Short-eared Owl (*Asio flammeus*) Population Monitoring in Southern and Eastern Ontario Summer 2003

Leslie M. Hunt
Project Director
The Migration Research Foundation

and

Marcel A. Gahbauer
Research Director
The Migration Research Foundation

MIGRATION RESEARCH FOUNDATION

November 2004

Short-eared Owl (*Asio flammeus*) Population Monitoring in Southern and Eastern Ontario Summer 2003

ABSTRACT

The North American Short-eared Owl (*Asio flammeus*) population has been steadily declining since the mid 1960s. In southern Ontario, the Short-eared Owl was once the most frequently encountered owl, but has become very scarce and localized. It has recently been recommended for Special Concern status in Ontario. Little is known about the species' breeding sites or movements, and there is debate as to whether the species deserves a higher conservation status. In order to accurately evaluate population status and effectively guide recovery efforts, The Migration Research Foundation (MRF) conducted a survey of the breeding population in southern and eastern Ontario. MRF, with the help of landowners and volunteers from the birding community, located and monitored nest sites, mapped nesting habitat, and set traps for the purpose of banding and blood-sampling adult owls. Approximately 40 historical or suitable nest sites were monitored, with evidence of Short-eared Owls being present found at only five. No owls were successfully trapped.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF PHOTOS

LIST OF APPENDICES

1 INTRODUCTION

Need for the Project

The Short-eared Owl is classified as a species of Special Concern in Ontario and Canada, and is listed as Threatened or Endangered in many northeastern states. Breeding Bird Survey data has shown a steady decline of 3.5% per year in the North American population between 1966 and 2001. The decline in the Canadian portion of its range stood at 11.4% per year during the same time period (Cadman 1994). This rate of decline is believed to be above average. Christmas bird counts in North America have revealed an average population decline of 1.4% per year between 1960 and 1989. Only twenty-five nests had been reported to the Ontario Nest Records Scheme. The Short-eared Owl was probably once the most abundant owl in southern Ontario, but is now scarcely seen, with most sightings being localized. There is much debate as to whether the species deserves a higher conservation status.

It is believed that habitat loss may be at least partly responsible for the decline of the Short-eared Owl population. It has been suggested that environmental contaminants may also be affecting the population. Neither hypothesis has been adequately studied. Very little is known about the species' movements and reproductive success in Ontario.

The 1994 status report identifies several key areas where information about Short-eared Owls is lacking. Knowledge about its migration is limited to a very small number of band recoveries, none of which provide any insights into the long-term movements of individuals. No migratory routes or important stopover points have been described. It is suspected that the species may be nomadic, but there is no firm evidence of this. Data regarding threats to the population is severely limited.

Communal wintering areas are well known in parts of Canada, but little is known about movements between breeding and wintering areas. It is believed that some important breeding areas may remain undiscovered, especially in the northern parts of its range.

This study, conducted by the Migration Research Foundation, was necessary to ensure that a knowledge base is developed prior to next year's mandatory review of the status report by COSEWIC.

Background Information

The Short-eared Owl is a medium-sized owl that occurs throughout North America, South America, Eurasia, Iceland, Hawaii, and the Galapagos. In North America, it nests primarily on the ground in open habitats. It is a secretive breeder, usually concealing its nest among high grasses, and flushing only very reluctantly. As a result, relatively few nests have been described in any detail. Even less is known about the species' movements. Over the last 80 years, only 50 band recoveries have been compiled. The most recent band recovery occurred in 1997. Clayton (2000) found the Albertan population to be somewhat nomadic in response to the fluctuations of the Meadow Vole (*Microtus pennsylvanicus*), its primary prey (Holt 1993). However, the extent of these movements has never been documented. Nor is there any knowledge about the relationship between breeding and wintering populations.

The Short-eared Owl tends to nest on hummocks and ridges, in vegetation, usually grass, averaging a height of 45 cm (Holt 1992). Holt and Leasure (1993) found that the North American population prefers grasslands (55%), grain stubble (24%), haylands (14%), and low perennials (6%). Eggs are usually laid from early April to mid May, with an incubation period of only 26-37 days. The young hatch asynchronously, and begin to leave the nest at about two weeks of age. Fledging occurs at approximately one month of age.

It is not known precisely what is causing the population decline in North America. Researchers speculate that habitat loss or contamination may be responsible for the decline. It is known that owls tend to be susceptible to the bioconcentration of contaminants such as pesticides and metals (Sheffield 1997). It is possible that the species is extra vulnerable due to biological factors such as nesting habits and longevity. Ground-nesting birds can be more at risk of predation. The North American longevity record for the species is under 4.5 years.

2 OBJECTIVES

The purpose of this project was to document the nesting habitat requirements, seasonal movements, and possible threats to the Short-eared Owl population in southern Ontario, for the purpose of developing a base of critical knowledge to support future conservation and population management efforts.

The main objectives were to:

- Survey historical breeding areas to identify the size and distribution of the current southern Ontario breeding population
- Identify critical breeding habitat
- Provide written and photographic documentation of the habitat at all active nest sites to allow for other potentially suitable habitat to be recognized and protected
- Observe nesting success and nestling mortality, where possible
- Equip both adult and juvenile owls with leg bands for future population monitoring
- Obtain blood samples for contaminant analysis by the Canadian Wildlife Service (CWS)
- Engage landowners in research activities and encourage stewardship actions
- Provide element occurrence data to the Natural Heritage Information Centre (NHIC) database

3 METHODS

The Migration Research Foundation (MRF) led all phases of the project. The phases were as follows:

- Gathered historical and current breeding location data
- Determined priority areas, since MRF could not cover all of southern Ontario
- Searched priority areas for owls and suitable breeding habitat, in order to determine priority sites for later visit
- Obtained permission of landowners at priority sites
- Visited priority sites to more thoroughly search for owls, assess habitat, trap, band and blood sample owls

Background research

Historical breeding and sighting data was obtained from the Ontario Breeding Bird Atlas (Cadman 2003) and NHIC (Sutherland 2003). Experienced birders and OBBA volunteers were recruited from a variety of local and province-wide clubs and associations. Their instructions were to primarily survey areas for which historical breeding evidence exists, but to also search for Short-eared Owls in and around their own communities in areas of suitable habitat.

Based on historical location data and current sightings by volunteers, MRF determined priority areas for visit. Priority areas included those with confirmed or probable breeding during the most recent bird atlas (2001 and 2002), plus any sightings in the current season (2003).

Field reconnaissance

Priority areas were visited by MRF during early summer. Suitable habitat was noted and surveyed for owls, to determine priority sites for later visit. At these priority sites, landowners were contacted, asked for permission to enter properties, and provided with a Short-eared Owl information brochure. Permission was granted to enter all but one property.

MRF made at least one visit to each priority site during the summer, in order to gather as much information as possible. During daylight hours, habitat was described and inventoried, mainly for vegetation and bird species. Bird species were also inventoried after sundown. Throughout the night, efforts were made to trap, band and blood sample all Short-eared Owl adults and nestlings present.

MRF trapped with 45 x 45 x 15 cm bal-chatri traps, baited with at least one live mouse. Foot nooses from 20lb or 30lb fishing line were attached in rows on the tops of the traps. Three traps were used at each site, placed in strategic locations. Banders stayed more than 50 metres away from each trap. Traps were checked every 30-45 minutes. Trapping efforts began about 30 minutes after sundown, and generally continued for at least 4 hours.

Blood sampling followed guidelines put forth by CWS and the American Ornithologists' Union (AOU). MRF used 1cc syringes with 27 gauge needles. The AOU (2003) recommended that no more than 10-20% of total blood volume be collected, and the volume of blood averages 6-8 ml per 100 g body mass. Based on these recommendations, MRF decided that a range of 1.9-2.3ml of blood should be taken from the brachial or jugular vein of adults, and a much lesser volume for nestlings. A minimum of 1.5ml of blood is required for contaminant analysis, so blood from nestlings must be pooled in order to obtain this volume. Blood is analyzed for contaminants and biomarkers by CWS.

Figure 1: Bal-chatri trap in field

Figure 2: Bal-chatri traps

4 RESULTS

Areas surveyed based on historical breeding evidence fell into the counties of Lanark, Renfrew, Prescott & Russell, Stormont Dundas & Glengarry, Frontenac, Lennox & Addington, Prince Edward, Dufferin, Niagara, and Simcoe. Others fell into the regional municipalities of Ottawa-Carleton, Hamilton-Wentworth, and Haldimand-Norfolk. Areas surveyed fell into OBBA regions, from east to west, 23, 24, 21, 20, 16, 11, 45, 10, 15. See Appendix 1 for details. Two areas were surveyed despite the fact that they did not have probable or confirmed breeding evidence during the most recent bird atlas. These sites were Carden Plain and Forks of the Credit. They were surveyed because they contain large amounts of suitable habitat. Twenty-three volunteers aided in the search for Short-eared Owls.

Surveys produced Short-eared Owls at five locations. These locations were deemed priority sites, and fell within OBBA squares 18WR15, 18VR41, 18UR92, 18UP46, 18UP69, and 17NK83. Details are provided in this section.

North Alfred (DU) – 18WR15

This site, situated north of Alfred Bog in Prescott & Russell County, sat within a matrix of fields, hedgerows, and wetlands. The site consisted of more than 1000 hectares of rolling, grassy hills, of which some portions were hayed during the summer months. The adjacent road was rarely used and consisted of one dirt lane. The northern portion of the site belonged to Ducks Unlimited, while the southern and western portions were privately owned.

The un-hayed portions of the site were dominated by vegetation approximately 30cm in height. There were patches of both shorter and longer grasses. The site type, according to the Ecological Land Classification of Southern Ontario, was Old Field. Dominant vascular plants are listed in Table 1. See Figure 3 for a photo of the site. Due to the large size and complexity of the site, thorough wildlife surveys were not done. Only incidental wildlife observations were recorded. Incidental wildlife species observed are listed in Tables 2 and 3.

The site was first visited in early June. After dusk, begging calls were heard more than a kilometer south of the most western of the three historical nest locations. The site was visited again on June 25, July 5, July 30 and August 13. On July 5, one owl was seen during daylight hours. During the last two visits, traps were set on the northern portion of the site (on Ducks Unlimited property), beginning at 9pm. Traps were scattered throughout two fields. Traps were checked every 45 minutes until 2am. No owls were seen, heard, or caught.

Table 1 : Vascular plants observed at the North Alfred (DU) site

COMMON NAME	SCIENTIFIC NAME
Quack grass	*Agropyron repens*
Redtop	*Agrostis gigantea*
Creeping bent grass	*Agrostis stolonifera*
Smooth brome grass	*Bromus inermis*
Timothy	*Phleum pratense*
Kentucky blue grass	*Poa pratensis*
Carex spp.	*Carex spp.*
Red-sheathed bulrush	*Scirpus microcarpus*
Bulrush spp.	*Scirpus sp.*
Soft rush	*Juncus effusus*
Wild strawberry	*Fragaria virginiana*
Wild red raspberry	*Rubus idaeus*
Birdsfoot trefoil	*Lotus corniculatus*
Yellow sweet clover	*Melilotus officinalis*
Red clover	*Trifolium pratense*
Cow vetch	*Vicia sativa*
Poison ivy	*Rhus radicans ssp. negundo*
Common milkweed	*Asclepias syriaca*
Hedge bindweed	*Calystegia sepium*
Wild basil	*Clinopodium vulgare*
Heal-all	*Prunella vulgaris ssp. lanceolata*
Yarrow	*Achillea millefolium*
Oxeye daisy	*Chrysanthemum leucanthemum*
Canada goldenrod	*Solidago canadensis*

Table 2 : Birds observed at the North Alfred (DU) site

COMMON NAME	SCIENTIFIC NAME
American bittern	*Botaurus lentiginosus*
Green heron	*Butorides striatus*
Mallard	*Anas platyrhynchos*
Turkey vulture	*Cathartes aura*
Northern harrier	*Circus cyaneus*
Red-tailed hawk	*Buteo jamaicensis*
Virginia rail	*Rallus limicola*
Sora	*Porzana carolina*
Common moorhen	*Gallinula chloropus*
Lesser yellowlegs	*Tringa flavipes*
Wilson's snipe	*Gallinago gallinago*
American woodcock	*Scolopax minor*
Black-billed cuckoo	*Coccyzus erythropthalmus*
Short-eared owl	*Asio flammeus*
Ruby-throated hummingbird	*Archilochus colubris*
Belted kingfisher	*Ceryle alcyon*
Northern flicker	*Colaptes auratus*
Yellow-bellied flycatcher	*Empidonax flaviventris*
Willow flycatcher	*Empidonax traillii*
Great-crested flycatcher	*Myiarchus crinitus*
Eastern kingbird	*Tyrannus tyrannus*
Purple martin	*Progne subis*
Tree swallow	*Tachycineta bicolor*
Barn swallow	*Hirundo rustica*
Marsh wren	*Cistothorus palustrus*
American robin	*Turdus migratorius*
Gray catbird	*Dumetella carolinensis*
Yellow warbler	*Dendroica petechia*
Common yellowthroat	*Geothlypis trichas*
Rose-breasted grosbeak	*Pheucticus ludovicianus*
Chipping sparrow	*Spizella passerina*
Vesper sparrow	*Pooecetes gramineus*
Savannah sparrow	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
Swamp sparrow	*Melospiza georgiana*
Bobolink	*Dolichonyx oryzivorus*
Red-winged blackbird	*Agelaius phoeniceus*
Eastern meadowlark	*Sturnella magna*

Table 3 : Other wildlife observed at the North Alfred (DU) site

COMMON NAME	SCIENTIFIC NAME	GROUP
Meadow fritillary	*Boloria bellona*	Insect
Common wood nymph	*Cercyonis pegala*	Insect
Common sulphur	*Colias philodice*	Insect
Monarch	*Danaus plexippus*	Insect
Viceroy	*Limenitis archippus*	Insect
Milbert's Tortoiseshell	*Nymphalis milberti*	Insect
Black swallowtail	*Papilio polyxenes*	Insect
Cabbage white	*Pieris rapae*	Insect
Eyed brown	*Satyrodes eurydice*	Insect
Great spangled fritillary	*Speyeria cybele*	Insect
American toad	*Bufo americanus*	Amphibian
Green frog	*Rana clamitans melanota*	Amphibian
Leopard frog	*Rana pipiens*	Amphibian

Figure 3 : North Alfred (DU) site

Armstrong Road – 18VR41

This site, south of the Ottawa airport, consisted of a small handful of fields separated by roads and hedgerows. The north side of the road was a hayfield more than 35 hectares in size. The south side of the road was ploughed. The road was a two-lane dirt road that likely received limited use after dark. The site type, according to the Ecological Land Classification of Southern Ontario, was Old Field. It contained a mixture of short and long grasses. Dominant vascular plants are listed in Table 4. See Figure 4 for a photo of the site. Incidental wildlife species observed are listed in Tables 5 and 6.

The site was first visited on May 22. No owls were seen or heard. The site was visited again on June 19, after receiving a tip from a local birder. On this date, one owl was seen hunting on the north side of the road after dusk. The site was visited again on June 22 in early and late evening. On July 29, traps were set. No owls were caught.

Table 4 : Vascular plants observed at the Armstrong Road site

COMMON NAME	SCIENTIFIC NAME
Quack grass	*Agropyron repens*
Smooth brome grass	*Bromus inermis*
Reed canary grass	*Phalaris arundinacea*
Fowl meadow grass	*Poa palustris*
Timothy	*Phleum pratense*
Kentucky blue grass	*Poa pratensis*
Hop sedge	*Carex lupulina*
Carex spp.	*Carex spp.*
Red-sheathed bulrush	*Scirpus microcarpus*
Willow spp.	*Salix spp.*
Curled dock	*Rumex crispus*
Wild strawberry	*Fragaria virginiana*
Pin cherry	*Prunus pensylvanica*
Birdsfoot trefoil	*Lotus corniculatus*
Red clover	*Trifolium pratense*
Cow vetch	*Vicia sativa*
Purple loosestrife	*Lythrum salicaria*
Wild carrot	*Daucus carota*
Common milkweed	*Asclepias syriaca*
Yarrow	*Achillea millefolium*
Canada goldenrod	*Solidago canadensis*
Field sow-thistle	*Sonchus arvensis*

Table 5 : Birds observed at the Armstrong Road site

COMMON NAME	SCIENTIFIC NAME
Great blue heron	*Ardea herodias*
Canada goose	*Branta canadensis*
American black duck	*Anas rubripes*
Mallard	*Anas platyrhynchos*
Turkey vulture	*Cathartes aura*
Northern harrier (probable)	*Circus cyaneus*
Killdeer	*Charadrius vociferus*
Wilson's snipe	*Gallinago gallinago*
American woodcock	*Scolopax minor*
Black-billed cuckoo	*Coccyzus erythropthalmus*
Short-eared owl	*Asio flammeus*
Willow flycatcher	*Empidonax traillii*
Eastern kingbird	*Tyrannus tyrannus*
Tree swallow	*Tachycineta bicolor*
Barn swallow	*Hirundo rustica*
Eastern bluebird	*Sialia sialis*
Brown thrasher	*Toxostoma rufum*
Yellow warbler	*Dendroica petechia*
Common yellowthroat	*Geothlypis trichas*
Savannah sparrow	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
Swamp sparrow	*Melospiza georgiana*
Bobolink	*Dolichonyx oryzivorus*
Red-winged blackbird	*Agelaius phoeniceus*
Eastern meadowlark	*Sturnella magna*

Table 6 : Other wildlife observed at the Armstrong Road site

COMMON NAME	SCIENTIFIC NAME	GROUP
Wood nymph	*Cercyonis pegala*	Insect
Common sulphur	*Colias philodice*	Insect
Black swallowtail	*Papilio polyxenes*	Insect
Cabbage white	*Pieris rapae*	Insect

Figure 4 : Armstrong Road site

Arnprior airport – 18UR92

This site consisted of more than 30 hectares of flat, grassy fields surrounding the airport runway. The site type, according to the Ecological Land Classification of Southern Ontario, was Old Field. It contained mostly long grasses. No plant or wildlife surveys were done. Incidental bird species observed are listed in Table 7. See Figure 5 for a photo of the site.

This site was first visited June 21. Possibly one owl was seen diving into the grass. The site was visited again the following evening, and traps were set. No owls were caught.

Table 7 : Birds observed at the Arnprior Airport site

COMMON NAME	SCIENTIFIC NAME
Killdeer	*Charadrius vociferus*
Short-eared owl (possibly)	*Asio flammeus*
Eastern kingbird	*Tyrannus tyrannus*
Tree swallow	*Tachycineta bicolor*
Barn swallow	*Hirundo rustica*
American crow	*Corvus brachyrhynchos*
American robin	*Turdus migratorius*
Savannah sparrow	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
Bobolink	*Dolichonyx oryzivorus*
Red-winged blackbird	*Agelaius phoeniceus*
Eastern meadowlark	*Sturnella magna*
Common grackle	*Quiscalus quiscula*
American goldfinch	*Carduelis tristis*

Figure 5 : Arnprior Airport site

Whattam's Road – 18UP46

This site, on Prince Edward Point, consisted of a matrix of hay fields and scattered cedars. The matrix of hay fields equaled more than 25 hectares in total. Vegetation was patchy at this location. The most southern field was hayed in early July. The site type of the northern section, according to the Ecological Land Classification of Southern Ontario, was Old Field. The site type of the southern section was Early Successional Forest. Dominant vascular plants are listed in Table 8. Observed wildlife species observed are listed in Tables 9 and 10. See Figure 6 for a photo of the site.

Table 8 : Vascular plants observed at the Whattam's Road site

COMMON NAME	SCIENTIFIC NAME
Red cedar (N section)	*Juniperus virginiana*
Common cattail (N section)	*Typha latifolia*
Reed canary grass (N section)	*Phalaris arundinacea*
Timothy	*Phleum pratense*
Curled dock	*Rumex crispus*
Cinquefoil spp.	*Potentilla spp.*
Birdsfoot trefoil	*Lotus corniculatus*
White sweet clover (S section)	*Melilotus alba*
Yellow sweet clover	*Melilotus officinalis*
Red clover	*Trifolium pratense*
Cow vetch	*Vicia sativa*
Wild carrot	*Daucus carota*
Common milkweed	*Asclepias syriaca*
Daisy fleabane	*Erigeron annuus*
Canada goldenrod	*Solidago canadensis*

This site was first visited on June 16. After dusk, begging calls were heard adjacent to the road. Female barking was also heard. The site was visited again on June 23. No owls were seen or heard. The site was visited again on July 16 and July 25, and traps were set. Traps were checked until 12:30am. No owls were seen, heard or caught.

Table 9 : Birds observed at the Whattam's Road site

COMMON NAME	SCIENTIFIC NAME
Northern harrier	*Circus cyaneus*
Wilson's snipe	*Gallinago gallinago*
American woodcock	*Scolopax minor*
Black-billed cuckoo	*Coccyzus erythropthalmus*
Short-eared owl	*Asio flammeus*
Whip-poor-will	*Caprimulgus vociferus*
Northern flicker	*Colaptes auratus*
Yellow-bellied flycatcher	*Empidonax flaviventris*
Willow flycatcher	*Empidonax traillii*
Eastern kingbird	*Tyrannus tyrannus*
Tree swallow	*Tachycineta bicolor*
Barn swallow	*Hirundo rustica*
Black-capped chickadee	*Parus atricapillus*
House wren	*Troglodytes aedon*
American robin	*Turdus migratorius*
Gray catbird	*Dumetella carolinensis*
Brown thrasher	*Toxostoma rufum*
Cedar waxwing	*Bombycilla cedrorum*
European starling	*Sturnus vulgaris*
Yellow warbler	*Dendroica petechia*
Common yellowthroat	*Geothlypis trichas*
Chipping sparrow	*Spizella passerina*
Vesper sparrow	*Pooecetes gramineus*
Savannah sparrow	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
Bobolink	*Dolichonyx oryzivorus*
Red-winged blackbird	*Agelaius phoeniceus*
Eastern meadowlark	*Sturnella magna*
Common grackle	*Quiscalus quiscula*
Brown-headed cowbird	*Molothrus ater*
Baltimore oriole	*Icterus galbula*
American goldfinch	*Carduelis tristis*

Table 10 : Other wildlife observed at the Whattam's Road site

COMMON NAME	SCIENTIFIC NAME	GROUP
Common wood nymph	*Cercyonis pegala*	Insect
Monarch	*Danaus plexippus*	Insect
Blanding's turtle	*Emydoidea blandingii*	Reptile
American toad	*Bufo americanus*	Amphibian
Gray tree frog	*Hyla spp.*	Amphibian
Bullfrog	*Rana catesbeiana*	Amphibian
Green frog	*Rana clamitans melanota*	Amphibian

Figure 6 : Whattam's Road site

Stella Road – 18UP69

This site was located on Amherst Island in the Kingston area. The immediate habitat consisted of a large hayfield across a paved road from a municipal building. The field was hayed in mid July (after July 11 and before July 17), and Northern Harriers were seen hunting here during daylight hours. Most of Amherst Island consisted of a matrix of suitable habitat. Many voles were seen and heard in the hayed field. The site type, according to the Ecological Land Classification of Southern Ontario, was Old Field. Dominant vascular plants are listed in Table 11. No wildlife inventories were done at this site. See Figure 7 for a photo of the site.

This site was first visited June 17. Begging calls were heard after dusk. The site was visited again on July 11, where no owls were heard. The site was visited again on July 17, and traps were set in the field across from the municipal building. After dark, two begging calls were heard adjacent to the municipal building and one adult owl was seen flying near the road. The owl perched on a tower and then pounced into the grass. The beg calls moved around throughout the night. No owls were caught. Trapping wrapped up at 11:45pm in order to catch the ferry off the island. Trapping was attempted again on July 24, with no success.

Table 11 : Vascular plants observed at the Stella Road site

COMMON NAME	SCIENTIFIC NAME
Quack grass	*Agropyron repens*
Creeping bent grass	*Agrostis stolonifera*
Tall fescue	*Festuca arundinacea*
Fescue spp.	*Festuca spp.*
Foxtail barley	*Hordeum jubatum*
Reed canary grass	*Phalaris arundinacea*
Fowl meadow grass	*Poa palustris*
Timothy	*Phleum pratense*
Fox sedge	*Carex vulpinoidea*
Carex spp.	*Carex spp.*
Red clover	*Trifolium pratense*
Common milkweed	*Asclepias syriaca*
Common ragweed	*Ambrosia artemisiifolia*
Chicory	*Cichorium intybus*
Canada goldenrod	*Solidago canadensis*

Figure 7 : Stella Road site

South Tiny Marsh – 17NK83

This site, within South Tiny Marsh, was mostly open water with many weeds and islands of thick vegetation (likely alders and other) scattered about. A few dikes meandered through the center of the marsh. A dirt path ran through the center of each dike. A narrow strip of vegetation ran along the sides of the path. The entire marsh was approximately 5 square kilometers in size. The site type, according to the Ecological Land Classification of Southern Ontario, was Open Marsh. Plant surveys could only be done on the dike, as the rest of the marsh was inaccessible. Dominant vascular plants are listed in Table 12. Observed bird species observed are listed in Table 13. See Figure 8 for a photo of the site.

Table 12 : Vascular plants observed at the South Tiny Marsh site

COMMON NAME	SCIENTIFIC NAME
Common cattail	*Typha latifolia*
Speckled alder	*Alnus incana spp. rugosa*
Birdsfoot trefoil	*Lotus corniculatus*
Cow vetch	*Vicia sativa*
Common mullein	*Verbascum thapsus*
Oxeye daisy	*Chrysanthemum leucanthemum*

Figure 8 : South Tiny Marsh site

The site was first visited on July 9. A local birder had seen a Short-eared Owl in the area in June. The area where the owl had been spotted was in the forest interior and was not suitable habitat, although it was only a few hundred feet from the marsh. Traps were set on the dikes throughout the marsh. Conditions were not ideal for trapping, as it was difficult to find strategic trap locations. Trapping began at 9pm and ended at 1am. No owls were seen, heard, or caught. However, nooses on one trap were pulled out of place.

Table 13 : Birds observed at the South Tiny Marsh site

COMMON NAME	**SCIENTIFIC NAME**
Pied-billed grebe	*Podilymbus podiceps*
American bittern	*Botaurus lentiginosus*
Great blue heron	*Ardea herodias*
Canada goose	*Branta canadensis*
Osprey	*Pandion haliaetus*
Virginia rail	*Rallus limicola*
Sandhill crane	*Grus canadensis*
Black tern	*Chlidonias niger*
Great horned owl	*Bubo virginianus*
Short-eared owl (possibly)	*Asio flammeus*
Belted kingfisher	*Ceryle alcyon*
Willow flycatcher	*Empidonax traillii*
Eastern kingbird	*Tyrannus tyrannus*
Veery	*Catharus fuscescens*
Red-eyed vireo	*Vireo olivaceus*
Yellow warbler	*Dendroica petechia*
Chestnut-sided warbler	*Dendroica pensylvanica*
Common yellowthroat	*Geothlypis trichas*
Song sparrow	*Melospiza melodia*
Swamp sparrow	*Melospiza georgiana*
American goldfinch	*Carduelis tristis*

5 DISCUSSION

In total, 36 sites were surveyed by MRF for Short-eared Owls. A few additional sites were surveyed by OBBA volunteers. Short-eared Owls were observed at only five of the surveyed sites in 2003. MRF was able to confirm presence at only three of the sites, including Armstrong Road, Whattam's Road, and Stella Road. MRF was not successful in trapping Short-eared Owls with Bal-chatri traps at any of the sites.

With the exception of South Tiny Marsh, habitat at all of the five occupied sites consisted of hay field. Fields at these sites were variable in size and composition. Common vegetation included trefoils, clovers, vetches, sedge species, and grasses such as timothy and quack grass. Common birds observed included Eastern Meadowlark, Northern Harrier, Red-winged Blackbird, Eastern Kingbird, and other field/agricultural/grassland species.

It appears as though the Short-eared Owl breeding population in southern Ontario was greatly reduced in 2003. However, certain limitations may have prevented an accurate estimate of the population. First, the annual fluctuations in the population are not well understood. Second, it is likely that the breeding population was underestimated, due to the following reasons:

- Surveys began too late in the season to observe courtship displays
- Short-eared Owls are secretive in nature
- All 36 sites could not be surveyed thoroughly or repeatedly due to time and monetary constraints
- Not all OBBA volunteers looked for owls in 2003

Despite the limitations listed above, MRF believes that the breeding Short-eared Owl population may be in trouble in southern and eastern Ontario. As mentioned earlier, Christmas Bird Count and Nest Record Scheme data have shown a steady decrease in the Canadian population over the last few decades. Since most of the observed nests in 2003 were located in hay fields, MRF believes that hay-harvesting activities and/or contamination from pesticides may be affecting nest success. MRF recommends further study on critical breeding habitat for Short-eared Owls in southern/eastern Ontario, as well as an assessment of threats to breeding success. It would also be beneficial to encourage landowners with habitat suitable for Short-eared Owls to engage in habitat stewardship for this and other grassland birds.

6 REFERENCES

AOU. 2003. Personal communication with MRF. American Ornithologists' Union, McLean, Virginia.

Cadman, M.D. 2003. Personal communication with MRF. Ontario Breeding Bird Atlas, University of Guelph, Guelph, Ontario.

Cadman, M.D. 1994. Status report on the Short-eared owl (*Asio flammeus*) in Canada. Report prepared for the Committee on the Status of Endangered Wildlife in Canada.

Clayton, K.M. 2000. Status of the Short-eared Owl (*Asio flammeus*) in Alberta. Alberta Wildlife Status Report No. 28. Alberta Environment, Natural Resources Service, Edmonton, Alberta. 15pp.

Holt, D.W. 1992. Notes on Short-eared Owl, *Asio flammeus*, nest sites, reproduction, and territory sizes in coastal Massachusetts. Canadian Field-Naturalist. 106(3): 352-356.

Holt, D.W. 1993. Trophic niche of nearctic Short-eared Owls. Wilson Bulletin. 105(3): 497-503.

Holt, D.W. and S.M. Leasure. 1993. Short-eared Owl (*Asio flammeus*). Pages 1-22 in A. Poole and F. Gill, editors. The Birds of North America, No. 62. The Academy of Natural Sciences, Philadelphia, Pennsylvania; The American Ornithologists' Union, Washington, D.C.

Sheffield, S.R. 1997. Owls as biomonitors of environmental contamination. Pages 383-398 in J.R. Duncan, D.H. Johnson, and T.H. Nicholls, editors. Biology and conservation of owls of the northern hemisphere: second international symposium, February 5-9, 1997, Winnipeg, Manitoba. US Department of Agriculture Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota.

Sutherland, D. 2003. Personal communication with MRF. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario.

7 ACKNOWLEDGEMENTS

We would like to acknowledge the Ontario Breeding Bird Atlas and the Ontario Field Ornithologists for their assistance in soliciting volunteers for the project. The help of all of the volunteers and landowners who participated in the search for Short-eared Owls is appreciated. We would also like to thank the following organizations and individuals for their help, advice and expertise: The Canadian Wildlife Service, Avian Science and Conservation Centre (McGill University), Ontario Breeding Bird Atlas, Natural Heritage Information Centre, Ontario Ministry of Natural Resources, and Denver Holt of the Owl Research Institute. This project was conducted with funding from the Migration Research Foundation and the Community Fish and Wildlife Involvement Program of the Ontario Ministry of Natural Resources.

APPENDIX 1: Sites Surveyed (from east to west)

ID#	OBBA SQUARE	SITE NAME	WHY SURVEYED	VISIT DATE(S)	VISIT TIME(S)	SEOW PRESENT
1	18WR42	E Alexandria	OBBA	June 24	8pm	No
2	18WR03	NW Alfred	OBBA	June 25	5pm	No
3	18WR13	SE Alfred	OBBA	June 25	6pm	No
4	18WR15	N Alfred (DU)	OBBA	June 2 June 25 July 5 July 30 August 13	8pm, 7pm 6pm, eve eve	Yes
5	18WR14	NE Alfred	OBBA	June 25	9pm	No
6	18VR41	Armstrong Road	OBBA	May 22 June 19 July 29	8pm 8:30pm eve	Yes
7	18VR63	SE Orleans	OBBA	June 20	8pm	No
8	18VR01	SE Packingham	OBBA	June 20	9pm	No
9	18UR92	N Packingham	OBBA	June 21	8pm	No
10	18UR92	Arnprior Airport	OBBA	June 21 June 22	9pm 8:30pm	Possibly
11	18UP17	Prince Edward Flying Club	OBBA	June 16	3pm	No
12	18UP46	Prince Edward NWA	OBBA	June 16	5pm	No
13	18UP46	Whattams Road	OBBA	June 16, 23 July 16, 25	9pm, eve 8pm, eve	Yes
14	18UP69	Owl Woods (Amherst)	OBBA	June 17 July 24	9pm	No
15	18UP69	Stella Road (Amherst)	OBBA	June 17 July 17, 24	10pm 8pm, eve	Yes
16	18UP69	E Amherst	OBBA	July 11, 24	4pm&8pm, eve	No
17	18UP68	S Amherst	OBBA	July 11, 24	6pm, eve	No
18	18UP58	W Amherst	OBBA	July 11, 24	7pm, eve	No
19	18TP98	Hamilton Road	OBBA	June 10	morning	No
20	17PJ06	Cold Creek	OBBA	June 10	2pm	No
21	17NJ85	Forks of the Credit	OBBA	June 10	4pm	No
22	17PK54	Carden Plain	Suitable	July 7 & 8	8pm	No
23	17NK83	South Tiny Marsh	OBBA	July 9&10	7pm	Possibly
24	17PJ06	N Orangeville 1	OBBA	June 10	5pm	No
25	17PJ06	N Orangeville 2	OBBA	June 10	5:30pm	No
26	17PJ06	NW Orangeville	OBBA	June 10	6pm	No
27	17NJ57	N Luther Marsh	OBBA	June 10	6:45pm	No
28	17NJ57	N Luther Marsh	OBBA	June 10	7pm	No
29	17NJ57	N Luther Marsh	OBBA	June 10	7:30pm	No
30	17PH08	SE Hamilton	OBBA	June 11	2:30pm	No
31	17PH07	S Hamilton 2	OBBA	June 11	4pm	No
32	17PH07	S Hamilton 1	OBBA	June 11	4:30pm	No
33	17NH97	S Hamilton 3	OBBA	June 11	5pm	No
34	17NH85	E Hagersville	OBBA	June 11	5:30pm	No
35	17NH84	Fisherville Raptor Preserve	Suitable, known winter site	June 11	6pm	No
36	17PH35	SW Welland	OBBA	June 12	6pm	No

APPENDIX 2

Site Locations Map