

Alberta Nocturnal



Owl Survey

Instruction Booklet

Beaverhill Bird Observatory

December 2003



Executive Summary

Information on distribution, abundance, and population trends of all North American bird species is important for developing sound conservation strategies, so that species in need of particular conservation action can be identified, and so that the effectiveness of current management programs can be evaluated. Most species of nocturnal owls are poorly monitored by existing multi-species surveys, such as the Breeding Bird Survey and Migration Monitoring. Several regions of Canada and the United States have established volunteer-based nocturnal roadside surveys for breeding owls. These appear to be an effective means of monitoring many species of owls, but there is considerable variation in the methods used.

In September 1999, representatives from the main surveys in Canada met in Winnipeg, Manitoba to try to develop a set of standards for owl monitoring that would allow data to be integrated across surveys, while recognizing geographic variation in target species and survey objectives. The outcome of that meeting was agreement on a set of standard components that should be incorporated into roadside surveys for breeding owls and subsequently be developed into a protocol that will be incorporated into the North American Raptor Monitoring Strategy (<http://www.im.nbs.gov/raptor/raptor.html>). We hope this protocol will be adopted by all organizations developing nocturnal roadside surveys for owls. This protocol is designed for broad scale monitoring of relative abundance, distribution, habitat use, and changes in these parameters over time.

Alberta's volunteer Nocturnal Owl Survey was initiated in 1997. Since that time, it has had its ups and downs (due to funding constraints), but became a full time program in 2002. Following is the standard protocol that will be used for Alberta. We hope you enjoy participating in this exciting project for many years to come.

Acknowledgements

I would like to thank all of the individuals who have been supporting owl monitoring initiatives in Alberta, including: Michael Bradstreet (Bird Studies Canada), Steve Brechtel and Gordon Court (Alberta Sustainable Resource Development), Loney Dickson and Geoff Holroyd (Canadian Wildlife Service). This project is a collaborative effort between Beaverhill Bird Observatory, Bird Studies Canada, Canadian Wildlife Service (Environment Canada), and Alberta Sustainable Resource Development. Project support from the following agencies is greatly appreciated:

Alberta Ecotrust
Alberta Sport Recreation, Parks, and Wildlife Foundation
Boreal Forest Research Centre (Peace River)
Federation of Alberta Naturalists
Mountain Equipment Coop
Shell Environment Fund
TD Friends of the Environment Foundation

I would particularly like to thank all of the volunteers who have helped by participating in the existing surveys.

For more information about this protocol, or to receive a copy of the North American guidelines, contact:

Lisa Takats Priestley, Beaverhill Bird Observatory
Box 1418, Edmonton, Alberta T5J 2N5
Phone: (780) 951-8901 Fax: (780) 495-2615
E-mail: lisa@beaverhillbirds.com



Lady Grayl, Photo by Geoff Holroyd

Other Volunteer Opportunities

Alberta Breeding Bird Atlas

Federation of Alberta Naturalists
c/o The Alberta Bird Atlas Project
11759 - Groat Road, Edmonton, Alberta T5M 3K6
Philip Penner: (780) 427-8124
http://www.fanweb.ca/projects/bird_atlas/intro.htm

The goal of a breeding bird atlas project is to survey and record the current relative abundance and geographical distribution of each breeding bird species. Alberta completed its first bird atlas during the years of 1987 to 1992. During the first atlas we had over 900 atlasers involved in the project. The Alberta Bird Atlas is now working on an update of the initial atlas. In order to be successful, a Bird Atlas project needs to be a cooperative effort between all provincial agencies, bird clubs, conservation groups, natural history societies, and individual volunteer birders to gather data on the breeding species of birds. The atlasers are the backbone of any bird atlas project and its success depends upon them. If you know your birds and live in Alberta, give us a hand surveying the birds.

Beaverhill Bird Observatory

Box 1418, Edmonton, AB T5J 2N5
Chuck Priestley: (780) 719-9803 E-mail: charles@ualberta.ca
<http://www.beaverhillbirds.com>

Since 1984, the Beaverhill Bird Observatory (BBO) has been interested and active in the Beaverhills area monitoring bird migrations and populations. Banding efforts have produced numbers around 2500 to 4500 birds banded a year. We use mist-nets to catch birds and then we place small aluminium bands on their legs. We also conduct bird counts to inventory the birds in the area on a daily basis. The objective is to monitor the birds' populations as they migrate from the tropics into the boreal forest and vice versa. Beaverhill Bird Observatory presents you with a great opportunity to learn some very valuable field skills, including mist netting and banding birds.

Lesser Slave Lake Bird Observatory

P.O. Box 1076, Slave Lake, Alberta, Canada T0G 2A0
Phone: (780) 849-7117 Fax: (780) 849-7122
<http://www.lslbo.org/>

The Lesser Slave Lake Bird Observatory (LSLBO) was established in 1994 and is dedicated to landbird research, education, and conservation. We are Canada's northernmost migration monitoring station. The LSLBO relies on volunteer assistance for the research programs and many other operational services. You do not have to be an expert birder to become a volunteer. If you have a passion for birds, wilderness, and wish to see some of the most sought after bird species in North America, we'd like to hear from you.

Inglewood Bird Sanctuary

3426 Lane Crescent SW, Calgary, Alberta T3E 5X2
Doug Collister: (403)240-1635 or (403) 246-2597 E-mail: collis@telusplanet.net
<http://www.bsc-eoc.org/national/ibs.html>

Inglewood Bird Sanctuary is a 34-hectare (80 acre) site located in a federal migratory bird sanctuary along the Bow River in Calgary. The site is dominated by a mature, riparian forest. The migration monitoring station has been operated by the Calgary Bird Banding Society since 1992. For more information about volunteer opportunities, please contact us.

Introduction

In the past few decades there has been increasing concern over the status of both diurnal and nocturnal raptors. Their position high on the food chain makes them vulnerable to many environmental disturbance. As such, they may be valuable indicators of environmental health and many species of raptors have been chosen as indicator species.

Relatively little is known about the abundance and population trends of most species of nocturnal owls in Alberta. Most owls are not adequately monitored by the existing multi-species continent-wide surveys in North America. The Breeding Bird Survey takes place outside of the breeding season for most owls, and at a time of day (early to mid-morning) when most owls are relatively silent. Christmas Bird Counts are also conducted at a time of year when most owls are relatively quiet. Migration Monitoring may have the potential to monitor populations of some of the more common migratory species, such as Northern Saw-whet Owls, but many species of owls do not migrate, or only migrate short distances.

Broadcast surveys are one of the most widely used techniques to locate and survey owls. Owls vocalize to communicate with their mates and delineate territory. Imitating or broadcasting tape recordings of owl vocalizations can invoke vocal responses from many species of owls. This survey technique has been used successfully to document the range and status of several owl species in North America, and can also be used to determine habitat associations.

In Canada, volunteer owl surveys have been established in British Columbia/Yukon, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia, Prince Edward Island, and Cape Breton, and this year surveys are being initiated in, Newfoundland and Northwest Territories. All these surveys will have some standardized aspects of the protocol to allow for data from different regions to be integrated into a national or continent-wide study on owl population trend and relative abundance.

This survey protocol can also be used by other organizations, consulting companies, or agencies with more specific objectives, such as assessing relatively large regions for owl populations. They are less suitable for small-scale monitoring, which would generally require alternative, more intensive procedures (however by surveying using some parts of this protocol, the data will be comparable within Alberta, and across Canada. This protocol is adapted from a standard protocol that has suggested for North America (Takats *et al.* 2001)

Survey Objectives

This protocol is recommended for achieving the following objectives:

- 1) Estimating trends in populations of nocturnal owls at scales ranging from regional (e.g. province ecoregion) to continental.
- 2) Obtaining information on distribution of owls by habitat type across North America.
- 3) Estimating relative abundance of owls across North America.
- 4) Determining habitat associations of owls.

Methods

Volunteers are needed to help run owl surveys during March, April, and early May. Only two nights (approximately two hours each night) are required for these surveys. If you can only conduct one survey please submit your results anyways, as the data can still contribute to the national program.



Routes

Volunteers will have roadside routes assigned to them, but can decide what area of the province they would like to work in. Roads should have limited traffic on them, should be wide enough that you can pull over to the side, and should be accessible in March and April. Each route will have 10 equally spaced calling stations along the road, with 1.6 km separations (total length is 14.4 km). If you are keen, you are welcome to run a second or third route (each route needs to be separated by 5 km).

The volunteer needs to provide their own vehicle (or mode of transportation) and a ghetto blaster. Some regions (St. Paul, Edmonton, Peace River) may have a ghetto blaster available to be borrowed. A tape or CD will be provided with the calls of owls. Volunteers will be provided a tax receipt for mileage incurred during this work. A form is included in the back explaining how to claim tax relief.

Timing and Environmental Conditions

Volunteers should start surveys no sooner than 30 minutes after sunset, and should conclude by around midnight. The survey routes should be repeated twice over, although one visit is okay. The first survey should occur between March 20 and April 10. The second survey should occur between April 11 and May 5. Try to separate your two visits by at least 10 days.

Environmental conditions such as wind velocity, precipitation, and temperature can affect owls calling, and the ability of surveyors to detect owls. Surveys should only be conducted under favourable conditions: wind speeds <20 km per hour (Beaufort 3 or less see Appendix II) and no precipitation. Temperatures should be close to the average for the season and efforts should be made to avoid extremely cold temperatures (owls do not call as much and it is not safe to be out in extreme cold). If conditions deteriorate over the course of an evening, surveyors must use their judgement whether the route should be completed, or run again on another evening. Generally, light snow or rain starting in the middle of a survey would not prevent completion of the survey.

Survey

In Alberta, recorded calls will be used to help increase owl call rates. Two different tapes/CDs will be distributed, depending on where the route is located in the province (Parkland/Prairie and Forest). The playback unit (tape/CD player) should be of sufficient quality that it will not distort the sound at loud volumes. We also suggest the volume be set so that the recording can be heard at 400m, but not at 600m (test this before you begin your surveys).

At each stop there will be an initial 2-minute silent listening period. Following this, there is a broadcast of 20 seconds (Boreal or Northern Saw-whet Owl), followed by 1 minute of silent listening, then a 20 second broadcast (Great Gray or Long-eared Owl) followed by one minute of silent listening, then a final 20 second broadcast (Barred or Great Horned Owl), followed by a final 3 minutes of silent listening. The total time at each stop is 8 minutes. The CD or tape is set up to run each survey station, so all you need to do is press play. The sequence of owl calls is from the smallest to the largest owl. You are welcome to write down other animals heard besides the owls, as these will be entered as well.

Recommended Equipment

The following is a list of equipment that volunteer surveyors are likely to need to conduct the nocturnal owl survey.

Equipment provided by the coordinating group:

Instruction Booklet	This will detail why the survey is being conducted and the protocol.
Training Tape/CD	The tape includes the calls of all species of owls the surveyor is likely to encounter, and even others that may not be expected. As well, it includes calls of other species of animals the surveyor is likely to hear (frogs and toads, snipe, ruffed grouse). This can help the surveyor differentiate between similar sounding species, but can also be used to collect information on other species of interest. The call sequence is at the beginning of the CD or on side 1 of the tape.
Data Forms	Data sheets for sending in your data (included at the back of this manual). Ensure you bring a copy of the Appendix on four letter codes, Beaufort Scale, and Noise Levels to be able to fill in the data sheet during the survey.
Route Map	The map will be provided by coordinating group. A copy should be <u>included with</u> the data forms when submitted for the <u>first time</u> . If you require another copy of a map, please let us know.
Tax Relief Form	As a non-profit group with charitable status we are able to provide (optional) volunteer surveyors tax receipts for the out-of-pocket expenses of running their routes. Volunteers can submit a record of their food and mileage expenses to the Beaverhill Bird Observatory, along with a cheque (payable to group) of the total amount. The non-profit organization will treat this as a donation and can issue a tax receipt. The group will also send a cheque equalling the amount of the mileage/food back to the volunteer. Although this sounds unusual, it is required by Revenue Canada, and gives an opportunity to give back to our volunteers in some way.
Volunteer Form	This volunteer program is can being run under the auspices of an organization that can cover individuals for General Liability, and Accidental Death and Dismemberment (Alberta Sustainable Resource Development). Although owl surveys are not an extremely dangerous undertaking, there is always the possibility of an injury. Please sign the enclosed form and return it with your results.

Equipment provided by the surveyor:

Warm clothes	Even if it feels like it is a warm night, warm clothes are a necessity. You can always take layers off. Because you are standing out in the cold air without moving, you can become cold. We recommend clothes made of wool, fleece, and/or polyester. Make sure you bring mittens, a hat, a warm coat and boots.
Tape/CD Player	It should have reasonable sound and allow for good volume, but should preferably not be too heavy. It can either run on batteries, or on a cord that plugs into the car cigarette lighter (cord should be long enough to reach outside of the vehicle). Ensure you have extra batteries. A towel can be used to place underneath the ghetto to avoid scratching your vehicle. You can also ask about borrowing a player if you do not have one.

Flashlight	A safety item, in case you have car trouble or you drop something while outside of the vehicle. Could also be used to observe an owl that has flown in, in response to playback, though we do not recommend repeatedly scanning for owls. We recommend using a headlamp to free up your hands.
Thermometer	A small thermometer to record the temperature during your survey.
Compass	To determine directions to calling owls, especially if the stars are obscured by clouds, or the road is curving, and hence making it difficult to determine orientation. You can borrow one from us for the surveys, but please return it with your data sheets (see Protocol section #10).
Watch/Clock	A watch or clock with a second hand to time the silent listening periods.
Pen/Pencil	Depending on how cold the temperature is, a pencil may be better to use than a pen. If using a pen, ensure it is waterproof, in case you drop your data sheets in snow or water.
A Reliable Vehicle	Breakdowns are undesirable on remote roads in late winter!
Safety supplies	Some important safety supplies should be included in your vehicle whenever you travel in the winter. These include a candle, an empty can and matches (for heat and light), a flashlight, a blanket or warm sleeping bag, a first aid kit, a thermos of water, and some snacks. A tire jack, extra tire, a tire iron, road flares and tools are important if you get a flat tire. Make sure you check in with someone before you head out, and again when you return. It is best to do your survey with someone else.

Protocol

1. Go and visit the route during the daytime, to ensure it is accessible, does not have a lot of traffic, and has enough room to pull over to the side. Register your route by calling, FAX'ing or e-mailing us, to confirm that the route assigned is usable. We will forward copies of a topographic of your route for you. Record the exact location where your first point is so you can repeat the route a second time, and from year to year.
2. Read the protocol and review the data sheets, so that you know what information needs to be collected. Listen to the CD/tape to familiarize yourself with all the owl species and other wildlife you could potentially hear.
3. When you are ready to start your survey, ensure you let someone know where you are going and when you are returning. We suggest you conduct your survey with another person for safety reasons and it makes the survey more enjoyable when you share the experience (try not to have more than 4 people on the survey, as this may interfere with your ability to hear owls).
4. At the start of your survey fill out the information at the top of the datasheet (see sample).
5. Each 1.6 kilometers stop the engine, exit, and set up the CD/tape player on the hood of your vehicle. Press play and listen silently for two minutes. During this time you can record the information needed at the station (start time, temperature, and wind speed). You can move a little ways from your vehicle (about 25 to 50 meters). The vehicle can make noises that impede your ability to hear owls, or that may sound like owls. Also owls will sometimes dive down towards the ghetto blaster, which may startle volunteers.
6. The first 20 second call (Boreal or Northern Saw-whet Owl) will play automatically, turn the ghetto to different directions throughout the broadcast. Do not play the call so loud as to have distortion (1/2 volume is recommended). Then a silent listening period will follow for 1 minute.
7. The second call will play (Great Gray or Long-eared Owl). Silent listen will follow for 1 minute.
8. The third call will play (Barred or Great Horned Owl). Final three minutes silence. Then the CD/tape will announce to head to your next station.
9. Record your information on the data sheets during the survey, making sure you record during what interval each owl starts calling.
10. Judging distance and direction: the rule of thumb is that 800 metres is the furthest distance that a person can hear a small owl and over 1 km for a large owl. Your best estimate is all that is needed - don't worry, it doesn't have to be precise, it's only to give a rough idea of where the owl is. In determining direction, a person can do one of two things. The first is to use a compass. The second, for those who don't have a compass, is to use the "clock" method. Stand facing the next point on your transect (eg. Point 1 looking at Point 2). That next point will be 12:00, to your right will be 3:00, directly behind you will be 6:00, and to the left would be 9:00 and so on.
11. When filling out data sheets, record only the initial time the owl was heard. If the owl continues to call during the survey, make note of this in the comments section for that calling station.
12. Sometimes an owl can be heard at more than 1 point. If you think that an owl you hear is from a previous point please make a note of it. This ensures that an owl is not counted twice.
13. Return to your vehicle and move to the next station (1.6 km). Repeat the above at all 10 stations. All owls heard during the surveys can be recorded on the data sheets provided, along with any other wildlife seen or heard. Make sure you map your route to send in to us, and keep a copy for your records

for next year. Please fill out as much information on the data sheets as you can. The snow depth can be estimated. Please provide information about how smoothly the survey went, and improvements you think may be needed in the protocol.

****IMPORTANT:** Broadcast surveys are an excellent way to survey for owls if conducted properly. Playing calls disturbs owls from their normal activity patterns, distracting them from hunting for food, caring for young, and/or brooding eggs. Please make sure you only use the taped calls for these surveys.

Finally, if you know of someone else who may be interested in participating in this program please contact us (see below). If they live in another province please see the contact information for provincial coordinators in Appendix I.

Any further questions about this protocol can be directed to:

Lisa Takats, Beaverhill Bird Observatory

Phone: (780) 918-4804, FAX: (780) 422-9685,

Email: lisa@beaverhillbirds.com

Address: Box 1418, Edmonton, AB T5J 2N5

APPENDIX I – Owl survey coordinators

Alberta

Lisa Takats Priestley, Beaverhill Bird Observatory, Box 1418, Edmonton, AB T5J 2N5.
Phone: (780) 918-4804, FAX: (780) 422-9685, Email: lisa@beaverhillbirds.com

Northwest Territories

Tracy Hillis, 3510 McDonald Drive, Yellowknife, NWT X1A 2H1 E-mail: tuktuamuit@hotmail.com

Manitoba

Jim Duncan, Manitoba Conservation, Box 24, 200 Saulteaux Crescent, Winnipeg, MB R3J 3W3.
Ph: (204) 945-7465 FAX: 945-3077, E-mail: jduncan@gov.mb.ca

Ontario

Debbie Badzinski, Owl Survey Coordinator, Bird Studies Canada, P.O. Box 160, Port Rowan, ON, N0E 1M0
Phone toll-free: (888) 448-2473 Fax: (519) 586-3532 E-mail: dbadzinski@bsc-eoc.org

Saskatchewan

Al Smith, Canadian Wildlife Service, 115 Perimeter Rd., Saskatoon, Saskatchewan, Canada S7N 0X4
Ph. (306) 975-4091 (W) E-mail: alan.smith@ec.gc.ca

British Columbia/Yukon

Dick Cannings, Bird Studies Canada, 1330 Debeck Road, S.11, C.96, RR#1, Naramata, BC V0H 1N0. Ph: (250) 496-4049, E-mail: dickcannings@shaw.ca

Atlantic Provinces

Becky Whittam, Bird Studies Canada, c/o Canadian Wildlife Service, P.O. Box 6227, 17 Waterfowl Lane, Sackville, NB, E4L 1G6 Ph: (506) 364-5047 Fax (506) 364-5062 Email: becky.whittam@ec.gc.ca

Montana, USA

Denver Holt, Owl Research Institute, Inc., P.O. Box 8335, Missoula, MT 59807.
E-mail: owlmontana@charlo.net

APPENDIX II

Scientific names and codes of Alberta owls.

Species #	Common Name	Scientific Name	Code
365.0	Barn Owl	<i>Tyto alba</i>	BNOW
366.0	Long-eared Owl	<i>Asio otus</i>	LEOW
367.0	Short-eared Owl	<i>Asio flammeus</i>	SEOW
368.0	Barred Owl	<i>Strix varia</i>	BARR*
370.0	Great Gray Owl	<i>Strix nebulosa</i>	GGOW
371.0	Boreal Owl	<i>Aegolius funereus</i>	BOOW
372.0	Northern Saw-whet Owl	<i>Aegolius acadicus</i>	NSWO
373.0	Eastern Screech-Owl	<i>Otus asio</i>	EASO
373.2	Western Screech-Owl	<i>Otus kennicottii</i>	WESO
375.0	Great Horned Owl	<i>Bubo virginianus</i>	GHOW
376.0	Snowy Owl	<i>Nyctea scandiaca</i>	SNOW
377.0	Northern Hawk Owl	<i>Surnia ulula</i>	NHOW
378.0	Burrowing Owl	<i>Athene cunicularia</i>	BUOW
379.0	Northern Pygmy-Owl	<i>Glaucidium gnoma</i>	NOPO

Beaufort Scale Translations to Wind Speeds

Beaufort Number	Wind Speed in km/hr (mph)	Indicators of Wind Speed
0	< 2 (< 1)	Smoke rises vertically
1	2 to 5 (1 to 3)	Wind direction shown by smoke drift
2	6 to 12 (4 to 7)	Wind felt on face, leaves rustle
3	13 to 19 (8 to 12)	Leaves, small twigs in constant motion
4	20 to 29 (13 to 18)	Raises dust/loose paper, small branches move
5	30 to 38 (19 to 24)	Small trees in leaf sway

APPENDIX IV: Noise Level Descriptions

Noise Level	Description
1	Quiet
2	Some noise, but not distracting (dogs or coyotes barking/howling)
3	Significant noise that may have reduced owl detectability (ie. creek)
4	Constant noise (ie. heavy traffic, compressor station, roaring creek)

Tax Relief - 2003

Through the Beaverhill Bird Observatory, surveyors can have out-of-pocket expenses of running their routes treated as a charitable donation and can receive income tax receipts for them. Volunteers submit a record of their food and mileage expenses to the Beaverhill Bird Observatory, along with a cheque (payable to BBO) of the total amount. This will be treated as a donation and we will issue a tax receipt for the full amount. The BBO will also send a cheque equaling the amount of the food/mileage back to the volunteer. Although this sounds unusual, it is required by Revenue Canada, and gives us an opportunity to give back to our volunteers in some way. Please take time to fill out the form below and return it with your results, so we can provide you some tax relief.

Name: _____

Address: _____

Phone: _____

Total km traveled _____ x \$ 0.30 / km = \$ _____

Food expenses (please send receipts) \$ _____

Subtotal \$ _____

Become a member of Beaverhill Bird Observatory (\$10) \$ _____

Donation (optional) \$ _____

TOTAL \$ _____

Please write a cheque for the total amount to Beaverhill Bird Observatory. We will send you a tax receipt for the full amount and a cheque for the food and fuel as soon as possible. Return this form with your cheque when you submit your data.

ROUTE REGISTRATION FORM (ONLY IN FIRST YEAR):

ROUTE NUMBER: _____	OFFICE USE ONLY
YEARS SURVEYED: _____	

PERSONAL INFORMATION

NAME: _____
FIRST/LAST

ADDRESS: _____
STREET/BOX/APT.#

_____ CITY/TOWN _____ POSTAL CODE

PHONE: _____

MAP AND TRANSECT INFORMATION

MAP NUMBER: _____ **MAP NAME:** _____

PHOTOCOPY OF TRANSECT ON MAP SENT: YES NO

DETAILED DESCRIPTION OF ROUTE

LAND USE	Stations(s)	ALL
NATURAL		
AGRICULTURE		
FOREST		
MINING/OIL&GAS		
URBAN/INDUST.		
RECREATIONAL		
OTHER		

VEGETAION TYPE	Station (s)	ALL
PASTURE		
CROP		
SHRUB/SCRUB		
PARKLAND		
FOREST		
WETLAND		
OTHER		

LOCATION OF

FIRST POINT: _____ **LAST POINT:** _____
ATS or UTM or Lat.-Long. ATS or UTM or Lat.-Long.

NEAREST TOWN OR CITY: _____

RETURN COMPLETED FORM TO:

Beaverhill Bird Observatory, c/o Lisa Takats Priestley
Box 1418, Edmonton, Alberta
T5J 2N5

Alberta Nocturnal Owl Survey Data Sheet – [Sample Sheet](#)

Route Number: 1040 Route Name: Sample Creek

Surveyor: Ima Owl Assistant(s): _____

Date: 04 / 14 / 04 Do you wish to participate again next year? Yes No
day / month / year

Temperature: Start -5 End -9 °C °F Cloud Cover: Clear Partly Overcast Cloudy Fog

Precipitation: None Light Medium Heavy / Snow Rain

Snow Cover: None Patchy Continuous Max. Depth 5 Min. Depth 0 cm inch

Station: 1 Odometer 0 km / mile Start Time: 20:15 Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
NSWO	1	200m/75°	Y		<u>1</u> 2 3 4	<i>Continued calling throughout</i>
BARR	1	300m/150°		BARR		
					Traffic Count	
					1 car	

Station: 2 Odometer 1.6 km / mile Start Time: 20:33 Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
NONE					<u>1</u> 2 3 4	<i>Heard coyotes howling</i>
					Traffic Count	
					2 cars	

Station: 3 Odometer 3.2 km / mile Start Time: 20:49 Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
GHOW	1	500 m/250°	Y		1 2 3 4	<i>Duetting with other owl.</i>
GHOW	2	500m/250°		BARR		
					Traffic Count	
					1 truck	

Station: 4 Odometer 4.8 km / mile Start Time: 21:06 Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
GHOW	1	500 m/330°	Y		<u>1</u> 2 3 4	<i>same pair as last station</i>
GHOW	2	500m/330°	Y		Traffic Count	<i>Ruffed Grouse</i>
					0	

Alberta Nocturnal Owl Survey Data Sheet – Visit #1 #2 (circle one)

Route Number: _____ Route Name: _____

Surveyor: _____ Assistant(s): _____

Date: _____ day / month / year Do you wish to participate again next year? Yes No

Temperature: Start _____ End _____ °C °F Cloud Cover: Clear Partly Overcast Cloudy Fog

Precipitation: None Light Medium Heavy / Snow Rain

Snow Cover: None Patchy Continuous Max. Depth _____ Min. Depth _____ cm inch

Station: 1 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 2 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 3 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 4 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 5 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 6 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 7 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 8 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 9 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 10 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Alberta Nocturnal Owl Survey Data Sheet – Visit #1 #2 (circle one)

Route Number: _____ Route Name: _____

Surveyor: _____ Assistant(s): _____

Date: _____ day / month / year Do you wish to participate again next year? Yes No

Temperature: Start _____ End _____ °C °F Cloud Cover: Clear Partly Overcast Cloudy Fog

Precipitation: None Light Medium Heavy / Snow Rain

Snow Cover: None Patchy Continuous Max. Depth _____ Min. Depth _____ cm inch

Station: 1 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 2 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 3 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 4 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 5 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 6 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 7 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 8 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 9 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	

Station: 10 Odometer _____ km / mile Start Time: _____ Wind: 0 1 2 3 >3

Species	Owl Number	Distance/ Direction	During First Two Minutes	After Which Broadcast	Noise Level	Comments
					1 2 3 4	
					Traffic Count	