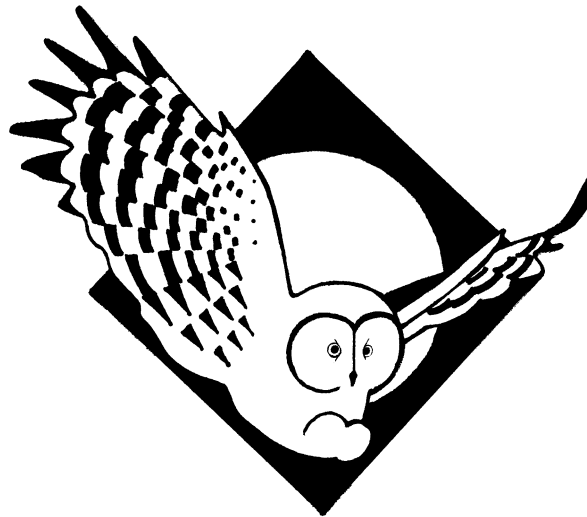


# ONTARIO NOCTURNAL OWL SURVEY

## **NOCTURNAL OWL SURVEYS IN NORTHERN ONTARIO: A CITIZEN SCIENTIST'S GUIDE**



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## **CITIZEN SCIENTIST'S GUIDE FOR CONDUCTING OWL SURVEYS IN NORTHERN ONTARIO**

### **INTRODUCTION**

This citizen scientist's guide contains detailed instructions for the Ontario Nocturnal Owl Survey. The current protocol used for this survey is based on data collected by volunteers from 1995-1999 during the Nocturnal Owl Pilot Study. We used these data to develop the best protocol based on science and optimal volunteer recruitment and retention. Many thanks to all the citizen scientists who have helped with this study in the past and who are continuing to participate this year.

### **On-line Resources**

For survey protocols, data sheets, and our latest Newsletter visit: [birdscanada.org/on\\_owl](http://birdscanada.org/on_owl). Additional resources, MP3 files and on-line data entry are available via the **Volunteer Portal** hosted on NatureCounts and can be accessed via the main website or directly at [birdscanada.org/birdmon/onowls](http://birdscanada.org/birdmon/onowls). Please note that the volunteer portal contains publicly available information as well as secure resources for program volunteers. To see and access all the materials available on the **Volunteer Portal** you will need to create a login name and profile and then request access - which takes about a business day for approval.

For additional images and audio recordings of owls, volunteers are encouraged to check out the new Nature Instruct website [natureinstruct.org/](http://natureinstruct.org/); Xeno-Canto [xeno-canto.org/](http://xeno-canto.org/) or All about Birds [allaboutbirds.org/](http://allaboutbirds.org/).

At least one week prior to conducting your survey, please ensure that you have all the necessary equipment (see checklist on page 6). Feel free to contact Birds Canada if you have any questions.

### **To volunteer contact:**

Kathy Jones, Volunteer Coordinator,  
[volunteer@birdscanada.org](mailto:volunteer@birdscanada.org), 1-888-448-2473 ext. 124



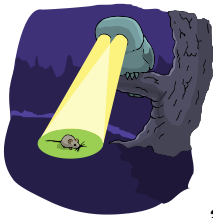
### **What is a citizen scientist?**

A Birds Canada citizen scientist is a volunteer who dedicates their time and observations to scientific research projects supporting bird conservation. Citizen scientists' voluntary efforts are essential and contribute to the conservation and preservation of Canada's wild birds and their habitats. Thanks for being a citizen scientist!

## BACKGROUND

For more than 25 years the Ontario Nocturnal Owl Survey has been a reliable source of data on owls found in Ontario's Central and Northern Forests. The Ontario Ministry of Natural Resources (OMNR) requires information on owl populations, because they may be sensitive to habitat change and forest fragmentation. In partnership with OMNR, Birds Canada is coordinating a provincial survey to monitor owl populations.

Owls are notoriously difficult to count. They are secretive, primarily nocturnal, and roost in concealed locations during the day. Consequently, Ontario's owl populations are not adequately monitored through existing monitoring programs (e.g. Breeding Bird Survey, Forest Bird Monitoring Program, Migration Monitoring Program). Playback of recorded songs has been used to census a variety of bird species, and is a particularly useful technique for secretive, nocturnal birds that cannot otherwise be reliably surveyed. Due to the territorial behaviour of owls, songs broadcast within an owl's territory may elicit a vocal or visual response by the resident owl in an attempt to defend its territory against an intruder. This method can be used to survey a number of owl species.



The Ontario Nocturnal Owl Survey, initiated in 1995, uses volunteers to conduct standardized roadside surveys in forested areas in central and northern Ontario. The goal of the survey is to monitor owl populations in Ontario through a network of citizen scientists. The primary target species for this survey are *Great Gray*, *Barred*, *Boreal*, and *Northern Saw-whet* owls. However, all owl species encountered during the survey are recorded.

Owl Surveyors are also asked to record any Ruffed Grouse, Common Snipe, and American Woodcock that are seen or heard along their route. Although Ruffed Grouse, Snipe, and Woodcock are not nocturnal, they are *crepuscular*, which means they are most active in the evening and at dawn. Consequently, these species are also poorly monitored by other bird surveys. You are most likely to hear these species at the first few stops along your owl route. A training CD is available to new surveyors to help them become familiar with the various calls. The same training files are available in MP3 format on the Volunteer Portal.

## SURVEY METHODOLOGY

The protocol for this survey is similar to other roadside surveys using playback. A team of two volunteers drives a pre-determined route, stopping at fixed intervals along the roadside. At each stop, the assistant plays a CD or MP3 broadcast file consisting of a standardized 2-minute silent listening period followed by pre-recorded calls of two owl species alternating with timed listening periods. The surveyor is responsible for identifying all owls, Ruffed



Grouse, Snipe, and American Woodcock heard or seen during each listening period and recording this information on the data forms provided.

Surveys begin one half hour after sunset and take approximately 3 hours to complete (not including travel time to and from the survey route). Surveyors are asked to run each route once, on any evening in the month of April.



We do, however, encourage you to run your route early in April (i.e. in the first two weeks) in order to avoid problems with frogs (e.g. loud choruses drowning out owl calls) and/or spring runoff or meltwater problems.



**Map of Ontario showing the study area boundaries for the Ontario Nocturnal Owl Survey.** All routes north of the 47<sup>th</sup> parallel use the northern Ontario protocol and all routes south of the 47<sup>th</sup> parallel use the central Ontario protocol.

Two different survey protocols are used, one for **northern Ontario**, where the main target species are Great Gray Owl and Boreal Owl, and another for **central Ontario**, where the main target species are Barred Owl and Northern Saw-whet Owl. The 47<sup>th</sup> line of latitude is used as the boundary between these study areas (see map on page 3). In general, the southern edge of the Canadian Shield defines the southern limit of the central Ontario study area, but a few routes are located south of this boundary.





The Northern Ontario survey uses the *ONOWls-Northern\_Broadcast* file to conduct the survey. A CD copy of the broadcast file is issued with your original survey kit and the [\*ONOWls-Northern\\_Broadcast\*](#) is also available on the Volunteer Portal as an MP3. Please use one of these two versions as this helps ensure a standard file is used. The [\*ONOWls-Northern\\_Broadcast\*](#) file is just under five minutes long and contain one set of Boreal Owl calls and one set of Great Gray Owl calls. The owl calls are preceded by two minutes of silent listening (divided by quiet beeps into one-minute intervals)..






This guide contains detailed instructions for the **northern Ontario survey protocol only**. Check the map above to make sure that you have the correct guide, data sheets, and broadcast for your region. Both the surveyor and assistant should be familiar with the protocol before attempting the first survey. **Please take care of your CD and hold on to it for future surveys.** The CD should last several years but if it no longer provides a quality sound or no longer functions please request a new one

## GETTING READY

In preparation for your owl survey, you need to:

-  Make sure you have the current participant's kit for your area. Each kit includes this instruction booklet, data forms, a tax relief application, and a return envelope for returning your data forms. Training and broadcast CDs are provided for new surveyors only, but are available upon request. The survey methods and participant's kit have changed slightly over the years, so be sure to use the most current booklet.
-  Carefully read over the information in this participant's guide and become familiar with the survey methods and data forms.
-  If you are a new participant, listen to the training CD to be sure you can identify any owl, Ruffed Grouse, Snipe, and American Woodcock calls you might hear. Pay close attention to the various vocalizations of the four target owl species (Great Gray, Boreal, Northern Saw-whet, and Barred owls).
-  Check your broadcast equipment **BEFORE** your survey by carrying out the simple test outlined in the box on page 7.

It's also important that you:

-  Find a partner to accompany you.
-  Scout your route during daylight hours.
-  Call us if you have any questions (1-888-448-BIRD)

## FINDING A SURVEY ROUTE

**Survey routes in northern Ontario consist of a minimum of 10 stops and a maximum of 20 stops spaced 1.6 km apart as the crow (or owl) flies.** The total route length therefore ranges from **16 km to 32 km (or longer if the road is quite curved).** We currently have close to 130 routes in Northern Ontario, and most of our 'target areas' have been filled. In fact, we are running out of roads in some places for people to do owl surveys on! For these reasons, we will not be establishing any more new routes. Instead, we will focus on ensuring that all established routes are assigned to a surveyor in every year, and on making improvements to the survey.

## MODIFYING PREVIOUS ROUTES

If you participated in the owl survey in previous years, we hope you will survey the same route(s) again this year. If some of the stops on your previous route were not suitable (i.e. too much traffic, too much industrial noise, not near suitable habitat), you may want to modify your previous route. If your previous route passed through apparently suitable habitat but you found few or no owls, we strongly recommend that you survey it again this year. Owl populations and response rates can vary considerably from year-to-year and we need information from areas with few owls to detect these trends. Please contact the survey coordinator prior to making any changes to your route.

## TAKING ON A NEW ROUTE

If you are taking over a new route, please study the route map and factsheet carefully before surveying your route. If you are unsure of where your route is located, please call the coordinator. Scout your new route during daylight hours (drive it once or twice) and that you mark the first stop with flagging tape or a reflector to make it easy to re-locate at night. As much as possible, please try to keep your stop locations in the same spot as the previous surveyor. However, stops should be moved if they are too dangerous or noisy. To help you remember where your stops are located in future years, we have provided you with a stop description form. Complete this during your first couple of checks and return it with your first year's data.





## SURVEY MATERIALS

**The following materials are included in the participant's kit for northern Ontario:**

- 📄 Northern Ontario data forms
- 📄 Stop description form
- 📄 Application for tax relief
- ✉️ Return envelope

**In addition, new participants will receive:**

- 🎵 Ontario Nocturnal Owl Survey Training CD
- 📄 Citizen Scientist's Guide
- 🎵 Northern Ontario broadcast

**New participants will receive a digital copy of their Route map** and stop description via email. These documents are usually distributed in late March.

**You will have to supply the following:**

- 🚗 reliable vehicle
- ✍️ pencil/pen
- 📻 broadcast unit (see below)
- 📋 clipboard
- 📍 compass / gps/ or mobile device with these apps.
- 🕒 watch
- 🔦 flashlight
- 🔋 fresh batteries or charger or portable charger
- 🗺️ road map and/or topographic map showing survey route and the surrounding area.

**The following items are optional but are recommended, if available:**

- towel (to place underneath broadcast unit to avoid scratching your vehicle)
- hands-free, headlamp-type flashlight
- thermos with hot beverage (hot chocolate is our favourite!)



Unfortunately, we are not able to reimburse volunteers for travel or other expenses.

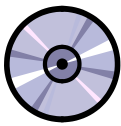
**However, as a charitable organization, BSC can offer support for expenses volunteers incur while conducting fieldwork.** We are happy to extend this benefit to participants in the Nocturnal Owl Survey. An application for voluntary support is included in each participant's kit.



## BROADCAST EQUIPMENT



As we are unable to provide standardized broadcast equipment we expect that a wide variety of equipment (CD players, MP3 players, Worksite Radio / Charger, Portable Voice Amplifier, Mobile devices with an amplified speaker) will be used to broadcast the owl calls. Differences in the volume and sound quality of these broadcast units will affect the number of owls that respond. However, as long as the average volume and quality of the broadcast unit does not change over time, this will not interfere with the usefulness of this survey for monitoring long-term trends in owl populations.



We ask that you to conduct a simple test of your equipment to see how far away you can clearly hear the calls on the broadcast. **Some equipment may have difficulty playing the CD, please contact us if you have any problems but keep in mind that the CD always starts with two minutes of silence.** This will provide us with some indication of how much variability there is in the broadcast equipment being presently used. We have established **250 metres** as the minimum distance at which you should be able to recognize the Boreal Owl calls when the broadcast is played at maximum volume without causing distortion. This guideline is well within the capability of many inexpensive systems. If your equipment does not meet this guideline, please locate another unit that does.



Before heading out to do your survey, make sure the broadcast is working, that the batteries are fresh/charged, that you have your charger, and that you are familiar with the unit. Modern cars require a large amount of energy, if you plug multiple items in and heat car seats your car battery may not be able to keep up for the length of the survey.

### INSTRUCTIONS FOR TESTING YOUR BROADCAST EQUIPMENT

This test takes about 20 minutes to complete and can be done anytime before the survey (day or night). It should be carried out under weather and noise conditions similar to what will be encountered during the survey (i.e. little wind, no precipitation, minor background noise). Use two people for this test: a "surveyor" to listen and an assistant to run your broadcast unit (CD or, MP3 player, mobile device with amplified speaker).

Find a quiet area where you can measure off distances of approximately 100, 250, and 500 metres either by pacing (100 metres is roughly 120 steps for most people) or driving (use car odometer). Using the broadcast unit you will be using during the survey, have the surveyor stand 100 metres away from the broadcast unit while the assistant plays the broadcast. The broadcast unit should be played at the same volume as for the survey (i.e. at the maximum volume without causing distortion). If your unit has bass and treble settings, make sure they are set to the "normal" setting. The surveyor should listen to see if the Boreal Owl and Great Gray calls are audible and recognizable. Repeat this test for the 250 metre distance and, if possible, the 500 metre distance. The results of this test should be entered on the first page of the survey form.

The purpose of this simple test is two-fold:

- 👂 To ensure that the broadcast unit you will be using during the survey meets our guideline (i.e. the Boreal Owl call is audible and recognizable at 250 metres distance).
- 🔊 To give us a rough measure of the variability of the broadcast volume produced by different broadcast units.

## STOP LOCATIONS and GEOGRAPHIC POSITIONING SYSTEMS (GPS)

It is very important that we know the location of the stops along your survey route. The route stops are predefined and should not be changed unless inaccessible or unsafe. Having accurate and consistently used stop locations is very important because it allows us to relate owl locations to habitat characteristics. With this information, we can answer questions such as: Do Barred Owls like old growth forests or young forests? Are Saw-whet Owls found mostly in small forests or in large? If you find you must change a stop please provide the details on that stop with your data.



While you can survey an owl route without a using a Geographic Positioning System (GPS) unit we recommend you having one. Your route stops are already georeferenced but the unit will be help you ensure you are in the correct place. You could use a handheld unit, a car GPS, or a phone mapping / compass app. Most surveyorsof have or will receive an email that includes digital information and a map of your route. You can upload your map or a kml file into google maps and follow your route on your phone or car GPS.



There are occasions when you may need to provide new location information and your survey partner should be able to use a GPS while you survey without increasing survey time. We would prefer that all positions are reported in decimal degrees longitude/ latitude to the nearest 100m using the NAD83 reference system.

**Be careful!** Your GPS unit or app may default to different units of measure than we list above. If this is the case please indicate if your GPS or Compass app uses a different reference system (e.g. WGS 82; degrees decimal minutes; degrees minutes second) or other units (e.g. UTM). Please record all digits provided as these units can be very accurate and the added precision is useful for relating owl locations to habitat data.

## DETAILED INSTRUCTIONS

**Read the following information carefully and contact the owl survey coordinator if you have any questions. Please be sure you are using the proper broadcast file. If you use the CD ensure it is functioning and clear before you conduct the survey.**

## WHEN TO SURVEY YOUR ROUTE

### *Survey Window*

Please run each route on a single evening in April. You can run your route on any evening in April; however, we strongly encourage you to run it in the first two weeks of

the month. Otherwise, you may run into problems with competing frog choruses or messy roads due to snowmelt. Noise from running streams is also a problem later in the season.

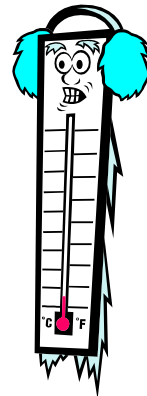
### *Survey Timing*



The survey should begin one half hour after sunset and should finish as close to midnight as possible. Check your local paper for sunset time. The time required to complete a survey (not including travel time to and from the route) ranges from 2.5 hours to 4.5 hours. The average time to complete a survey in northern Ontario is about 3 hours. Surveyor fatigue is a factor, so it is essential to start the survey on time and move promptly from stop to stop.

### *Weather Conditions*

Weather has a great influence on our ability to hear owls. Calm conditions are without a doubt the best. Wind and precipitation significantly reduce calling rates and detectability, while cloud cover is less important. Some owl calls do not carry very far, so wind is a critical limiting factor. Try to conduct surveys with little or no wind (3 or less on the Beaufort Scale). For a description of the Beaufort Wind Scale, please refer to your datasheet. Extremely cold temperatures have an adverse effect. For optimum response, try to select nights that are clear, calm, and not too cold (use warmer than -15EC as a guideline). There is little point in attempting or continuing a survey if the wind exceeds force 3 or if there is persistent snow or rain.



## **HOW TO SURVEY YOUR ROUTE**

To survey your route, drive to the starting location. Plan to arrive just after sunset. Reset your trip odometer if your vehicle has one. In most situations you begin at Stop 1 but on some routes it makes logical sense to survey backwards (e.g. stop 15 to 1) or out of order (e.g. stop 12, 11, 1 – 8). Always complete your data form in timed order of survey, from the very first stop you broadcast to the last stop you broadcast. Use your map as a cross-reference and write the correct stop id number for the first row and for each following row. Fill out date, time, and weather information at the top of the data form.

**Stop Description Forms** should be completed for routes new to you, upon request, or when stops must be changed. During your first survey of a route, take extra care to identify where you begin surveying. You will need to be able to find this starting point every year, so make note of any obvious landmarks. Use the **Stop Description Form** to clearly describe your stop locations paying special attention to any landscape features or permanent signage that will help you find the stop in the future.

On Northern Routes the number of active stops range from 10 to 20 depending on the road. You may find there are years when some stops cannot be accessed. Just try to survey as many stops as possible keeping in mind that you need a minimum of 10 and

that they are identified by their stop id number (e.g. if you only survey stops 10 through 20 they are still identified as stops 10 through 20).

At each stop, push the play button on the broadcast unit and move at least 20 metres away from your vehicle. This will reduce noise interference from the engine as it cools and will enable you to hear the owls. Although all participants should listen and watch for owls, one person should act as the surveyor and be responsible for identifying and counting owls and completing the survey forms. **Please use the forms provided for recording data in the field.**

**\*IMPORTANT\***

A copy of the Northern data form is provided in your survey kit and is available at [birdscanada.org/on\\_owls](http://birdscanada.org/on_owls). The completed form can be mailed to Birds Canada for data entry or you can enter data online via the Volunteer Portal. Save yourself some paperwork – send us your originals but make a copy of the form just in case we have questions.

The *ONOWls-Northern Broadcast* is just under 5 minutes long and includes four listening periods. The broadcast starts with a double-beep to indicate the start of the first silent listening period lasting one minute. Record all owls heard or seen using the instructions on pages 12-13. Another double-beep marks the end of the first silent listening minute. This is followed by a second silent listening minute. Record any **new** owls heard or seen during this second minute. Owls heard during these silent periods are calling “voluntarily,” rather than in response to the playback.

Then, the **Boreal Owl** broadcast will begin (20 seconds long), followed by another one minute silent listening period. Record all owls heard and seen during this period separately. Keep track of whether the owls heard in the first 2 minutes continue to call and indicate if any new owls start to call.

Next, the **Great Gray Owl** broadcast will play for 20 seconds. Again, listen and record any owls heard or seen during the subsequent one minute listening period. Record any changes in owl vocalizations since the last listening period. A **double-beep** marks the end of the broadcast.



***Direction and distance of owls***

Please remember to record both the direction and distance from which each owl calls, at the point when they first begin to call. We will use this information to relate owl presence/absence to the surrounding habitat. Distance is estimated using categories, and direction is estimated with a compass.

If you think you are hearing the same bird as at a previous station, then record it by printing a “Y” in the “Repeat?” column beside the species code (Y= yes) and make a note in the “Comments” section that you think this bird is a repeat.

We are primarily interested in knowing how many owls of each species you hear, when you first heard each owl (i.e. during which silent minute, or after which playback call), and whether it continued to call in subsequent listening periods. If possible, the surveyor should also try to collect additional information. For example, if you hear two Barred Owls calling at distinctly different pitches (e.g. "duet" on the training CD/MP3 files) you should note in the “Comments” section that you think they are a pair. Also, please note if you observe an owl but it never calls.

**\*SURVEY TIP\***

**Be extra careful about identifying Boreal Owls on your survey. Wilson’s Snipe sound very similar to Boreal Owls and are often heard on Owl Surveys especially on the first few stops.**

***Grouse, snipe, and woodcock***

We would also like you to record any Ruffed Grouse, Snipe and American Woodcock that you hear at each stop. Please indicate the number of each of these three species that you hear under “Other Species” section of your datasheet. The calls are described in the Field Notes booklet and are included on both the training CD/MP3 files. Any extra notes you feel are useful can be written under “Comments”.

***Traffic Count and Noise Level***

Two additional pieces of information being collected in a standardized manner are the **traffic count** and **noise level codes**. We have provided a column so that everyone will keep track of the number of vehicles that pass during the broadcast period at each stop. Surveyors in past years also remarked on various background noises that interfered with the broadcast and/or the listening periods. Background noises reported during previous years include environmental noises (e.g. wind, running water, waves, etc.), animal noises (e.g. dogs barking, frogs calling, wolves howling, etc.), and human-induced noises (e.g. industrial noise, jets, trains, traffic, etc.). In most cases these noises had a minor effect, but in some instances they were sufficient to drown out any owls that might have been calling. In addition to providing an indication of the noise level at each stop, we will be using the traffic counts and noise level codes to track year-to-year changes. If the average noise level along a route increases with time, then the number of owls detected might decrease, even though the actual number of owls calling was not decreasing. **Please do not give a range of possibilities for noise level; give only one code per stop (e.g. Noise Level = 1).**



Before you leave each stop, make sure you have filled in all the necessary information including the odometer reading, time of day, traffic count, and the background noise levels. Proceed immediately to the next station. Don't forget to retrieve your broadcast unit from your car roof before driving off!

Repeat the above procedure at all stops. At the end of the last stop, record the time and weather conditions. Be sure to fill out the comments section and grab a quick photo of your survey crew. We love to read all about your owling experiences! We are also concerned about your safety. Dress warmly. Please be careful when standing on roadsides at night and while driving on winter roads.

### A NOTE ON THE ETHICAL USE OF BROADCASTS

Call broadcasts are effective in locating and studying owls but should not be used indiscriminately or outside of standardized surveys. Responding birds may continue to vocalize for some time after the playback ends and therefore may be more easily located by predators. In addition, frequent and persistent playbacks may affect the normal activities of the owl. Enjoy the birding experience but please keep disturbance to a minimum. Do not linger at the location and do not play the broadcast file more than once at a stop. Remember that the health and welfare of each bird is our utmost priority.



### HOW TO COMPLETE THE SURVEY FORM AND DATA FORM

The first page of the survey form can be completed before starting the survey. The reverse side of the survey form has a summary of the key survey instructions and definitions for the various codes to be used in completing the data forms. Detailed instructions for filling out the forms, as well as examples of completed forms are included below. **Please study the sample forms carefully to ensure that data are collected accurately.**

**Please return the completed copy to BSC in the return envelope provided with your survey kit. Print as clear as possible but our data entry system can accommodate stains, bugs, etc.** Remember to take a copy or picture of your form before you mail it in. Alternatively, you can enter your data yourself via the Volunteer Portal that is available from the main website [birdscanada.org/on\\_owls](http://birdscanada.org/on_owls)

**Route name:** If this route was previously surveyed, then use the same route name. If it is a new route, then give it a descriptive name (unless the route follows a numbered highway or regional road, use the nearest town or lake rather than the local road name). To help us locate your route, provide the name of the nearest town. **(NOTE: The name and number of your route should be given on the label at the top of your data forms).**

**Route status:** Please indicate whether this is a new route, existing route (i.e. surveyed previously), or a modified version of an existing route.

**Stop locations:** Use the stop location form if you are a new participant, if you have had to adjust your route or if you feel the route landscape features have changed. Please fill out the stop description form to help you locate your stops. If you following the map provided and the coordinates are accurate you do not need to provide new ones. But fill out any descriptive features that will help you find your stops - such as mile markers, 911 numbers, intersections, bridges, permanent signs etc. You may notice that the stops fall beside the road – these means your stop coordinates are off. If you have had to move stops or your route map and coordinates are inexact please provide new coordinates.

**Surveyor/assistant information:** Provide the name, mailing address (where you want further correspondence directed), and phone number of both the surveyor and assistant.

**Broadcast equipment:** Indicate the general and specific type of equipment you are using to play the broadcast. Also indicate the results of the equipment test described on page 7.

**Date:** The forms provide the month for you (04, April), so all you need to do is fill in the day and the last digits of the year.

**Weather:** Record the weather conditions at both the start and end of the survey in the space provided at the top of your dataform.

- ☐ **Snow Cover:** estimate the percent snow cover on survey route (e.g. 33%, if lower two-thirds of route is snow-free).
- ☐ **Snow depth:** estimate to the nearest cm, for both maximum and minimum depths.
- ☐ **Temperature:** estimate air temperature to the nearest whole degree (no decimals).
- ☐ **Wind/Cloud Cover/Precipitation:** Circle the appropriate weather code to indicate the wind, cloud cover and precipitation. Please select only **one** code for 'Wind' and 'Cloud Cover'. Up to **two** selections can be made for 'Precipitation' (i.e. if there was both rain and snow).

<u>WIND (Beaufort Scale)</u>	<u>CLOUD COVER</u>	<u>PRECIPITATION</u>
0. Calm, smoke rises vertically.	1. 0-25%	<i>Choices:</i> <ul style="list-style-type: none"> <li>• None</li> <li>• Trace</li> <li>• Rain</li> <li>• Snow</li> </ul>
1. Light air movement, smoke drifts.	2. 25-50%	
2. Slight breeze, wind felt on face.	3. 50-75%	
3. Gentle breeze, small twigs move.	4. 75-100%	
4. Moderate breeze, small branches move.	5. Fog	
5. Fresh breeze, small trees sway.		

**Odometer reading:** This information is particularly important if a stop is shifted from the standard station spacing. Please be sure to record distances in kilometers.

**Time at each stop:** Record the time of day using the 24-hour clock at the start of each new stop.

**Owl Information:** To determine the effectiveness of the broadcast, we need to know when each owl first started calling (i.e. during which silent listening period, or after which playback call), and whether it continued to call in the following listening periods. We would also like you to note any owls that were seen but not heard, individuals you think are "repeats" (i.e. same bird as heard at previous station), and possible pairs.

At each stop, record each owl detected in the column immediately to the right of the stop number. Please use the four-letter abbreviation for each species, as provided on the reverse side of the survey form. For each stop, up to 2 different owls can be recorded on the lines provided. Record *each* individual owl on a separate line even if they are the same species. Follow the sample form carefully! The four columns to the right of the species codes are used to indicate which of the four listening periods a particular owl was heard calling in. Leave the relevant column blank if a particular owl was not heard during that listening period.

When an owl is heard, record the species name in the column labeled "Species Code," then place an "X" in the column(s) corresponding to when that owl was heard (e.g. if an owl is heard calling during the second silent listening period, place an "X" in the column titled, "2<sup>nd</sup> minute." If the owl is heard during every listening period, place an "X" in every column). If you are lucky enough to see an owl, put an "S" in the appropriate column. If the owl was both seen and heard, use "XS". **Please do not use "XX" to denote two owls heard calling during the same listening period! Use a separate line for each individual owl.** Also, we are not interested in how many times an owl calls during a particular listening period. Use only one "X" to denote that an owl called, regardless of whether it called once, or 20 times. Only owls heard or seen between the start and end of the broadcast should be tallied.

If you hear an owl only before or after this period, then make a note in the "Comments" section, but do not include this individual when you add up the total number of owls on the route. If more than four owls are detected at a stop, they should be recorded in the spaces provided at the end of the form. Be sure to write in the stop number beside any additional owls.

**Repeat?** If you think that you are hearing the same individual owl at two different stops (example, same Great Gray Owl heard at Stops 1 and 2), then mark a 'Y' in the "Repeat?" column on the datasheet.

**Direction to owl:** For each owl heard calling, estimate the direction it is calling from *the point when it first began to call* using a compass (e.g. north, north-east, east, south-east, south). Enter the direction (e.g. NE) in the given column, making sure to use the appropriate 2 letter code.





**Distance to owl:** For each owl heard calling, estimate its distance from you *at the point when it first began to call* by marking an “X” in the appropriate distance category (<200m, 200-500m, 500-1000m, and >1000m).

**Number of other species heard:** At each stop record the number of Ruffed Grouse, Snipe, and American Woodcock heard in the “Other Species” section of your datasheet. Extra comments may go under “comments”.

**Traffic count:** Indicate the number of vehicles that pass by during the broadcast period at each stop in the column provided. Your assistant can either mark a tally as each vehicle goes by or keep a mental count and enter the total at the end of the survey. If no vehicles pass by, then enter a 0. Please be sure to enter only the **total** number of vehicles on your datasheet. *Please do not tally vehicles on your form.*

**Noise level:** Rate the background noise level at each stop using the four-point scale described on the reverse side of the survey form. Describe the source of any elevated noise levels (above level 1) in the “Comments” section (e.g. frogs calling, airplane overhead, running water, etc.).

**Comments:** Please complete this section immediately following the survey while the experience is still fresh in your mind. Your comments are very important. We want to be sure this volunteer survey is designed in such a way that it is feasible, enjoyable and productive. We may wish to use your comments in our newsletters or post them on our web page! Also, please supply us with pictures and accounts of your evening adventures. We love to hear your stories!

#### DATA – HELPFUL HINTS

**USE PEN** instead of a pencil or felt-tipped marker when filling in forms as they are easier for the computer to “read.”

**PLEASE PRINT** legibly using block letters as the scanning program cannot discern cursive writing (i.e. B | A | R | R not B | A | R | R). Please follow the example forms carefully when filling in your forms.

**STAY BETWEEN THE LINES** when filling out your datasheet. The scanning program cannot decipher lines that cross into multiple fields. If you need more room than what is provided, please use the “Comments” section or attach a separate page.

**FILL IN THE BUBBLES** completely when you are asked to make a choice using them (i.e.  $\circ \rightarrow \bullet$ ).

**MISTAKES HAPPEN!** Try to limit errors, but if they occur, correct them as best you can.

**KEEP A COPY!** Sadly mail can be damaged or lost plus having your own copy or image of the data will be handy if we ever have questions regarding the data.

**ENTER THE DATA YOURSELF** using the **Volunteer Portal** that is available via the main owl website ([birdscanada.org/on\\_owls](http://birdscanada.org/on_owls)). As this Volunteer Portal is hosted by NatureCounts you will need to login using your NatureCounts username and password to access the data entry.

## RETURNING THE COMPLETED FORMS

After you've completed the surveys, check over your forms to make sure all information is complete (and legible). **Please make a copy of your data forms for your records** (and in case the originals get lost in the mail). Return the forms, by **20 May** to the Owl Survey Coordinator at Birds Canada, Box 160, Port Rowan, Ontario, N0E 1M0. If you are applying for voluntary support, include the completed application form and your cheque with your data forms. A pre-addressed envelope is included with this participant's kit.



If you prefer you can enter data online via the Volunteer Portal available from the main website [birdscanada.org/on\\_owls](http://birdscanada.org/on_owls). The Owl Survey Volunteer Portal is hosted by NatureCounts and you will need to login using your NatureCounts username and password to gain access to data entry.

### NATURE COUNTS – HELPFUL HINTS

**NatureCounts** is part of the Avian Knowledge Network and is used to host many of the Birds Canada data and resource sets including Owls, Marsh Monitoring, Canadian Lakes Loon Survey, and Aerial Insectivore work. If you have participated in any of these programs you may already have a NatureCounts profile, login name and password.

**If you do not recall** your login name or password there is a forget password tool available. When requesting a password reset you will also receive your login name.

**If you have a NatureCounts username and password but do not have access to the Ontario Owl survey section of NatureCounts:**

- Access the Owl Survey section of NatureCounts ([birdscanada.org/birdmon/onowls](http://birdscanada.org/birdmon/onowls));
- sign in;
- you will receive a message that you are not a participant, click on the profile link in that message;
- review your profile, reenter your password (twice), review the terms and conditions and check the I agree box at the bottom then submit.
- Approval to Nature Counts usually takes less than a Business day.

**If you have never used NatureCounts.**

- Access the Owl Survey section of NatureCounts via the Volunteer Portal at [www.birdscanada.org/on\\_owl](http://www.birdscanada.org/on_owl) or directly at [birdscanada.org/birdmon/onowls](http://birdscanada.org/birdmon/onowls);
- Use the Sign up option.
- review your profile, reenter your password (twice), review the terms and conditions and check the I agree box at the bottom then submit.
- Approval to Nature Counts usually takes less than a Business day.
- NatureCounts only allows one profile per email. If you receive a notice that your email already exists please refer to the steps above.



At any time, don't hesitate to call if you have any questions regarding the survey.

Good luck on your owl surveys!

**Kathy Jones, Volunteer Coordinator, [volunteer@birdscanada.org](mailto:volunteer@birdscanada.org), 1-888-448-2473 ext. 124**

***Acknowledgements:** Ontario Nocturnal Owl Survey logo courtesy of Virginia Antoniak. The Ontario Nocturnal Owl Survey is supported by the Ontario Ministry of Natural Resources, Wildlife Assessment Program.*

### SUBMITTING DATA USING NATURE COUNTS

#### **Navigating Data Entry in Nature Counts**

- Your route will be identified by the name (e.g. #106608 Sheguiandah Township)
- There are look up tables and a map to help you find your route. You will need to zoom into the area near where you survey to see the mark markers.
- **Stops are identified as “stations” and need to be entered in the timed order of survey.** You enter the earliest stop you surveyed first and the final stop you surveyed last.
- **We need to know which stop is which thus you will need to identify which stop is represented by the station** using the “station” drop down menu (e.g. 106608 Sheguiandah Township-Stop1, ON0018 – 1).
- Use the “Jump to page” option to review data you have already entered.
- Use the “Next Page” option to add a new station for data entry.
- Note that **new routes and routes with changes and updates (stop description forms) cannot be entered online** – please mail these data sets to Birds Canada for review and data entry. You will be able to use the online system in following years after the route review is completed.
- If you receive errors, then most likely you have left a field empty or your timed survey order, fist station surveyed to last station surveyed, is not correct.
- You will need odometer readings and time of each stop to enter data online.
- **Help us keep the route locations accurate and the database clean.** Please ensure you identify stops and routes correctly as several routes have similar names. Please do not create and enter new stops or new coordinates, mail these datasets (data forms and stop description forms) to Birds Canada so that they can be added to the system.



## SAMPLE SURVEY FORM – NORTHERN ONTARIO

## ONTARIO NOCTURNAL OWL SURVEY - NORTHERN ONTARIO DATA FORM

Jen Owler, I.D. #12345  
Hooterville Road (#123)  
14 Long Rd.  
Owlton, ON  
P7B 5X9

Please return completed forms, along with a  
map showing stop locations, in the envelope  
provided by 15 May, 2002.



ROUTE NAME: Hooterville Road

Closest Town: Owlton

Route Status (check one):

Established ☒ Modified ☐ New ☐

Route Map attached (circle one): ☒ Yes ☐ No

COMMENTS: Beautiful evening -  
lots of owls tonight! Also  
saw lone timberwolf - I think  
we spooked him with our  
headlights. Can't wait until  
next year's survey!

SURVEYOR: Jen Owler

Address: 14 Long Rd.  
Owlton, ON

Postal Code: P7B 5X9

☎ 807-622-9922 home

☎ 807-684-9956 work

E-mail: jowler@yahoo.com

ASSISTANT: Don Whoot

Address: 1953 Mountain Rd.  
Owlton, ON

Postal Code: P7A 3X6

☎ 807-344-1613 home

☎ 807-684-9956 work

E-mail: owlguy@hotmail.com

## BROADCAST EQUIPMENT

GENERAL TYPE:

☐ Portable, single speaker

☒ Luggable, dual speakers

☐ Other \_\_\_\_\_

MAKE/MODEL (speaker wattage if known):

General Electric  
(15 watts)

## RESULTS OF PRE-SURVEY EQUIPMENT TEST

When you tested your tape player, could you hear the  
**BOOW** broadcast call (when playing the broadcast tape at  
maximum volume without distortion) at:

a) 100 metres distance? Yes No

b) 250 metres distance? Yes No

b) 500 metres distance? ☒ Yes No

When you tested your tape player, could you hear the  
**GGOW** broadcast call (when playing the broadcast tape at  
maximum volume without distortion) at:

a) 100 metres distance? Yes No

b) 250 metres distance? Yes No

c) 500 metres distance? ☒ Yes No



# ONTARIO NOCTURNAL OWL SURVEY - Northern Ontario

Mon	Day
0412	
2002	

70 °C

**Precipitation**

Cloud Cover

Wind	4	4
2	3	3
2	2	2

**Author**  
**Part of Survey:**  
**End of Survey:**

---

Route # 123

Stop	Time (24hr) and Odometer(km)	Species Code	Mark "X" if heard; "S" if owl seen; "XS" if both				Same Owl? Y=yes	Direction to Owl	Distance to each owl (m)				Traffic Count (# cars)	Noise Level (1-4)	Remarks and Other Species
			1st Min	2nd Min	After BOOW	After GGOW			<200	200- 500	500- 1000	1000+			
1	21:15	B.O.O.W			X	X		N.E	V				0	1	NSWO further from road than BOOW. 2 COSN.
2	21:25	N.S.W.O			X			S.W		V			6	4	A lot of transport trucks. 1 COSN.
3	21:35	B.O.O.W	X		X			N.W			V		0	1	BOOW very faint. Heard 1 RUGR and 1 COSN.
4	21:45	U.N.O.W				X		S.E		V			3	1	2 "whoow" calls - LEOW?
5	21:55	B.O.O.W	X	X	X			S.W	V				5	2	BOOW very close. 2 AMWO. 1 AMWO.
6	22:05	B.A.R.R	X	X	X	X		N.E		V			0	1	BARR calling upon arrival.
7	22:15												0	1	
8	22:25	N.S.W.O	X		X			N.W	V				4	2	Pair of NSWLO?
9	22:35	N.S.W.O	X	X	X	X		N.E		V			1	1	May be the same NSWLO as last stop.
10	22:45												0	1	
11	22:55												0	1	
12	23:05	G.G.O.W				X		S.W		V			2	2	Distance hard to judge with GGOW.

9917177663

# ONTARIO NOCTURNAL OWL SURVEY - Northern Ontario

Route #  
1, 2, 3

Stop	Time (24hr) Odometer (km)	Species Code	Mark "X" if heard; "S" if owl seen; "XS" if both				Distance to each owl (m)				Traffic Count (# cars)	Noise Level (1-4)	Remarks and Other Species		
			1st Min	2nd Min	After BOOW	After GGOW	Same Owl?	Direction to Owl	<200	200-500				500-1000	1000+
13	2:3:15	LEOW	X	X	X			N		✓			0	1	LEOW calling upon arrival
14	2:3:25												2	2	
15	2:3:35												0	1	
16	2:3:45												0	1	
17	2:3:55	GHOW	X		X	S		NE	✓				0	1	GHOW flew in and landed in a tree near us!
18	2:5:05												0	1	
19	2:8:15												0	1	
20	3:0:25												0	1	Quitted down alot as the night went on.
Stop	3:0:4														Use these lines for additional owls. Please note the stop numbers.

How certain are you in your estimates of:

Distance (fill in one circle per category)

<200m: ☒ very confident ☐ confident ☐ uncertain

200-500m: ☐ very confident ☒ confident ☐ uncertain

500-1000m: ☐ very confident ☒ confident ☐ uncertain

>1000m: ☐ very confident ☐ confident ☒ uncertain

Direction (Fill in one circle)

☒ very confident ☐ confident ☐ uncertain

## SAMPLE STOP DESCRIPTION FORM – NORTHERN ONTARIO

2002 Northern Ontario Nocturnal Owl Survey

### STOP DESCRIPTION FORM

PREPARED BY: <b>Jen Owler</b>		DATE: MM / DD / YY 04 / <u>12</u> / 200 <u>2</u>		ROUTE NAME: <b>Hooterville Road</b>	ROUTE #: <b>123</b>
STOP #	Longitude (Easting)	Latitude (Northing)	NAD (83 or 27)	DESCRIPTION (location, habitat, etc.)	
1	343964	5414183	83	Corner of Hooterville Rd. and Conc. IX. Marked With reflector tape. Mainly forested (conifer)	
2	344418	5412617	83	Bridge over Rapid Creek on Hooterville Rd. Small clearcut adjacent to bridge.	
3	344790	5411190	83	Driveway of Boreal Forestry Services. Habitat consists of small pine plantation.	

COMMENTS: All stops are marked with flagging tape. We recorded each stop location with our new GPS unit (NAD83). Stops were recorded using latitude and longitude. Most stops are located near large mixed forest, with the exception of stop #5 and #6, which have agricultural fields to the south. Please see the attached map for exact stop locations.

## Ontario Nocturnal Owl Survey Safety Tips

### Let's all stay safe and have fun.

**Surveyors, not just owls, are important!** For nocturnal surveys in high traffic areas, in remote locations, or on narrow snowy roads, we cannot overemphasize how important it is to consider YOUR safety and that of other drivers. Please use these tips to help ensure you have a fun enjoyable and SAFE evening:

- Take a Friend, Tell another friend when survey plans and be sure to check in;
- Bring a cell phone, know if you have service where you survey;
- Keep your eyes on the road while driving – stop and pull over before you survey
- While driving only the passenger should handle tech (gps locations, texts, calls etc.);
- Is your car ready? Is it in good condition, do you have/need snow tires or chains, is your gas tank full, does your battery charge correctly;
- Check the roads IN DAYLIGHT to ensure they are safe to drive and that people can safely pass you when you stop. Consider snow, mud, ruts, bridges, washouts etc.;
- Will others be able to see you? Check the forecast for road conditions and for visibility and avoid poor driving conditions;
- Wear your reflective Safety Vest! Take a flashlight or headlamp and extra batteries;
- If you don't like listening to your caution lights leave your headlights on but watch and ensure your alternator is charging your battery;
- What else will drain your batteries? Your headlights, stereo system, cell phone, broadcast unit, seat warmers and starting the car every six minutes. You will need to choose what equipment you need and what you don't;
- If no snow, check for ticks and/or stay out of the grass. Use bug spray on your ankles;
- Consider carrying the following particularly for more remote routes:
  - shovel, shovelling is far better than a long walk;
  - Bring your winter roadside emergency kit. If you aren't sure what goes in an emergency kit, check out [tc.gc.ca/eng/mediaroom/video-roadsafety-6515.htm](http://tc.gc.ca/eng/mediaroom/video-roadsafety-6515.htm) or [getprepared.gc.ca/cnt/rsrscs/sfttps/tp201012-en.aspx](http://getprepared.gc.ca/cnt/rsrscs/sfttps/tp201012-en.aspx);
  - Bring your first aid kit, make sure you know where it is and that it is up to date;
  - Make sure you have a spare tire and a jack or a tire repair kit. Refresh your memory on how to use this equipment;
  - a blanket or sleeping bag for every participant and take more food and water than you think you need.

Taking little ones along? What a great idea! Take lots of fun snacks, bring ear protectors, dress them in light-reflective colours and ensure children remain off the road. As you will be looking up a lot (and not at your child) make sure there is another adult with you to specifically keep an eye on them. **If an owl calls - remember to take their ear protectors off so they can enjoy the moment as well.**

**Above all else, remember that people are important too and if for any reason you are concerned for your safety or the safety of others, don't (or stop) your survey! There will always be another day and another year to collect data.**