

# NEWFOUNDLAND AND LABRADOR NOCTURNAL OWL SURVEY

## *Guide for Volunteers*



### **Birds Canada**

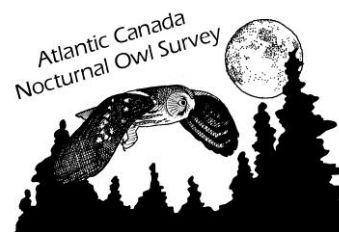
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**TD Friends of the  
Environment Foundation**



# NEWFOUNDLAND AND LABRADOR NOCTURNAL OWL SURVEY

**Thank you for committing your time to the survey!**

**Please read this instruction booklet carefully.** The survey protocol is based on a similar long-term survey in New Brunswick. We have decided to adopt the New Brunswick protocol in NL, but have made changes as necessary to reflect the different owl species in NL. The NB protocol also follows the *Guidelines for Nocturnal Owl Monitoring in North America*. The survey is meant to be an annual event and will continue as long as possible.

## **WHY A NEWFOUNDLAND AND LABRADOR NOCTURNAL OWL SURVEY?**

Owls are excellent indicators of environmental health, as they are high on the food chain and are thus vulnerable to many environmental disturbances such as toxic chemicals and habitat loss. Some owl species have specialized habitat requirements, such as the Barred Owl, which depends upon cavities in large trees (mostly hardwood) for nesting.

Monitoring owls is not an easy task. They are secretive, primarily nocturnal and roost in concealed locations during the day. Consequently, Newfoundland and Labrador owl populations are not adequately monitored through existing monitoring programs (e.g. Breeding Bird Atlas and Survey, Christmas Bird Counts). Playback of recorded songs is used to census a variety of bird species, and is particularly useful for owls. Due to their territorial behaviour, 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.

In Canada, volunteer owl surveys have been established in Quebec, Ontario, Manitoba, Alberta, Saskatchewan, British Columbia, Prince Edward Island, New Brunswick, Newfoundland and Labrador, and Nova Scotia. Birds Canada coordinates the owl surveys in Quebec, Ontario, British Columbia, New Brunswick, mainland Nova Scotia, and Prince Edward Island, and was heavily involved in the development of the North American guidelines.

The goals of the NL Nocturnal Owl Survey are:

1. To determine the distribution of NL's owl species, especially Northern Saw-whet and Boreal owls;
2. To estimate population trends of owls (especially Northern Saw-whet Owls, Boreal Owls, and Great Horned Owls) over a 10-year period;
3. To involve volunteer birders from across the region in wildlife monitoring.

The NL broadcast file consists of Boreal and Northern Saw-whet owl calls interspersed with silent listening periods. All other owl species that are encountered will also be recorded. These include Great Horned, Short-eared, and Northern Hawk owls.

## GENERAL SURVEY METHODOLOGY

It's simple! A team of two (or more) volunteers drives a pre-determined, randomly chosen route, stopping at 10 points every 2 km along the road. At each stop, volunteers play a recording with calls of Boreal and Northern Saw-whet owls alternating with timed listening periods. Volunteers identify and record all owls heard or seen during each listening period.

Surveys begin half an 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, anytime in the designed survey period (1 April to 15 May). **We do, however, encourage you to run your route within the first two weeks of the survey period to avoid problems with spring runoff or melt water.**

It is important that the same volunteer survey the same route from year to year as much as possible.

## GETTING READY

Before you can get started on your owl survey, you need to:

1. Read these instructions and become familiar with the methods and data forms.
2. Learn your owls! Listen to the training recording to be sure you can identify any owl calls you might hear. Go out in your local neighbourhood in the evening to listen for owls and practice your ID skills (but avoid using playback unnecessarily). Go owling with an experienced birder who can teach you the different calls you might hear on your route. Try to be as familiar as possible with the calls of the most commonly encountered species. The training file also contains the sounds of American Woodcock and Wilson's Snipe, which can be confused with Boreal Owl. Make sure you can tell them apart!
3. Scout your assigned route during daylight hours. If you wish, talk to local residents to let them know that you'll be conducting the survey near their homes in the coming weeks. Some local residents are puzzled by the owl sounds, which often make their dogs bark.
4. Test the device and speaker you will be using to broadcast the playback, to be sure that they work and that playback is loud enough (to verify this, carry out the test outlined in the box on pg. 5). If you do not own a device capable of playing the playback file, ask to borrow one from a friend or notify the survey coordinator, who may be able to arrange for you to borrow one.

## Your Route

If you received a completed stop description form, please attempt to scout your route during daylight hours, noting each stop location as described. Things look different in the dark and a daylight expedition is always an asset.

If your stop description form is blank, this means that we were not able to scout your route and describe stop locations. We are hoping you can do this for us while carrying out the survey. We realize that some routes

are remote and a scouting expedition prior to the survey night may not be possible. However, if you cannot scout your route, the following information still applies, as you will need to fill out the stop description form when you conduct the survey.

Please drive the route and map out your stops by filling out the stop description form. Follow the sample form on page 11. Each route consists of 10 stops spaced 2 km apart. At each stop, note the odometre reading (measured from the starting point of your route, and written as a summation – i.e. 0, 2, 4, 6, 8...) and a general description of the stop (e.g. “just after big curve, next to speed limit sign”, or “100 m past driveway of house #365”) and the habitat (e.g. “open fields on right, coniferous forest on left”). Make sure your description of the starting point (Stop #1) is particularly clear. Try and pick a starting location that is easy to re-locate, such as a road junction or bridge (or note the driving distance from a point that is recognizable). Clearly describe the starting point on your stop description form. It is also a good idea to mark the starting point with flagging tape or a reflector.

If you own or can borrow a GPS, we *strongly* recommend that you take it with you on your scouting expedition or actual survey. At a minimum, we would like to know the position of the first and last stops on your route. We would prefer that all positions are reported using the NAD83 reference system; please indicate if your GPS uses a different system (e.g. NAD27). Coordinates should be recorded in degree decimal format (e.g. 45.56783° N, 67.10332° S). If the GPS you are using is not set to give coordinates in this format, see your unit’s manual about how to change the display settings.

Along each route, stops should be located every 2 km as much as possible. However, stops should be moved if they are dangerous (e.g. on a curve) or too noisy (e.g. near a house with a loud dog, beside a loud river or creek, etc.). Also, if a stop falls in an open area (e.g. an agricultural field, or in the middle of a town), please move it to the nearest available forested location. Forest on only one side of the road is fine; you will simply direct your playback to that side of the road. If you need to adjust the station spacing, please ensure that the stations are *at least* 2 km apart; you may lengthen the distance between stops, but please do not shorten it.

Also, please keep in mind the following general requirements:

1. The route should pass through mostly-forested habitat. If the route is on a road that is heavily settled with many houses or farms, it may not be suitable. Dogs often respond to the owl playback and make it difficult to hear any owls that might be calling back. If your route falls on a road that has a lot of homes (e.g. several per kilometre on average), it is probably not suitable.
2. The road(s) followed on the route should be permanent roads, which will likely be available for surveying in future years. Roads should be accessible in April or May. If you’re not sure if a road is accessible at that time (it might be too muddy or wet, and you may require a 4WD vehicle), ask someone who lives nearby!
3. The route should follow secondary roads with little traffic and sufficient safe points for stopping. Generally, a road that has constant traffic is not suitable for the owl survey, as it is neither safe nor easy to hear owls when cars and trucks are constantly passing.

If you find that your route does not fit one or more of the above requirements, please contact the survey coordinator who will choose a new route for you. Because we are attempting to randomize the location of routes, please do not attempt to choose your own new route. However, any knowledge you can provide on the suitability of roads in the area will help us to pick a better route.

## **SURVEY MATERIALS**

### **The following materials are included in your kit:**

- Instruction booklet
- Training CD or MP3 file
- Broadcast CD or MP3 File
- Survey and data forms
- Route map and stop description form
- Application for voluntary support (tax relief form)

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

- CD player or MP3 player and speakers
- Towel (to place underneath tape player to avoid scratching your vehicle)
- Flashlight
- Spare batteries for flashlight and CD/MP3 player (\* **VERY IMPORTANT\***)
- Watch
- Pencil/pen
- Clipboard
- Compass
- Reliable vehicle

### **Handy but optional equipment:**

- Headlamp-type flashlight
- GPS
- Cell phone (in case of emergency)

We are not able to reimburse volunteers for travel or other expenses. However, as a charitable organization, Birds Canada can offer tax relief for expenses volunteers incur while conducting field work. We are happy to extend this benefit to participants in the Owl Survey. An application for voluntary support is included in each participant's kit.

## **Broadcast Equipment**

We have established **400 metres** as the minimum distance at which you should be able to recognize the owl calls when the broadcast CD/MP3 is played at maximum volume without causing undue distortion (under ideal conditions: in an open area with no wind or precipitation). If your own equipment does not meet this guideline, please make arrangements to borrow equipment from a friend or contact the survey coordinator.

Differences in the volume and sound quality of different devices will no doubt affect the number of owls that respond. However, as long as the average volume and quality of the device used by an individual volunteer on a specific route does not change over time, the survey should be able to monitor long-term trends in owl populations. **In other words, please attempt to use the same CD or MP3 player each year.**

## INSTRUCTIONS FOR TESTING YOUR BROADCAST EQUIPMENT

This test takes about 20 minutes to complete and can be done any time before the survey. It should be carried out under weather and noise conditions similar to those which will likely be encountered during the survey (i.e. little or no wind, no precipitation, minor background noise). Use two people for this test: one to listen and one to run the CD/MP3 player.

Find a quiet, open area where you can measure off distances of approximately 400 and 500 metres either by pacing (100 metres is roughly 120 steps for most people) or driving (use car odometer). One volunteer should stand 400, and then 500, metres away from the CD/MP3 player while the other volunteer plays the broadcast CD/MP3. The CD/MP3 player should be played at the maximum volume possible without causing distortion. If your player has bass and treble settings, make sure they are set to the "normal" setting. Listen to see if the Boreal Owl calls are audible and recognizable at both 400 and 500 m. The results of this test should be entered on the first page of the survey form.

## DETAILED INSTRUCTIONS

### When to Survey Your Route

#### *Survey Window*

Please run your route once per year, on any evening during the designated survey period (**1 April – 15 May**). We strongly encourage you to run your route in the first few weeks of the survey window to avoid messy roads due to snowmelt. Noise from running streams is also a problem later in the season.

#### *Timing*

The survey should begin one half hour after sunset and finish no later than midnight. Please check online or in 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.

#### *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. Because some owl calls do not carry very far, wind is a critical limiting factor. Try to conduct surveys with little or no wind (3 or less on the Beaufort Scale; see data forms for details). Extremely cold temperatures have an adverse effect. For optimum response, try to select a night that is clear, calm and not too cold (e.g. warmer than  $-15^{\circ}\text{C}$ ). Do not attempt a survey if the wind exceeds force 3 or if there is persistent snow or rain. If conditions deteriorate over the course of an evening, use your judgment as to whether or not the route should be completed, or run again on another evening. Generally, light snow or drizzle starting in the middle of a survey shouldn't prevent you from completing your route, but strong winds are a much more serious problem.



## How to Survey Your Route

Drive to the starting location. Plan to arrive half an hour after sunset. Reset your trip odometer. This is Stop 1. Fill out date and weather information at the top of the data form. Put the broadcast CD in your CD player, or cue up the MP3 on your player and turn on your speakers. **Be careful not to play the training CD/MP3 file instead of the broadcast CD/MP3!**

At each stop, push the play button on the player and move at least 20 metres away. 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, following the instructions on pages 7–9.**

### **\*IMPORTANT\***

**If you are submitting hard copies of your data, it will be entered by someone at Birds Canada and therefore needs to be legible. We suggest making two copies of the data form – a rough copy to use on your survey without worrying about wrinkling or staining the paper, and a good copy to submit to Birds Canada. When you complete the survey, please transcribe your data on to the good datasheet.**

The broadcast CD/MP3 lasts approximately 7.5 minutes. It starts with a beep to indicate the start of the first **silent listening period**, which lasts **one minute**. Record all owls heard or seen. Another 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, as well as any owls from the first period that continue to call. Owls heard during these first two silent minutes 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 mark down any new owls which start to call. Remember that both Boreal and Northern Saw-whet owls may respond to the Boreal Owl call.

The **Boreal Owl** broadcast will repeat, followed by another **one-minute silent listening period**. Continue to record all owls seen and heard during this period separately.

The **Northern Saw-whet Owl** broadcast will then play for 20 seconds. This will be followed by another **one-minute silent listening period**. The **Northern Saw-whet Owl** broadcast will be repeated, followed by a final **one-minute silent listening period**. Again, record any owls heard or seen during each of these listening periods. A **beep** marks the end of the broadcast after the final listening period.

Estimate the distance and direction to each owl when it first begins to call, following the instructions on page 8. We realize that these particular measurements can be difficult to make; please do your best. These data can be used for gross-scale habitat modelling and to adjust for some variation in detection rates among sampling methods.

Before you leave each stop, make sure you have noted the odometer reading, time of day, traffic count and the background noise levels. It is important to keep track of the noise level on your route, because noise can



affect the detectability of owls. For example, if the average noise level on a route increases with time, then the number of owls *detected* might decrease, even if the actual number of owls calling doesn't.

Proceed immediately to the next station, and repeat the above procedure at all 10 stops. At the end of the last stop, record the time and weather conditions. Add up the total number of owls of each species and fill out the Comments section.

## 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 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 a completed data form (from the New Brunswick survey) and a completed stop description form are included below. **Please study the sample data form carefully to ensure that data are collected accurately.** Codes to be used in completing the data forms are also reproduced below (on p. 9).

**Broadcast equipment:** If you are using your own CD/MP3 player and speakers, indicate the type of equipment you are using. Also indicate the results of the equipment test described on page 5.

**Date:** Please note the month first (in numerals) followed by the day, e.g. 04-08

**Weather:** Record the weather conditions at both the start and end of the survey. Estimate the air temperature. Circle the appropriate code (as listed on the reverse side of the cover sheet of the survey form) to indicate the wind, cloud cover and precipitation.

**Odometer reading:** This information is particularly important if a stop has to be shifted from the standard station spacing of 2 km due to noise interference (from running water, frogs, hydro generator, barking dogs) or unsuitable habitat (open fields, homes). If you were provided with stop descriptions, please try to follow them as much as possible. There is likely to be variability between odometers in different vehicles, so you may have to rely on a combination of the odometer reading and the stop description to locate each stop.

**Time at each stop:** Record the time of day using the 24-hour clock (e.g. 1900h) at the start of each new stop.

**Owl Information:** 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. We would also like you to note any owls which were seen but not heard, individuals you think are "**repeats**" (the same bird you heard at previous station), and possible pairs. **If you think you are hearing the same bird as at a previous station, then record it as usual but put "Y" into the section of the data form that says, "Repeat?"** At each stop, record each owl detected in the column immediately to the right of the stop number by writing in the appropriate 4-letter species code, as provided on the reverse side of the survey form. For each stop, up to 4 different owls can be recorded on the lines provided. If more than four owls are detected at a stop, then these additional birds can be recorded in the spaces provided at the end of the form, being careful to write in the stop number beside them. Record *each* individual owl on a separate line even if they are the same species.

The six columns to the right of the species codes are used to indicate which of the six listening periods a particular owl was heard calling in. When an owl is heard, record the species code as noted above, 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). Leave the relevant column blank if a particular owl was not heard during that listening period. **Follow the sample form carefully!**

You may be wondering why we require such precise information about *when* owls are detected during playback. First, it is extremely important that we note whether the owls were heard before or after the playback (i.e. during the first two silent minutes, or after the Boreal or Saw-whet owl calls), so that we can determine the effect of playback on calling behavior. In addition, the first two minutes of silent listening are standardized in owl surveys across the country based on the National Guidelines. Therefore, if we want NL data to be used in any Canada-wide analyses, it is important that we keep track of owls heard before and after playback separately. By further noting exactly which period the owl called in, we can also analyze the effectiveness of multiple playback periods. For example, we can determine the proportion of Boreal Owls that called after 1 set of calls, as opposed to 2 sets. If we find that 95% of owls are detected after the first set of calls, we may decide, in future years, that the second set is not necessary.

If the owl is seen but not heard, 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 detected between the start and end of the playback should be tallied. If you detect an owl before or after this period, make a note in the Remarks column, but do not include this individual when you add up the total number of owls on the route.

**Distance to owl:** For each owl heard calling, estimate its distance from you *at the point when it first began to call* by checking off the appropriate distance category (<200m, 200–500m, 500–1000m, and >1000m).

**Direction to owl:** For each owl heard calling, estimate the direction it is calling from *at the point when it first began to call* using a compass. Stand on the road facing forward (i.e. the direction you are traveling). Use the compass to determine which way is North and estimate which compass direction most closely matches the direction the owl first called from (e.g. N, NE, E, SE, S, SW, W, NW).

**Traffic count:** Indicate the number of vehicles that pass by during the broadcast period at each stop in the column provided. **Please do not tally vehicles on your form (at least, not on the good copy!).**

**Noise level:** Rate the background noise level at each stop using the four-point scale described on the reverse side of the survey form. **Please do not give a range of possibilities for noise level; give only one code per stop (e.g. Noise Level = 1).** Describe the source of any elevated noise levels (above level 1) in the Remarks section (e.g. frogs calling, airplane overhead, running water, etc.).

**Other Species:** If you are confident in the identification of American Woodcock, Wilson’s Snipe or Ruffed Grouse, please record the number detected at each stop. If you detect none please enter a 0 so that we know you were listening for them. If you are not confident in identifying these additional species please put an X in the boxes. The characteristic sounds made by Woodcock and Wilson’s Snipe are found in the training CD/MP3. Male Ruffed Grouse can be identified by their deep drumming sound that increases rapidly in tempo.

**Comments:** Note any additional wildlife detected, interesting habitat characteristics, and any other significant observations made during that stop.

**General Remarks:** Please complete the General Remarks section of the cover sheet immediately following the survey while the experience is still fresh in your mind. Your comments are very important. We want to be sure we design this volunteer survey so that it is feasible, enjoyable, and productive.

WEATHER CODES		
<p><b>WIND (Beaufort Scale)</b></p> <p>0. Calm, smoke rises vertically.</p> <p>1. Light air movement, smoke drifts.</p> <p>2. Slight breeze, wind felt on face.</p> <p>3. Gentle breeze, small twigs move.</p> <p>4. Moderate breeze, small branches move.</p> <p>5. Fresh breeze, small trees sway.</p>	<p><b>CLOUD COVER</b></p> <p>1. 0-25%</p> <p>2. 25-50%</p> <p>3. 50-75%</p> <p>4. 75-100%</p> <p>5. Fog</p>	<p><b>PRECIPITATION</b></p> <p>(circle one)</p> <p>None</p> <p>Trace</p> <p>Rain</p> <p>Snow</p>
NOISE LEVEL CODES		
<p>1. None or slight, relatively quiet, little interference.</p> <p>2. Moderate, some interference with broadcast and/or listening.</p> <p>3. High, substantial interference with broadcast and/or listening.</p> <p>4. Excessive noise, extreme interference with broadcast and/or listening.</p>		
OWL SPECIES CODES		
<p><b>BOOW</b> = Boreal Owl</p> <p><b>NSWO</b> = Northern Saw-whet Owl</p>	<p><b>GHOW</b> = Great Horned Owl</p> <p><b>SEOW</b> = Short-eared Owl</p>	<p><b>NHOW</b> = Northern Hawk Owl</p> <p><b>UNOW</b> = Unknown Owl</p>

# SAMPLE DATA FORM

## ATLANTIC CANADA NOCTURNAL OWL SURVEY - NEW BRUNSWICK

**Route #** NB 92

**Weather Conditions:** Snow Cover (%) 100 Max Depth (cm) 10 Min Depth (cm) 5

**Mon Day** 0412

**Wind** 12345 **Cloud Cover** 12345

**Start of Survey:** 012345 **Temperature** +/- 0.7 °C

**End of Survey:** 012345 **Temperature** +/- 1.0 °C

**Precipitation:** Trace Trace Rain Rain

Stop	Time (24hr) and Odometer(km)	Species Code	Mark "X" if heard; "S" if owl seen; "XS" if both				Distance to each owl (m)				Other Species (# heard)										
			1st Min	2nd Min	After BOOW	After 1st BARR	After 2nd BARR	After 3rd BARR	After 4th BARR	Reported	Direction to Owl	<200	200-500	500-1000	1000-10000	Traffic Count (# cars)	Noise Level (1-4)	Amer. Wood-cock	Ruffed Grouse	Snipe	
1	2:03.1 0.0.0	N,S,W,O	X	X			X									0	1				Comments: NSWO calling upon arrival at stop. Ruffed grouse drumming.
2	2:04.7 2.0	B,A,R,R N,S,W,O	X		X					Y	S,E		V			0	1	1			Comments: NSWO same as previous station.
3	2:10.4 4.0	N,S,W,O N,S,W,O U,N,O,W			X						N		V			0	1				Comments: Unknown owl was making screeching and barking noises. Distant.
4	2:12.1 6.0	B,O,O,W			X						N,W		V			3	2				Comments: Boow call very distinct. Exciting! Dogs barking.
5	2:13.8 8.0	B,A,R,R								S	E		V			1	4				Comments: BARR flew in after 3rd call. Began to sing after 4th call. Spring peepers very loud.

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**SAMPLE STOP DESCRIPTION FORM****Newfoundland and Labrador Owl Survey****Stop Description Form**Route Number: 63 Route Name: ChockpishWritten by: Becky Whittam Date completed: April 8 2004

Stop #	Odometre reading (km)	Description (landmarks, general habitat)	Latitude/Longitude (from GPS) NAD 83
1	0	2.5 km west of St. Edouard de Kent on Renaud Rd. Forest all around. Just before "private property no trespassing" sign.	45.42403° N 67.25186° W
2	2.1	Just past driveway with white and green pillars. Jack pine (plantation?) on right.	45.44585° N 67.25969° W
3	4.15	Turned left on 475. Just past curve on 475. White house on left. Alders, tamarack, cedar.	45.46041° N 67.27325° W
4	6.1	At intersection of Bay Rd. Just before house on right. Forest both sides	45.47383° N 67.29027° W
5	9.0	Turn right on 505; just before bridge and after house. Hardwoods.	45.48541° N 67.30973° W
6	11.4	About 200 m past savonnerie. Lots of tamarack. Trailer on left.	45.49857° N 67.32721° W
7	13.55	Just past old motel. Black spruce, tamarack, logging	45.51210° N 67.34365° W
8	15.8	White shed on right, spruce, tamarack on left. About 100 m beyond intersection where 505 heads east toward the water.	45.52608° N 67.35993° W
9	17.8	At sign for Richibucto Village. Spruce.	45.54113° N 67.37405° W
10	21.5	La Prairie Road, about 1.3 km from Richibucto Village. Just past speed limit sign, before bend in road sign. Birch, cedar.	45.55636° N 67.38782° W

**Note Regarding Coordinates**

Pe-established coordinates are provided in decimal degree format, which is also the preferred format for you to submit new coordinates. While you may not be familiar with this format, it is easy to use and by far the easiest in terms of data entry and management. If you're using a handheld GPS, make sure it is set to display coordinates in this format.

## DATA SUBMISSION

### Online

If you are comfortable with online forms, we strongly encourage you to submit your data via our NatureCounts website (<https://birdscanada.org/birdmon/atowls/main.jsp>). When submit your data using the online form, it goes directly into the main Atlantic Nocturnal Owl Survey database, so it is the quickest and most efficient option. All you have to do is log in using the link above. If you're not sure whether you have a NatureCounts account, can't remember your password, or have any other questions about online data entry, please contact the survey coordinator.

### By Mail or E-mail

After you've completed the survey, check over your forms (survey form, data form, stop description form) to make sure all information is complete and legible. If you have access to a photocopier or scanner, make a copy of your data forms for your records (and in case the originals get lost in the mail). Mail your data sheets to the address below OR e-mail the scanned sheet to [cdale@birdscanada.org](mailto:cdale@birdscanada.org). Please return the forms by **15 June**.

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If you are applying for voluntary support, please send the completed application form and your cheque to Birds Canada, P.O. Box 6227, 17 Waterfowl Lane, Sackville, NB, E4L 1G6. The application must be received before **1 September**.

### CAUTIONARY NOTE

Song broadcasts are effective in locating and studying owls but should not be used indiscriminately. 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 playback may affect the normal activities of the owl. Enjoy the birding experience but please keep disturbance to a minimum. If you wish to use playback outside of the actual survey, please do so sparingly; do not use it to continually attract one or two pairs of owls which happen to be in a convenient location. Remember that the health and welfare of each bird is our utmost priority.

We are also concerned about your safety. Dress warmly. Please be careful when standing on roadsides at night and while driving on wintry roads.

**THANK YOU, ONCE AGAIN, FOR YOUR PARTICIPATION IN THE  
NEWFOUNDLAND AND LABRADOR NOCTURNAL OWL SURVEY!**

## APPENDIX A: IDENTIFICATION OF OWL CALLS

Please read the following descriptions of owl calls and listen to your training CD. Go out owling with an experienced birder before conducting your survey. Most of the information below was taken from:

<http://www.owlpages.com/>  
<http://www.bitterroot.net/usdafs/owls.html>

### Owls commonly encountered in NL

#### **Great Horned Owl**

Large repertoire of sounds, from deep booming hoots to shrill shrieks. The male's resonant territorial call "hoo-hoo hoooooo hoo-hoo" is often phrased as "Who's awake? Me, too". Gives a growling "krrooo-oo" or screaming note when attacking intruders. Other sounds include a "whaaa whaaaaa-a-aarrk" from disturbed birds, a catlike "MEEE-OWww", barks, hair-raising shrieks, coos, and beak snapping.

#### **Boreal Owl**

A rapid, high-pitched, "to-to-to", like the sound of dropping water or a series of musical, cooing notes. Similar to the sound made by Wilson's Snipe tail feathers during display flight (also included in training MP3 file). Please see also the Boreal Owl Identification Sheet included with the survey kit.

#### **Northern Saw-whet Owl**

Primary courtship call is a monotonous, whistled "hoop, hoop, hoop, hoop...", given at a rate of about 1½ notes per second. Territorial calls are a series of short clear notes. The Saw-whet Owl's name comes from the "skiew" call that is made when alarmed. This sound resembles the whetting of a saw. When the male flies to the nest with food, it gives a rapid staccato burst of toots, and the female responds with a soft "swEE".

#### **Short-eared Owl**

Unlikely to be detected on the survey because they are diurnal (active during the day), and prefer open habitat to forest. The male's territorial song is a pulsing "voo-hoo-hoo", resembling an old steam engine. This song is given mainly during flight displays and the female responds with a barking "kee-ow". When excited near the nest, both sexes squawk, bark, hiss and squeal.

#### **Northern Hawk Owl**

Also has diurnal habits. Gives a whistle-like call, "Ulululululu..." lasting approximately 10 seconds per turn.