b>

## List of Tables and Figures

Figure 1: CLOCA jurisdiction.....	2
Table 1: Wildlife monitoring effort for CLOCA's coastal wetlands .....	6
Table 2: Amphibian survey guidelines and air temperatures for Central Ontario.....	8
Figure 2: General breeding periods for frogs and toads in the Great Lakes basin.....	9
Table 3: Schedule for monitoring birds in CLOCA watersheds. ....	11
Table 4: Ongoing wildlife monitoring efforts for CLOCA's conservation areas .....	12
Table 5: Habitat types and protocols included in C.A. monitoring program. ....	13
Figure 3: Salamander Monitoring Plots .....	15
Table 6: Special programs within CLOCA's conservation areas. ....	16
Figure 4: Typical CLOCA GPS Unit .....	23

# 1.0 Introduction

Knowledge about watershed health, and the impacts that development may have on watershed health, is the backbone of all sound planning decisions. In order to facilitate such decisions, the Central Lake Ontario Conservation Authority (CLOCA) conducts long-term monitoring for aquatic and terrestrial conditions, as well as water quality and quantity. The information gathered through these programs enables CLOCA to better understand the existing conditions within a watershed, determine ecological trends over time, and provide guidance to planning agencies to assist them in making informed land-use decisions.

## 1.1 Background

CLOCA's jurisdiction is approximately 638 km<sup>2</sup> and its boundaries are defined by the 15 watersheds that drain this area. 7 of these watersheds are large, originating on the Oak Ridges Moraine. They are:

- Lynde,
- Oshawa,
- Black-Harmony-Farewell, and
- Bowmanville-Soper.

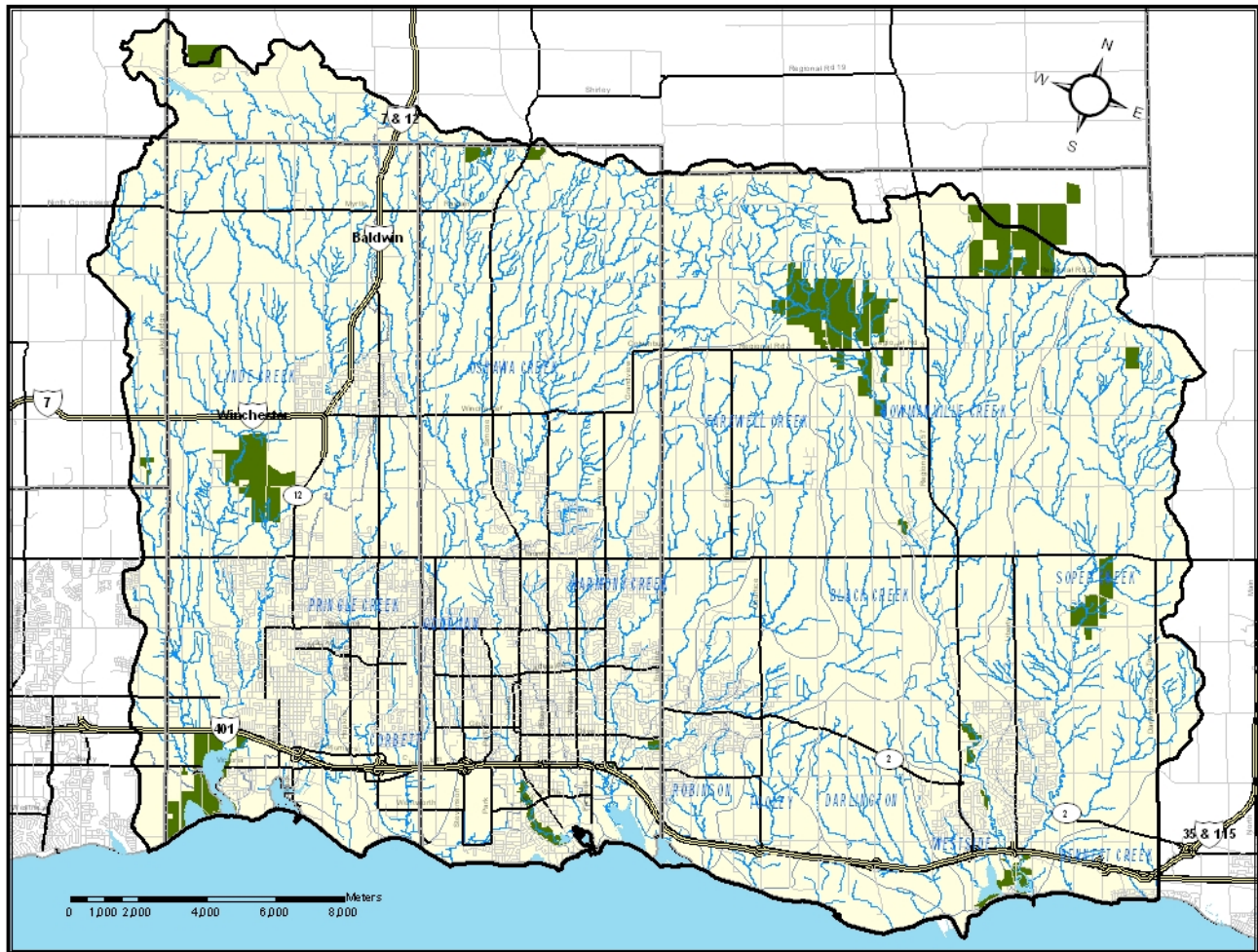
**Watershed**  
*The area of land that is drained by a river or creek and its tributaries.*

These watersheds, as they are grouped above, define the monitoring areas for watershed management and planning. The remaining watersheds are relatively small and for monitoring purposes are generally grouped together as Small watersheds. This grouping includes from west to east:

- Cranberry
- Pringle
- Corbett
- Pumphouse
- Robinson
- Tooley
- Darlington
- Westside, and
- Bennett

Seven municipalities are located in whole or in part within the CLOCA jurisdiction. They are the Cities of Oshawa and Pickering, the Towns of Ajax and Whitby, the Municipality of Clarington, and the Townships of Scugog and Uxbridge. CLOCA works in partnership with each of these planning agencies to provide information on the terrestrial and aquatic conditions within their boundaries and assists them in making planning decisions that are consistent with the natural heritage values set out in the Provincial Policy Statement (2005).

Figure 1 depicts the CLOCA jurisdiction, its watersheds, and the municipalities within its boundaries.



**Figure 1: CLOCA jurisdiction**

## 1.2 Terrestrial Monitoring Program

One aspect of the terrestrial monitoring program is wildlife monitoring. Animals occupy every imaginable habitat niche and work in conjunction with each other, as well as their environments, to help maintain the balance that exists within an ecosystem. When aspects of this system begin to suffer, there tend to be changes in wildlife populations, particularly habitat specialists, as a result. In this respect, monitoring wildlife can be a useful means of assessing habitat quality or watershed health. Although information about all wildlife is relevant to the evaluation of watershed health, birds and amphibians are of particular value to monitor.

Birds can be found in virtually every habitat, but there are many birds that are area sensitive (will only occupy habitats of a certain size) or are forest interior specialists (sensitive to forest fragmentation). Consequently, the presence or absence of these species in a watershed offers some insight into the quality of the habitats within the watershed. Furthermore, birds use songs to attract mates in the spring and early summer, so they are relatively easy to monitor.

Amphibians are also indicators of habitat quality, in particular water quality, because they absorb moisture through their skin. Amphibians are only found in habitats where water is available, either seasonally or permanently, so their monitoring value as habitat indicators is limited to wet areas. Where they are found, however, their abundance and species richness provide important clues about the health of their particular habitat. Like birds, frogs and toads are readily monitored because they communicate by song. Salamanders do not call, so they are more difficult to monitor.

Reptiles and mammals are valuable components of any ecosystem, however they are more difficult to monitor. Consequently long-term monitoring efforts tend to focus on birds and amphibians, although specific reptile or mammal monitoring programs may be undertaken if a need for information is identified. Information on these species tends to be collected through incidental observation.

CLOCA's long-term monitoring efforts are driven by a number of factors, and can be grouped into the following categories:

- Partnerships with external agencies (e.g. Environment Canada);
- Watershed management planning;
- Conservation Area management; and
- Special projects.

Together, these various commitments and projects help to define where monitoring will occur within the jurisdiction, the timeframes for monitoring, the type of information that should be gathered, and the monitoring frequency.

This report describes the types of monitoring projects that CLOCA has undertaken as a result of each of the drivers listed above and detail the methodologies associated with these monitoring initiatives.

## 2.0 Long-term Monitoring Partnerships

### 2.1 Introduction

Partnerships are an important means of assessing ecological trends over larger planning areas. Government agencies and private organizations that are trying to identify wildlife population trends across Ontario and have developed large-scale monitoring programs rely on local agencies and individuals to help collect data. By establishing some of these survey routes within the CLOCA jurisdiction, the Authority benefits from the information collected as well as the ability for the information to be compared across numerous jurisdictions or province-wide. These comparisons are useful tools in assessing how CLOCA's watersheds and wildlife habitats are functioning with respect to other urbanized or urbanizing watersheds in southern Ontario.

Currently, CLOCA staff participate in 2 partnership programs: the Forest Bird Monitoring Program and the Durham Region Coastal Wetlands Monitoring Project. Both of these programs are run in partnership with Environment Canada as part of their efforts to strengthen their understanding of the ecological trends that are occurring in Ontario.

### 2.2 Forest Bird Monitoring Program

#### 2.21 Introduction

The Forest Bird Monitoring Program (FBMP) is a survey that was established in 1987 by the Ontario Region of the Canadian Wildlife Service, Environment Canada (CWS). The focus of this program is to survey birds in large forests, or forests large enough to accommodate at least 3 monitoring stations. The data collected is used to compare other surveyed sites across Ontario (CWS, 2005). In the CLOCA jurisdiction there are two FBMP routes; one in the Long Sault Conservation Area and the other at Heber Down.

#### 2.22 Methodology

##### Site Selection

FBMP sites are primarily selected based on forest size. Suitable forests should accommodate 5 monitoring stations, although this number has been reduced to 3 monitoring stations in recent years to include some smaller forest units. Stations within the site must be at least 100 m from the forest edge and each station must be at least 250 m apart.

##### Equipment

- FBMP Field Card (see Appendix A)
- Pencil
- Stopwatch
- Route Map

## Survey

Surveys are done twice a year to more accurately reflect the birds present at each station. The first survey is completed between May 24 and June 17, and the second survey occurs between June 13 and July 10, with at least 6 days between the two visits. The survey is conducted in the morning, between 5 am and 10 am, when weather conditions are clear and calm.

The Point Count, which is performed at each monitoring station, is composed of two 5-minute intervals. During each interval the surveyor listens for bird songs or calls and records the species and direction from which the call came. The surveyor also assesses the distance of the calls, either within a 100 m radius or outside of a 100 m radius of where they are standing, and records this information on the data card.

## Resources Required

Survey routes require one individual to complete, however 2 staff members may be appropriate where safety is a concern. A vehicle is required to complete the monitoring.

As this program is run by the CWS, it is possible for volunteers to conduct FBMP routes within the CLOCA jurisdiction independent of CLOCA staff resources.

## Data

Once the point counts have been completed, the data is transferred to a data summary sheet (see appendix A) and submitted to Environment Canada. Forms are due to them by July 31<sup>st</sup> so that the information can be processed and analyzed. This information is also entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for watershed management, municipal plan review, and conservation area management. Appendix B describes the species database and its uses in more detail.

## **2.3 Durham Region Coastal Wetland Monitoring Project**

### 2.31 Introduction

The Durham Region Coastal Wetland Monitoring Project (DRCWMP) is a project that was initiated by Environment Canada in partnership with CLOCA to assess and monitor the condition of the coastal wetlands in Durham Region. Wetland condition is measured using a number of criteria, including watershed and adjacent land uses, water quality, vegetation, aquatics and wildlife.

This project, as it relates to CLOCA's long-term wildlife monitoring program, monitors only amphibians (frogs and toads) and marsh birds, and the monitoring stations are established and surveyed following protocols set-out in the Marsh Monitoring Program (MMP). This program is run by Bird Studies Canada in partnership with a number of agencies, including Environment Canada, and its goals are to collect data to study population changes and habitat requirements of marsh birds and amphibians and to aid



in the conservation and rehabilitation of marshes in the U.S. and in Canada (BSC, 2003).

In the CLOCA jurisdiction there are 11 coastal wetlands, however they are not all monitored to the same degree. Table 1 lists CLOCA's coastal wetlands and identifies the wildlife monitoring that occurs at each.

**Table 1: Wildlife monitoring effort for CLOCA's coastal wetlands.**

Wetland Name	Marsh Bird Monitoring	Amphibian Monitoring
Cranberry	Yes (Volunteer)	Yes
Lynde Creek	Yes	Yes
Whitby Harbour	No (Resources Required)	No (Resources Required)
Corbett Creek	Yes (Volunteer)	Yes (Volunteer)
Gold Point	Yes	Yes
Pumphouse	Yes	Yes
Oshawa Creek	No (Resources Required)	No (Resources Required)
Oshawa Second	Yes (Volunteer)	Yes (Volunteer)
McLaughlin Bay	Yes	Yes
Westside	Yes	Yes
Bowmanville	Yes (Volunteer)	Yes (Volunteer)

## 2.32 MMP Methodology (Marsh Birds)

### Site Selection

Routes can be established in any marsh habitat, but since this monitoring occurs as a result of the DRCWMP, MMP route locations in the CLOCA jurisdiction have been limited to the coastal wetlands.

MMP routes may have between 1 and 8 sample stations. In smaller marshes, 1 station is acceptable as long as the marsh habitat predominates within the 100 m radius semi-circle. In marshes that are able to accommodate more than 1 station, these should be separated by at least 250 m.

**Marsh**  
*Habitat that is dominated by non-woody emergent plants and periodically or regularly inundated up to a depth of 2 m with standing or slowly moving water*

### Equipment

- Marsh Bird Data Form (Appendix C)
- Pencil
- Stopwatch
- Clipboard
- CD or MP3 Player
- Marsh bird broadcast CD or mp3 files
- External speaker
- Batteries
- Binoculars
- Compass
- Thermometer
- Canoe
- Paddles
- Lifejackets

### Survey

Surveys are completed either in the evening, between 6 pm and sunset, or in the morning, 30 minutes before sunrise and 10 am; however, surveys must always be either conducted in the morning or evening for any particular route. Each route is surveyed twice a year, between May 20<sup>th</sup> and July 5<sup>th</sup>. Surveys should occur at least 10 days apart on calm, warm, dry nights.

Point counts are 15 minutes in length and they are sub-divided into three 5-minute components: a 5-minute silent observation period, a 5-minute call playback period, and a second 5-minute silent observation period. The CD is 15 minutes in length and includes the silent observation periods, so it is to be started at the beginning of the point count. A double tone marks the start and end of the 15-minute survey. When the callback period begins the calls of 5 marsh birds lasting 30 seconds each followed by 30 seconds of silence occurs. These calls are broadcast to coax secretive marsh birds into responding. During the silent observation periods, the surveyor listens and records the species and direction of any birds heard within a 100 m radius semi-circle. Aerial foragers and birds heard outside of the semi-circle are also recorded on the data sheet (see Appendix C).

### Resources Required

The point counts may be done with one person if the station is on shore, but most of the stations must be accessed by canoe. As such, two staff persons are required to complete the MMP bird surveys.

### Data

Once the monitoring has been finished for the season, the data is transcribed onto a Marsh Bird Route Summary Sheet. This sheet is to be submitted to Bird Studies Canada by July 31<sup>st</sup>. This data is also entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for watershed management, municipal plan review, and conservation area management. Appendix B describes the species database and its uses in more detail.



Virginia Rail at Cranberry Marsh

## 2.33 MMP Methodology (Amphibians)

### Site Selection

MMP amphibian monitoring sites can be established in any marsh habitat; however, since this monitoring occurs as a result of the DRCWMP, MMP route locations in the CLOCA jurisdiction have been limited to the coastal wetlands.

MMP routes may have between 1 and 8 sample stations. In smaller marshes, 1 station is acceptable as long as the marsh habitat predominates within the 100 m radius semi-circle. In marshes that are able to accommodate more than 1 station, these should be separated by at least 500 m.

### Equipment

- Amphibian Data Form (Appendix D)
- Flashlight
- Pencil
- Clipboard
- Stopwatch

### Survey

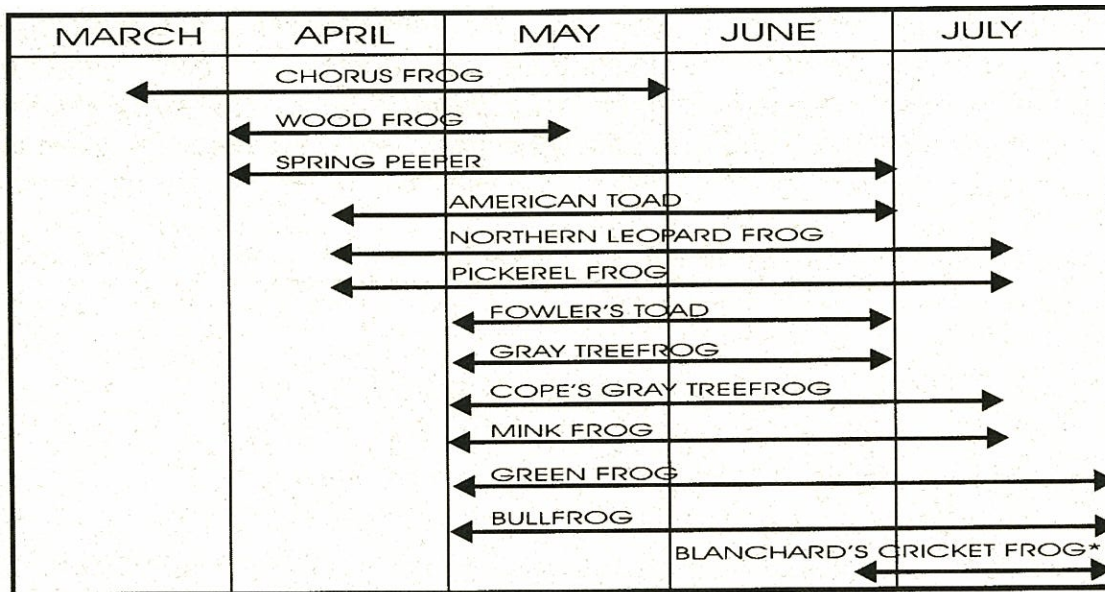
Amphibian surveys are completed at night starting between half an hour after sunset and midnight. Because different species breed at different times (figure 2), amphibian surveys need to be conducted three times a year, at least 15 days apart, to detect all of the species that may be present in the marsh. The MMP offers advice as to when to conduct each of these surveys (table 2); however the two factors that dictate amphibian surveying practices are temperature and weather.

Temperature is one of the most important factors to consider when conducting amphibian surveys because it is the seasonal increase in nighttime air temperature that prompts the various frog and toad species to begin calling for mates. Consequently, a minimum nighttime air temperature has been established by the MMP for each of the three surveys. These are listed in table 2.

**Table 2: Amphibian survey guidelines and air temperatures for Central Ontario.**

Survey	Recommended Survey Date	Minimum Nighttime Air Temperature
1	15 – 30 April	5°C
2	15 – 30 May	10°C
3	15 – 30 June	17°C

The second most important consideration in conducting the surveys is weather because amphibian skin is easily dried out by wind or dry air. Such conditions cause amphibians to stay in the water and results in limited calling activity. As such, surveys should be conducted on calm damp nights, but not in persistent rain.



\*Historic calling dates for Pelee Island, Ontario

**Figure 2: General breeding periods for frogs and toads in the Great Lakes basin (MMP, 2003).**

Point counts are 3 minutes in length. During this time the surveyor listens and records the species and direction of any amphibians heard within a 100 m radius semi-circle. Amphibians heard outside of the semi-circle are recorded on the data sheet as well (see Appendix D). The surveyor also estimates the abundance of amphibians heard during the survey period.

### Resources Required

Most of the MMP amphibian stations can be accessed from shore, so point counts may be done with one person if safety is not a concern. If a station is only accessible by canoe then two staff persons are required to complete the survey, however only one person can actually conduct the listening portion of the survey.

### Data

Once the monitoring has been finished for the season, the data is transcribed onto an Amphibian Route Summary Sheet (see Appendix D). This sheet is to be submitted to Bird Studies Canada by July 31<sup>st</sup>. This data is also entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for watershed management, municipal plan review, and conservation area management. Appendix B describes the species database and its uses in more detail.

## 3.0 Watershed Management Planning

### 3.1 Introduction

The Oak Ridges Moraine Conservation Plan requires municipalities with watersheds originating on the moraine to develop watershed management plans. In the CLOCA jurisdiction this includes the Lynde Creek, Oshawa Creek, Black-Harmony-Farewell Creek, and Bowmanville-Soper Creek watersheds. The responsibility of developing watershed management plans for these watersheds has been taken on by CLOCA in partnership with each of the municipalities. In an effort to better characterize the existing conditions within each of the watersheds, as well as identify any changes in these conditions over time, bird monitoring routes were developed in each of the watersheds to help assess the quality, quantity and type of habitats that are present within the CLOCA jurisdiction.

### 3.2 Methodology

#### 3.21 Introduction

Due to property access limitations, the watershed-wide bird monitoring program was set up following the Breeding Bird Atlas (BBA) protocol, which is a road-based monitoring effort. Although roadside monitoring does avoid issues with landowners, it is problematic in that it is often difficult to hear bird songs over passing cars, particularly on busier streets.

The BBA methodology is also not ideal for large forest blocks as there may not be public access into the interior. As such, some interior species, if present in the habitat, may not be heard. In instances where access was available and the habitat being monitored was large enough, some of the Forest Bird Monitoring protocols were used instead. This methodology is described in detail in section 2.2.

#### 3.22 Site Selection

Sites were initially selected through air photo interpretation. Naturalized areas in each of the watersheds were identified and targeted for monitoring. These monitoring stations were then filtered to remove any points that were less than 300 m apart. The remaining monitoring points were further refined by field investigation. Each point was visited to assess the habitat being targeted and to determine the best monitoring location at the site. Any stations that were not suitable for monitoring were discarded. The points that remained after each review stage were arranged into a series of routes and monitored following the BBA protocols.

#### 3.23 Equipment

- Vehicle
- Map
- Data Sheet
- Pencil
- Stopwatch
- Forest Bird Monitoring data sheet (for FBMP sites)

### 3.24 Survey

The survey consists of a 5-minute point count at each location along the route. During this time interval, all birds that are seen or heard are recorded on the data sheet. Surveys are to be completed between sunrise and 5 hours after sunrise, between the dates of May 24<sup>th</sup> and July 10<sup>th</sup>. The weather should be calm and relatively clear. Each station is visited once during the monitoring period and every five years after that in accordance with the watershed monitoring schedule outlined in Table 3.

**Table 3: Schedule for monitoring birds in CLOCA watersheds.**

<b>Watershed</b>	<b>Year</b>
Oshawa	2007
Black-Harmony-Farewell	2008
Bowmanville-Soper	2009
Lynde	2010
Small Watersheds & Bowmanville-Soper	2011
Oshawa	2012
Black-Harmony-Farewell	2013
Lynde	2014
Small watersheds	2015
Bowmanville-Soper	2016

This schedule was established to coincide with the data collection for preparation of the watershed management plans and their 5-year updates.

### 3.25 Resources Required

The surveys require one staff person with access to a vehicle in the mornings.

### 3.26 Data

Once the monitoring has been finished for the season, the data is transferred to a spreadsheet and entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for watershed management, municipal plan review, and conservation area management. Appendix B describes the species database and its uses in more detail.

## 4.0 Conservation Area Management

### 4.1 Introduction

There are 8 conservation areas with the CLOCA jurisdiction and the management of these areas must balance the needs of wildlife with the needs of the public. In order to better understand what the wildlife needs are in each of the conservation areas, amphibian (including salamander) and bird monitoring programs have been initiated in a number of the areas. Table 4 lists each of CLOCA's conservation areas and identifies their ongoing monitoring programs.

**Table 4: Ongoing wildlife monitoring efforts for CLOCA's conservation areas.**

Conservation Area	Bird Monitoring*	Frog/Toad Monitoring	Salamander Monitoring
Lynde Shores	Yes (MMP)	Yes	Yes
Heber Down	Yes (FBMP)	No	Yes
Crow's Pass	Yes	No	No
Audley Woods	No	No	No
Purple Woods	Yes	No	No
Rhamani	Yes	No	No
Toad Hollow	Yes (as part of watershed survey)	No	No
Oshawa Valleylands	Yes (as part of watershed survey)	No	No
Bowmanville-Westside Marshes	Yes (MMP)	Yes	No
Bowmanville Valleylands	No	No	No
Stephen's Gulch	Yes	No	No
Enniskillen	Yes	No	No
Hampton Pond	Yes	Yes	No
Long Sault	Yes (FBMP)	No	No

\*MMP (Marsh Monitoring Program); FBMP (Forest Bird Monitoring Program)

### 4.2 Bird Monitoring

#### 4.21 Introduction

Three types of monitoring programs occur at the conservation areas. As is shown in table 4, Lynde Shores and Bowmanville-Westside Marshes are monitored as part of the Durham Region Coastal Wetland Monitoring Project. This project and its monitoring protocols are fully described in section 2.3. Heber Down and Long Sault are both monitored as part of the Forest Bird Monitoring Program, which is described in section 2.2. Although the information gathered at these conservation areas is used to contribute to external projects, the data is still relevant to the Authority and is directly used for conservation area management as well as watershed management.

The remaining conservation areas are monitored by CLOCA staff for the purpose of conservation area management. The protocol followed for bird monitoring within the conservation areas is generally adapted from the Forest Bird Monitoring Program and is described in more detail in the subsections below.

#### 4.22 Site Selection

The only criterion for site selection is that the monitoring points be located within one of the conservation areas. Within the conservation areas, the habitat types vary. Depending on what information is desired, monitoring points may be established throughout the conservation area or concentrated in one habitat type.

#### 4.23 Equipment

- FBMP Field Card (see Appendix A)
- Pencil
- Stopwatch
- Route Map

#### 4.24 Methodology

Although the FBMP protocol is intended for monitoring in large forests, CLOCA has followed the FBMP principles to adapt the methodology to monitor other habitat types. The data sheets (appendix A), point count intervals, monitoring dates, weather & time guidelines, and the monitoring station distances follow the FBMP protocols (see section 2.2). The only differences are that some of the monitoring stations have been located in open habitats, such as meadows and thickets, and not all of them are monitored annually as suggested in the FBMP protocol. Table 5 describes the habitats included in these monitoring programs.

**Table 5: Habitat types and protocols included in C.A. monitoring program.**

Conservation Area	Habitat Description and monitoring protocol
Lynde Shores	Marsh (MMP) Meadow (adapted FBMP)
Heber Down	Forest (FBMP)
Crow's Pass	Forest (FBMP)
Purple Woods	Forest (FBMP)
Bowmanville-Westside Marshes	Marsh (MMP)
Stephen's Gulch	Forest (FBMP)
Enniskillen	Forest , meadow and thicket (adapted FBMP)
Hampton	Marsh (adapted FBMP)
Long Sault	Forest (FBMP)

The monitoring frequency within the conservation areas is 2 years, except for those conservation areas that are monitored in conjunction with another program. This frequency is based largely on the need for this information and the limited availability of staff resources.



#### 4.25 Resources Required

The surveys require one staff person to complete, however two staff may be required to complete a route if safety is a concern.

#### 4.26 Data

Once the monitoring has been finished for the year the data is entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for conservation area management, as well as watershed management and municipal plan review. Appendix B describes the species database and its uses in more detail. For those monitoring routes that are part of another project, such as the DRCWMP or the FBMP, the data must be submitted to the appropriate agency by the specified dates.

### **4.3 Amphibian Monitoring (Frogs & Toads)**

#### 4.31 Site Selection

Frogs and toads are present in most of the conservation areas; however some of the habitats are more ideal for amphibian breeding than others. Those areas with marshes are generally targeted for amphibian monitoring and are listed in table 4. Crow's Pass, Heber Down and Enniskillen do have ponds that likely support amphibian breeding. There is the potential to include these areas in future monitoring efforts.

#### 4.32 Equipment

- Amphibian Data Form (Appendix D)
- Flashlight
- Pencil
- Clipboard
- Stopwatch
- Thermometer

#### 4.33 Methodology

All of the amphibian monitoring in the conservation areas follows the MMP protocol, which is described in detail in section 2.33. Lynde Creek marsh, Cranberry marsh, Westside marsh and Bowmanville marsh are all monitored annually as part of the DRCWMP. Hampton pond is monitored annually as part of the Hampton Pond restoration project.

#### 4.34 Resources Required

The surveys require one staff person to complete, however two staff may be required to complete a route if safety is a concern.

#### 4.35 Data

Once the monitoring has been finished for the year the data is entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for conservation area management, as well as watershed management and municipal plan review. Appendix

B describes the species database and its uses in more detail. For those monitoring routes that are part of the DRCWMP the data must be submitted to Bird Studies by July 31<sup>st</sup>.

#### 4.4 Salamander Monitoring

##### 4.41 Site Selection

As is indicated in table 4, only 2 conservation areas have been targeted for salamander monitoring. Salamanders breed in vernal pools in forested swamps, so they are not necessarily abundant or even present in every conservation area. Heber Down and Lynde Shores (Runnymede tract) are known to have seasonal accumulations of water and as such were chosen as test monitoring sites. Crow's Pass, in which salamanders have been reported, is a potential site for future salamander monitoring.

##### 4.42 Equipment

- Wood slices or planks
- Metal tags & nails for ID#
- GPS unit
- Data sheet
- Map

##### 4.43 Methodology

The salamander monitoring plots established at Heber Down and Lynde Shores (see figure 3) were a pilot project to see if an enhanced monitoring program should be initiated at either of the conservation areas. Wood slices were obtained from a felled tree in one of the conservation areas and randomly placed on the ground in potential salamander breeding areas. The locations were recorded using a GPS unit and re-visited annually in the early spring. To date, no salamanders have been observed.



Figure 3: Salamander Monitoring Plots

The Ecological Monitoring and Assessment Network (EMAN) has developed salamander monitoring guidelines that may be valuable to follow in future efforts and Crow's Pass is potentially a good candidate for one such plot.

#### 4.44 Resources Required

The surveys require one staff person to complete.

#### 4.45 Data

Once the monitoring has been finished for the year the data is entered into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for conservation area management, as well as watershed management and municipal plan review. Appendix B describes the species database and its uses in more detail.

### 4.5 Special Programs

#### 4.51 Introduction

A variety of other wildlife monitoring programs have been set up at some of the conservation areas. Most of these have been initiated by public interest groups. Table 6 lists the conservation areas in which special projects involving wildlife monitoring are occurring and identifies the parties responsible for them. The details of these programs are included in the following subsections.

Table 6: Special programs within CLOCA's conservation areas.

Conservation Area	Program	Project Lead(s)
Lynde Shores	Wood Duck nestboxes	CLOCA
	Eastern Bluebird nestboxes	Ajax Scouts
	Cranberry Marsh Raptor Watch	Durham Region Field Naturalists
Heber Down	Iroquois Shoreline Raptor Watch	Durham Region Field Naturalists
Long Sault	Eastern Bluebird nestboxes	Scouts
Bowmanville-Westside Marshes	Turtle nest protection	CLOCA/ Port Darlington residents association

#### 4.52 Nestboxes

As is outlined in table 6, most of the nestboxes within the Conservation Areas have been constructed to attract Eastern Bluebirds. The majority of these boxes were constructed and installed by community organizations such as the Boy Scouts. At Lynde Shores, waterfowl nestboxes have been installed to provide nesting cavities for wood ducks.



© 2005 Jim Housman

The Eastern Bluebird nestboxes are cavity boxes mounted on top of a post between 4 and 5 feet off the ground. They are placed in pairs, approximately 25 m apart, to discourage them from being fully occupied by Tree Swallows (who prefer not to nest within 25 m of each other). These nestbox pairs are placed 100 m apart.

The waterfowl nestboxes are mounted on posts with predator guards on top of angled posts along the edge of the marsh. A detailed description of how to construct and install wood duck boxes is included in appendix E.

Nestboxes require annual maintenance to reduce nest parasitism from insects. At the end of every nesting season, the boxes are opened up and the old nest material is removed. This task is usually completed by a community group or by Authority Staff. During this cleanout, data for each box is gathered. Based on the materials within the nests, the shape of the nest, and periodically the leftover eggs or chicks, the bird species that occupied the nestbox can be determined. This information is recorded on a data sheet and entered into the CLOCA species database.

#### 4.53 Turtle Nest Protection



At the Bowmanville-Westside Marshes Conservation Area snapping turtles have been observed nesting along the edge of Eastbourne Rd. In 2008, turtle cages were constructed by Authority Staff and were made available to the residents in Port Darlington to protect these nests from predation. The cages were constructed from wire and included pegs to prevent them from being removed. Residents in the area who noticed turtles laying eggs along the side of the road were responsible for placing the cages over the nests.

#### 4.54 Raptor Watch

The Durham Field Naturalists coordinate raptor watches each fall at Cranberry Marsh and Heber Down. This project was established to determine the number of raptors that traverse the Lake Ontario and Iroquois Beach Shorelines every year. The watches are conducted by volunteers and the data is combined with data collected at similar watches across Ontario. The Authority is not directly involved in this project, but the information gathered at the watches is entered into the CLOCA Species database (appendix B).

## 5.0 Special Projects

### 5.1 Introduction

Some wildlife monitoring occurs throughout the jurisdiction as a result of municipal or development projects. These projects vary from year to year and are often at the initiation of the Authority. Two such projects that are ongoing are described below.

### 5.2 Victoria Road Widening Project

#### 5.21 Introduction

In 2006, Durham Region initiated a road widening project for Victoria Road in the Town of Whitby. The area of Victoria Road that was being widened included the section that bisects the Lynde Creek Marsh. Wildlife that move between the north and south wetlands must cross Victoria Rd, and as such, this road poses a mortality risk. In an effort to evaluate the extent of this risk, CLOCA began monitoring the wildlife that were being killed by cars along the road with the expectation that the information could be used to persuade the Region to construct the road in such a way as to reduce its impact on wildlife.

#### 5.22 Site Selection

The area of focus was the section of road within the Lynde Shores Conservation Area boundaries. In 2006 and 2007, this area was limited to the marsh and its adjacent woodlands. In 2008, the area of interest was expanded to Halls Rd in the west and Seaboard Gate Rd in the east.

#### 5.23 Equipment

- Safety vest
- Safety boots
- Data Sheet
- Clipboard
- Pencil
- Camera
- GPS unit
- Ziploc bags
- Gloves
- Shovel
- Extra batteries

#### 5.24 Methodology

Between April and October of each year, the shoulder of the road between Halls Rd and Seaboard Gate Rd is walked and any dead wildlife are recorded on a data sheet. A GPS coordinate is taken for each occurrence and the animal is identified to species if possible and if not, then to type (e.g. bird). The animal is then removed from the shoulder of the road using a shovel so that the animal is not re-recorded on another occasion.

The monitoring frequency is three times a week on Monday, Wednesday and Friday in the morning. In 2006, the monitoring frequency was once a week on Fridays, however, it was found that many amphibians and birds were not counted at this frequency so in 2007 the monitoring interval was increased to 3 times a week.

### 5.25 Resources Required

The study can be conducted by one staff person.

### 5.26 Data

At the end of each monitoring period, the data is entered into a spreadsheet and converted into a GIS shapefile for spatial analysis. This data is shared with the Region as well as the consultants involved in the project.

A summary of the data is also generated for entry into the CLOCA species database, which warehouses historical species information for the CLOCA jurisdiction and is used to gather background information for conservation area management, as well as watershed management and municipal plan review. Appendix B describes the species database and its uses in more detail.

## 5.3 Mute Swan & Canada Goose Management

### 5.31 Introduction

In the Town of Whitby a Canada Goose management program has been undertaken to control the population of geese that occupy lands along the waterfront. Management techniques include the removal of moulting geese as well as egg-oiling. Historically, egg-oiling has been conducted by a consulting firm working on behalf of the Town of Whitby, and their areas of concern included two of CLOCA's properties: Cranberry Marsh and Lynde Creek Marsh.

Although egg-oiling had been taking place in the marshes for a number of years, in 2006 Authority Staff opted to take over the egg-oiling project in Cranberry Marsh. This decision was prompted by concerns over the sensitivity of the wildlife in the marsh as well as an interest in controlling Mute Swan populations in the marsh to improve water quality. By taking responsibility on behalf of the Town of Whitby for Canada Goose management in Cranberry Marsh, Staff were able to satisfy the management directive to control Mute Swans at the same time as the Canada Geese were dealt with, thereby reducing the number of visits made into the marsh.

In 2007, the effort was expanded to include Westside Marsh to try to reduce water turbidity as a result of Mute Swan foraging behaviour.

### 5.32 Site Selection

Cranberry Marsh and Westside Marsh are the only marshes that are currently subject to Mute Swan egg-oiling. Although Canada Goose eggs are included in the egg-oiling effort at Cranberry Marsh, they are not the focus of the effort at Westside Marsh because the purpose of the program from the Authority's perspective is to improve water quality, not control Canada Goose populations.

Although there are other coastal wetlands in the CLOCA jurisdiction which may benefit from Mute Swan control, the project has been limited to wetlands within CLOCA ownership in conjunction with directives from the conservation area management plans.

### 5.33 Equipment

- Canoe
- Paddles
- Lifejackets
- Anchor
- Boat kit
- Chest waders
- GPS unit
- Camera
- Daedol 50 (oil)
- Oil pump
- Rubber gloves
- Data sheets/pencil
- Clipboard
- Egg-oiling permit (CWS)
- Vehicle with canoe mounts/straps

### 5.34 Methodology

CLOCA's egg-oiling procedure meets the requirements set out in the permits obtained annually from the Canadian Wildlife Service (appendix H) and includes the principles described in the Canada Goose Egg Addling Protocol (Humane Society, 2004).

In early spring, typically late April or early May, the marshes are entered by canoe and a systematic search is done to locate Canada Goose and/or Mute Swan nests. When a nest is discovered, its location is recorded on the data sheet using a GPS unit. The eggs in the nest are covered with oil and returned to the nest and the number of eggs is recorded on the data sheet. This process is repeated for every nest until the entire marsh has been searched.

The data is entered into ArcView as a shapefile and a map with the nest ID numbers and locations is produced. This map is used during the second egg-oiling effort, which takes place 10 days after the first egg-oiling effort occurs. The purpose of the second visit is to re-coat the eggs with oil but moreover to capture any eggs that may have been laid after the first egg-oiling effort occurred. As before, the nests are located using a GPS unit and the eggs are covered in oil and counted. This data is recorded to document any changes in egg numbers from the first visit.

### 5.35 Resources Required

This project requires 2 people to complete.

### 5.36 Data

The Canada Goose data collected from Cranberry Marsh is summarized and sent to the consultants responsible for reporting on the Canada Goose egg-oiling project for the Town of Whitby (currently it is Brian Henshaw at Beacon Environmental).

The Mute Swan data collected from Cranberry Marsh and Westside Marsh are entered into a spreadsheet and kept on file for future analysis.

## 6.0 Equipment

### 6.1 Introduction

Technology plays a vital role in the collection of quality data for various CLOCA projects. The quality of the data produced from the equipment is dependent on a knowledgeable operator. Along with personal communication about how to operate a piece of equipment, the owner's manual should be reviewed for technical details that may have been omitted.

Scientific equipment (e.g., thermometers) often have a certificate of calibration, which states the accuracy of the product and how it was determined by the manufacturer (e.g., "This Instrument was calibrated using Instruments Traceable to National Institute of Standards and Technology", Control Company). When possible the serial number of the equipment that is being used to collect data should be recorded on the field data sheet. This becomes critically important if data collected is used for legal purposes and needs to be qualified (e.g., OMB proceeding).

### 6.2 Location Information

*The following information was taken from the Natural Heritage Information Centre Website ([http://nhic.mnr.gov.on.ca/MNR/nhic/species/species\\_report\\_guide.cfm](http://nhic.mnr.gov.on.ca/MNR/nhic/species/species_report_guide.cfm)).*

**UTM Coordinates:** UTM stands for Universal Transverse Mercator. It is a numerical value that represents the precise location of a site using a type of grid system. A UTM consists of three sets of numbers. A two-digit "Zone", a six-digit "Easting", and a seven-digit "Northing". Together, these three numbers refer to a precise location. An example of a full UTM would be 17 693455 5071456.

There are several ways to generate an UTM. Hand-held GPS (Global Positioning System) units are the easiest and most accurate way to generate a coordinate (either a UTM or Latitude and Longitude) for a location, provided you are physically at that location with your GPS unit. These units are relatively inexpensive, small in size and easy to carry around in the field, and are available at most outdoors and camping stores. They will display geographic coordinates in UTM, Latitude and Longitude, or both.

A UTM grid reference can also be generated from an NTS (National Topographic System) mapsheet. This method can be used regardless of whether or not you are physically at the site. Such mapsheets are available at camping and outdoors stores, as well as map stores. NTS maps are available at two scales, 1:50,000 and 1:250,000. A scale of 1:50,000 is the most useful for fieldwork. More information on where to buy these maps can be found at: <http://maps.nrcan.gc.ca/cmo/dealers.html>. Instructions on generating a UTM from an NTS mapsheet can be found at: [http://maps.nrcan.gc.ca/maps101/grid\\_ref.html](http://maps.nrcan.gc.ca/maps101/grid_ref.html) and can also be found on the right margin of the mapsheet.



**Datum:** When reporting a location using a UTM, there are two grid systems that are used in Canada - NAD27 (North American Datum 1927) and NAD83 (North American Datum 1983). The datum used on an NTS mapsheet is indicated somewhere on the bottom of the map. In addition, when using a hand-held GPS unit, you can program your unit to display the coordinates in either NAD27 or NAD83. It is important to indicate the "datum" with any UTM because, in Ontario, they differ by approximately 200 metres in the Northing (and a little in the Easting). Naturally, NAD83 is the more up-to-date system and is preferred, but as long as the datum system used is provided with the coordinates, a conversion can be made.

**UTM Source:** The UTM Source field allows you to report what method you used to generate a UTM (or any other coordinates - e.g. Latitude, Longitude). The following codes are used:

- GPS - generated using a hand-held GPS unit
- NTS - read from a National Topographic System map sheet
- OBM - read from an Ontario Base Map sheet
- Other - derived in some other fashion (e.g. Latitude and Longitude derived from a gazetteer or atlas)

**Accuracy:** refers to how precise the coordinates supplied (UTM or Latitude and Longitude) are. Accuracy is rated using a series of numbers from zero to five.

- 0 = accurate to within 1 metre
- 1 = accurate to within 10 metres
- 2 = accurate to within 100 metres
- 3 = accurate to within 1000 metres
- 4 = accurate to within 10,000 metres
- 5 = greater than 10,000 metre accuracy

If you record a species at a site and have a hand-held GPS unit to record the coordinates directly at the location of a plant, for example, your coordinates would typically be accurate to within 10 metres. If you used an NTS mapsheet to determine your location, and you are 100% certain of your exact location (usually because of some sort of landmark shown on the map - e.g. a building, the point of a peninsula, etc.) your coordinates would probably be accurate to within 100 metres. If you have used an NTS mapsheet and/or a GPS unit to generate coordinates but walked away from that location, estimate how far away from the coordinates you may have been (e.g. within 50 metres, within 200 metres, within 500 metres, etc.).

**Accuracy Comments:** There are times when the accuracy of a coordinate may not be within 100 metres, but is not as great as 1000 metres. For example, you may have taken a GPS reading from your vehicle and then walked from there. 200 metres away, you may have found a rare species, but you might not have taken a GPS reading there. In such cases, you would use the coordinates from your vehicle's location, choose an

accuracy of 3 from the pick-list and include "within 200 metres" in the Accuracy Comments Field.

**Directional examples:** Some examples of directions include: "approximately 1.5 km north of Joesville Post Office (or main intersection), in abandoned farm field on west side of County Road 12". A more detailed example might be something like: "From the town of SmithvilleSuch-and-such, drive north on BluebirdSuch-and-such Road. 3.7 km to Concession Road 8. Turn right (east) on Concession. Rd. 48 until it ends at a dirt track. On the north side of the road is a white house. Walk approximately 250 metres past the white house, east along the dirt track. At the large dead Silver Maple on the north side, turn northward into the swamp. The nest is approximately 150 metres due north from this point, in a large Basswood tree."



Figure 4: Typical CLOCA GPS Unit

## **7.0 Reporting**

### **7.1 Annual Wildlife Monitoring Report**

#### **7.11 Introduction**

Every year, CLOCA publishes a monitoring report which highlights the results of the previous year's monitoring efforts. The information contained in this report serves to raise public awareness of the wildlife in the CLOCA jurisdiction, identify wildlife population trends over time, and advertise the work being done by the Authority each year.

#### **7.12 Framework**

The annual reports will include the following information:

- Brief introduction on the Authority, its mandate, and its jurisdictional boundaries.
- Results and discussion for each of the conservation areas monitored within the previous year.
- Results and discussion of the bird monitoring program for the watershed which was monitored in the previous year.
- Results and discussion of any special projects that occurred within the previous year.

### **7.2 Natural Heritage Information Centre**

#### **7.21 Introduction**

The Natural Heritage Information Centre (NHIC) was established by the Ontario Ministry of Natural Resources to warehouse wildlife information and track species occurrences throughout the province. This information is publicly available, with some restrictions in the case of sensitive wildlife, and is used to identify habitat areas for species at risk and species of interest (tracked species). The data is also used to help assess the status of wildlife populations in Ontario and species are given rarity designations based on the number of breeding occurrences reported.

#### **7.22 Reporting Schedule**

CLOCA staff have attended the NHIC data sensitivity training course offered through the MNR office in Peterborough, and as such have access to all of the data, including sensitive species, relevant to the CLOCA jurisdiction. As part of the agreement between MNR and CLOCA for access to this data, CLOCA is required to report any data on tracked species within its jurisdiction to the MNR on an annual basis. This reporting is facilitated by the CLOCA species database (appendix B) into which all wildlife reports in the jurisdiction are entered. A spreadsheet is generated from the database for any tracked species observed within the previous year and this is sent to the NHIC for entry into the provincial database. See appendix I for a copy of the data exchange agreement.

## 8.0 References

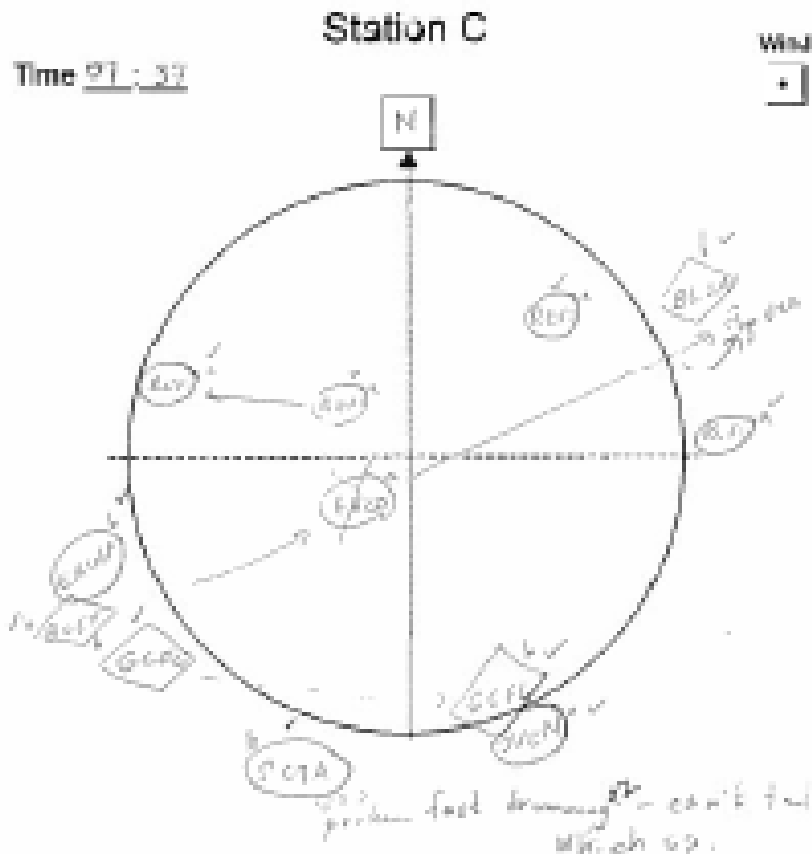
- Canadian Wildlife Service. 2005. Forest Bird Monitoring Program: Site Set-up and Bird Survey Instructions.
- Ducks Unlimited. "Build a duck nest box." Accessed on October 27, 2008. [<http://www.ducks.ca/resource/general/wetland/pdf/duckbox.pdf>].
- Marsh Monitoring Program Participant's Handbook for Surveying Marsh Birds. 2008 Edition. 17 pages. Published by Bird Studies Canada in cooperation with Environment Canada and U.S. Environmental Protection Agency. February 2008.
- Marsh Monitoring Program – Training Kit and Instructions for Surveying Marsh Birds, Amphibians and Their Habitats. 2003 Edition. 40 pages. Published by Bird Studies Canada in cooperation with Environment Canada and U.S. Environmental Protection Agency. March 2003.
- Ontario Breeding Bird Atlas. 2001. Guide for Participants. Atlas Management Board, Federation of Ontario Naturalists, Don Mills.
- Parks Canada/EMAN. July 2004. Joint EMAN/Parks Canada National Monitoring Protocol for Plethodontid Salamanders. Accessed on October 29, 2008. [<http://www.eman-rese.ca/eman/ecotools/protocols/terrestrial/salamanders/salamander.pdf>]
- The Humane Society of the United States. March 2004. Canada Goose Egg Addling Protocol. Accessed on October 29, 2008. [[http://files.hsus.org/web-files/PDF/WILD\\_Goose\\_Egg\\_Addling\\_Protocol.pdf](http://files.hsus.org/web-files/PDF/WILD_Goose_Egg_Addling_Protocol.pdf)]

**Appendix A**  
**Forest Bird Monitoring Program**

## The Forest Bird Monitoring Program

Site Name: Helen Down CA Site #: 482  
 Observer: Sarah Pearson Date: 25/07/07  
 UTM Zone: \_\_\_\_\_ Easting: \_\_\_\_\_ Northing: \_\_\_\_\_  
 Weather Conditions: calm, cool w 7°c  
 Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Return to: Forest Bird Monitoring Program  
 Canadian Wildlife Service - Ontario  
 Environment Canada  
 335 River Road, Ottawa ON K1A 0H3





## **Appendix B Species Database**



## Species Database User Outline

### *Purpose*

CLOCA receives species information on an ongoing basis from a wide variety of sources. These include public observations, staff field notes, consultant reports, and scientific studies. In an effort to keep track of this information, in terms of species, this database was created.

### *Goals*

- Make species information, particularly from historical documents, more accessible.
- Store species information in digital format.
- Make the generation of species lists for internal and external use easier.
- Enable tracking of rare, threatened or endangered species.
- Determine significant wildlife habitats within CLOCA jurisdiction.

### *Use*

This database is intended to be used as a reference to relevant information sources and not as a complete source of information. This means that many of the entries contain additional information that is not recorded in the database. This information can be found in binders in the administrator's office, or in filed reports in the basement. The only records that can be considered "complete" are the staff or public observations. It is worth noting that many staff observations will not have associated hard copies, therefore some numbers may not be represented in the binders.

### *Sensitive Information*

Information regarding threatened and endangered species is considered sensitive. In order to protect these species, details about their locations, particularly nesting sites, should not be disclosed to external sources unless it is necessary. If any uncertainty exists please talk to Satu or Jackie.

### *Limitations*

The information contained in the species database is only as accurate as the form in which it was received.

- Scientific studies typically contain detailed methodology and descriptions of species observed.
- Consultant reports and Environmental Impact Studies vary in their details of locations and dates of observation.
- Public observations and student reports may or may not be accurate, depending on the experience of the observer.
- Some entries, particularly historical records, contain no sources, dates, or location details at all.

Given this variation in data, it is the responsibility of the user to assess the reliability of the information in this database, either by referring to the original document or through personal judgment.

### Quality Control

New data should be entered into the database as it is received. This duty should be delegated to one staff member, to ensure that data is organized and entered consistently. Field observations can be entered by the original observers or forwarded to the administrator.

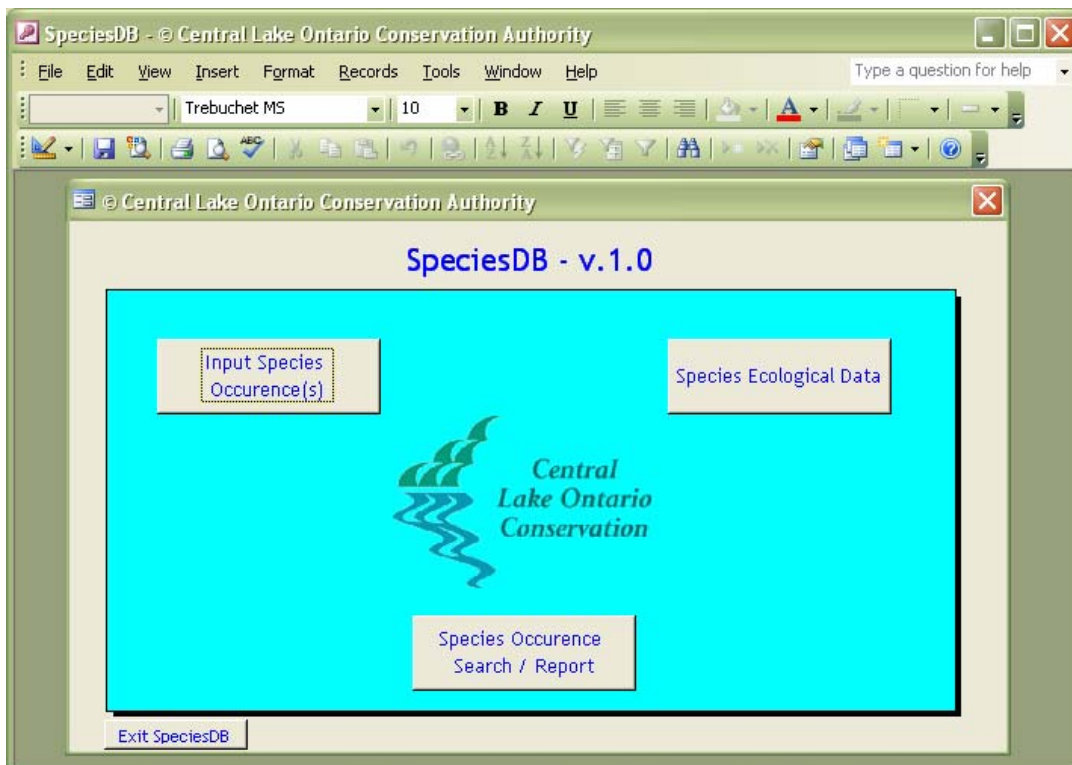
Additional administrator responsibilities include:

- Storage and maintenance of all species data.
- Correction of errors noted within the database.
- Quarterly back-up of the database to a CD.
- Liaison with other departments to collect any species information received.
- Annual updates to species names, designations and other information from the NHIC database.
- Reporting of tracked species to the NHIC at the end of each year.

All users of the database should verify the information in the database with the original copy periodically to ensure information accuracy and to identify data errors. Any errors encountered during use should be reported to the database administrator for correction.

### Using the Database

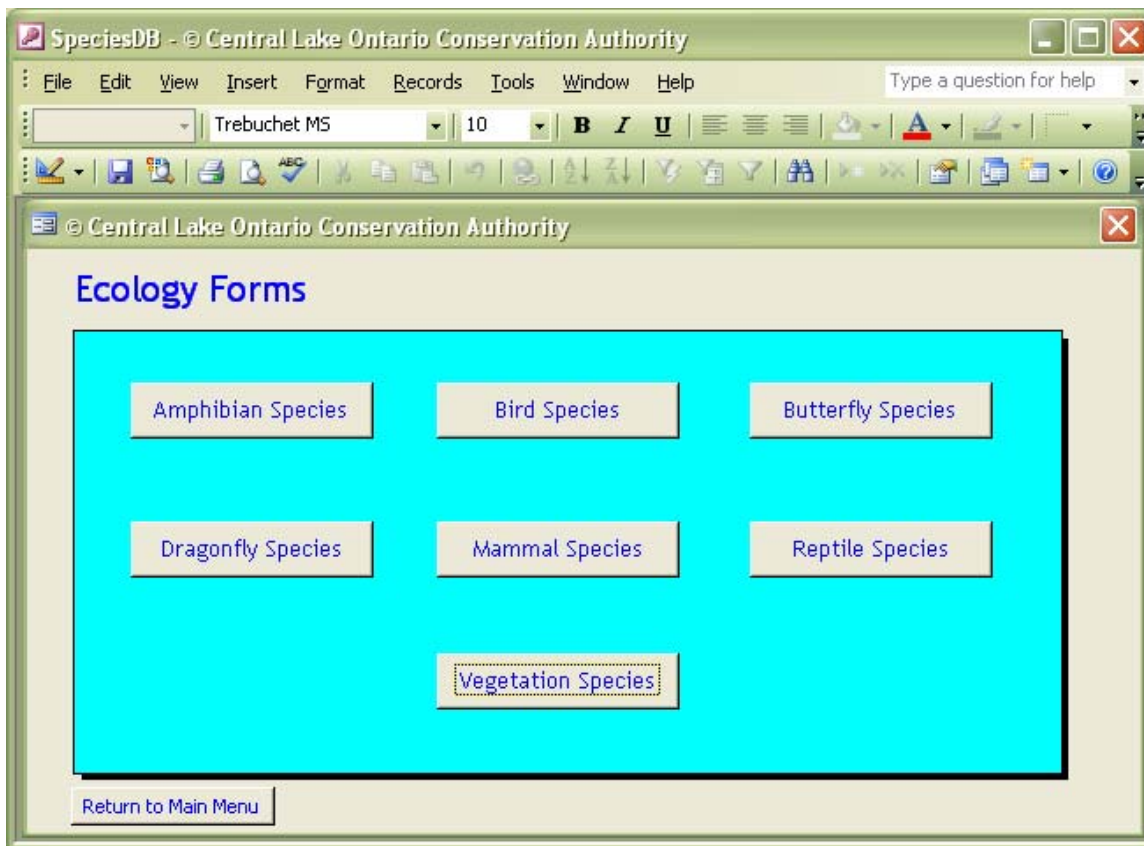
1. Database is located under  
R:\CLOCA\_Data\Databases\Species\species\_jul21\_08.mdb
2. The opening page offers 3 choices:



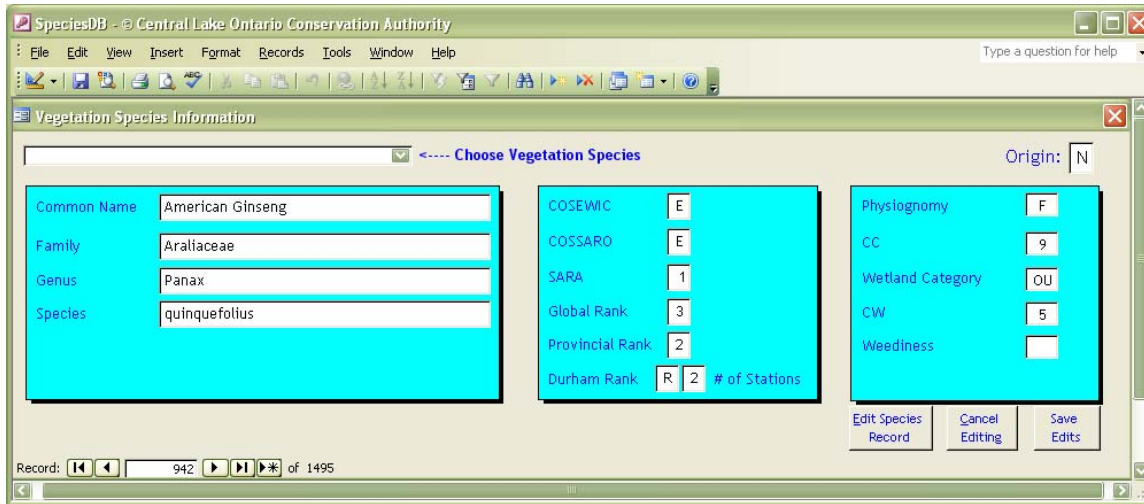
- a) Input Species Occurrence- Form used to add new observations. May also be used to locate a specific record and view data.
- b) Species Ecological Data- Contains species information such as ecology and status designations.
- c) Species Occurrence Search- Able to query database to generate a list of species by name, location or date.

### 3. Species Ecological Data

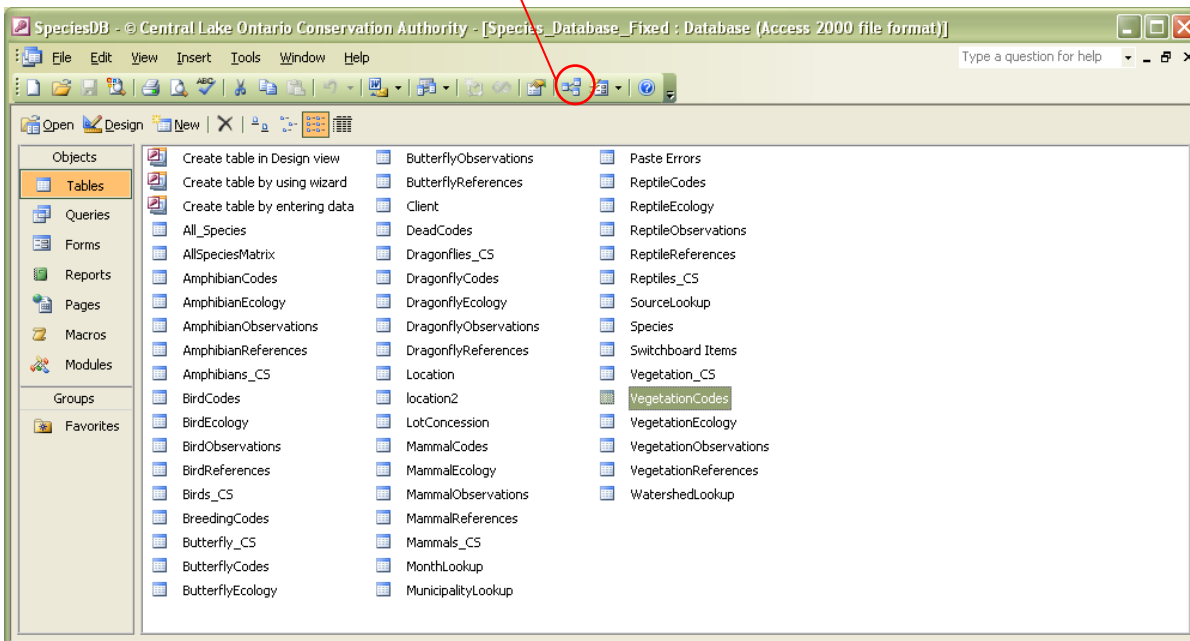
User is able to search any of the species below. For example, if searching for a plant, click on “vegetation species”.



Choose plant species using the drop down menu. All information relating to this species in the database will appear in the form. This form cannot be edited except by the administrator, so if any errors are found please note them and pass them along. *Note that for plants more than one common name may exist. The names in the database follow the NHIC nomenclature and are updated annually.*



Codes, such as E or CW, are defined in separate tables. These can be accessed by clicking on the “database window” button in the toolbar. A list of tables will appear. Any titles ending with the word “codes” will provide a description of the relevant codes.



For the vegetation example, the code table appears as follows:

ID	Field	Code	Code Meaning	Additional Code Information
1	Origin	N	Native	The plant species is native to southern Ontario.
2	Origin	E	Exotic	The plant species is not native to southern Ontario, and is considered to be exotic.
3	Physiognomy	F	Forb	The species is a herbaceous plant other than grass.
4	Physiognomy	T	Tree	The species is a woody plant that grows greater than 2 m in height (on average).
5	Physiognomy	N	Fern	The species is a pteridophyte plant.
6	Physiognomy	V	Vine	The species is a plant that grows in the form of a vine.
7	Physiognomy	G	Grass	The species is a member of the family Gramineae, with plants having jointed tubular stems, and sheathing leaves.
8	Physiognomy	S	Shrub	The species is a woody plant that grows less than 2 m in height (on average).
9	Physiognomy	D	Sedge	The species is a grass-like plant with solid, frequently triangular stems, and closed leaf sheaths.
10	Coefficient of Conservatism	0	Disturbance Tolerant	Plants ranked 0 to 3 are found in a wide variety of communities including disturbed sites.
11	Coefficient of Conservatism	1	Disturbance Tolerant	Plants ranked 0 to 3 are found in a wide variety of communities including disturbed sites.
12	Coefficient of Conservatism	2	Disturbance Tolerant	Plants ranked 0 to 3 are found in a wide variety of communities including disturbed sites.
13	Coefficient of Conservatism	3	Disturbance Tolerant	Plants ranked 0 to 3 are found in a wide variety of communities including disturbed sites.
14	Coefficient of Conservatism	4	Moderately Tolerant	Plants ranked 4 to 6 are typically associated with a particular plant community, but can tolerate moderate disturbance.
15	Coefficient of Conservatism	5	Moderately Tolerant	Plants ranked 4 to 6 are typically associated with a particular plant community, but can tolerate moderate disturbance.
16	Coefficient of Conservatism	6	Moderately Tolerant	Plants ranked 4 to 6 are typically associated with a particular plant community, but can tolerate moderate disturbance.
17	Coefficient of Conservatism	7	Disturbance Intolerant	Plants ranked 7 to 8 are found in communities in an advanced stage of succession, and have undergone only minor disturbances.

#### 4. Species Occurrence Search

This is the current search form:

It is designed to query location, species type, date, reference, and NHIC tracking. The user is also capable of selecting the fields of interest and exporting the data to an excel spreadsheet for further sorting and analysis.



When a search is run, a report is produced. The location ID, date, reference and species list are shown in the report.

- Location ID relates to a paper record stored in the database administrator’s office. Paper records will not always exist for field observations
- If date is flagged, it means that the date shown is not exact. May be a range of dates of observation or dates may be unknown. (*Comments may be viewed in “Input Species Occurrence” form or in exported excel spreadsheets*)
- Reference includes observer, date, title of document, and possibly location, IMS number or UTM coordinates.
- Species list shows species and rankings.

**Appendix C**  
**Marsh Monitoring Program - Birds**

1772450679

# Marsh Monitoring Program - Bird Survey Form

Route #  Station (A-H)  Observer #  Observer Name

\*Please print with BLOCK CAPITALS and mark each individual choice by filling in the corresponding circle.

Has the habitat on your route changed from previous years?  Yes  No  N/A



Visit1 Day  Month  Year  2000 Station Start Time (24hr)   
 Visit2 Cloud Cover (10ths)  Temperature  °C  °F Beaufort Wind Scale (0-6)   
 Precipitation  None/Dry  Damp/Haze/Fog  Drizzle  Rain Background Noise Code (0-4)

**FOCAL SPECIES**

- American Bittern (AMBI)    Black Rail (BLRA)    King Rail (KIRA)    Pied-billed Grebe (PBGR)    Virginia Rail (VIRA)
- American Coot (AMCO)    Common Moorhen (COMO)    Least Bittern (LEBI)    Sora (SORA)

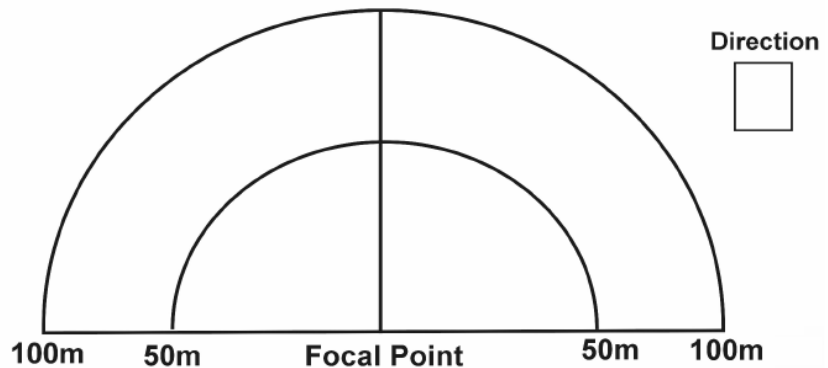
Species code	Responded During: (please fill choice circle)											Direction	Within 100 m	Detected at Previous Point	Comments	
	Before/After Survey Period	Pass. min. 0-1	Pass. min. 1-2	Pass. min. 2-3	Pass. min. 3-4	Pass. min. 4-5	LEBI min. 5-6	SORA min. 6-7	VIRA min. 7-8	MOOT min. 8-9	PBGR min. 9-10					Pass. min. 10-15
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**SECONDARY SPECIES**

**Aerial Foragers Tally**

Species	min0-5	min5-10	min10-15

**Outside/Fly-Throughs List**

**Secondary Species Summary**

Species Code	# Observed*				Species Code	# Observed*			
	min0-5	min5-10	min10-15	O/F**		min0-5	min5-10	min10-15	O/F**
				<input type="radio"/>					<input type="radio"/>
				<input type="radio"/>					<input type="radio"/>
				<input type="radio"/>					<input type="radio"/>
				<input type="radio"/>					<input type="radio"/>
				<input type="radio"/>					<input type="radio"/>
				<input type="radio"/>					<input type="radio"/>

\* #Observed = The number of individuals mapped and/or actively foraging within the sample area.  
 \*\*O/F = Outside/flythroughs (Species recorded outside the sample area or flying through the sample area without landing.)



# Marsh Monitoring Program- Bird Survey Reference Card

## Beaufort Wind Scale

Number	Wind Speed		Indicators
	Kilometres per hour	Miles per hour	
0	0-2	0-1	<b>Calm</b> , smoke rises vertically
1	3-5	2-3	<b>Light air movement</b> , smoke drifts
2	6-11	4-7	<b>Slight breeze</b> , wind felt on face
3	12-19	8-12	<b>Gentle breeze</b> , leaves and small twigs in constant motion
4*	20-30	13-18	<b>Moderate breeze</b> , small branches are moving, raising dust and loose paper
5*	31-39	19-24	<b>Fresh breeze</b> , small trees in leaf beginning to sway, crested wavelets form
6*	40-50	25-31	<b>Strong breeze</b> , large branches in motion

\* Unacceptable wind strengths for bird and amphibian surveys.



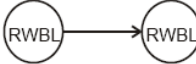


### 24 Hour Time

<u>12 Hour</u>	<u>24 Hour</u>
5:00 AM	5:00
6:00 AM	6:00
7:00 AM	7:00
8:00 AM	8:00
9:00 AM	9:00
10:00 AM	10:00
6:00 PM	18:00
7:00 PM	19:00
8:00 PM	20:00
9:00 PM	21:00
10:00 PM	22:00
11:00 PM	23:00
12:00 PM	24:00

### Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

### Mapping Symbols for MMP Bird Surveys

 Birds seen or heard Count as 1 on summary sheet.	 Family group. Count number of <u>adults</u> only.
 Change in position.	 Nest location.
 Pair together (assumed mated). If RWBL or YHBL, count 1 (male only). All other species count as 2.	<p><b>Note:</b> For Red-winged Blackbirds (RWBL) and Yellow-headed Blackbirds (YHBL), count <b>males only</b>.</p>

**Appendix D**  
**Marsh Monitoring Program - Amphibians**

# Marsh Monitoring Program - Amphibian Data Form

Return by 31 July  
Please write legibly (in pen).



## VISIT INFORMATION

Route #: \_\_\_\_\_ Route Name: \_\_\_\_\_ Station (A - H): \_\_\_\_\_

Observer #: \_\_\_\_\_ Observer Name: \_\_\_\_\_

Visit #: \_\_\_\_\_ Day: \_\_\_\_\_ Month: \_\_\_\_\_ Year: \_\_\_\_\_

Cloud Cover (10th): \_\_\_\_\_ Temperature (°C or °F): \_\_\_\_\_ Beaufort Wind Scale (0-6): \_\_\_\_\_

Precipitation (check one):  None/Dry  Damp/Haze/Fog  Drizzle  Rain

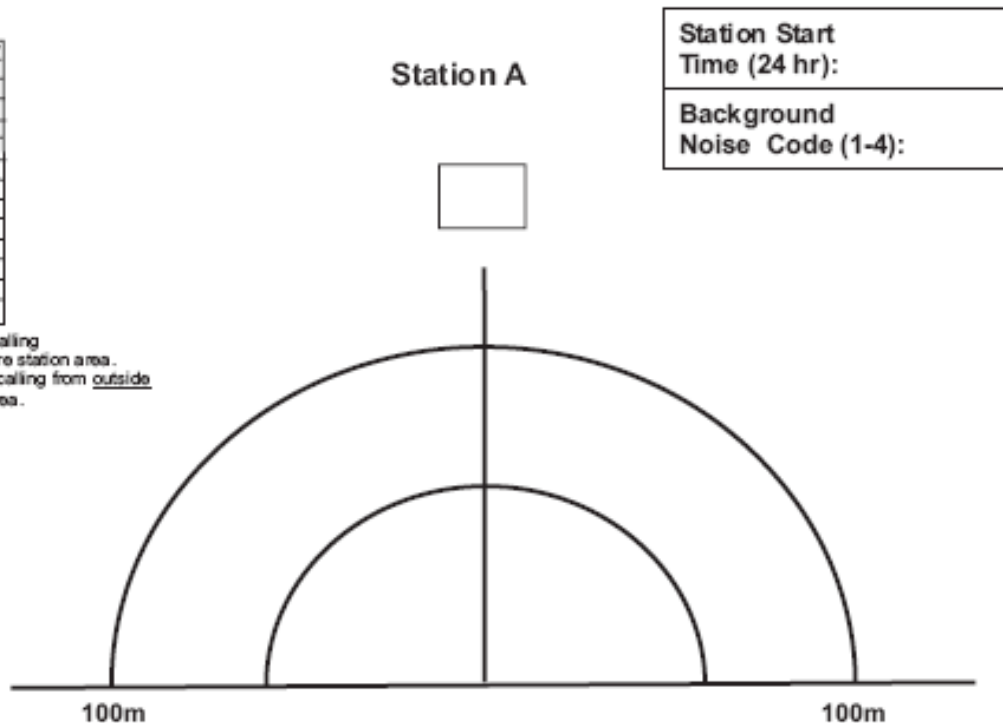
## CALL LEVEL CODES

- Code 1: Calls not simultaneous, number of individuals can be accurately counted
- Code 2: Some calls simultaneous, number of individuals can be reliably estimated
- Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Amphlrm0018.ok, rev 02/2008

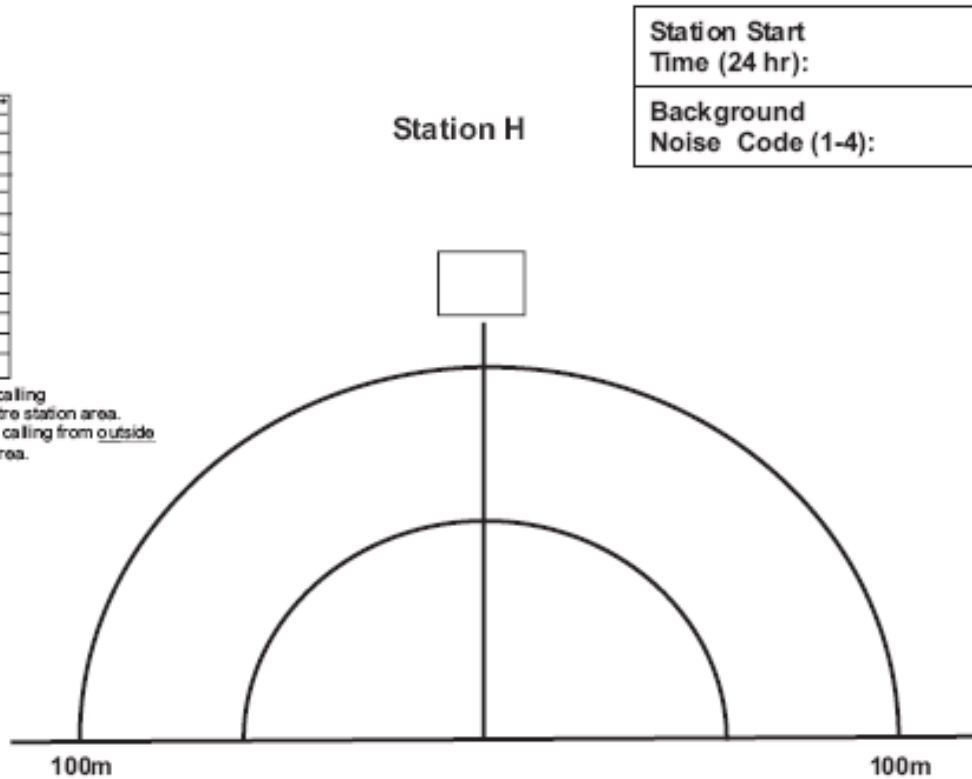
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

\* Check if species is calling from inside 100-metre station area.  
\*\* Check if species is calling from outside 100-metre station area.



Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

\* Check if species is calling from inside 100-metre station area.  
 \*\* Check if species is calling from outside 100-metre station area.



**Amphibian Species Codes**

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickrel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

**Background Noise Codes**

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

**24 Hour Time**

<u>12 Hour</u>	<u>24 Hour</u>	<u>12 Hour</u>	<u>24 Hour</u>
7:00 PM	1900	10:00 PM	2200
8:00 PM	2000	11:00 PM	2300
9:00 PM	2100	12:00 PM	2400

**Beaufort Wind Scale**

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	<b>Calm</b> , smoke rises vertically
1	3-5	2-3	<b>Light air movement</b> , smoke drifts
2	6-11	4-7	<b>Slight breeze</b> , wind felt on face
3	12-19	8-12	<b>Gentle breeze</b> , leaves and small twigs in constant motion
4*	20-30	13-18	<b>Moderate breeze</b> , small branches are moving, raises dust and loose paper

\* Winds over Beaufort 3 are unacceptable for amphibian surveys.

# Marsh Monitoring Program - Amphibian Route Summary Form



Route # \_\_\_\_\_

Observer # \_\_\_\_\_

Year **200**

\*Please print with BLOCK CAPITALS, and mark each individual choice by filling in the corresponding circle. Please use pen (not felt tip).

**\*\*Has the habitat on your route changed from previous years?**     Yes     No     N/A

Visit Information:	Day	Month	Wind Scale	Cloud Cover (10ths)	Temp	Precipitation (fill in one per visit)
Visit 1	_	_	_	_	_  °C     _  °F	<input type="radio"/> None/Dry <input type="radio"/> Damp/Haze/Fog <input type="radio"/> Drizzle <input type="radio"/> Rain
Visit 2	_	_	_	_	_  °C     _  °F	<input type="radio"/> None/Dry <input type="radio"/> Damp/Haze/Fog <input type="radio"/> Drizzle <input type="radio"/> Rain
Visit 3	_	_	_	_	_  °C     _  °F	<input type="radio"/> None/Dry <input type="radio"/> Damp/Haze/Fog <input type="radio"/> Drizzle <input type="radio"/> Rain

**Background Noise Code (0-4)**

Station Letter	A	B	C	D	E	F	G	H
Visit 1	_	_	_	_	_	_	_	_
Visit 2	_	_	_	_	_	_	_	_
Visit 3	_	_	_	_	_	_	_	_

**Notes:** Please fill the "Yes" circle for each station surveyed during the visit, please leave blank for any station not surveyed.  
 If no species were heard place a "0" in the count field for "No Calls Heard".  
 In column "CC" please print the maximum Calling Code (1-3) for the species.  
 For CC 1 and 2, please print the total combined number of individuals heard under **Count**.  
 Fill in the "In" circle if an individual of the species was calling within 100m.

Visit	Station Surveyed	A		B		C		D		E		F		G		H	
		CC	Count	CC	Count	CC	Count	CC	Count	CC	Count	CC	Count	CC	Count	CC	Count
<b>1</b>	Station Start Time (24 hr)																
	Species Name																
	No Calls Heard (Code 0)																
	American Toad																
	Blanchard's Cricket Frog																
	Bullfrog																
	Chorus Frog																
	Cope's Gray Treefrog																
	Fowler's Toad																
	Gray Treefrog																
	Green Frog																
	Mink Frog																
	Northern Leopard Frog																
	Pickerel Frog																
	Spring Peeper																
	Wood Frog																

## **Appendix E Salamander Monitoring**



## **Appendix F Duck Nest Box Guide**





# Build a duck nest box

Wood ducks, Barrow's goldeneyes, common goldeneyes, hooded mergansers, common mergansers and buffleheads are all cavity nesting ducks. They build nests in abandoned woodpecker holes or natural tree cavities caused by disease, fire or lightning. These ducks will also use a constructed nesting box. Here are plans for a nest box that you can build, install and maintain. The design, which is used by the Ducks Unlimited Greenwing program, may even attract other cavity nesting birds such as kestrels, tree swallows, great crested flycatchers or screech owls.

## Cedar is ideal\*

Cedar lumber is recommended because it is naturally resistant to weather and insects. You can also use any materials you have available such as pine or plywood. The box pictured uses 10.5 linear feet of 1" X 10" (3/4" thick by 9 1/4" wide) lumber that is rough on one side (for the inside of the box). \*Ducks Unlimited staff in the interior of British Columbia indicate that plywood boxes better withstand the region's temperature extremes.

## Finishing touches

Ducks Unlimited does not recommend applying a finish to cedar boxes. A finish might help to extend the life of a plywood box.

If you decide to apply a finish to your nest box, use a nontoxic wood preserver or a light shade of an earth tone paint. The ducks will find your box by seeing the contrast in color caused by the entry hole. Do not apply finish inside the box.

Cavity nesting ducks do not carry nesting materials. It's important to help them out by placing four to six inches of wood shavings in the bottom of the box. You can find wood shavings at your local pet or farm supply store. Do not use sawdust. It can suffocate ducklings.

Every year, in the fall after the nesting season has completed or in the winter, clean out old nesting material from the box and replace it with a fresh layer of wood shavings. This annual cleaning needs to be a part of your long-term maintenance commitment once you place your nest box.

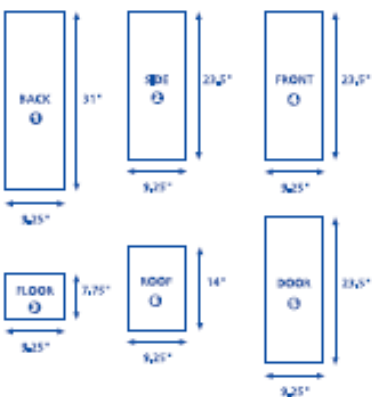


Constructing and placing a nest box is a fun project that brings years of enjoyment. Above: this pole mounted nest box features a conical metal predator guard. Below: wood duck drake.

## PROCEDURE

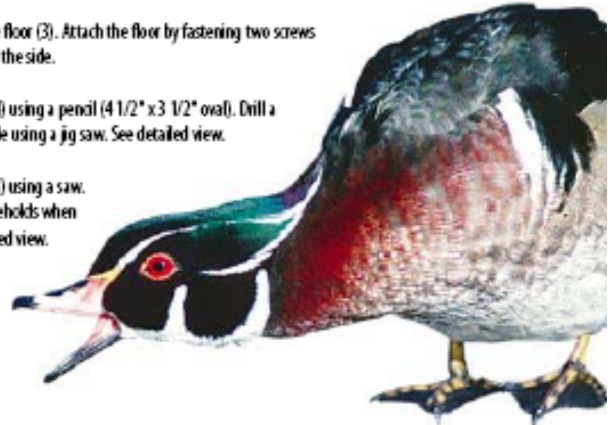
Tools needed: handsaw or table saw, drill and 1/2" bit, jigsaw, screwdriver, sandpaper, pencil, measuring tape, straight-edge

## MATERIAL MEASUREMENTS - not to scale



- 1) Measure and cut your wood to produce the six pieces. Number the pieces as shown. See material measurements.
- 2) Attach the back (1) to the side (2) using four screws fastened from the back of the box. See exploded view (next page).
- 3) Drill five 1/2" drainage holes in the floor (3). Attach the floor by fastening two screws through the back and two through the side.
- 4) Draw the entry hole on the front (4) using a pencil (4 1/2" x 3 1/2" oval). Drill a pilot hole and cut out the entry hole using a jig saw. See detailed view.
- 5) Score the inside face of the front (4) using a saw. The horizontal slots will provide toeholds when the ducklings climb out. See detailed view.

continued...



# Finding the right place

Now that you've completed construction of your nest box, you need to consider where to install it. Be sure to place the box in a location that will be convenient for monitoring and annual maintenance.

## Where to find tenants

To increase the chances of your nest box being used by waterfowl, it should be located in an area attractive to cavity nesting ducks. You'll see these birds using wooded wetlands that contain water year round or, at least, throughout the summer. You'll also see them using trees along riverbanks and lake shorelines.

## Positioning your nest box

Nest boxes can be mounted on tree trunks or on steel poles beside the water or above the water.

*Good placement* a dead tree at the water's edge

*Better placement* a solid dead tree in the water

*Best placement* boxes on poles near standing, flooded, dead trees

Live trees can be used for mounting boxes, but keep a close eye on your box. Growing trees may loosen mounts and make boxes less attractive to the birds.

### Tree Trunks

Live and dead trees are suitable. If beavers are about, don't place nest boxes on poplar or white birch trees. Beavers eat these trees.

### Steel Poles

Make sure the poles are fixed solidly in the soil, or marsh bottom, to ensure that the nest boxes are stable. Drill two holes in this pole to accommodate a predator guard (see below).

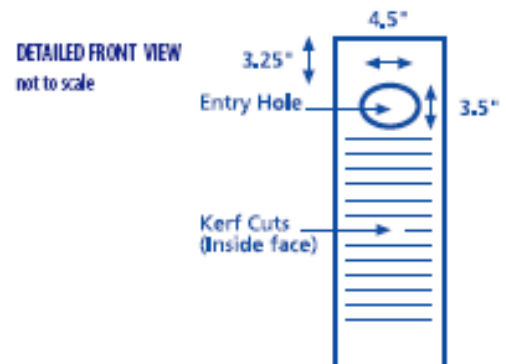
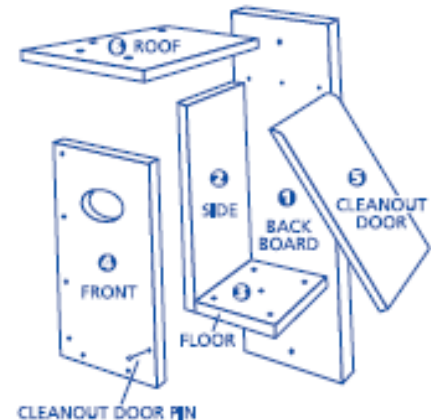
- Boxes should be placed above typical high water levels and at a height that will allow you to access the box for monitoring and maintenance (about 4 to 6 feet above land or water). In terms of distance inland, try to keep your box close to the water.
- Clear an unobstructed flight path to your nest box by removing branches that might be in the way.
- The entrance hole to the box should face the water.
- You can tip the box forward a little bit to help the ducklings reach the entrance.



## PROCEDURE (continued)

- 6) Attach the front (4) using six screws.
- 7) Round the top, outside edge of the door (5). See exploded view. Fasten the door at the top with one screw from the front and one from the back. The two screws form the hinge and allow the door to open. Pin the door shut with a nail from the front.
- 8) Attach the roof (6) using four screws from the top and three screws from the back (be careful not to screw into the door). The box is now ready to install. Don't forget to put a 4-6 inch layer of wood shavings in the box for nesting material.

## EXPLODED VIEW - not to scale



## Predator Guards

A predator guard will help to improve the chance of a successful hatch by preventing egg-eating raccoons from entering your nest box.

### 1) Steel Sheet Sandwich

36" X 49" sheet of 28 gauge steel

- Fold the sheet in half along the 49" length, creating a front and a back, each 24" wide
- Along one 36" side, make a 1" fold towards the inside centre
- Drill two holes, 34" apart (see diagram)
- Place your guard so it surrounds the pole or tree trunk. Slip the unfolded side under the 1" fold. Using vice-grips, bend the corners in to lock these pieces and prevent the guard from opening.
  - *Pole mount:* bolt the guard into place about 2" below the nest box.
  - *Tree mount:* nail the guard in place – if the tree is alive, check the guard often to ensure tree growth hasn't popped the guard off.

### 2) Plastic Pipe Guard

Metal or plastic pipe (stove pipe, sewer pipe) drilled at the top and bottom and bolted to the tree or pole makes an effective predator guard. To prevent small rodents from crawling through, place a crumpled piece of chicken wire between the pole and the guard.

### 3) Plastic "Crazy Carpet" Guard

A new use for children's inexpensive plastic snow riders located in any toy store. Wrap the carpet around the tree and tack it in place. Be sure to provide room to grow if you place this guard on a living tree.

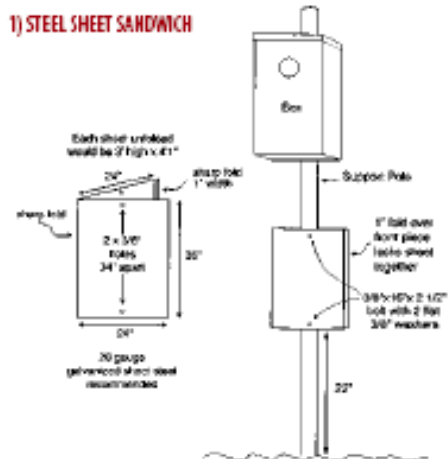
## Nest box maintenance — a long-term commitment

Once a cavity nesting bird starts using your box, you'll likely see many broods raised over the years. Nesting sites for these birds are limited in number. When they find a good nesting site, there is a very good chance they'll return in following years. When you put up a nest box you are committing yourself to maintaining that box. Fall and winter are the best times to remove old nesting material, tighten any loose screws and mounts, and add new wood shavings.

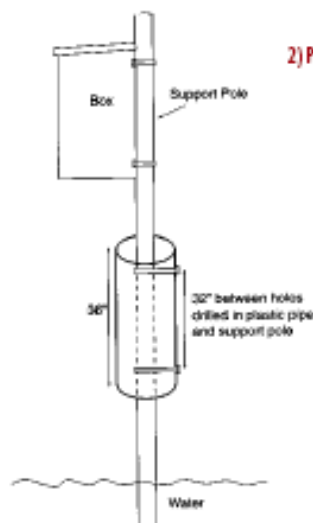
If you don't have any ducks using your box over the summer, don't worry. Waterfowl biologists have seen waterfowl migrating in the fall scope out potential nesting sites for next spring. This too is a good reason to keep your boxes in top condition. You never know when somebody might be popping in!

This information has been compiled from the *Nest Box Guide for Waterfowl* by Ducks Unlimited and the Canadian Wildlife Service, Environment Canada; and a Conservator article (Vol. 19, No. 3) by Meard Rooney.

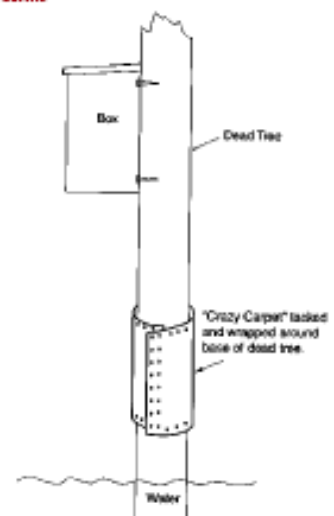
### 1) STEEL SHEET SANDWICH



### 2) PLASTIC PIPE GUARD



### 3) CRAZY CARPET GUARD



**Appendix G**  
**Road Mortality Data Sheet**

**Road Mortality Data Sheet**

Surveyor: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Weather Conditions: \_\_\_\_\_ Previous Weather Conditions: \_\_\_\_\_

Animal	Quantity	Zone	Northing	Easting	Notes
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			
		17			

**Appendix H**  
**Canada Goose/Mute Swan Control**



## CLOCA Egg Oiling Data Sheet

Location: \_\_\_\_\_

Date (dd/mm/yyyy): \_\_\_\_\_

Field Crew: \_\_\_\_\_

Time: \_\_\_\_\_ Visit #: \_\_\_\_\_

Notes: \_\_\_\_\_

Oil Type: \_\_\_\_\_

#	Species	UTM Coordinates (NAD83)			# of Eggs Oiled	Comments
		Zone	Easting	Northing		
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				
		17				



Environment Canada / Environnement Canada

# CANADIAN WILDLIFE SERVICE - PERMIT PERMIS - SERVICE CANADIEN DE LA FAUNE

Permit to/for Permis de/pour <b>DAMAGE</b>		Permit no. No de permis <b>DA 2523</b>
Organization Organisation <b>Central Lake Ontario Conservation Authority</b>	Issued under section Délivré en vertu de l'articles <b>26(1)</b>	of de <b>MIGRATORY BIRD REGULATIONS</b>
Surname Nom de famille <b>Scott</b>	Name Prénom <b>Jackie</b>	Department Département <b>Manager</b>

100 Whiting Avenue  
Oshawa On  
L1H 3T3

Date of issue Date d'émission <b>April 01, 2008</b>	Date of expiry Date d'expiration <b>July 31, 2008</b>
---	---

Signature of holder Signature du détenteur 	For the minister Pour le ministre 
---	--

## Special Conditions - Conditions spéciales

1. This permit authorizes the permittee to spray oil - to wit: Mineral, Corn or Vegetable Oil - on Canada Goose and Mute Swan eggs, as located on properties owned or managed by Central Lake Ontario Conservation Authority situated at:

Cranberry Marsh (Lots 33 & 34, Broken Front Concession; Town of Whitby; R.M. of Durham); and  
Westside Marsh (Lots 12 & 13, Broken Front Concession; Town of Clarington; R. M. of Durham).

2. Oils will be applied according to the instructions as specified in the following label (Attachment 1).
3. Permittee is to advise the local Ministry of Natural Resources (OMNR) of the programme.
4. The spraying of eggs located in nests as found on private properties shall only take place with the landowner's permission.
5. Nests shall not be destroyed or damaged. Live birds may not be killed or injured.
6. Permittee and nominee shall have the permit or a copy on their person while carrying out any activity under the permit and shall produce or surrender it for inspection when requested by an officer.
7. Permit holder shall by January 15, 2009 submit, in writing, a report indicating the results of the programme to the Canadian Wildlife Service, 867 Lakeshore Blvd., Burlington, ON., L7R 4A6.
8. Nominees authorized to act under this permit are:  
Satu Peranen, Ian Kelsey and Jamie Davidson, and employees of Central Lake Ontario Conservation Authority acting under the direction of the permittee.

Environment Canada / Environnement Canada



Canada

CLOCA  
03-04-2008  
NWLGCIO  
RECEIVED



**Attachment 1: Conditions of Use For:**

**WHITE MINERAL OIL, VEGETABLE OIL, CORN OIL**

For the prevention of egg hatch in the following waterbirds protected under the Migratory Birds Convention Act 1994:

- Herring Gulls
- Ring-billed Gulls
- Great Black-backed Gulls
- Glaucous-winged Gulls
- Canada Geese
- Mute Swans

**CONDITIONS OF USE:**

**1. Quality of Mineral Oil, Vegetable Oil, and/or Corn Oil:**

The oil used for application must be a food grade oil, as per the Food Chemicals CODEX. The mineral oil should be identified by the CASRN 8042-47-5.

**2. Nature of Restriction:**

For use only by people who hold a valid permit issued by the Canadian Wildlife Service to prevent egg hatch in the above listed waterbirds protected under the Migratory Birds Convention Act 1994.

Any further restrictions placed by Canadian Wildlife Service must be followed.

**3. Required Directions for Use:**

Users must take note of the following information and use the product as follows:

**PRECAUTIONS**

- DO NOT ingest.
- DO NOT inhale/breathe the spray mist.
- DO NOT get in eyes.
- DO NOT get on skin.

Wear protective goggles, mist filter, long-sleeved shirt, pants, shoes, and socks whenever handling and loading mineral oil, vegetable oil, and/or corn oil and when performing

clean-up and maintenance activities.

Stay upwind of the mineral oil, vegetable oil, and/or corn oil during application.

All clean-up and maintenance activities should be performed in a well ventilated area, preferably outdoors.

Wash skin thoroughly with soap and water after handling mineral oil, vegetable oil, and/or corn oil.

Remove clothing if contaminated by splash or spill.

Store and wash contaminated clothing separately from household laundry.

Do not apply or allow to drift to areas occupied by plants or animals, other than those targeted. Keep this product out of aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands, and estuarine / marine habitats). DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

#### **DIRECTIONS FOR RESTRICTED USE**

Only to be applied directly to the eggs.

Monitor waterbirds for nest building and egg laying activity when the birds arrive in early spring. Applications of a food grade oil should begin as soon as a large percentage of the clutches are complete.

**GROUND APPLICATION ONLY.** Apply the oil directly to the eggs until wet. Thorough coverage of the eggshell with oil is essential for the effective prevention of egg hatch in waterbirds. Keep monitoring new nests every 7 to 12 days after initial application. Apply oil to new nests containing eggs, until no new nests are constructed.

Further instructions and restrictions provided under a valid Canadian Wildlife Service permit must be followed.

#### **FIRST AID**

**IF SWALLOWED (vegetable oil or corn oil):** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

**IF SWALLOWED (mineral oil):** Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth

to an unconscious person.

**INHALED:** Remove victim to a safe, uncontaminated area with fresh air. Rest. Keep warm. If breathing is shallow, give oxygen. Contact a physician or poison control centre immediately. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for further treatment advice.

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

**GENERAL:** Take label with you when seeking medical advice.

#### **TOXICOLOGICAL INFORMATION (MINERAL OIL)**

Product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

#### **TOXICOLOGICAL INFORMATION (VEGETABLE OR CORN OIL)**

Treat symptomatically.

#### **DISPOSAL**

1. Make the empty container unsuitable for further use.
2. Dispose of the container in accordance with provincial requirements.
3. For information on disposal of unused, unwanted product, contact the provincial regulatory agency. Contact the provincial regulatory agency in case of a spill, and for clean-up of spills.

**Appendix I**  
**NHIC Data Sharing Agreement**

## **Natural Heritage Information Exchange Agreement**

**BETWEEN:** Central Lake Ontario Conservation Authority (CLOCA) [herein referred to as the AGENCY]

**AND:** Jackie Scott [herein referred to as the DETAILED USER]

**AND:** The Ontario Ministry of Natural Resources  
(Natural Heritage Information Centre)

### **OBJECTIVE:**

The objective of this Agreement is to establish a framework of cooperation between the Participants respecting the management of natural heritage information (including data sharing, data standards and data collection) in the CLOCA Jurisdiction [herein referred to as the JURISDICTIONAL AREA].

### **1. TERMS**

1.1. On the condition that [AGENCY/DETAILED USER] adhere to the Natural Heritage Information Centre Data Use Protocol (Schedule A), and any and all terms and conditions of an agreement of which this Agreement is a Schedule, the Natural Heritage Information Centre (NHIC) of the Ontario Ministry of Natural Resources (MNR) will provide:

- i. Detailed access for a [AGENCY/DETAILED USER] to the NHIC Internet Web Site, limited to the [JURISDICTIONAL AREA], provided the [AGENCY] has a [DETAILED USER] on staff who meets all of the qualifications outlined for detailed users in Schedule A, including certification at an NHIC Data Sensitivity Training Workshop;
- ii. Access for [DETAILED USER] to NHIC manual files and databases pertaining to [JURISDICTIONAL AREA] on-site at the NHIC office in Peterborough, provided that a mutually convenient appointment is made in advance of such a visit by the [AGENCY/DETAILED USER].

- i. Annually or more frequently provide to NHIC a copy of all updated element occurrence and vegetation community data, including natural areas data, for the [JURISDICTIONAL AREA], acquired or compiled by the [AGENCY];
- ii. Provide to NHIC copies of natural heritage, ecological and biological reports, maps and digital mapping produced by [AGENCY/DETAILED USER];
- iii. Whenever possible, make special efforts to validate and update known element occurrences in the [AGENCY/DETAILED USER] jurisdictional area; and
- iv. Provide reasonable access to, and use of, [AGENCY/DETAILED USER] resource materials (including digital and hard copy mapping of CA properties, and digital and manual species, community and natural areas files, land ownership information, aerial photographs and other map products) for NHIC/MNR staff who are conducting field surveys (to document or verify element occurrences or evaluate natural areas) in the [AGENCY/DETAILED USER] jurisdictional area, provided that a mutually convenient appointment is made in advance of such a visit by NHIC/MNR staff.

1.3. Individuals with responsibility for the business process of this Agreement are identified in Schedule B.

## 2. CONDITIONS

Data sharing under this agreement shall be in accordance with the Natural Heritage Information Centre Data Use Protocol (Schedule A). Detailed access to the NHIC database is provided on the condition that the signatories of this agreement have read and understood the Schedule A and will adhere to the Natural Heritage Information Release and Data Security Policy as follows:

### *NHIC/MNR Natural Heritage Information Release and Data Security Policy*

1. This Agreement between the Crown in right of Ontario as represented by the Minister of Natural Resources (Natural Heritage Information Centre) (NHIC/MNR) and [AGENCY/DETAILED USER] is non-transferable.
2. This Agreement between the NHIC and [AGENCY/DETAILED USER] is revocable by NHIC/MNR if the [AGENCY/DETAILED USER] does not adhere to the terms, conditions, restrictions and policies outlined in this Agreement.
3. The Participants acknowledge that data exchanged in this Agreement are sensitive and are provided only for purposes related to the protection, management, conservation and public awareness of the elements.

4. The Participants acknowledge that protection and conservation of the elements must take precedence over public awareness in circumstances where these uses of the data appear to conflict.
5. The user [AGENCY/DETAILED USER] agrees to apply the data in a manner that does not result in the contravention of Ontario's Endangered Species Act, Fish and Wildlife Conservation Act, the Provincial Policy Statement (1996) and federal endangered species legislation. Should such contravention occur, the [AGENCY/DETAILED USER] acknowledge that their access to the data may be withdrawn, this Agreement revoked, and that they may face prosecution.
6. [AGENCY/DETAILED USER] acknowledges that absence of information provided by NHIC/MNR for a given geographic area, or lack of current information for a given area or element, does not categorically mean the absence of sensitive species or features. The user acknowledges that the quantity and quality of data collected by the NHIC/MNR are dependent on the research and observations of many individuals and organisations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. For these reasons, the NHIC/MNR cannot provide a definitive statement on the presence, absence or condition of biological elements in any part of Ontario. NHIC/MNR reports summarise the existing natural heritage information known to the NHIC/MNR (at the time of the request). NHIC/MNR data should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The user therefore acknowledges that the absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. New and updated information is continually being added to the NHIC/MNR databases.
7. The user acknowledges that accuracy of the data is time-limited. NHIC/MNR does not guarantee the currency of the data provided. Although every effort has been made to verify the information, the NHIC/MNR makes no guarantee with respect to the accuracy of the data provided, and accepts no responsibility for decisions made based on the information supplied.
8. The user acknowledges that data provided by NHIC/MNR may not be further disseminated or modified without prior written consent from authorised NHIC/MNR staff (Schedule B). Unauthorised reproduction, modification, or dissemination may violate copyright held by the Queen's Printer of Ontario or data sharing agreements with partners of the NHIC/MNR.
9. The user acknowledges that if information provided by the NHIC/MNR is used in the preparation of a report or other document (including maps, charts, presentation

materials and other visual products), the Ontario Ministry of Natural Resources and the Natural Heritage Information Centre will be prominently acknowledged at the beginning of the document. In some cases, in accordance with data sharing agreements between the NHIC/MNR and other agencies or partners (Schedule A, Appendix A), it may also be necessary to acknowledge the NHIC/MNR's supplier of the information.

10. As new data sharing agreements regarding natural heritage information are formalised between NHIC and its partners, they may be appended to Schedule A, Appendix A of this Agreement.
11. By signing this Agreement, [AGENCY/DETAILED USER] acknowledges, and will adhere to, restrictions on data use outlined in agreements NHIC/MNR has signed with data suppliers as listed in Schedule A, Appendix A. The user agrees to consult NHIC/MNR prior to publication of reports or other documents to ensure that copyright or other restrictions on the use of data are not being violated.
12. The user agrees to supply at least two copies of any report or document using NHIC/MNR data to NHIC and one to the appropriate MNR District Office.
13. The signatories of this agreement shall hold each other harmless against any claims by third parties.
14. The [AGENCY] acknowledges that responsibility for data use will be restricted to their designated staff [DETAILED USER] (ecologist, or equivalent) who has undergone and received certification at a Data Sensitivity Training (DST) workshop at the NHIC/MNR. Any use of sensitive data by staff who have not undergone DST will be done under the direct supervision of DST-certified staff. Failure to comply may result in the cancellation of this Agreement and return of data to NHIC/MNR.
15. NHIC/MNR reserves the right to withdraw [AGENCY/DETAILED USER]'s access to NHIC/MNR data in the event of use of the data for any purposes other than protection, management, conservation or public awareness of the elements of concern by [AGENCY] staff.
16. The MNR does not condone the physical (in situ) collection of natural heritage data on private property without prior consent of the landowner. The MNR and NHIC/MNR assume no liability for data (or use of data) acquired on private lands without landowner permission.
17. The user acknowledges that access to sensitive natural heritage data relating to a feature on private land does not imply a right to enter onto private land to inspect or monitor the feature without landowner permission.



18. [AGENCY/DETAILED USER] acknowledges that MNR district staff (ecologist/GIS specialist) are the first contact for validation, clarification and update for data provided by NHIC/MNR. NHIC staff are to be contacted only when MNR district staff are unable to assist with a specific question.
19. Whenever possible, [AGENCY/DETAILED USER] agrees to verify, update and correct any inaccuracies in the data provided by NHIC/MNR, by providing updates to NHIC/MNR every 12 months, or more frequently.
20. [AGENCY/DETAILED USER] and NHIC/MNR shall review the agreement every 24 months or more frequently and, if necessary, modify this agreement to the satisfaction of the signatory parties.
21. The [AGENCY/DETAILED USER] agrees to provide a list of projects for which NHIC-provided data has been used, every 24 months or more frequently, using a standard information request spreadsheet (Schedule A, Appendix B).
22. The [AGENCY/DETAILED USER] agrees to immediately report to NHIC any suspicious information requests for sensitive data (i.e., requests that may be used for illegitimate or illegal purposes, such as collection of threatened or endangered species for commercial purposes).
23. [AGENCY/DETAILED USER] agree to notify NHIC/MNR within one business day should the [DETAILED USER]'s employment terminate at [AGENCY] for any reason, or should the [DETAILED USER]'s duties at [AGENCY] change such that the [DETAILED USER] is no longer the appropriate individual at [AGENCY] to be responsible and accountable for detailed access and use of the natural heritage data provided by NHIC/MNR as part of this Agreement.
24. By signature on this Agreement, [AGENCY/DETAILED USER] accepts all the terms and conditions of this agreement without exception, deletion or alteration. The [AGENCY/DETAILED USER] recognises that any use or release of the data not authorised by this Agreement will be considered a breach of this Agreement. Upon breach, the [AGENCY/DETAILED USER] agrees to return all data included in this agreement to NHIC/MNR and use of the data shall be unlawful and constitute unauthorised use.


**3. Effective Date and Termination**

This agreement will remain in effect from the date of latest signing, until such time as the Parties mutually agree to amend, or terminate the Memorandum; alternatively, should one party fail to comply with the provisions of this agreement, the other party may unilaterally terminate the agreement.


This agreement may be amended to reflect new or supplementary statements of intent, that relate to the acquisition, maintenance, application, and/or dissemination of natural heritage information.

IN WITNESS WHEREOF the parties have signed this Memorandum of Agreement, effective on the latest date appearing on this approval page.

Signed on behalf of their Parties by their designated representatives.

  
\_\_\_\_\_  
On behalf of the Minister of Natural Resources,  
Brian J. Maloney, A/Director, Information Resource Management Branch,  
Ontario Ministry of Natural Resources

January 24/06  
Date

  
\_\_\_\_\_  
On behalf of the [AGENCY],

Dec 5, 2005  
Date

  
\_\_\_\_\_  
[Certified DETAILED USER]

Dec 5, 2005  
Date