

A Management Plan  
for the  
Short-eared Owl (*Asio flammeus flammeus*)  
in Newfoundland and Labrador



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**Disclaimer:**

The Management Plan for short-eared owls (*Asio flammeus flammeus*) was prepared by the Department of Environment and Conservation to identify recovery strategies, based on sound biological principles, to monitor and manage short-eared owls. It does not necessarily represent official positions of agencies and/or the views of individuals involved in the document's preparation. The goals, objectives and recovery actions identified in the management document are subject to the program priorities and budgetary constraints of the participating agencies and organizations. Goals, objectives, and management approaches may be modified in the future to accommodate new objectives or findings.

## **Acknowledgements**

This Management Plan for the Short-eared owl was prepared in response to the designation of the owl as a 'Vulnerable' species in Newfoundland and Labrador under the provinces' *Endangered Species Act* (NL ESA E-10.1, 2001).

Short-eared owl sightings submitted by naturalists, biologists and aboriginal groups to the author provided the foundation for an assessment of patterns of occurrence and distribution in the province. In particular, Paul Linegar's compilation of historical records was useful. Jim Duncan, Joe Brazil, Nicole Lights and Jennifer Stewart provided constructive comments on an earlier version of this document. Ngaio Richards was an invaluable field assistant during the inaugural year of formal field surveys. Doug Dance kindly donated one of his superb photographs for the cover. The collective insights of Jim Duncan and Joe Brazil on raptor ecology and the difficulties of assessing risk and managing habitat for a nomadic species helped to shape the management approach outlined in this plan.

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## Introduction

The short-eared owl is designated as a ‘*Vulnerable*’ species in Newfoundland and Labrador under the provinces *Endangered Species Act* (NL ESA E-10.1, 2001). It was also assessed as a species of ‘*Special Concern*’ in Canada (Committee on the Status of Endangered Wildlife in Canada, April 1994), and is listed as a species of ‘*Special Concern*’ under the federal *Species at Risk Act* (SARA, Schedule 3). Breeding Bird Surveys suggest that the species has undergone a long-term population decline across Canada, primarily due to losses in the Prairie population (Cadman and Page 1994). However, population declines have also been observed in British Columbia, Ontario and southern Québec. Conversely, the populations in Newfoundland, Labrador and the Maritime Provinces appear to have remained stable over the past century. It is estimated that fewer than 100 pairs occur in the Maritimes in any given year with approximately half of these pairs occurring in New Brunswick, a third in Nova Scotia, and a small number of pairs in Prince Edward Island (Cadman and Page 1994; Erskine 1992). There is insufficient information to determine a population trend both on the Island of Newfoundland and in Labrador. However, it is likely that there has been no change since the turn of the century, when the owl was described as a ‘summer resident but not common’ in both parts of the Province (Macoun and Macoun 1909; Austin 1932 cited in Cadman and Page 1994).

In the United States, Short-eared owls are recognized as one of the ‘top 100 bird species of conservation concern’ (USFWS 2002). Serious declines have occurred in the Northeastern United States, where the owls are considered to be ‘critically imperiled’ (*SI* rank), in Maine, Vermont, Massachusetts, Maryland, Rhode Island, Pennsylvania, and Virginia, and ‘*possibly extirpated*’ in Connecticut, Delaware and New Jersey (NaturServ 2005)<sup>1</sup>. In the mid 1980s, the estimated number of breeding pairs in the Northeastern U.S was less than 55 (Tate 1992), and breeding has been confirmed in only 4 states: Massachusetts, Vermont, New York and Pennsylvania (Cadman and Page 1994). Habitat loss is thought to be the primary determinant of these declines. The Short-eared owl is not protected under *the Canada-U.S. Migratory Birds Convention*, and is listed as an ‘*Appendix 2*’ species under the *Convention on International Trade of Endangered Species* (CITES).

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<sup>1</sup> For a complete list of State designations and Nature Conservancy ranks see <http://www.natureserve.org>

## I. **BACKGROUND**

### Species Information

<p><b>Common Name:</b> Short-eared owl</p> <p><b>Scientific Name:</b> <i>Asio flammeus flammeus</i></p> <p><b><u>COSEWIC Assessment Summary</u></b></p> <p><b>Status:</b> Special Concern (Schedule 3) Vulnerable (Newfoundland and Labrador Endangered Species Act)</p> <p><b>Reason for Designation:</b> This species is still relatively common in Canada. The main cause of concern is an important and well-documented decline in the past resulting from the loss of its preferred habitat.</p> <p><b>Occurrence:</b> YT NT NU BC AB SK MB ON QC NB NS PE NL</p> <p><b>Status History:</b> April 1994</p>
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#### I.1 **Life History**

The Short-eared owl (*Asio flammeus*) belongs to the Family *Strigidae*, or 'typical' owls. Contrary to its common name, its ear tufts are so short as to be inconspicuous. The owl is of medium size and buffy colouration, though male owls are sometimes so pale so as to appear white. Its yellow eyes are framed by a dark facial disk. In flight, it shows a distinctive black patch near the 'wrist' on the underside of each wing. While mostly silent, it can give a bark-like call at its nest and also uses a pulsing series of brief notes as a territorial call, and wing claps during courtship.

Although sometimes observed during the day, short-eared owls are primarily crepuscular in their foraging habits. When foraging, they fly slowly in what is often described as a 'moth-like' flight, occasionally hovering, less than 3 metres from the ground. Their prey consists of

mainly of small mammals, particularly voles (*Microtus* spp). The trophic niche of nearctic short-eared owls is summarized in Holt (1993). Short-eared owls also forage opportunistically, having been noted to have also consumed insects, small mammals such as muskrats, and birds. Owls occurring in coastal and island habitats ate more birds than owls at inland sites (Dunning 1984; Holt 1993).

Short-eared owls begin courtship and in late winter or early spring while the owls are still on their wintering grounds and unpaired males may continue to display into the breeding season. Pair bonds persist until the young can fly and are self-sufficient and likely last for a single season only (Holt and Leasure 1993). Nests are built on the ground, and consist of cups of flattened grasses or other vegetation, or shallow scrapes on the ground (Ehrlich et al 1988). The mean clutch size for North America is 6.9, with a range of 3-11 (Wiggins 2004). Females will re-nest if clutches are destroyed, usually within 2 weeks (Howard and Griffith 1994), although this may be limited at higher latitudes where the season is shorter (Pitelka et al. 1955). Clutch size is often related to prey density, as are the number of breeding pairs found within a given area, indicating that Short-eared owls have a high reproductive potential under optimal conditions (Clarke 1975; Cadman and Page 1994; Wiggins 2004). Eggs are laid at intervals of 1-2 days, and incubation lasts 24-29 days, and is done solely by the female. Timing of egg-laying is often related to prey abundance, where eggs are laid earlier when prey are abundant. Timing of breeding in Newfoundland and Labrador is unknown; however egg records from Arctic Canada range from June 10 to 30 (Peters and Burleigh 1951). Parental care patterns are poorly understood, but it appears that females brood and feed the young, while the male hunts and provides the majority of the food. Nestlings begin leaving the nest site at 14 to 17 days, before they can fly, generally remaining within 200 metres of the nest (Peters and Burleigh 1951; Holt and Leasure 1993). This behaviour has been considered an adaptation to lessen the probability an entire brood will be lost to a nest predator. Young birds begin to fly between 27 to 36 days after hatch, and remain dependent on their parents for food during that time. Age at first breeding is 10 months, and wild birds have been known to reach 12 years of age (Cramp 1985). Severe weather, changes in prey density and habitat alterations have all contributed to variations in nest productivity in North America (Holt and Leasure 1993).

## I.2 Distribution and Status and in Newfoundland and Labrador

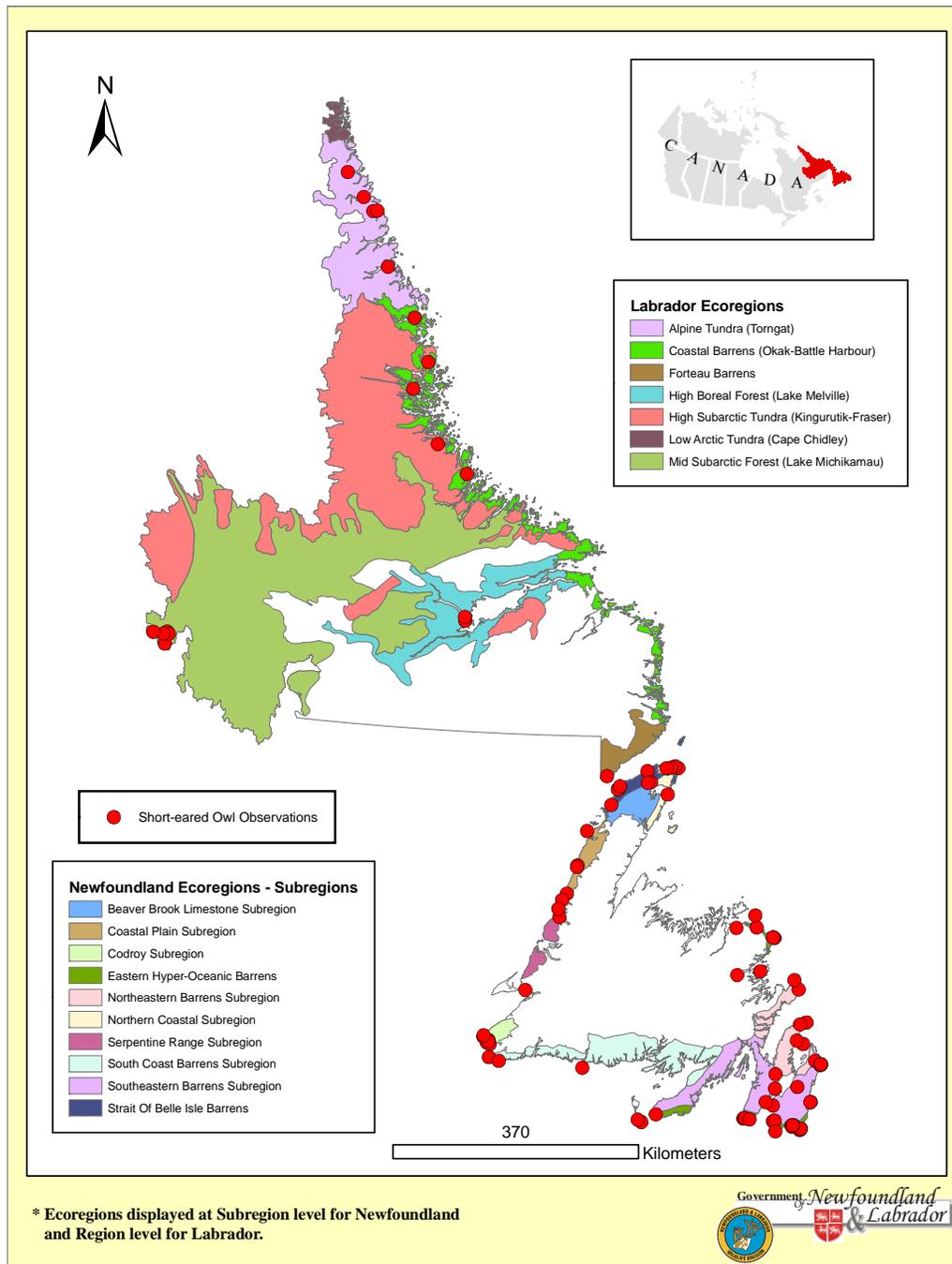
### I.2.1 Distribution

Short-eared owls (*Asio flammeus*) have a nearly global distribution; there are 10 recognized subspecies worldwide, one of which is endemic to the Hawaiian Islands. The subspecies *A.f. flammeus* is the only race occurring in North America. The owls frequent the grasslands and barrens of subarctic and temperate environments throughout North America, in addition to open areas on large offshore islands including Hawaii, the Falkland and the Galapagos Islands. They are highly nomadic, tracking irruptions of small mammals over the landscape. As a result, the population trends, status and migratory patterns of Short-eared owls are poorly understood.

Short-eared owls in Newfoundland and Labrador have been reported in tundra, coastal barrens, sand dune, field and bog habitats. These habitats are particularly abundant on the west coast and northern peninsula of Newfoundland, and on the coastal barrens and above the treeline in Labrador, although virtually all coastal areas and nearshore islands are suitable habitat. Figure 1 shows the distribution of potentially suitable habitat (during years of adequate prey densities) within Newfoundland and Labrador. Interestingly, the owls have also been recorded on large bogs within the open coniferous mid subarctic forest region in Labrador, even though breeding records from both Ontario and Québec indicate there are few nests inland or in the boreal forest there.

Because Short-eared owls track irruptions of small mammals over the landscape, the population trends, distribution and migratory patterns are difficult to monitor and hence poorly understood. Prior to 2003, no directed monitoring and inventory programs were undertaken in either Newfoundland or Labrador; as such, the following description of breeding and distribution are based on historical records and opportunistically collected sightings.

Macoun and Macoun (1909 cited in Cadman and Page 1994) describe the owl as “*a summer resident but not common in Newfoundland*”. Peters and Burleigh (1951) describe the owls’ distribution in Newfoundland as “*frequent{ing} tundra-like barrens and the large islands, for we have observed it at Quirpon, Cook’s Harbour, Pistolet Bay, Great Cormorandier Island,*



Data Sources: Peters and Burleigh, 1951; Harrington 1994; IFWD unpublished compilation; P. Linegar 2002, unpublished report; I. Schmelzer 2003 unpublished. report.

**Figure 1:** Distribution of Short-eared owl observations in relation to terrestrial ecoregions in which they occur (areas with distinctive and repeating patterns of vegetation and soil development). Sightings are based on historical records, opportunistic observations and formal surveys and the majority span the period June 1-July 31. Approximately 10% of all records reflect migrating and/or wintering birds. Sightings are thought to under represent actual occurrences due to the remote nature of potentially suitable habitat.

*St. John Bay and Whitbourne*". They also note that specimens were taken at Cape St. Mary's, the Codroy Valley, Trepassey and St. John's, though these were collected during migration.

Todd (1963) wrote that few records, and none during the breeding season, existed for the interior of the Labrador Peninsula, but this may reflect a lack of observers; between 1999 and 2005 Short-eared owls were observed both during spring migration and during the breeding season near Labrador City and Wabush in western Labrador. Short-eared owls are often reported in the coastal barrens between L'anse au Clair and Red Bay. Although Godfrey (1986) stated that they do not occur above the 56<sup>th</sup> parallel in northern Labrador, breeding records extend as far north as Ramah, and possibly Nachvak Fiords (Harrington 1994). Nests have been reported at Okak, the Nain area including Port Manvers Run, Davis Inlet, and Hopedale (P. Linegar, unpublished data). Numerous owls have been sighted at the heads of Hebron and Nachvak fiords, and in Little Ramah Bay. The most northerly sighting was reported by Veitch (1993; in Harrington 1994), who reported Short-eared owls at Kangerdluksoak Fiord (above the 59<sup>th</sup> parallel) every month between May and September 1989.

### I.2.2 Status

Short-eared owls are considered breeding migrants in Newfoundland and in Labrador. While on average they are an uncommon summer resident, their local abundance fluctuates dramatically between years in response to irruptions of prey. There is insufficient information to determine any population trends in the province. However, unlike in other parts of the owl's range, the amount of suitable habitat available to them has remained largely unchanged over the past century. Given that habitat loss is thought to be one of the primary determinants of the owl's decline across its range, it is plausible to assume that the owls occur at historical levels in the province in the absence of other significant limiting factors.

With the exception of extreme southern Canada, Short-eared owls winter in the southern US through Central Mexico, roosting communally in areas with abundant small mammals. Godfrey (1986) indicated that the owls occasionally wintered in the Maritimes, Isle de la Madeline in Quebec, and Newfoundland, but Newfoundland is generally depicted as occurring outside the limits of the winter range (e.g. Cadman and Page 1994). Nonetheless, between 2000 and 2005 there were 10 reports of Short-eared owls between January and March, primarily on

the southern Avalon Peninsula<sup>2</sup>. This region is in the extreme south-eastern portion of the province, and receives limited snowfall during winter. In addition, owls were reported at four Christmas Bird Counts in 3 locations (St. John's, Cape Race and Stephenville), though these may be late fall migrants rather than wintering birds. Collectively these records suggest that a small number of owls may overwinter in Newfoundland when prey densities are adequate and snow cover is limited. The location of winter roost sites (required to provide protection from weather and predators) have not been reported.

### **I.3 Threats and Limiting Factors**

The most significant factor thought to limit distribution and population growth in short-eared owls is the availability of suitable nesting and foraging habitat (summarized in Wiggins 2004). Habitat loss and fragmentation, and the associated reduction in access to food supply and susceptibility to predation, are the primary threat faced by these owls in southern Canada and the United States. In Newfoundland and Labrador, one can surmise that this threat is of limited importance as most of the owls' habitat is not suitable for agriculture. Increased land development and recreational use in coastal areas may result in the loss of some habitat in the future; however, currently it is unlikely that habitat constrains the distribution and abundance of Short-eared owls in Newfoundland and Labrador.

Sources of mortality stem from natural, accidental, and human-related causes (Duncan 2003). The proportion of mortalities which may be attributed to each category, and the relative influence of different sources of mortality on Short-eared owl population growth and dynamics, is unknown, either at local or North American scales. Natural causes of death include starvation, predation, and disease. Ground nesting birds are more exposed to predators and human recreational activities. Known predators of adult owls, nestlings and eggs include Great-horned owls (*Bubo virginianus*), Snowy owls (*Nyctia scandiaca*), Peregrine falcons (*Falco peregrinus*), Herring gull (*Larus argentatus*), Red fox (*Vulpes vulpes*), feral dogs (*Canis familiaris*) and mustelids. Mortality of adults is unlikely to be limiting in a large and healthy population, but predation of eggs and nestlings can be a significant source of local reproductive failure (Holt and Leasure 1993).

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<sup>2</sup> <http://groups-beta.google.com/group/nf.birds>

Sources of accidental mortality include collisions with aircraft, cars and aerial radio antennas or high-tension guy wires (summarized in Cadman and Page 1994). With respect to human-related hazards, repeated disturbance associated with all-terrain vehicles and other recreational uses, or agricultural equipment during nesting or brood rearing may result in nest abandonment and or failure. Finally, owls and other raptors have the potential to accumulate other environmental contaminants due to their wide distribution, high trophic status and territoriality (Sheffield 1997). Similarly, they are susceptible to secondary poisoning from rodenticides and pesticides through consumption of contaminated prey items (Steininger 1952). The probability of mortality associated with these chemicals may be small in Newfoundland and Labrador due to their association with agricultural practices. However, exposure to killed rodents or insects has been shown to be a significant mortality risk, albeit one that can be reduced or prevented through safe practices.

Because high prey densities also tend to concentrate predators, it has been suggested that competition with Rough-legged hawks (*Buteo lagopus*) and Northern harriers (*Circus cyaneus*) may also limit nest productivity. Competition can reduce the amount of available prey and increase episodes of interspecific piracy (Cadman and Page 1994). However, in all parts of the range in which competition occurs, it has been noted to be far less significant than habitat loss and degradation (Wiggins 2004). In contrast, Mikkola (1984) suggested that the opposite may be true, that, as Microtine specialists tracking irruptions prey, Short-eared owls may actually experience less competition due to the 'explosive' nature of vole population highs.

As most, if not all Short-eared owls in the province are migrants, population declines can occur independent of the amount of suitable breeding habitat in Newfoundland and Labrador. This may be especially true for owls in Newfoundland and Atlantic and Eastern Canada, given the fact that the owl is critically imperiled in the North eastern United States (depending on the degree of movement between these geographically proximal regions). Further, habitat loss and degradation on the wintering grounds in southern Canada and the United States can result in population declines, and reduced numbers of fall migrants in Ontario and Quebec may reflect this. Indeed, Cadman and Page (1994) suggest the fact that large-scale continental population declines have occurred in the face of limited habitat alteration in northern portions of the range suggest that threats on the wintering grounds are at least partially responsible for observed declines in numbers.

## II. **MANAGEMENT**

The Wildlife Division is the agency primarily responsible for the management of the Short-eared owl and its habitat in Newfoundland and Labrador. Where the owl occurs on federal or aboriginal lands, the province will work with these groups to ensure long-term survival of the owl across the broader landscape.

### **II.1 Goal and Objectives**

#### II.1.1 Goal

To maintain or, if necessary, increase the number of breeding pairs of Short-eared owls throughout their range in Newfoundland and Labrador.

#### II.1.2 Objectives

- A. To identify the characteristics, distribution and amount of important habitat areas for breeding, foraging, roosting, and possibly wintering owls, and to manage them accordingly;
- B. To initiate research and monitoring activities to better understand the owl's basic ecology and demography;
- C. To work on the conservation of Short-eared owls collaboratively with other provinces and territories where the owls breed or over-winter, and to share information to improve management;
- D. To clarify links between birds breeding in Newfoundland and Labrador and other populations breeding and/or wintering in eastern Canada using monitoring techniques such as banding and radio-telemetry;
- E. To assess, monitor and mitigate existing and emerging threats to reproductive success and population growth.

### **II.2 Management Actions**

#### II.2.1 Monitoring Distribution and Population Trends

Associated Objective(s): A, B, C, D

Short-eared owls' are poorly sampled with existing breeding bird and nocturnal owl surveys. In fact, no monitoring techniques applicable to Short-eared owls are known to the author. Consequently, there is a lack of basic information on the owl's distribution and ecology, both continentally and in Newfoundland and Labrador. Opportunistic sightings are used to establish presence at a local scale given that the owls are active during daylight hours, and occur in open areas. However, adequate population monitoring techniques, including the development of a standardized survey protocol, must be developed to meet the objectives of the management plan. The following actions are recommended as forming the basis of a program to monitor distribution and abundance:

- ▶ Design and test a variety of non-invasive survey protocols, and include variations in, time of day, repetition and intensity, and in survey length for each site, and assess each variation for its ability to detect owls;
- ▶ Select and implement a standardized survey protocol;
- ▶ Band and use radio-transmitters on Short-eared owls from throughout their breeding range to assess small -scale habitat movement and use, breeding site fidelity and migratory patterns;
- ▶ Establish a sightings report form and implement a framework for the collection of reports;
- ▶ Identify important areas including those frequently used by breeding, roosting and wintering birds;

## II.2.2 Habitat Assessment

Associated Objective(s): A, B, E

Prey availability determines local breeding and abundance of Short-eared owls. Therefore, to gain insight into distribution and population dynamics, concurrent monitoring of small mammal populations is also necessary. Since owls occurring in coastal and island areas

are known to consume birds, the importance of seabirds in the owl's diet and the ecological implications of a non-irruptive food source on the owl's occurrence should also be evaluated. Management for habitat should include large tracts of open areas with low lying-vegetation and adequate prey densities, and limited disturbance from either predators or human activity. The following specific steps are recommended to meet the management objectives:

- ▶ Monitor small mammal populations at a landscape scale throughout the owl's suitable habitat;
- ▶ Evaluate Short-eared owl diet (through pellet analysis and behavioural observations);
- ▶ Maintain large, contiguous patches of suitable habitat with limited disturbance;
- ▶ Identify environmental features and other habitat characteristics associated with Short-eared owl occurrence;
- ▶ Map areas of suitable or preferred habitat and owl occurrence relative to protected areas and identify priorities for protection or areas that may be at risk without management.
- ▶ In order to identify areas that may be used by Short-eared owls in years of adequate prey densities, develop a habitat model for Short-eared owls during the breeding season in NL. This model can be tested over time as data become available.

### II.2.3 Actions completed or Underway:

The following tasks were undertaken in the development of a standardized survey protocol. The aim was to develop a survey protocol suitable for monitoring crepuscular owls over large geographical areas but still appropriate to be used by volunteers.

- ▶ An assessment of the availability of existing owl survey protocols suitable for short-eared owls was completed. No suitable survey protocols were found, and it was decided that a new method appropriate to the biology and habits of Short-eared owls be developed (Appendix A). One survey protocol was developed by J. Duncan of Manitoba through collaboration with a variety of raptor biologists.

- ▶ The protocol, instructions to surveyors and results of surveys conducted in NL have been shared with the Canadian Wildlife Service (Sackville, NB), Parks Canada (Gros Morne and the proposed Torngat Mountain parks) and to interested researchers by request;
- ▶ Naturalist organizations, government biologists, birding groups, and non-profit organizations with an environmental mandate were informed of the initiation of a monitoring program and canvassed to establish a list of persons interested in running a survey route.
- ▶ A field program consisting of surveys in targeted areas (large tracts of open areas, or sites in which owls had previously been documented during the breeding season) was initiated. Specifically, the Northern Peninsula (north of Port-aux-Choix to the tip) and along the South coast of Labrador between L'anse-aux-Claire and Red Bay, and the barrens along the Burgeo highway and near Stephenville were surveyed during 2003 and 2004. All surveys were conducted over the first two weeks of July, targeting nesting adults and fledglings. Surveys consisted of 10 stops spaced 1.6 km apart, with a two minute observation period per stop, and were conducted at least 1 hour before sunset, and completed no later than 0.5 hours after sunset. Approximately 600 km and 100 stations were formally surveyed. Results were formally summarized in a report<sup>3</sup> (available on request). Formal surveys were supplemented with interviews with local residents about their sightings and recollections of the owl's presence in the area.
- ▶ A compilation of historical sightings was obtained<sup>4</sup> and mapped to roughly delineate the owls' distribution in the Province.
- ▶ Field activities were summarized, results reviewed, survey protocols were modified as required. Results were communicated to other provinces also conducting surveys (Ontario, Manitoba).
- ▶ A database of all owl survey data and incidental or opportunistic sightings has been created.
- ▶ A Short-eared owl 'species profile' sheet was created and added to other educational material on the Wildlife, Endangered species and Biodiversity' section of the NL government web site<sup>5</sup>.

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<sup>3</sup> *Summary of Short-eared owl (Asio flammeus) monitoring and field activities, Newfoundland and Labrador, 2003.* I. Schmelzer. Unpublished Report, Wildlife Division, Government of Newfoundland and Labrador, Corner Brook, NL.

<sup>4</sup> P. Linegar, unpublished data, St. John's. NL

<sup>5</sup> [http://www.env.gov.nl.ca/env/wildlife/wildlife\\_at\\_risk.htm](http://www.env.gov.nl.ca/env/wildlife/wildlife_at_risk.htm)

## II.2.4 Stewardship and Education

Several activities pertaining to the education or stewardship of short-eared owls are ongoing or planned. For example, all formal surveys are supplemented with informal interviews with local residents about their sightings and recollections of the owl's presence in the area. Over the next year, communications materials such as posters and educational signs will be developed and placed in areas in which the owls frequently occur. These materials will also be used to solicit sightings to supplement formal surveys, and engage the public in the monitoring and conservation of the owls.

In Labrador, there is a 'Labrador Species at Risk Stewardship Program' established through the Government of Canada's Habitat Stewardship Program. This program has funded Inuit, Innu and Métis stewardship facilitators over the past 5 years. Stewardship facilitators are active in influencing a stewardship ethic within their communities and in the conservation and recovery of all listed species occurring in Labrador, including the short-eared owl.

## II.3 Protection

### II.3.1 General Prohibitions

Short-eared owls are protected under the provincial *Wild Life Act*, which states that it is illegal to hunt, take, kill, or have in one's possession an owl (or other raptor) of any species. An individual may, however apply for a permit to possess an owl specimen. The act also includes prohibitions against selling, purchasing, or offering to sell a specimen (*Wild Life Act, Consolidated Regulations: 81, 82*). Prohibitions apply to the owls themselves, and to their eggs, but do not include the nest, or the owl's habitat.

Species listed as 'Vulnerable' under Schedule C of the *Endangered Species Act* do not receive any automatic protection. However, the *Act* makes provisions under *44(2)f* to provide for the protection of 'vulnerable' species in a manner similar to that provided for species designated as 'threatened' or 'endangered' if this action is recommended in the Management Plan. In addition to prohibitions against killing or possession, such a designation would include

enhanced protection including prohibitions against disturbance, protection of a 'residence' or nest, and protection of habitat.

The provincial *Wild Life Act* currently sufficiently protects short-eared owls in the province. However, if required, the owls' or their habitat may be afforded enhanced protection as outlined in the endangered species legislation.

### II.3.2 Protection of Habitat

Tundra, coastal barrens, sand dune, field and bog habitats are plentiful in Newfoundland and Labrador, and these constitute extensive areas of potentially suitable habitat for short-eared owls in the province. During years in which these regions support high densities of small mammals, they are suitable for breeding birds. Many of these areas are remotely located and support limited or no agriculture. The amount of suitable habitat available has probably not changed over the past century. Though habitat is not limiting to Short-eared owls in the province, the majority of potential habitat and or areas of sightings occur outside of protected areas (though the owl has also been recorded in national and provincial parks, ecological reserves and sensitive wildlife areas). A goal of this management plan is to estimate the extent of potentially suitable habitat in the province and evaluate the proportion currently protected or managed in a manner that retains its suitability as a breeding area. When combined with information on owl occurrences, this information can be also be to recommend areas of high value for Short-eared owls. In the event that areas of particular importance to breeding, roosting or wintering birds are identified in the course of future research, these should be considered for additional protection where necessary. In addition, biologists should evaluate the impact of any changes in land use that may affect the availability or integrity of existing suitable habitat.

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## Appendix A: NL Short-eared Owls Survey Form and Instructions



# SHORT-EARED OWL SURVEY NEWFOUNDLAND AND LABRADOR

## 2003 GENERAL INFORMATION AND INSTRUCTIONS

### Introduction:

Thank you for volunteering participate in a new survey for short-eared owls. Monitoring this reportedly nomadic and irruptive species will be a challenge because the likelihood of detecting short-eared owls on a given survey may be low. None-the-less, other raptors and wildlife seen and recorded during the survey should make it an enjoyable and valuable experience.

### Rationale for the Survey:

The Short-eared owl is listed as a "Vulnerable" species in Newfoundland and Labrador, and was classified as a species of Special Concern in Canada (COSEWIC November 2002). It was also recognized as one of the "top 100 bird species of conservation concern" in the United States in 2002. North American and provincial rankings are based on a persistent, long-term decline, and a lack of basic information on its distribution and ecology. The Nocturnal Owl Surveys, Christmas Bird Counts, and Breeding Bird Surveys occasionally detect short-eared owls. However, better information is needed more to accurately monitor trends in its population and to refine our understanding of the owls' habitat requirements. In addition, information collected on other raptors will be useful in ongoing assessments of their conservation status in the province, and by the Atlantic Canada Conservation Data Centre.

Beginning this year, and with your help, we will be conducting surveys with a view to gaining a better understanding of the owl's occurrence and dynamics in the Province, and assisting in future status evaluations. Based on historical records of winter sighting and migration reports, there is probably both a resident and migratory population here, a unique situation that underscores the possible importance of the provincial population to that of Canada as a whole.

### Survey Route Selection:

A random survey route selection process is often critical to a survey's ability to detect statistically significant population trends. While desirable, the application of a route randomization process to this survey would likely result in a detection rate too low to meet the survey's objective. Therefore we are asking surveyors to select routes to maximize the likelihood of detecting short-eared owls based on the owl's preferred habitat as reported in the literature:

- Large, open and brushy grasslands, meadows near wetlands, hayland, and pastures;
- Habitat with vegetation 30-60 cm high.

Scouting out potential habitat before setting up a survey route is recommended. **Where possible, routes should be confirmed with the Coordinator prior to being run.**

### Route Structure:

Routes consist of **ten (10) stations at least 1.6 kilometres (1 mile) apart**. Each route is new this year and if you are not familiar with your survey area then the route should be visited beforehand to ensure it is passable.

### Timing of the Survey:

Each route will be surveyed three times or at least once during each of the three periods denoted

below:

**April 10 - May 15 (targeting migrants and courting short-eared owls)**

**June 10 - July 15 (targeting nesting adults and fledglings)**

**September 10 - October 15 (targeting fall migrant short-eared owls)**

Alternatively, you may consider doing your route every 2 weeks from April 10 - October 15.

1. Surveys should be conducted on days without significant fog, rain, or wind (<20 km/hr or Beaufort scale of 3 or less) whenever possible.
2. Begin survey at least 1 hour before sunset (consult local newspaper for correct time). Surveys should be completed no later than 30 minutes after sunset.
3. Please mark the map you prepare with the following information:
  - a) starting point
  - b) each point count station numbered
  - c) end point
  - d) your estimate of where each short-eared owl observed was located
4. If you have a GPS please record stop coordinates.
5. At each station, pull off the road a safe distance and turn off the engine. Walk away from the vehicle far enough so that any noise from the vehicle will not interfere with your ability to hear calling raptors.
6. The recording time is two (2) minutes per stop. Record all birds of prey heard and/or seen on the data sheet, making additional notes, as you deem necessary. State if you are unsure of the identification of a raptor and make notes on its appearance for possible identification at a later date. Please use the two-letter species code on the data form.
7. Note the direction of each raptor and if it is a short-eared owl, then mark its estimated location on the map. If you do not have a compass, note the direction as best as you can (i.e. NW, SE, etc.). This will provide approximate locations for birds and help determine the number of raptors near a station. At 1.6 kilometre intervals, it is unlikely that the same raptor will be detected at two consecutive stations (though some can be heard up to 4 km away on a calm day). Use your best judgement to decide if you are seeing or hearing the same bird at more than one station and record this in the "comments" column.
8. Estimate the distance of each raptor recorded on the data sheet. The categories are:
  - a) < 100 metres
  - b) 100 to 500 metres
  - c) > 500 metres
9. Raptors observed before or after the 2-minute recording period, or those seen enroute between survey stops, should be recorded in the "comments" space. Other wildlife of interest can also be recorded here.



## Newfoundland and Labrador Short-eared Owl Survey Form

Route Name (closest landmark), Description (start location, general habitat, e.g., grassland, pasture, wetland, cropland)  
 \_\_\_\_\_  
 \_\_\_\_\_

Surveyor Name \_\_\_\_\_ Surveyor Address \_\_\_\_\_

Surveyor Phone Number \_\_\_\_\_ Surveyor Email \_\_\_\_\_

Survey Assistants \_\_\_\_\_

Survey Period (check one): April 10 - May 15    June 10 - July 15    September 10 - October 15

Survey Date: \_\_\_\_\_ Sunset time: \_\_\_\_\_ Sunrise time: \_\_\_\_\_  
day / month / year

Temperature: Start \_\_\_\_\_ °C End \_\_\_\_\_ °C

Precipitation (circle relevant items): None Light Medium / Snow Rain Drizzle Fog

Cloud Cover: 0 - 25% 25 - 50% 50 - 75% 75 - 100% Visibility: Excellent Good Fair Poor Reason: \_\_\_\_\_

Wind Beaufort Number	Indicators of Wind Speed	Wind Speed in km/h or m/h
0	Smoke rises vertically	<2 / <1
1	Wind direction shown by smoke drift	2-5 / 1-3
2	Wind felt on face; leaves rustle	6-12 / 4-7
3	Leaves, small twigs in constant motion; light flag extended	13-19 / 8-12
4	Raises dust and loose paper; small branches are moved	20-29 / 13-18

Odometer: Survey Start \_\_\_\_\_ Survey End \_\_\_\_\_ Total km \_\_\_\_\_

Station: 1 Start Time: \_\_\_\_\_ Wind: 0 1 2 3 >3 UTM Coord. \_\_\_\_\_ E \_\_\_\_\_ N

Raptors* (and #)	Direction	Distance (meters)			Comments (Behaviour/General Habitat/Disturbances)
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	

\*Raptors = owls and diurnal birds ... please use the following abbreviations:

GH - Great Horned Owl	SE - Short-eared Owl	RL - Rough-legged Hawk	PE - Peregrine Falcon
GG - Great Gray Owl	SN - Snowy Owl	NG - Northern Goshawk	NH - Northern Harrier
LE - Long-eared Owl	TV - Turkey Vulture	NH - Northern Harrier	SS - Sharp-shinned Hawk
BO - Boreal Owl	OS - Osprey	AK - American Kestrel	ME - Merlin
NO - Northern Hawk Owl	BE - Bald Eagle	RT - Red-tailed Hawk	GE - Golden Eagle

Newfoundland and Labrador's Short-eared Owl Survey Data Form



Station: 10 Start Time: \_\_\_\_\_ Wind: 0 1 2 3 >3 UTM Coord. \_\_\_\_\_ E \_\_\_\_\_ N

Raptors* & # seen	Direction	Distance (meters)			Comments (Behaviour/General Habitat/Disturbances)
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	
		<100	100-500	>500	

**Total Number of Individual Raptors Detected** \_\_\_\_\_

Tally of Raptors by Species (please use codes above):  
 \_\_\_\_\_  
 \_\_\_\_\_

Number of Survey Stations Completed \_\_\_\_\_

Total Distance Traveled (km): \_\_\_\_\_ Method of Travel: \_\_\_\_\_

Do you wish to participate again? Yes No

**Comments?**

Please comment on the survey and your experiences. What was an enjoyable, suggestion for improvements etc. Use the back of this page if you need more space.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thanks for Completing the Survey! Please send data, surveyor information, route information and maps to:



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 Short-eared Owl Survey--Newfoundland and Labrador  
 Wildlife Division  
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