PRINCE EDWARD ISLAND NOCTURNAL OWL SURVEY

Guide for Volunteers

Revised February 2007

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Atlantic Canada Nocturnal Owl Survey

Prince Edward Island

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PRINCE EDWARD ISLAND NOCTURNAL OWL SURVEY

Bird Studies Canada (BSC) and the Prince Edward Island Department of Environment, Energy and Forestry (PEIEEF)welcome you to the Price Edward Island Nocturnal Owl Survey!

Thanks 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 Ontario. We have decided to adopt the Ontario protocol in both PEI and NB, but have made changes as necessary to reflect the needs of the region. The PEI protocol also follows the *Guidelines for Nocturnal Owl Monitoring in North America*, published by the Beaverhill Bird Observatory and Bird Studies Canada, and available online at www.bsc-eoc.org/regional/nbowls.html. The survey is meant to be an annual event and will continue as long as possible.

WHY A PRINCE EDWARD ISLAND 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. The Barred Owl is therefore susceptible to changes in abundance of large cavity trees as a result of forest management activities. Monitoring the Barred Owl is consequently of considerable importance to wildlife and forest managers and conservationists as a means of assessing long term forest health.

To this end, Bird Studies Canada and the PEIEEF are working together to manage the PEI Nocturnal Owl Survey. Monitoring owls is not an easy task. They are secretive, primarily nocturnal and roost in concealed locations during the day. Consequently, PEI's owl populations are not adequately monitored through existing monitoring programs (e.g. Breeding Bird Survey, Christmas Bird Counts). Playback of recorded songs is used to census a variety of bird species, and is particularly useful for owls (especially Barred 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 Ontario, Manitoba, Alberta, Saskatchewan, British Columbia, Prince Edward Island, New Brunswick, Newfoundland & Labrador and Nova Scotia. Bird Studies Canada coordinates the owl surveys in Ontario, British Columbia, New Brunswick, mainland Nova Scotia, Newfoundland & Labrador and Prince Edward Island, and has been heavily involved in the development of the North American guidelines.

The goals of the PEI Nocturnal Owl Survey are:

1. To estimate population trends of owls (especially Barred Owls) over at least a 10-year period;
2. To gather location information on rare or little-known owl species (especially Boreal and Long-eared owls) in Atlantic Canada; and

3. To involve volunteer birders from across the region in wildlife monitoring.

The PEI playback protocol consists of Boreal and Barred Owl calls interspersed with silent listening periods. Northern Saw-whet Owls will respond to the calls of Boreal Owls, and in fact will likely be detected in much higher numbers than Boreal Owls in PEI. All other owl species that are encountered will also be monitored. These include Great Horned, Long-eared, and Short-eared owls. You can expect to encounter Great Horned, Northern Saw-whet and Barred owls most often on your survey. See Appendix B for more information on PEI's owls.

GENERAL SURVEY METHODOLOGY

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

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, anytime in the designed survey period (see letter accompanying survey kit, or data sheets, for dates). **We do, however, encourage you to run your route within the first two weeks of the survey period to avoid problems with frogs (e.g. loud choruses drowning out owl calls) and/or spring runoff or melt water problems.**

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 CD 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 try to avoid using playback unnecessarily; see Cautionary Note on p. 13). 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 three most commonly encountered species: Barred, Great Horned, and Saw-whet owls. The training CD also contains calls of two other nocturnal birds you might encounter (Common Snipe and American Woodcock) which are monitored using the survey as well as two species of frogs that begin calling first in the spring (Spring Peeper and Wood Frog).

3. Scout your assigned route during daylight hours. If you wish, distribute flyers 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. If you are using your own CD player, check to be sure that it is working and that it is loud enough by carrying out the test outlined in the box on page 5. If you do not own a CD player, call Rosemary Curley (902-368-4807) to see if you can borrow one. Reserve the CD player for 1-3 nights during the time period when you think you'll be surveying your route.

Your assigned route

Your kit includes a map of your survey route. All survey routes were chosen randomly using a map of all roads that should be driveable in April. Bird Studies Canada's National Council, consisting of leading ornithologists from across the country, is promoting random route selection for any new owl surveys being developed in Canada, as this is the best way to achieve statistically sound results. We're hoping to make the Atlantic Nocturnal Owl Surveys the first Canadian owl surveys to use random route selection successfully! It will take some patience and some help from you, but we believe it can be done.

If you have received a new route this year, you will need to scout your route before running it. 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 be required to fill out the stop description form the same night as 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 13. Each route consists of 10 stops spaced 2 km apart. At the start of your route (Stop #1), set your trip odometre to zero. At each stop, note the odometre reading 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 Geographic Positioning System (GPS), we *strongly* recommend that you take it with you on your scouting expedition and actual survey. At a minimum, we would like to know the position of the first and last stops on your route but would prefer that positions for each stop are recorded. 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 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. If you're not sure if a road is accessible in April (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 could provide on the suitability of roads in the area would help us to pick a better route.

SURVEY MATERIALS

The following materials may be included in your participant's kit:

- Instruction booklet
- training CD
- broadcast CD
- survey and data forms
- route map and stop description form
- application for voluntary support
- Envelope for returning the completed forms

You will have to supply the following:

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

Handy but optional equipment:

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

Broadcast Equipment

We are attempting to provide standardized broadcast equipment to all surveyors by purchasing 10 CD players and making them available for borrowing through the PEI-EEF. If you own a loud portable CD player, you may use it for the survey provided it passes the simple test outlined below. We have established **400 metres** as the minimum distance at which you should be able to recognize the Barred Owl calls when the broadcast CD 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 a CD player from Rosemary Curley at the PEI-EEF or from a friend.

Differences in the volume and sound quality of different CD players will no doubt affect the number of owls that respond. However, as long as the average volume and quality of the CD player 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 player each year you conduct the survey!**

If you are using your own CD player....
INSTRUCTIONS FOR TESTING YOUR BROADCAST EQUIPMENT

This test takes about 20 minutes to complete and can be done anytime 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 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 player while the other volunteer plays the broadcast CD. The CD player should be played at the maximum volume possible without causing distortion. If your CD player has bass and treble settings, make sure they are set to the "normal" setting. Listen to see if the Barred 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. We strongly encourage you to run your route in the first two weeks of the survey window to avoid competing frog choruses or 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 your local paper for sunset time. (Don't forget that Daylight Savings Time begins the first Sunday of April.) 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 -15ºC). 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 judgement 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 at least 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. **Be careful not to play the training CD instead of the broadcast CD!**

At each stop, put the CD player on the roof or hood of the vehicle. Push the play button on the CD player and move at least 20 metres away. Although all participants should listen and watch for owls, only 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 to 10.**

IMPORTANT

There are two copies of the data form (a good copy, on coloured paper, and a rough copy, on white paper). The "good" copy (stapled to the survey form) will be scanned at BSC and therefore needs to be legible. We have provided the rough copy so that you can use it on your survey without worrying about wrinkling or staining the good copy. When you complete the survey, please transcribe your data on to the good datasheet. If you decide to use the good copy on your route, please be careful with it!

The broadcast CD is a single, 12-minute track. 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 can be expected to respond to the Boreal Owl call.

Then the **Barred Owl** broadcast will play for 20 seconds. This will be followed by a **two-minute silent listening period**. Then the **Barred Owl** broadcast will be repeated, followed by another **two-minute silent listening period.** This Barred Owl broadcast is repeated 2 more times, with a silent listening period between each broadcast. Again, record any owls heard or seen during each of these listening periods. A **beep** marks the end of the broadcast after the final two-minute listening period.

Estimate the distance and direction to each owl when it first began to call, following the instructions on page 9. 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 using 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 though the actual number of owls calling was not decreasing.

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 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 an example of a completed data 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. 10 & 11).

Broadcast equipment: If you are using your own CD player, 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

Observer Number: This is printed on the data label on the first page of the survey form. Please fill in your observer number on the data sheet. If you were not the surveyor originally assigned to this route (and therefore you do not have an observer number), simply leave this field blank (we will fill it in later).

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 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).

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, and 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 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 seven columns to the right of the species codes are used to indicate which of the seven 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, "2nd 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 Barred Owl calls), so that we can determine the effect of playback on calling behaviour. 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 PEI data to be used in any Canada-wide analyses, it is important that we keep track of owls heard separately before and after playback. 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 Barred Owls that called after 2 sets of calls, as opposed to four sets. If we find that 95% of owls are detected after only 2 sets of calls, we may decide, in future years, that the last two sets of calls are 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 broadcast CD 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). Be sure to indicate your level of certainty for the majority of owls detected by circling the appropriate choice at the bottom of the data forms (i.e. are you very confident, confident, or uncertain about your distance estimates?).

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 in). Use the compass to determine which way is North and estimate which compass direction most closely matches the direction the owl is calling from (e.g. N, NE, E, SE, S, SW, W, NW). Again, be sure to indicate your level of certainty for the majority of owls detected by circling the appropriate choice at the bottom of the data forms (i.e. are you very confident, confident, or uncertain about your direction estimates?).

Traffic count: Indicate the number of vehicles which pass by during the broadcast period at each stop in the column provided.

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, Ruffed Grouse and Common Snipe, 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 snipe are found on your training cd. 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 as well as any other interesting 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.

Scannable Forms – 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. Please follow the sample forms carefully when filling in your forms.

RIGHT JUSTIFY data within the appropriate columns, otherwise the scanner may not read it correctly.

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 "Remarks & Other Species" section or attach a separate page.

FILL IN THE BUBBLES completely when you are asked to make a choice using them.

MISTAKES HAPPEN! Try to limit errors, but if they occur, correct them as best you can. To reduce the number of mistakes, we have provided a rough datasheet to use on your survey. Please transcribe your data to the "good" form and return that to BSC. If you really mess up, give us a call and we can send you a new form.

WEATHER CODES

WIND (Beaufort Scale)	CLOUD COVER	PRECIPITATION
0. Calm, smoke rises vertically.	**1.** 0-25%	(circle one)
1. Light air movement, smoke drifts.	**2.** 25-50%	None
2. Slight breeze, wind felt on face.	**3.** 50-75%	Trace
3. Gentle breeze, small twigs move.	**4.** 75-100%	Rain
4. Moderate breeze, small branches move.	**5.** Fog	Snow
5. Fresh breeze, small trees sway.		

NOISE LEVEL CODES

1.	None or slight, relatively quiet, little interference.
2.	Moderate, some interference with broadcast and/or listening.
3.	High, substantial interference with broadcast and/or listening.
4.	Excessive noise, extreme interference with broadcast and/or listening.

OWL SPECIES CODES

BARR = Barred Owl	**NSWO** = Northern Saw-whet Owl	**SEOW** = Short-eared Owl
BOOW = Boreal Owl	**EASO** = Eastern Screech Owl	**NHOW** = Northern Hawk Owl
GHOW = Great Horned Owl	**LEOW** = Long=eared Owl	**UNOW** = Unknown Owl

ATLANTIC CANADA NOCTURNAL OWL SURVEY - NEW BRUNSWICK

Route #: NB 92

Mon Day: 04 12 / 2005

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

(Please circle one)

	Wind	Cloud Cover	Precipitation			Temperature
Start of Survey:	0 **(1)** 2 3 4 5	1 **(2)** 3 4 5	None	Trace	Rain	Snow	+/- − 0.7 °C
End of Survey:	**(0)** 1 2 3 4 5	1 2 **(3)** 4 5	None	Trace	Rain	Snow	+/- − 1.0 °C

Stop	Time (24hr) and Odometer(km)	Species Code	Mark "X" if heard; "S" if owl seen; "XS" if both: 1st Min	2nd Min	After BOOW	After 1st BARR	After 2nd BARR	After 3rd BARR	After 4th BARR	Repeat?	Direction to Owl	Distance to each owl (m): <200	200-500	500-1000	1000+	Traffic Count (# cars)	Noise Level (1-4)	Other Species (# heard): Amer. Woodcock	Ruffed Grouse	Snipe
1	20:31	NSWO	X	X			X				NW			✓		0	1		1	
	00.0															Comments: NSWO calling upon arrival at stop. Ruffed grouse drumming.				
2	20:47	BARR			X			X			SE		✓			0	1	1		
	.2.0	NSWO	X	X						Y	N				✓	Comments: NSWO same as previous station.				
3	21:04	NSWO			X						N	✓				0	1			
	.4.0	NSWO							X		SW		✓			Comments: Unknown owl was making screeching and barking noises. Distant.				
		UNOW					X	X	X		S				✓					
4	21:21	BOOW			X						NW		✓			3	2			
	.6.0															Comments: Boow call very distinct. Exciting! Dogs barking.				
5	21:38	BARR						S	XS		E	✓				1	4			
	.8.0															Comments: BARR flew in after 3rd call. Began to sing after 4th call. Spring peepers very loud.				

9854025700

SAMPLE DATA FORM (from NB)

SAMPLE STOP DESCRIPTION FORM (from NB)

Prince Edward Island Nocturnal Owl Survey **Stop Description Form**

Route Number: _____63_____ Route Name: _____Chockpish_____

Written 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 tresspassing" 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

For routes with pre-established coordinates they are provided in degree decimal 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.

Rare Owls

If you're lucky enough to see or hear one of PEI's rare owl species (Boreal Owl, Long-eared Owl, Short-eared Owl), please contact the survey coordinator RIGHT AWAY (i.e. the very next morning!). We will follow up on your reports of rare species (perhaps by visiting your route again) to further verify these important records.

Returning the Completed Forms

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, make a copy of your data forms for your records (and in case the originals get lost in the mail. If you fax your data forms, please send a copy of the original forms by mail as the faxed forms cannot be scanned. Please return the forms by **30 May** to Rosemary Curley at the PEI Department of Environment, Energy and Forestry: PO Box 2000, 11 Kent St. 4th Floor; Charlottetown, PE C1A 7N8; (902)

If you have any questions or concerns regarding the survey you may also contact:
Becky Whittam, Bird Studies Canada - Atlantic Region
P.O. Box 6227, Sackville, NB, E4L 1G6
phone: (506) 364-5047
fax: (506) 364-5062
email: bwhittam@bsc-eoc.org

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 PRINCE EDWARD ISLAND NOCTURNAL OWL SURVEY!

We couldn't do it without you.

APPENDIX A
IDENTIFICATION OF PRINCE EDWARD ISLAND 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 information taken from:

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

Commonly encountered in PEI

Barred Owl
Highly vocal, giving a loud and resounding "hoo, hoo, too-HOO; hoo, hoo, too-HOO, ooo" often phrased as "Who, cooks, for-you? Who, cooks, for-you, all?" The last syllable drops off noticeably. Will call in the day and at night. Other calls include "hoo-hoo, hoo-WAAAHH" and "hoo-WAAAHHH" used in courtship. Mates will duet (as on training CD). Other vocalisations range from a short yelp or bark to a frenzied monkey-like squall.

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 whaaaaaa-a-a-aarrk" from disturbed birds, a catlike "MEEE-OWww", barks, hair-raising shrieks, coos, and beak snapping.

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 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".

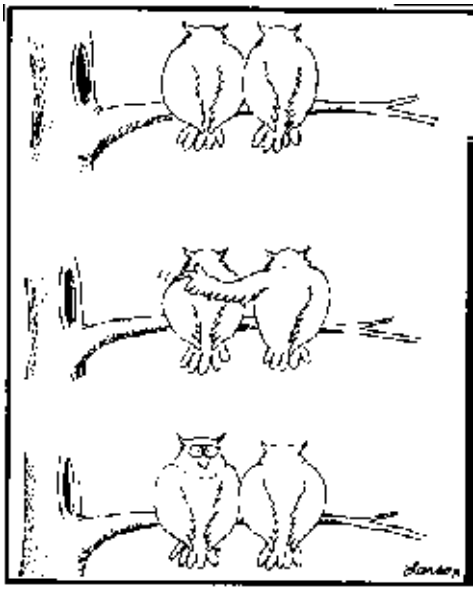
Rarely encountered in PEI

Long-eared Owl
Main call is a low "hoo, hoo, hoo, hoo, ...", repeated 10 to 200 times, with one note every 2 to 3 seconds. The female responds with a raspy buzz call, and often duets with the male. When alarmed, Long-eared Owls bark "whek-WHEK-whek" or shriek like a cat. Both males and females hiss during exchange of prey or when alarmed.

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 Common Snipe tail feathers during display flight (also included on training CD). Please see also the Boreal Owl Identification Sheet included with the survey kit.

Short-eared Owl

Unlikely to be detected on the PEI 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.



APPENDIX B
INFORMATION ON PRINCE EDWARD ISLAND OWLS

Species Descriptions follow for:

Great Horned Owl
Barred Owl
Northern Saw-whet Owl
Long-eared Owl
Short-eared Owl
Boreal Owl

Taken from:

Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.

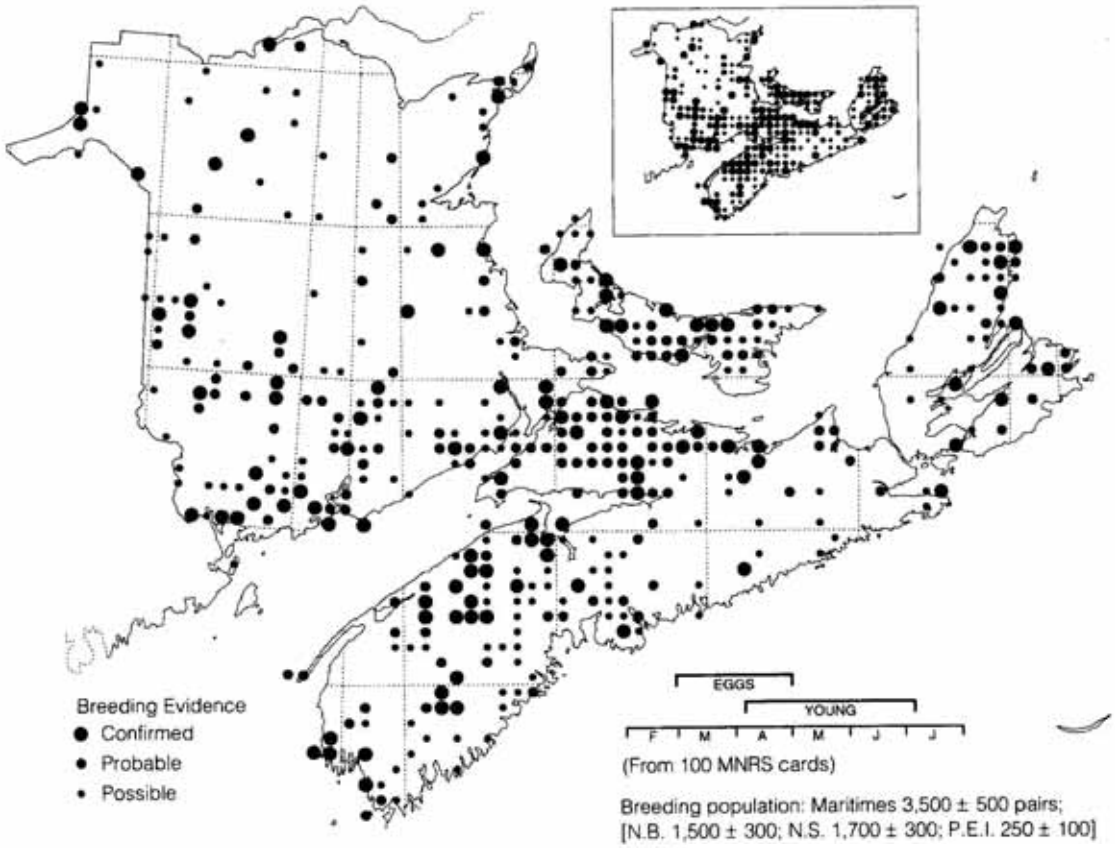
Great Horned Owl
Grand-duc d'Amérique

Bubo virginianus

The Great Horned Owl occurs throughout the Americas, from the arctic tree-line south to the Strait of Magellan. In the Maritimes, it is our most widely distributed and possibly our most numerous owl, although Barred Owls exceed its numbers in Nova Scotia. Like all night birds, it was often missed by atlassers, and it probably occurs more generally than our records show. The period of most frequent calling in spring coincides with the "mud season" here, when many rural roads are all but impassable for conventional vehicles; this difficulty, coupled with relatively low densities of all owls, greatly reduced the attractiveness of night surveys, and few observers spent much time listening for owls. These large birds are detected almost as often by sight as by sound, and most records of confirmed breeding were of nests (NY,NE,ON, 44 squares) or newly fledged young (FL; 55 squares); these comprised 24 per cent of 414 squares with Great Horned Owls. These owls do not build a nest, but take over nests of large hawks or crows; they readily accept nest-platforms erected for their use, as discovered independently here (though known earlier in other areas).

Large owls were shot on sight in the Maritimes for many years, as they were considered harmful to human interests. This species, which feeds on almost any available animals, is more likely than most raptors to have taken domestic poultry or desirable game species, but its effects, even at undisturbed population levels, would not have matched those of human predators. Tufts (1986, also noted in 1962 & 1973 editions) considered that this species had decreased from former abundance in Nova Scotia, but this was not a widespread consensus; as a boy in Nova Scotia in the 1940s I never saw one, but nearby in New Brunswick I now see a few every year while spending less time in the field. Shooting of hawks and owls is less general than formerly, though it still persists, so their numbers might have been recovering from earlier persecution 40 years ago. True numbers may be several times greater than our minimal estimates. Although numbers of Great Horned Owls elsewhere fluctuate with those of the Snowshoe Hare, one of their main prey species, this relationship has not been evident in the Maritimes. There seem to be no serious threats to its continued abundance here.

Ref. 147



Source: Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.

Barred Owl
Chouette rayée

Strix varia

One of the two common large owls of temperate North America, the Barred Owl is a permanent resident, breeding throughout the eastern hardwood and mixed forests of Canada and the U.S.A., south at higher elevations into Central America, and recently westward into British Columbia. The Maritimes is near its northeast limit, as it scarcely penetrates beyond the Gulf of St. Lawrence. Like other owls, this nocturnal species was certainly more generally distributed than the Atlas data showed. Its scarcity in New Brunswick outside the southwest quarter and in eastern Nova Scotia may reflect some avoidance of the more coniferous forests there. Most records (80 per cent of 377 squares with Barred Owls) were of single (H) or repeated (T) sightings or calls, and only 19 squares had nests reported, mostly in nest-boxes. These birds originally nested in large, hollow trees, and their ready adoption of nest-boxes suggests that they are sometimes limited by availability of suitable cavities.

The greater extent in former times of mature forests, with more large old trees and more frequent tree cavities, indicates that Barred Owls were more abundant when Europeans first came to the Maritimes than at present. Subsequent selective logging, taking the largest trees first, reduced availability of nest-sites at the same time that indiscriminate shooting of large birds, and especially raptorial species, reduced the numbers of Barred Owls. Though always considered one of the most common owls in the Maritimes, this bird was probably at its lowest numbers early in the 20th century, and it may have increased somewhat since then. Atlas records provided a weak sampling base for estimating populations. Shorter cycles in the cutting of managed forests in future will limit the old-growth trees that provide natural cavities, but many suitable trees remain in neglected areas. This is hardly a common bird, but its numbers seem unlikely to change greatly in the next few decades.

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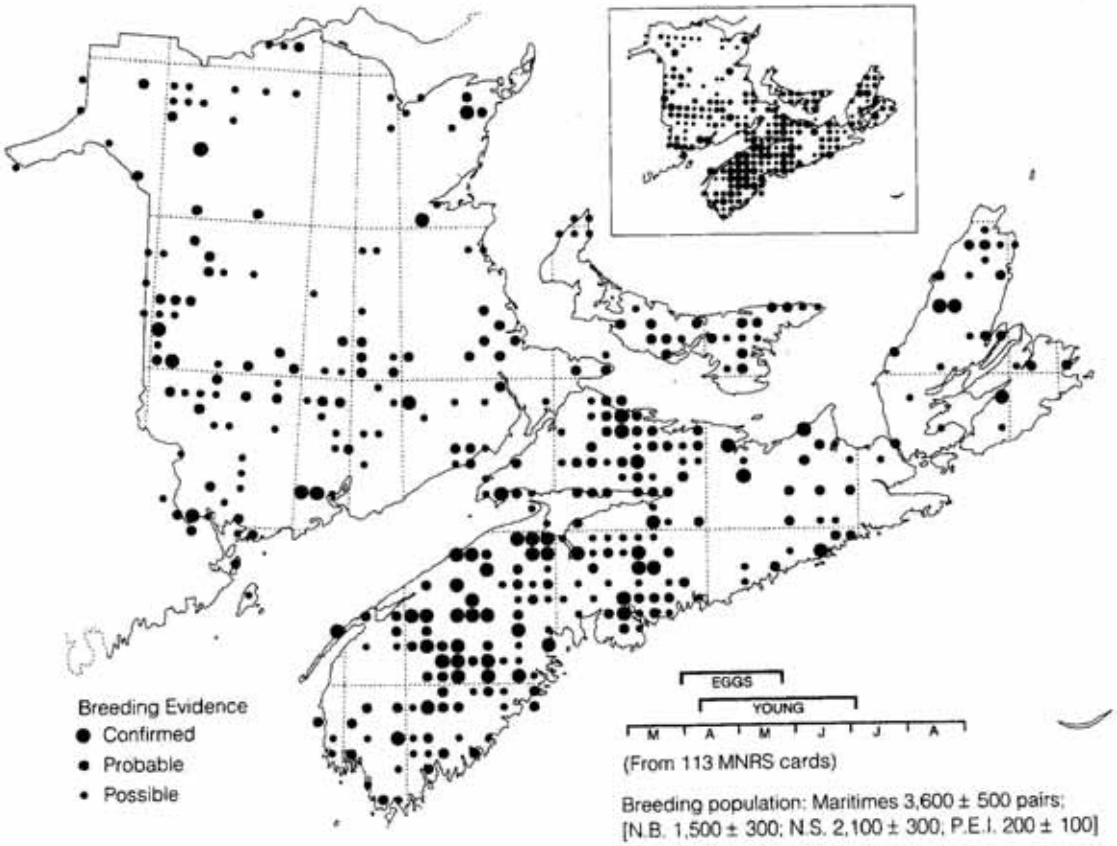

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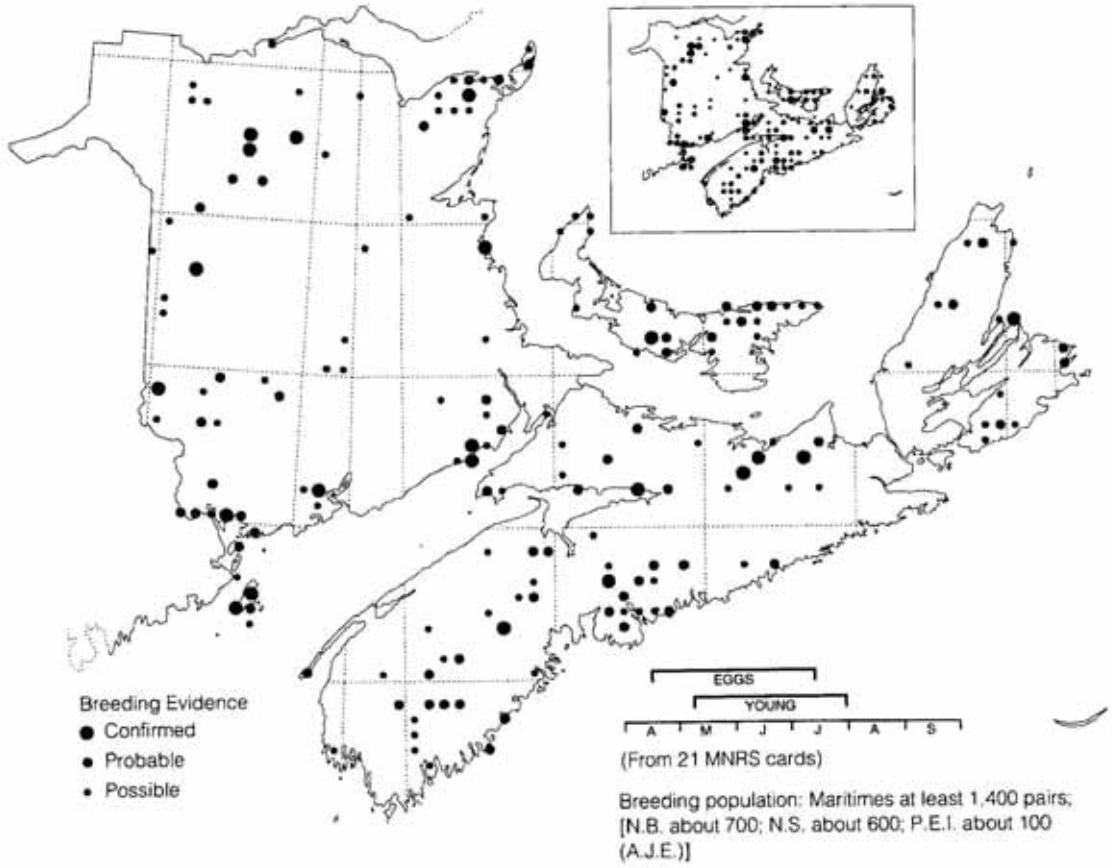
Source: Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.

Northern Saw-whet Owl
Petite Nyctale

Aegolius acadicus

This small owl breeds across southern Canada, south to northern Mexico and to Missouri and Maryland, U.S.A. It is partly migratory, as numbers have been banded in autumn at concentration areas along shorelines, including in Nova Scotia, but some others winter here. Like other owls, it is seriously under-represented by the Atlas data in the Maritimes, largely owing to a scarcity of observations when the birds are calling, at night in spring when back-country roads are best avoided. The data here were too sparse to provide a convincing pattern of absence vs. presence, but they suggested that Saw-whet Owls occur throughout our area, as indicated by earlier summaries based on even fewer records. Most reports were of single (H) or repeated (T) sightings or calls (in 86 per cent of 168 squares with the species). Nests in woodpecker holes or nest-boxes were found in only 11 squares, and fledged young in 10 squares.

Historical data on trends in numbers of Saw-whet Owls are lacking completely. We infer that suitable nesting cavities were more frequent in the more generally mature forests before European settlement than at present, but we do not know if nest-sites have limited their numbers, recently or in the more distant past. Cold winters with deep snow, which may have been more frequent during the Little Ice Age, still cause losses by starvation of wintering Saw-whet Owls in some years. Reports are neither more nor less widespread or frequent now than 30–40 years ago; this need not point to a decline, as the greatly increased numbers of observers in recent years do not spend much, if any, more time afield at night. Our estimates of breeding numbers are little better than guesses. There are few obvious threats to this inconspicuous species, which is likely to persist, unobserved, in our forests for years to come.



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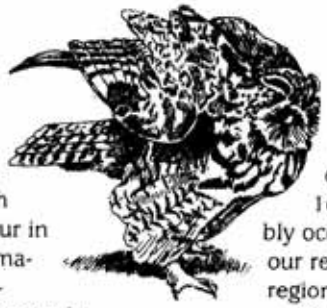
Source: Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.

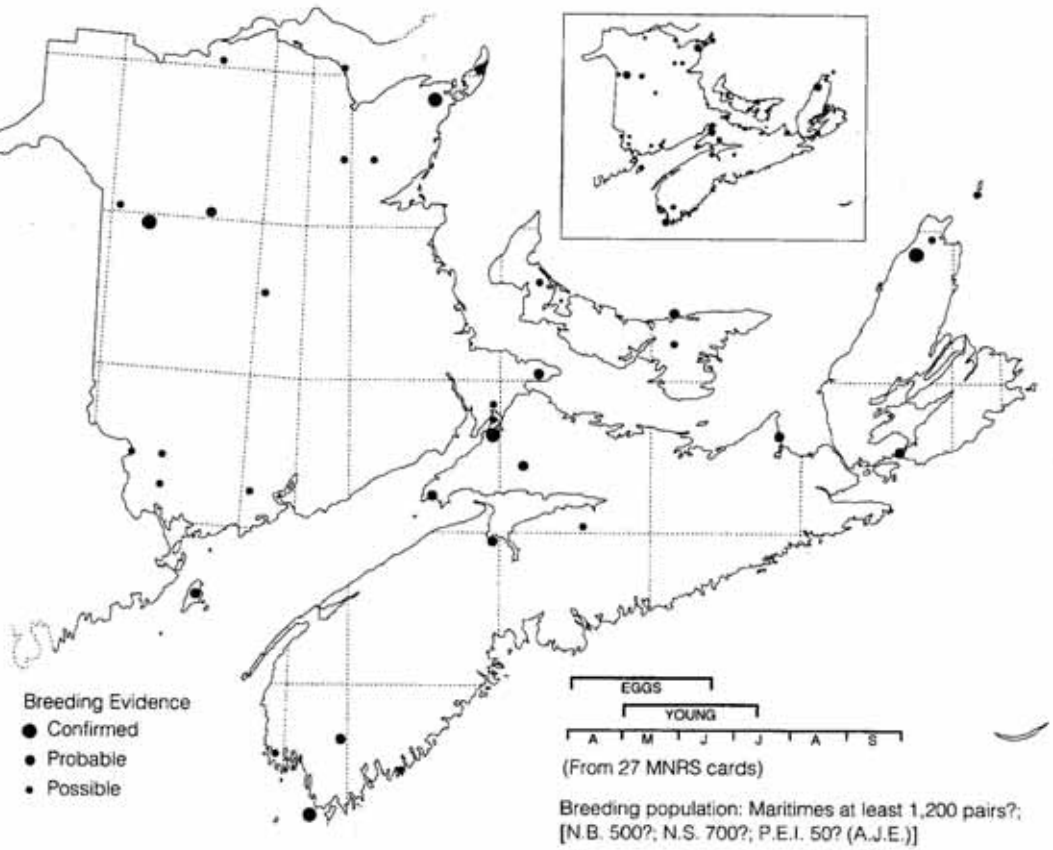
Long-eared Owl
Hibou moyen-duc

Asio otus



This owl occurs across the boreal and temperate regions of Eurasia and North America; related but larger species occur in tropical America and Africa. It is a permanent resident in milder areas, but withdraws from more northern parts of its range in winter. It frequents woodlands large or small, dense or open, conifer or broad-leafed, at all seasons, but it also forages over open areas. Long-eared Owls are seldom seen except at nests or roosts, as they usually stay in dense cover except during their nightly foraging for small mammals, which make up their main prey. Their calls are varied, including squawks and screams not easily recognized as belonging to an owl. Long-eared Owls are easily missed, and this may well be the most poorly represented species in the Maritimes Atlas. During the five years of field-work, it was recorded in only 35 squares, in all three provinces, including the first ever found on Cape Breton Island. It is probably much more widely distributed than our records suggest, but we can only guess at its real frequency. In the Ontario atlas, with more intensive field work, Long-eared Owls were found in about one-third as many squares as Barred Owls, vs. one-tenth here; in Maine, with less intensive effort, they were found in only 6 squares vs. 160 with Barred Owls. Long-eared Owls probably occur, at low density, all over the Maritimes, as our records were scattered in 14 of the 23 atlassing regions.

Historic changes in the forest cover of the Maritimes seem unlikely to have much altered its suitability for this species. The former widespread persecution of raptorial birds is unlikely to have affected this strictly nocturnal species. The Atlas data provide no direct basis for estimating their total numbers here, but comparison with the Barred Owl allows us a guess. Although Long-eared Owls often move in autumn to roosts near favoured foraging areas (e.g., Kings Co. dykelands in Nova Scotia), our birds are not known to leave the Maritimes in winter; thus any changes, in the future as in the past, would result from persecution or environmental changes within the Maritimes. The fragmentation of our forests in recent years seems likely to affect the numbers of these owls more by influencing the availability of their prey than by reducing their habitat.

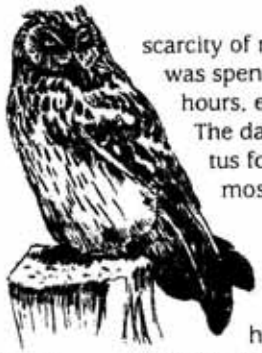


Breeding population: Maritimes at least 1,200 pairs?; [N.B. 500?; N.S. 700?; P.E.I. 50? (A.J.E.)]

Source: Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.

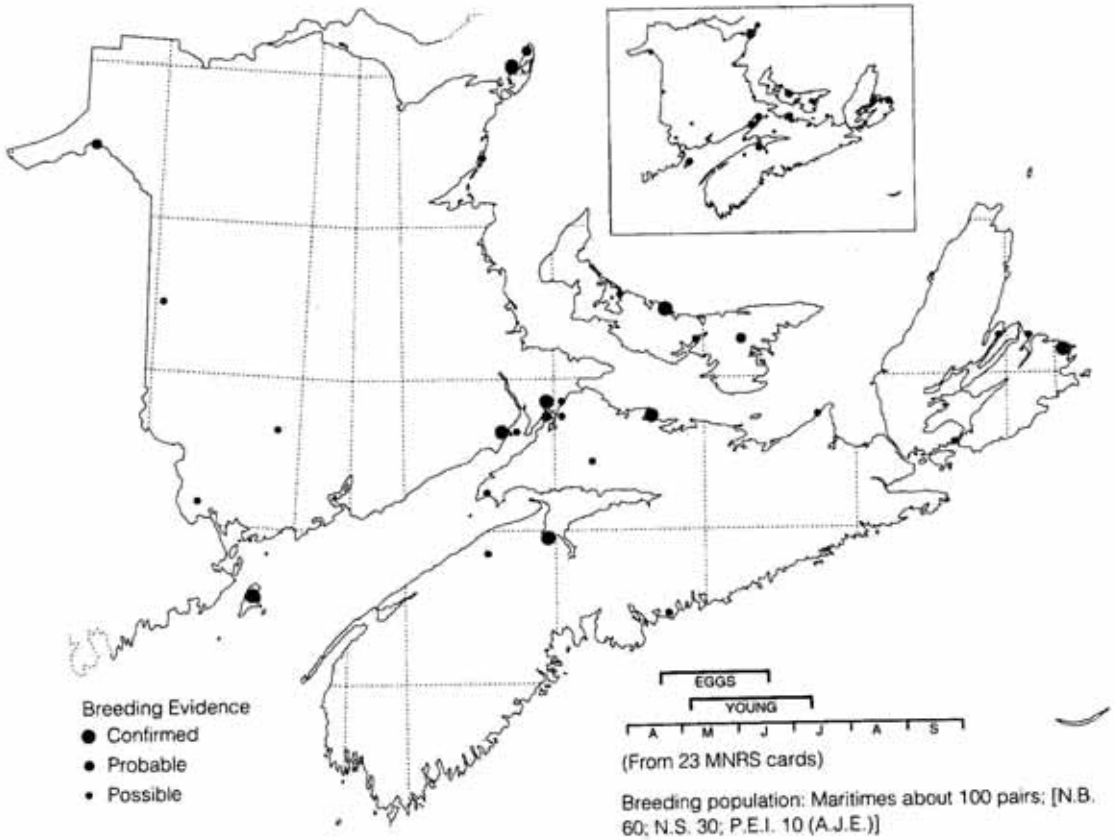
Short-eared Owl
Hibou des marais

Asio flammeus



The Short-eared Owl occurs erratically in open grassy areas on most continents and some oceanic islands. In North America, it ranges in low arctic tundras from Alaska to northern Labrador, and in boreal and temperate grass- and shrub-lands south to California and New Jersey, but its presence and numbers in any area vary from year to year. These owls have bred in the Maritimes in dyked wet meadows and marshes and in coastal bogs and grasslands in the past, and they were found locally in such habitats during the Atlas, with no confirmed breeding away from the coasts. Their numbers, and those of the meadow voles on which they fed, were unusually high in 1980, when R. Simmons found many nests near Jolicure, N.B., and B. Forsythe found several nests near Grand Pré, N.S.; no such abundance occurred during the Atlas period, but nests were found on the Grand Pré dykelands also in 1987 and 1988. As Short-eared Owls hunt at dawn and dusk in open country, they are more easily detected than other owls, although they seldom vocalize. The scarcity of mapped records indicates that little time was spent searching suitable habitats in the twilight hours, except in squares where observers lived. The data probably under-represent the usual status for this species, but perhaps less so than for most owls.

Although European settlement of the Maritimes resulted in extensive destruction of marshes, the dyking of salt marsh, by excluding tidal effects, may have helped breeding by Short-eared Owls. Their numbers vary so erratically, independently of human actions, that there are no firm grounds for believing that Short-eared Owls were generally much more or less common in the past than at present. We surmise that in years with peaks in vole abundance, such as 1980, their numbers may increase to more than double the usual population, but we do not know how much the numbers in favoured sites spill over into other potential areas. Presumably these birds will continue to fluctuate in distribution and numbers here in the future. Their nomadic habits outside of nesting season mean that they can easily re-occupy suitable habitats when food is available, even though present numbers here are low.



Breeding population: Maritimes about 100 pairs; [N.B. 60; N.S. 30; P.E.I. 10 (A.J.E.)]

Source: Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.

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Boreal Owl
Nyctale boréale

Aegolius funereus

This small owl is poorly known in North America, although it has been well-studied in Europe. It breeds across the boreal forests of Eurasia and North America, and locally farther south in the mountains, nesting in woodpecker holes and other tree cavities. Boreal Owls are active only at night, and they call early in the spring when few observers are afield, so they are easily missed. Until recently, inaccurate descriptions of the territorial call in most North American bird books hampered recognition of Boreal Owls throughout their range on this continent. They were meagrely represented in the Atlas records in 11 squares, which were restricted to northeastern New Brunswick and Cape Breton Island, except for one report in eastern Prince Edward Island. Our data certainly under-represent the species, but the scarcity of records at other seasons suggests that we do not have a large unseen population of Boreal Owls.

With so few records anywhere on this continent, we have little perspective from which to assess its past or present status in our area. No Boreal Owls were found in the Atlas study in Maine, and only 22 squares in the Ontario Atlas had this species. It seems plausible that the old records (1924–32) from the Grand Manan archipelago were a temporary phenomenon only, and that the Atlas records from the northern periphery of our region represent the southern limit of its regular range in the east; the sparse Quebec records support this interpretation. Boreal Owls may have bred in our northern bogs all along, though they were not recognized to do so until the Atlas period. Those habitats, and presumably also the birds in them, have changed rather little over the period of European settlement here. Our estimates are certainly minimal, but undetected birds are unlikely to push the total above a few hundred pairs. There are no obvious human threats to the species, but a tendency towards climatic warming could lead to a northward retreat of its range limit.

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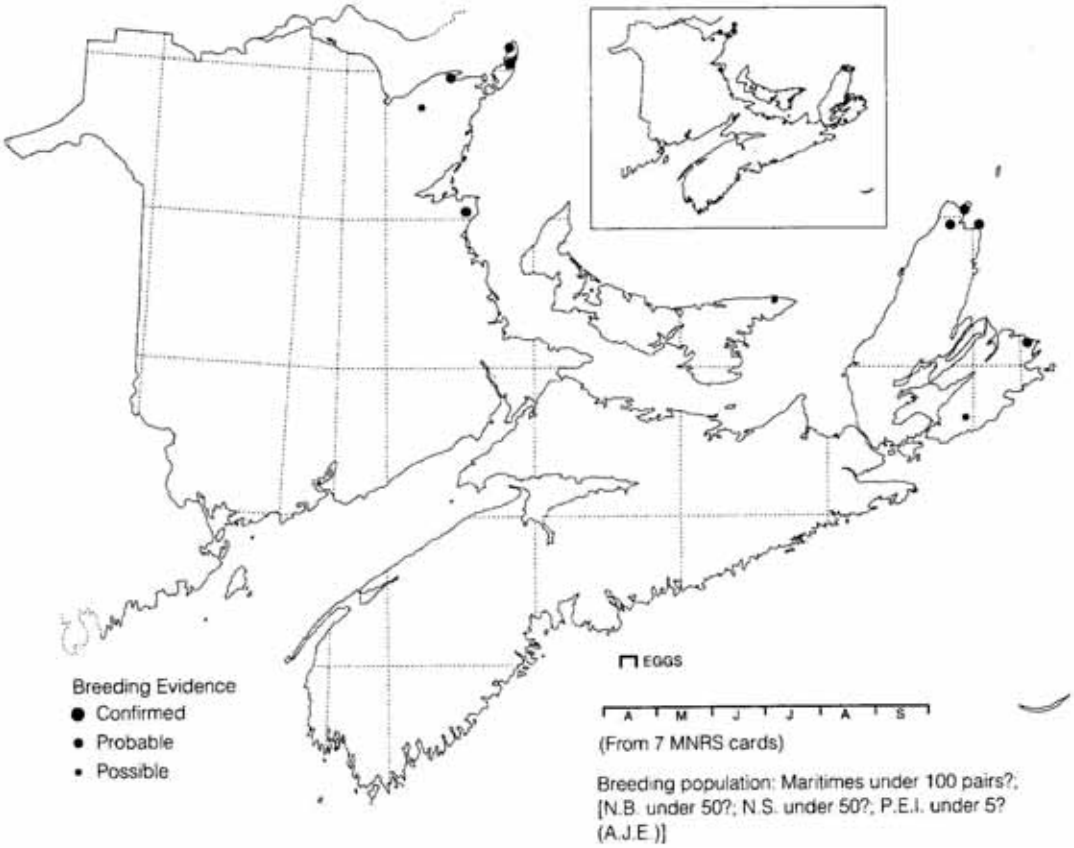

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Source: Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing, Nova Scotia Museum. 270 pp.