

# The Ontario Great Gray Owl Invasion of 1983–1984: Numbers, Dates, and Distribution

by  
Ross D. James

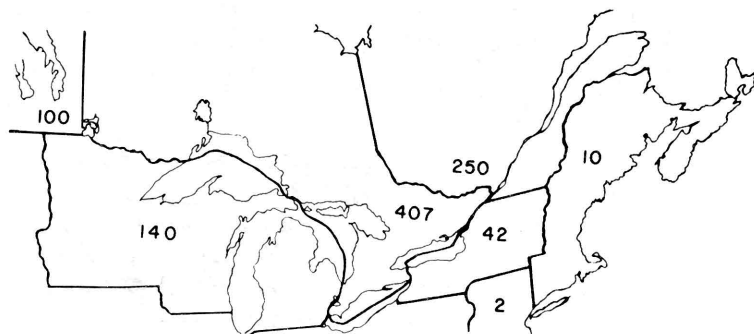
## Introduction

During the winter of 1983–1984, northeastern North America experienced a shift in the population of Great Gray Owls (*Strix nebulosa*) that exceeded in numbers any previously-recorded movement in this region (Lehman 1984). From figures published in *American Birds* (incomplete) Ontario seems to have been at the

centre of this remarkable event, that extended from southeastern Manitoba to Maine and south to Wisconsin and New York (Figure 1).

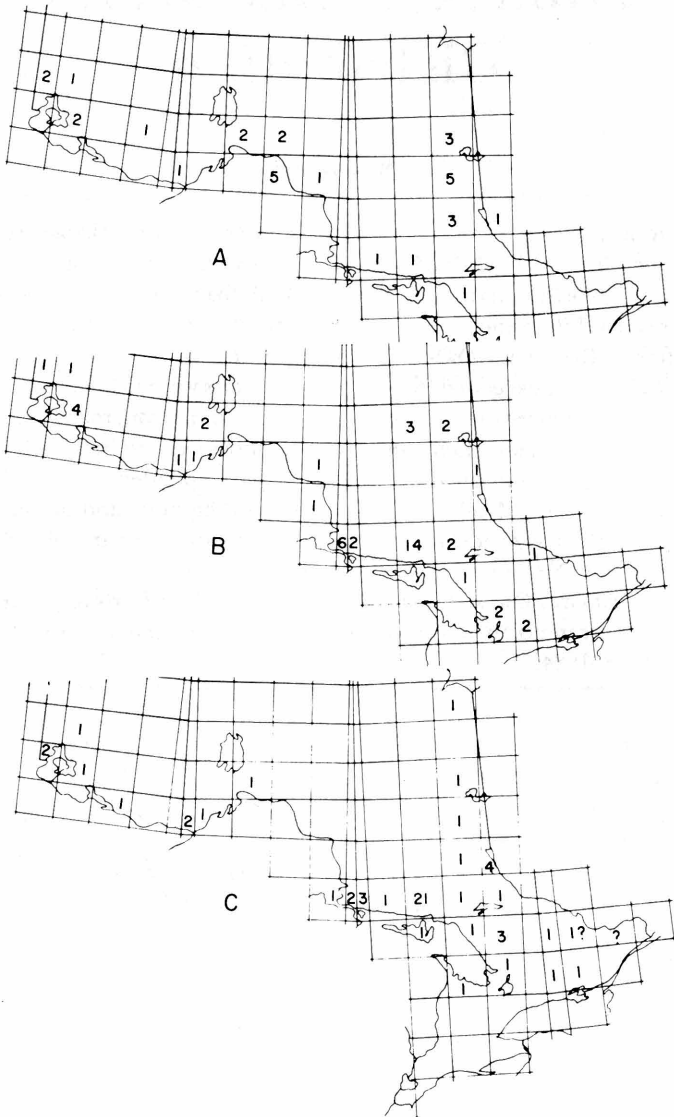
Efforts were made to solicit observations from many parts of the province, and hundreds of people responded, generously forwarding notes and summaries. What follows is an analysis of

Figure 1: Great Gray Owl sightings reported to American Birds regional editors in northeastern North America during the winter season of 1983–1984.



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Figure 2a, b, c: Sightings of Great Gray Owls in Ontario during various periods of the autumn, winter, and spring of 1983-1984. Observations are divided into the standard UTM grid blocks available on topographic maps. a) October 1983, b) November 1983, c) first half of December 1983.



reports of the numbers of birds, plus where and when they were seen. Other observations will follow in a subsequent paper to be published in the next issue of *Ontario Birds* (vol. 7[2]).

Information about Great Gray Owls was solicited through Peter Whelan's birding column in *The Globe and Mail*, the offices of the Ontario Ministry of Natural Resources, and by direct mailings to various observers regularly contributing to *American Birds*. Maps and observation sheets were drawn up and mailed to a number of key compilers or to interested individuals. Data were requested on all aspects of observations made. While I personally felt that, for various reasons, only a small fraction of the potential information was obtained, I am grateful to all those who did participate and sent whatever they could.

It is always difficult to be certain that individual birds were not recorded more than once in different times and places. People who submitted observations from areas of high concentration deleted obvious duplication. But I deleted even a few more. While some people felt that birds were moving about a great deal, substantial numbers of birds were obviously resident in the same area over a period of a month or more, and two were apparently seen for three months in the same general area. Thus, if several observations were made at the same locality, I

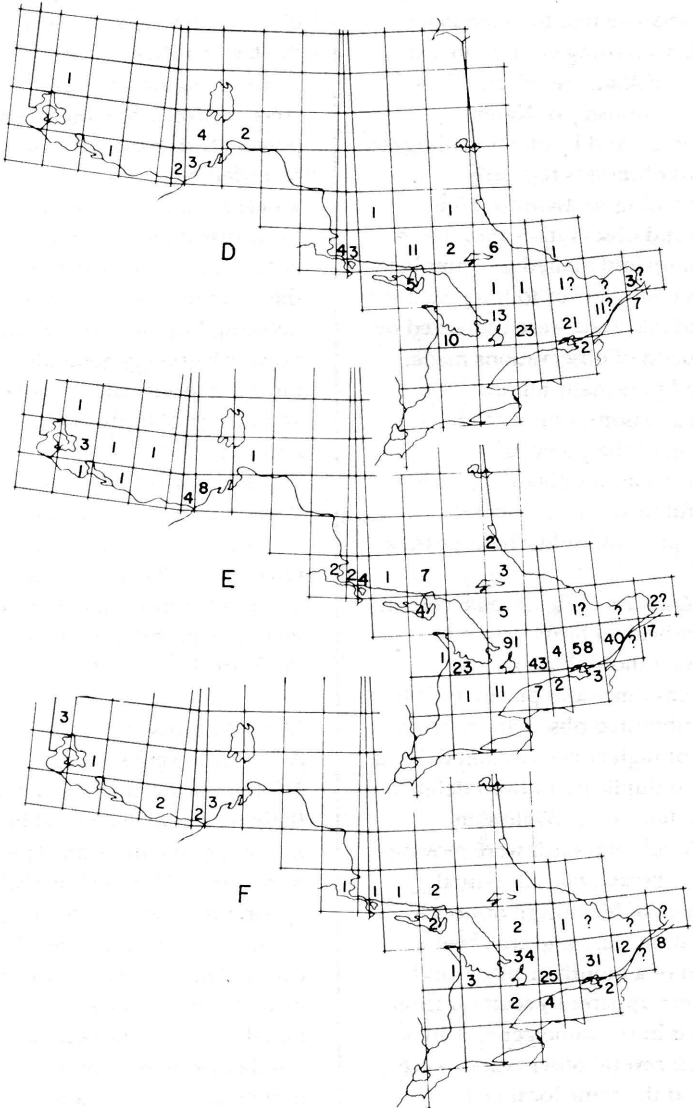
considered that all referred to the same bird, unless there was an absence of nearly a month or more between sightings, assuming that in the intervening periods the same bird may have been moving about locally, and that coverage was not complete enough to be certain that the bird had actually moved on. The final figures, therefore, are conservative. While there is still the possibility that the same owls were recorded more than once, even in widely separated places, it is more likely that there were many birds not seen at all. We can never know the exact numbers involved in this invasion, but the observations provide a good general idea of the timing of events and the relative abundance of birds at various locations.

Unfortunately, after repeated attempts, I have been unable to get a list of observations from the Ottawa area. Therefore, numbers given in Figures 2 and 3 are incomplete, and are somewhat low in Figure 4.

### Observations

A few birds were seen in September 1983 in northern Ontario, but these may have been local birds and not part of the invasion. The actual movement of Great Gray Owls apparently began in October, when small numbers were seen all across central Ontario (Figure 2a), many in areas where they are not usually noted. In November still larger numbers were seen in the central part of the province; a build-up had

Figure 2d, e, f: Sightings of Great Gray Owls in Ontario during various periods of the autumn, winter, and spring of 1983–1984. Observations are divided into the standard UTM grid blocks available on topographic maps. d) second half of December 1983, e) January 1984, f) first half of February 1984.



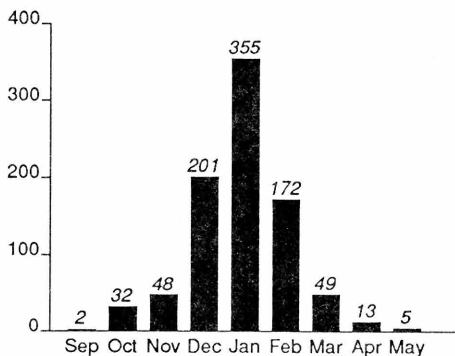
begun near Sudbury and, to a lesser extent, at Sault Ste. Marie; and few birds had appeared as far south as Lake Simcoe (Figure 2b). In early December the concentration was still north of Lake Nipissing (Figure 2c), but by month's end had shifted noticeably south into southern Ontario (Figure 2d). A similar southward shift was noted in Quebec during the same time (Aubry and Yank 1984). Minnesota, just south of western Ontario, was also now experiencing numerous sightings, and there was a slight build-up in the Thunder Bay region.

The movement of owls seemed to have come nearly to a stop by early January 1984; numbers in various parts of Ontario remained about the same throughout the month. Distribution in early and late January was very similar, although a few birds may have shifted slightly farther south. Sightings during the month of January (Figure 2e) show a wide

band of concentration that roughly follows the southern edge of the Canadian Shield in southern Ontario, and a few north of Lake Huron. Apart from a few extra birds about Thunder Bay, there does not seem to have been much of a build-up in the west.

In late January the owls had begun to move out of the south. From the last half of January numbers dropped by 34% in the first half of February (Figure 2f). In the latter half of February (Figure 2g) the drop in numbers was more than 70% from the January total. As birds moved, there was a slight build-up noted about Sudbury, at least in early March (Figure 2h), indicating that the birds were moving north. But, as might be expected, the movement north was not as obvious as the autumn invasion. West of Lake Nipigon there was little evidence of any northward movement, as numbers continued to be small in that part of the province. Small numbers

Figure 3: Numbers of Great Gray Owl sightings in Ontario by month from September 1983 to May 1984 (except Ottawa area).





lingered in southern Ontario into April (Figure 2i). Only two birds were still seen south of Lake Nipissing in May. The overall pattern of sightings by month, reaching peak numbers in January, is given in Figure 3.

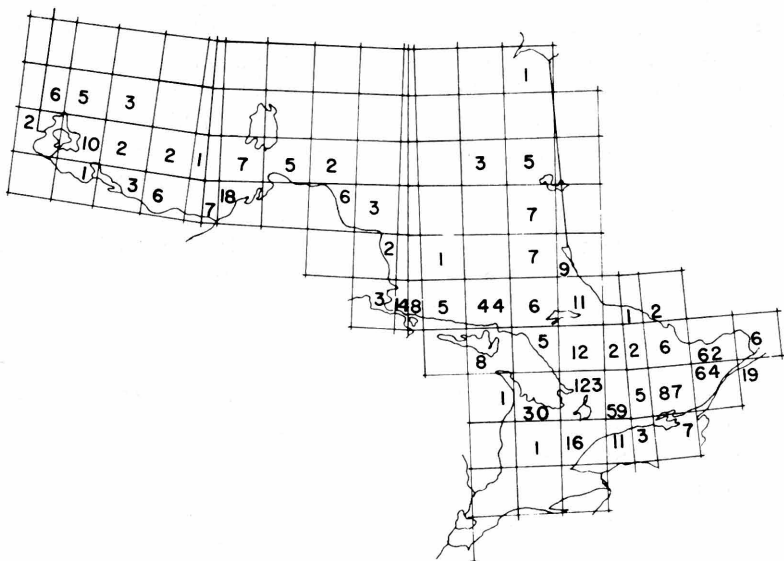
The minimum number of different sightings through the entire period of 1983–1984 is presented in Figure 4. This includes an overall count in the immediate Ottawa area (from Di Labio *et al.* 1984), but some from outlying areas are probably missing. The pattern of occurrence of some 746 sightings seen here conforms with that of the monthly summaries of

Figure 2.

### Discussion

The largest known previous invasion of Great Gray Owls in Ontario occurred in the winter of 1978–1979. At that time about 60 birds were reported; prior to that the previous high was about 40 birds noted in the winter of 1965–1966 (Goodwin 1979). Both of these totals are well below the present compilation. During the 1978–1979 invasion there was also a difference in timing. Birds did not appear until late December 1978 and continued progressively farther south right through February 1979.

Figure 4: Minimum numbers of Great Gray Owls observed in various parts of Ontario during the autumn, winter, and spring of 1983–1984 (includes most Ottawa area sightings).



They then quickly retreated northward in early March, as in 1983–1984.

Although we do not have a clear understanding of what initiates these invasions (Nero 1980), they seem to be driven mainly by a food shortage within the normal range (Nero 1980; Duncan 1987; Hildén and Solonen 1987). A difference in the timing of a crash in the rodent population or a significant change in snow conditions or accumulation might help account for timing differences. However, during the autumn of 1983 the weather was rather mild. Extreme cold conditions with below-normal temperatures and above-average precipitation were not evident until the latter part of December (Weir 1984a, 1984b), by which time the movement of owls was well under way. This indicates that weather factors were probably not of prime consideration to the birds. Unfortunately, we do not have any data on the supply of small rodents that winter within the owls' normal range. However, if the magnitude of the movement is an indication of the degree of food shortage, there must have been a significant shortage of small rodents over an extensive area of the eastern Boreal forest in the autumn and winter of 1983–1984.

By far the most noticeable influx of birds in Ontario would seem to have been from Sault Ste. Marie and Sudbury, south to Lake Ontario on or near the Canadian Shield (Figure 4). The evidence

strongly suggests that owls moved out of the north into southern Ontario. In northern Ontario there were probably more birds moving about that were never seen. However, observers in western Ontario felt that there were scarcely any more birds than in a normal winter, and in the Fort Frances area they actually saw far fewer birds in 1983–1984 than, for example, in the winter of 1981–1982 (J. K. Cleavelly, *in litt.*). Meanwhile, immediately south of the western part of Ontario, Minnesota was experiencing a record invasion (Eckert 1984). In southeastern Manitoba, numbers seen were about double the winter normal, but obviously there were larger than normal numbers at a latitude where few birds were seen in Ontario.

However, it must also be noted that in the winter of 1983–1984 most of the owls seen in Manitoba were found northeast of Winnipeg and that at least some of these birds (banded) actually moved north from southeastern Manitoba and northern Minnesota (Nero, *in litt.*). Subsequent telemetry studies in Manitoba (Duncan 1987) have also shown that northward movement in winter can be a normal occurrence. The 1983–1984 movement of owls, therefore, was not just a simple southward invasion. Many of the owls appearing in Minnesota may have moved within the state to the east, where the greatest concentration of sightings were reported (Eckert 1984). There was



no concentration of Great Gray Owls on the north shore of Lake Superior in Minnesota that would suggest a southward movement, as was the case with previous invasions (Eckert 1984). The slight concentration of owls along the north shore of Lake Superior in Ontario, coupled with a decrease in the Fort Frances area, suggest an eastward movement of owls in that part of the province. Perhaps many other birds went northward, as they did in Manitoba, but their movement was not detected.

Definite indication of a southward movement, then, seems to be confined to areas east of Lake Superior. In Quebec there was also an indication of a southern movement of Great Gray Owls (Aubry and Yank 1984). But where did they come from? Great Gray Owls are not known to breed in Quebec in summer (Godfrey 1986). Did the Quebec birds also move east from Ontario? Unfortunately, we have little evidence of how far Great Gray Owls would move under similar circumstances. Although several radio-marked owls have been recorded moving 300 to 400km in winter, and as much as 700km (Duncan 1987), it seems unlikely that all the birds appearing in Quebec moved there from Ontario.

The impression in Quebec was that birds first appeared on the north shore of the St. Lawrence River and then moved westward (as well as southward) toward Montreal. This does not support a

possible movement from Ontario. There is some suggestion that birds in eastern Ontario moved southeastward from a concentration west of Sudbury, down the east side of Georgian Bay. But the magnitude of this movement is not sufficient to account for the Quebec birds. There were still far more sightings in the south than there were west of Sudbury.

It is highly unlikely that the birds appearing in southern Ontario (and Quebec) merely came out of the woods. They almost certainly moved southward. They were undoubtedly funnelled somewhat eastward by Lake Huron and Georgian Bay in Ontario and somewhat westward by the St. Lawrence River in Quebec. Great Gray Owls are probably also widespread in Quebec. The data suggest a resident breeding population in Quebec, but their secretive nature in summer, plus a lack of access to many areas of northern Quebec, has kept us ignorant of their status there. It was only in 1977 that nesting of the Great Gray Owl was confirmed in Ontario (James 1977) and only four subsequent nests have been reported to the Ontario Nest Records Scheme (Peck and James 1983). Most of the birds appearing in southern Ontario probably moved essentially directly southward from northern Ontario or Quebec, as suggested by the pattern of occurrence, although some may well have been deflected

by the Great Lakes. But the situation in eastern and western Ontario was obviously very different.

### Acknowledgements

I would like to thank Peter Whelan for his initiative, encouragement, publicity at the inception, and for his continuing friendly inquiries about when we might expect some published results; Doug McRae for much of the initiative for this project, and with Brian Ratcliff for the initial work in soliciting observations and preparing maps and data sheets; the Ontario Ministry of Natural Resources for the support provided from the central office and the many offices throughout the province that compiled and forwarded information; and the World Wildlife Fund (Canada) that supplied a grant to the Ontario Field Ornithologists in support of this project.

It was my intention to provide the names of all individuals that supplied observations of birds, but in the compilations I received many people were not mentioned by name, some were identified only by surname, there were multiple observers of single birds and, as the list of contributors exceeded 450 individuals, it became apparent that this was not practical. Nonetheless, sincere thanks go to all who willingly took part and freely contributed of themselves to enhance this effort. Although not mentioned individually, they can be

pleased to have been a part of a successful effort in the study of these magnificent birds.

Special mention must be made of David Hawke, John Lemon, Doug Sadler, and Ron Weir, whose summaries from areas of highest concentration involved considerable effort. My regrets to all those from Ottawa and surrounding areas who would like to have had their observations considered in this summary, but who submitted observations to a local compiler rather than to a central location. My unsuccessful efforts to include them leave the story less complete than it could have been.

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# Observations of Common Raven in Metropolitan Toronto

by  
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On 22 April 1986, between 0900h  
and 0935h in Prince of Wales Park,  
Etobicoke, Metropolitan Toronto  
(43°36'N, 79°30'W), I saw a  
Common Raven (*Corvus corax*) fly  
in a seize a Rock Dove (*Columba  
livia*) with its feet, take it to the  
ground, and proceed to pluck it.  
The prey moved for about 30  
seconds, but the only distress calls  
that I heard were from nearby  
American Robins (*Turdus  
migratorius*), House Sparrows  
(*Passer domesticus*), and European  
Starlings (*Sturnus vulgaris*).

While I watched the scene from  
a distance of 15m, my dog was able  
to cautiously stalk the birds,  
approaching to within 2m before  
the raven flew off, carrying its prey

in its feet, to a Norway Maple (*Acer  
platanoides*) about 40m away. Here it  
continued plucking the pigeon,  
holding it firmly in its claws, while I  
was able to watch the procedure  
from a distance of 10m beneath the  
tree. I left to get a camera before  
the incident concluded. When I  
returned 10 minutes later, the  
raven was, unfortunately, gone, as  
was the Rock Dove, except for its  
gizzards, feet, feathers, and breast  
bone, which remained on the  
ground underneath the tree.

Prince of Wales Park is an urban  
park located on the shore of Lake  
Ontario in west Toronto. Twenty  
minutes prior to this attack I had  
observed a raven fly into an area  
between the houses on the

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