

**BC, Yukon, and Northwest Territories  
Nocturnal Owl Survey  
Instructions for Participants**



# Background

Owls are notoriously difficult to count because they are secretive, primarily nocturnal and roost in concealed locations during the day. As a result, monitoring programs such as the Breeding Bird Survey, Forest Bird Monitoring Program, and Migration Monitoring Program are unable to adequately monitor owl populations. To improve our understanding and monitoring of owl populations in Western Canada, Bird Studies Canada initiated the BC-Yukon Nocturnal Owl Survey in 2000. In 2019, the Northwest Territories was added to this survey.

Participants survey their route at least once per year in the following months: February on the south coast, March in the southern Interior and April in central and northern BC, the Yukon, and the Northwest Territories. Additional surveys can be carried out in other late winter and spring months if the participant wishes. Routes consist of 10 to 30 stops positioned 1.6 km apart along secondary roads. At each stop, the observer simply listens for two minutes and notes any owls heard. Each survey takes about 1 to 2 hours (not including driving time to and from the survey site). Surveys must be done in good weather, and also must be completed before midnight, for volunteer safety.

No tape playback is used on Interior routes, since owl numbers there are sufficient for monitoring without this technique. On coastal surveys we use a CD-based playback of Western Screech-Owl calls to increase the numbers of detections of all owls; this results in about 5 minutes spent at each stop on coastal routes. Participants receive annual newsletters and tax relief for travel expenses incurred during the survey.

# Survey Instructions

## 1. Routes and stops

**PLEASE CONTACT THE COORDINATOR BEFORE CHOOSING A NEW ROUTE.**

All routes done last year should be run again this year if at all possible. If you would like to start a new survey route, please contact the coordinator.

The routes will be at least 14.4 km long, consisting of 10 to 30 stops situated 1.6 km apart--note that this is slightly different from the first year's protocol in which all routes had to be 10 stops long; routes may now be up to 30 stops in length. Stops can be slightly farther apart if (and only if) the 1.6 km distance puts one at an inconvenient or dangerous spot. It is important to keep the 1.6 km distance as constant as possible so that any bias towards stopping at "favourite" owling spots is reduced. The distance between the stops was a compromise between being sure of not counting the same owl twice and keeping the overall distance traveled to a minimum. The 1.6 km distance may seem awkward, but it makes the protocol comparable to present Breeding Bird

Survey (BBS) methods and will allow the protocol to be used easily in the US. Although this is a "made-in-Canada" protocol, it is likely that it will be adopted throughout North America as the standard way to monitor owl populations.

Entire routes or parts of the route can also be surveyed by snowmobile, horse, skis, or snowshoes along cutlines or trails. However, we do not recommend doing the complete route on foot, as it is a considerable distance to go at night in late winter.

## **2. Route descriptions**

All observers should have received a map showing the route on it and sheet describing the location of each stop. If you did not receive such a map, please photocopy the appropriate part of a topographical map, preferably one of 1:50,000 scale, mark the route on the map and submit the map with your survey results. The individual stops should also be clearly marked on the map, and a detailed description of their location written on the back of the map or on a separate sheet. Alternatively, stops can be mapped out on Google Earth. Stop descriptions should be of the stop's position, not necessarily the habitat around them; and are needed so that the stop can be located as precisely as possible in the future if a new observer takes over the route or the road changes slightly. The positions of these stops will be digitized so that the information can be used in GIS-based studies. If observers have access to hand-held GPS units, the exact coordinates of each stop should be taken, and reported in UTM (NAD 83) units. PLEASE RETURN THE MAPS AND ROUTE DESCRIPTIONS with your results, corrected if necessary.

## **3. Time of Night**

Owl call rates tend to be lowest in the middle of the night (midnight to 04:00). Surveys should be therefore conducted between a half hour after sunset and midnight; try to conduct the survey at the same time of night every subsequent year.

## **4. Time of Year**



Routes should be surveyed at least once per spring in the appropriate month: February in south coastal BC, March in southern BC (Thompson-Okanagan and Kootenays) and in April in central and northern BC, the Yukon, and the Northwest Territories. Try to do surveys in subsequent years at about the same time (i.e. if you do your survey this year on March 10, try to do it next year within a week or so of that date). If you would like to do more than one survey on your route, please do it in a different month. For instance, if you are surveying on the south coast, you are required to do a survey in February, but could also do surveys (on the same route) in January, March, April or May. Please do only one survey per month; it will significantly bias monitoring analysis if only the best survey of several is reported. Also please restrict your surveys to the January to May period (except Flammulated Owl surveys; see below).

## 5. Environmental Conditions

Environmental conditions such as wind, rain, snow and temperature can directly affect owl call counts. Surveys should not be conducted in the following conditions: wind speed over a Beaufort Scale of 3 (see below), during precipitation events (although if a light snow or rain begins during the survey it can still be completed), or when the temperature is below  $-10^{\circ}\text{C}$ . This will also reduce the risks involved with conducting the surveys.

## 6. Counting Owls In Southern, Central, and Northern BC, the Yukon, and the Northwest Territories

At each stop simply get out of your vehicle, then begin timing a 2-minute stop. If you hear an owl or grouse, note down which minute it was heard in (first, second or both) and estimate the distance and direction to the bird.

## 7. Counting Owls along Coastal Routes:

CD based playback of Western Screech-Owl calls is used along coastal routes to increase the numbers of detections of all owls; this results in about **5 minutes** spent at each stop on coastal

routes. The playback file is about 6 minutes in length and is set-up to include silent listening periods. The first 2 minutes of the track are silent, followed by about 30 seconds of screech owl calls. These calls are followed by an additional 2 minutes of silence. The call is played once more for about 30 seconds, followed by one minute of silent listening. We will provide you with the recording; however, we are unable to provide you with playback equipment/speakers. You can use your car stereo, with windows open. The volume should be loud but not so loud that that the recordings are distorted.

### 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 and speakers. 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/mp3 player and speakers has bass and treble settings, make sure they are set to the "normal" setting. Listen to see if the Screech Owl calls are audible and recognizable at both 400 and 500 m.

### 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.

### 8. Flammulated Owl Surveys

Flammulated Owl surveys are run between May 20 and June 15 and are restricted to the Interior north to about Williams Lake. Please contact the coordinator if you are interested in taking on one of these routes. These routes are *at least* 7.2 km long, consisting of 10 to 30 stops situated 0.8 km apart. Stops can be slightly farther apart if (and only if) the 0.8 km distance puts one at an inconvenient or dangerous spot. It is important to keep the 0.8 km distance as constant as possible so that any bias towards stopping at "favourite" owling spots is reduced.

## Datasheet Instructions

Please fill out and submit your Nocturnal Owl Survey sheet **each time** you conduct a survey, **even if you do not detect any owls.**

**Note:** If your route is more than 10 stops long, simply continue on with a second data sheet.

**Route Name:** The official name for your route; e.g. Meldrum Creek, Wheeler Mtn., etc. If you are doing a new route, contact coordinator to register route before conducting the census to ensure no-one else is covering that area already.

**Day/Month/Year:** Date in number format, e.g. Day 12/Month 3/Year 2000

**Start Time:** Time in 24-hour format, e.g. 1945; similarly for End Time at bottom of sheet.

**Weather Conditions:** Fill in as appropriate for conditions at START of survey; fill in similar section at bottom of sheet for conditions at END of survey.

**Wind:** Circle appropriate Beaufort Number (see table below).

Beaufort No.	Wind Speed km/hr.	Indicators of Wind Speed
0	Less than 2	Smoke rises vertically
1	2 to 5	Wind direction shown by smoke drift
2	6 to 12	Wind felt on face, leaves rustle
3	13 to 19	Leaves, small twigs in constant motion
4	20 to 29	Raises dust/loose paper, small branches move
5	30 to 38	Small trees in leaf sway

**Snow Depth:** Estimated minimum and maximum snow depths encountered on survey, in centimetres, and estimated percent coverage of snow (e.g. 33, if lower two-thirds of route is snow-free).

**Odometer:** Kilometres (to nearest tenth) from start of survey

**Species Codes:** Write in the species code for each owl detected (i.e. if two Great Horned Owls are heard you would write down "GHOW" on two separate lines). Note that the Barred Owl code is different than usual to avoid possible confusion with Boreal Owl while interpreting field sheet scrawl!

If you see or hear owls at points other than regular stops, you may note them in the comments section but do not put them in the regular stop boxes.

<b>BNOW</b>	Barn Owl
<b>FLOW</b>	Flammulated Owl
<b>WESO</b>	Western Screech-Owl
<b>GHOW</b>	Great Horned Owl
<b>NHOW</b>	Northern Hawk Owl
<b>NPOW</b>	Northern Pygmy-Owl
<b>BUOW</b>	Burrowing Owl
<b>BARR</b>	Barred Owl
<b>SPOW</b>	Spotted Owl
<b>GGOW</b>	Great Gray Owl
<b>LEOW</b>	Long-eared Owl

<b>SEOW</b>	Short-eared Owl
<b>BOOW</b>	Boreal Owl
<b>NSOW</b>	Northern Saw-whet Owl
<b>RUGR</b>	Ruffed Grouse
<b>BLGR</b>	Blue Grouse
<b>SPGR</b>	Spruce Grouse

**Time Intervals:** Put a check mark under the appropriate time intervals to indicate when the owl or grouse was heard. If it was calling throughout the stop, place check marks in both boxes.

**Distance and Direction:** Estimate the distance in metres and the direction (N, NE, E, SE, S, SW, W, NW) of any owl heard, e.g. 300 m NW.

**Traffic count:** A simple tally of motor vehicles that pass by during the stop.

**Moon:** Yes or no depending on whether it was visible from stop.

**Noise Level:**

1. Quiet
2. Some noise (e.g. dogs or coyotes barking in distance), but not distracting
3. Significant noise that may have reduced owl detectability (e.g. traffic)
4. Constant noise, e.g. heavy traffic, roaring creek.

**Comments/Mammals seen:** any short comments you think would help us interpret the survey results and a list of mammals seen, even those between stops. Please identify mammals as best you can, e.g. "mouse" is acceptable, but "vole" or "deer mouse" or even "red-backed vole" is preferred.

NOTE: If your route is more than 10 stops long, simply continue on with a second data sheet.

### Submitting your data

Please register as a participant and to enter data online by visiting <http://www.birdscanada.org/birdmon/bcytowls/main>. Please enter data after completing the survey to ensure all details can be remembered and included. If you are not able to enter your data online, please send your completed forms to the BC, Yukon, and NWT Nocturnal Owl Survey Coordinator by May 1<sup>st</sup>.

### BC, Yukon, and NWT Nocturnal Owl Survey

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