Articles

The Ontario Great Gray Owl Irruption of 2004-2005: Numbers, Dates and Distribution

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Introduction

The Great Gray Owl (*Strix nebulosa*) occurs throughout the boreal forest region of Canada (Bull and Duncan 1993). During some winters, when rodent prey is scarce in the boreal forest, Great Gray Owls move southward into southern Canada and the northern United States (generally referred to as "irruptions"), sometimes in considerable numbers, until they locate an area with sufficient food resources (Bull and Duncan 1993). During the winter of 2004-2005, such an irruption occurred in northeastern North America, with record numbers occurring in both southern Quebec (Bannon et al. 2005) and Minnesota (Granlund 2005). The situation was similar in Ontario, with a record number of Great Gray Owls reported.

Regionally, many Ontario birders began accumulating records and actively tracking observations. In some areas, coordinated one-day surveys were conducted. Birders and photographers from other parts of Ontario, as well as from neighbouring states and beyond, travelled to areas with concentrations of owls to witness and photograph the spectacle. The media and the general public took great interest in the irruption, with many local newspapers and television and radio stations running stories on the invasion and many curious observers making trips specifically to look for owls.

As in previous irruptions, unfortunately, many owls were found dead, most often as a result of collisions with vehicles, and were brought in to local Ontario Ministry of Natural Resources (OMNR) offices where they were issued with a "Certificate of Reporting". In addition, many injured birds were captured and brought to rehabilitation centres, and some of these owls subsequently died. More details on mortality during this irruption can be found in the article by Peck and Murphy on page 122 in this issue of *Ontario Birds*.

This article summarizes the number of owls involved in the Ontario irruption, the timing of movements in various areas, and the main distribution of over-wintering birds. This summary is based on records from all of the above mentioned sources as well as reports

sent to ONTBIRDS, the electronic mailing list service maintained by the Ontario Field Ornithologists that notifies birders of interesting Ontario bird sightings.

Initially, I attempted to compile and map all of Ontario's Great Gray Owl records from the winter of 2004-2005. However, due to the sheer number of records, the fact that many reports had vague dates and locations, and the extreme difficulty in avoiding duplicate counting, I decided that I would examine patterns and trends in the timing of movements and focus in on summarizing numbers for areas that had well-coordinated survey efforts.

Departure from Northern Ontario

The first hint that a movement of Great Gray Owls might be occurring came during the summer of 2004. In the Thunder Bay area, there were many more sightings of Great Gray Owls than usual, from the Canada-US border in the southwest, to Caramat in the east, and north to Armstrong (Nick Escott, pers. comm.). The first report was on 19 April, with four reports in May, eight in June and 13 in July. All were single birds except for two on 15 July, and there was no evidence of breeding (Nick Escott, pers. comm.). Interestingly, then there were no reports in the Thunder Bay area until mid September. From 20 September to 29 October, there were, however, 25 Great Gray Owl sightings in the Heron Bay area, near Marathon (Nick Escott, pers. comm.), further evidence that some kind of movement might be occurring. Nearby in the Atikokan area (Rainy River District), a similar movement was observed, with birds first being noted in late September and increasing dramatically into mid November (Dave Elder, pers. comm.).

Meanwhile, a similar situation was happening in the Hearst area (Cochrane District) where by mid September, Great Gray Owls were noted moving out of their boreal forest habitat into abandoned agricultural fields and roadsides (Marc Johnson, pers. comm.). Numbers began building in the Hearst area and peaked in mid October (Marc Johnson, pers. comm.).

Back in the Thunder Bay area, peak numbers occurred in November, with a total of 44 reports (Nick Escott, pers. comm.). December was quieter, with only 14 reports in total, including 24 Great Gray Owls on 12 December during a survey of rural areas around Thunder Bay (Nick Escott, pers. comm.). By mid December, most of the owls present in the Atikokan area had left (Dave Elder, pers. comm.). By January, most birds had disappeared from the Thunder Bay area, although a few were still being seen in January and February, mostly within the Thunder Bay city limits (Nick Escott, pers. comm.). A repeat of the 12 December survey route on 6 March turned up no Great Gray Owls (Nick Escott, pers. comm.).

Figure 1: Great Gray Owl in typical scrubby field habitat in the Hearst area on 26 November 2004. Photo by *Marc Johnson.*

The above pattern of movement is also evident when examining the records of dead owls turned in to local OMNR offices for Certificates of Reporting. In Thunder Bay District alone, a staggering 63 dead Great Gray Owls were reported to those offices between 29 October and 7 December, with only an additional eight for the remainder of December, four in January, and only one in each of February and March (OMNR 2005). In Rainy River District, the pattern was similar—the majority of their dead birds (23 of 31) were reported between 6 November and 6 January, with an additional four in the remainder of January, and only one each in February and March (OMNR 2005). By examining these Certificates of Reporting, therefore, it seems quite possible to piece together relatively accurately the timing of movements of Great Gray Owls during these irruptions. However, it should be noted that although the date the bird was found is recorded on the Certificates of Reporting, this date can be erroneous if the person reporting the bird does not provide accurate information. Even though persons reporting a bird are required to do so within three days of finding it, this is not always the case. Birds recorded as having died

on a particular date may have actually been found many days or even weeks earlier, and then kept in a freezer until it was convenient to visit the local OMNR office. Therefore, the date of death sometimes corresponds more closely to the reporting date (i.e., within three days of the reporting date) rather than the actual date of death.

Although I received no reports of live Great Gray Owls from Kenora District, the timing of the movement there was probably very similar to that experienced in Thunder Bay and Rainy River districts. There were 26 dead Great Gray Owls reported from Kenora District between October 2004 and May 2005, the bulk of which (18) occurred between 22 October and 2 January (OMNR 2005), which probably corresponds with the peak of the movement through that area. In Rainy River District, immediately south of Kenora District, the pattern was similar—the majority of their dead birds (23 of 31) were reported between 6 November and 6 January (OMNR 2005). Like the Thunder Bay area, some birds obviously also stayed in Kenora and Rainy River districts through the winter months as dead birds continued to be brought in to local OMNR offices in January, February and March.

In contrast to Thunder Bay, Kenora and Rainy River districts, in the Hearst area, virtually no birds appeared to over-winter, with the last bird noted on 17 December (Marc Johnson, pers. comm.) and only one dead bird reported to local OMNR offices in Cochrane District after December, one from the Lowther area on 27 February (OMNR 2005).

Farther southeast, in Algoma District, peak movements appeared to be between 13 November and 22 December, when 18 dead Great Gray Owls were reported (OMNR 2005). In the Massey area (Sudbury District), numbers increased substantially from the end of October, when the first was reported, until they peaked during mid to late November, when it was estimated by Erwin Meissner that at least 60 birds were present along Highway 17 between Thessalon, Algoma District and Nairn Centre, Sudbury District (Lemon 2005). In contrast, in the Greater Sudbury area, only 80 km to the east of Massey, the first bird was not noted until 9 November and the peak did not occur until mid December (Lemon 2005). On 14 December, 10 birds were found within sight of each other along a stretch of road west of Sudbury, and appeared to be on the move as none were found in the same area on the following day (Lemon 2005). Like Kenora, Rainy River, and Thunder Bay districts, some birds appeared to be present all winter long in Algoma and Sudbury Districts, but the bulk appeared to have moved farther southward.

On Manitoulin Island, the first Great Gray Owl was not reported

until 15 November, with numbers building through December and January, with a total of 27 sightings in January, although some of these were likely of the same bird or birds (Lemon 2005). Numbers on Manitoulin Island remained constant through February and March (Lemon 2005).

Pattern in Central and Southern Ontario

The first Great Gray Owl reported in the southern portion of the province was a single bird at Midhurst, Simcoe County, on 27 October (Bob Bowles, pers. comm.). The majority of owls, however, arrived much later.

A distinct movement of Great Gray Owls was noted through Algonquin Provincial Park, with a total of 11 records between 1 November and 7 January, all of which seemed to involve birds that were present for a day only as they continued to move southward in search of food (Ron Tozer, pers. comm.).

By late November, Great Gray Owls had reached other districts and counties in central Ontario, including Parry Sound, Muskoka, and Renfrew (Figure 2 and Table 1). Remarkably, single birds had also reached areas as far south as the Charleston Lake area on 14 November (Ron Weir, pers. comm.)

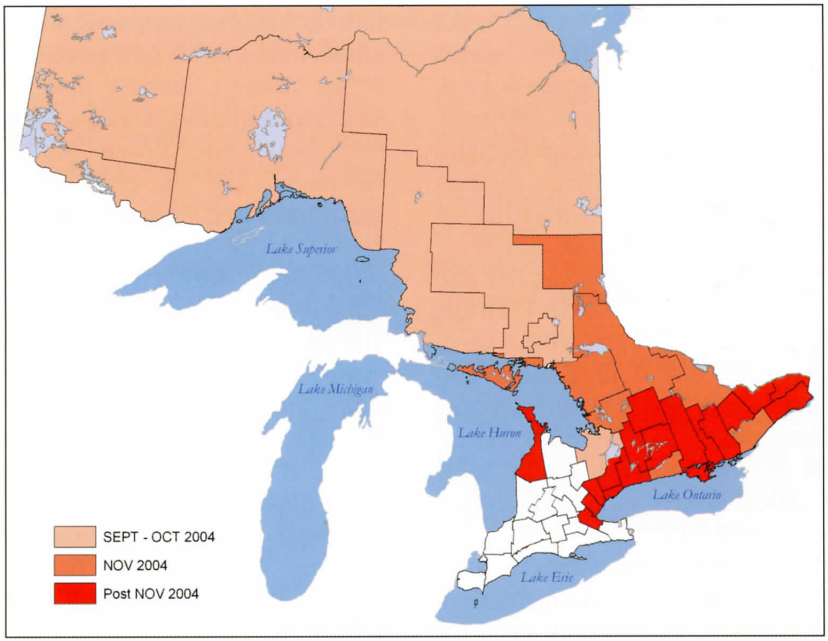

Figure 2: Map of Ontario (excluding the far north) indicating the timing of the first Great Gray Owl record by county and district for the irruption of 2004-2005.

Table 1: Date of the first Great Gray Owl record by area during the irruption of 2004-2005. The source of each record is indicated within brackets following the date. TOC = Toronto Ornithological Club Database.

AREA	DATE OF FIRST OCCURRENCE
Bruce County	4 January 2005 (TOC)
Cochrane District	mid September 2004 (M. Johnson)
Durham Region	27 December 2004 (TOC)
Frontenac County	20 December 2004 (TOC)
Halton Region	2 February 2005 (TOC)
Hamilton	2 January 2005 (TOC)
Hastings County	22 December 2004 (TOC)
Kenora District	22 October 2004 (OMNR 2005)
Lanark County	6 January 2005 (OMNR 2005)
Leeds & Grenville County	14 November 2004 (R. Weir)
Lennox & Addington County	1 January 2005 (OMNR 2005)
Manitoulin District	15 November 2004 (Lemon 2005)
Muskoka District	26 November 2004 (A. Sinclair)
Nipissing District	1 November 2004 (R. Tozer)
Northumberland County	26 November 2004 (TOC)
Ottawa	12 December 2004 (C. Lewis)
Parry Sound District	24 November 2004 (B. Bowles)
Peel Region	29 December 2004 (TOC)
Peterborough County	19 December 2004 (D. Monkman)
Prescott & Russell County	11 December 2004 (C. Lewis)
Rainy River District	late September 2004 (D. Elder)
Renfrew County	12 November 2004 (C. Michener)
Simcoe County	27 October 2004 (B. Bowles)
Sudbury District	27 October 2004 (Lemon 2005)
Thunder Bay District	20 September 2004 (N. Escott)
Timiskaming District	26 November 2004 (ONTBIRDS)
Toronto	27 December 2004 (TOC)
Victoria County	17 December 2004 (TOC)
York Region	29 December 2004 (TOC)

Table 2: Date of the last Great Gray Owl record by area during the irruption of 2004-2005. The source of each record is indicated within brackets following the date. Caution is necessary when evaluating the dates of records associated with Certificates of Reporting (OMNR 2005), as noted on page 108. TOC = Toronto Ornithological Club Database.

AREA	DATE OF LAST OCCURRENCE
Bruce County	9 June (J. Haselmayer); also 26 June (J. Miles)
Durham Region	22 April 2005 (TOC)
Frontenac County	30 April 2005 (R. Weir)
Haliburton County	16 May 2005 (OMNR 2005)
Halton Region	12 February 2005 (TOC)
Hamilton	12 March 2005 (TOC)
Hastings County	10 May 2005 (OMNR 2005); also one into the first week of July (T. Dyson)
Lanark County	11 April 2005 (B. Di Labio)
Leeds & Grenville County	23 March 2005 (M. Peck)
Lennox & Addington County	11 March 2005 (TOC)
Manitoulin District	mid June (Lemon 2005)
Muskoka District	9 April (A. Sinclair); also 18 April 2005 (OMNR 2005)
Nipissing District	29 April 2005 (R. Tozer)
Northumberland County	3 April 2005 (OMNR 2005)
Ottawa	13 April (C. Lewis); also 17 May 2005 (OMNR 2005)
Parry Sound District	18 April 2005 (M. Peck)
Peel Region	21 February 2005 (TOC)
Peterborough County	18 April (T. Dyson); 12 May 2005 (OMNR 2005)
Prescott & Russell County	26 March 2005 (OMNR 2005)
Prince Edward County	5 June 2005 (TOC)
Renfrew County	12 April 2005 (C. Michener)
Simcoe County	19 June 2005 (B. Bowles)
Sudbury District	21 April 2005 (OMNR 2005)
Thunder Bay District	7 May 2005 (N. Escott)
Timiskaming District	5 May 2005 (OMNR 2005)
Toronto	13 March 2005 (TOC)
Victoria County	18 April 2005 (OMNR 2005)
York Region	1 April 2005 (OMNR 2005)

and Port Hope on 26 November (fide Margaret Bain, ONTBIRDS, 27 November 2004).

Through December, Great Gray Owls began being reported from most of the counties in southern Ontario, north of Lake Ontario (Figure 2). A summary of the first known records for each county is provided in Table 1. Concentrations began to build through December and into January, especially in agricultural areas immediately south of the Canadian Shield from Simcoe County east through southern Peterborough County and across to Ottawa. By February, in many areas, most birds seemed to have settled in for the winter. There were fewer numbers over-wintering in areas north of the concentration zone. For example, there were only 27 records throughout the season from Renfrew County (Chris Michener, pers. comm.) and 25 from Muskoka District (Al Sinclair, pers. comm.), several of which represent birds passing through and not actually over-wintering at these locations. By March, most areas in southern Ontario were reporting lower numbers or that birds were becoming more active (i.e., moving around more) and it was obvious that birds had begun to fly northward again. By mid April, owls had completely vacated most areas, although a few birds lingered into May and even June in some locations (see Table 2).

While it is difficult to estimate the number of Great Gray Owls present throughout southern Ontario during the winter of 2004-2005, some regional studies provide some insight into numbers. These regional accounts also provide some further insight into the timing and patterns of movement.

In Simcoe County, for example, one of the areas with a particularly large concentration, Bob Bowles actively tracked reports, and plotted movements on a map (attempting to keep track of duplicate records), as well as performing several one-day counts. Although the first bird was reported on 27 October, the next confirmed report was not until 9 December (Bob Bowles, pers. comm.). On 22 December, Bowles felt that there were nine individual owls in Simcoe County (Bob Bowles, ONTBIRDS, 22 December 2004). In less than two weeks, the number increased to at least 50 birds (Bob Bowles, ONTBIRDS, 4 January 2005) and by 12 January to 130 (Bob Bowles, ONTBIRDS, 12 January 2005). More and more birds began arriving through the month of January and by the end of the winter, more than 400 Great Gray Owls were recorded in Simcoe County (Bob Bowles, pers. comm.)! Single day counts in Simcoe County provided the following results: 59 on 28 January (Bob Bowles); 35 on 5 February (Bob Bowles and four others); 34 on February 11 (Bob Bowles and friend); 82 on February 20 (10 teams of over 20 observers), as reported by Bob Bowles (ONT-

BIRDS, 21 February 2005). By 25 March, numbers in Simcoe County were still felt to be stable, although it was noted that they seemed to be moving around more than earlier in the season (Bob Bowles, ONTBIRDS, 25 March 2005). Numbers continued to be stable until 29 March, then they suddenly dropped (Bob Bowles, ONTBIRDS, 2 April 2005). By 9 April, there were still 16-20 Great Gray Owls present in Simcoe County (Bob Bowles, ONTBIRDS, 9 April 2005). Five individuals were reported up until the first week of June (Bob Bowles, pers. comm.) and another bird was present near Penetanguishene on 19 June (Andrew Promaine, Simcoe County Bird and Nature Board, 20 June 2005).

The southern half of Peterborough County (south of the Canadian Shield) was also a noted hotspot for over-wintering Great Gray Owls, with significant numbers building from about Christmas time through January. I coordinated a one-day survey of the southern half of the county on 9 January 2005. Twenty-two participants were involved in the survey and I estimate that 75-80% of the roads were driven. At least 13 other people, who were not involved in the formal survey, participated by submitting additional records from both the 8th and 9th of January. In total, 96 individual Great Gray Owls were reported and mapped (Figure 3). Considering that 20-25% of the road network was not covered, and that many owls would not have been visible from the roads, the actual number of owls present must have been significantly higher.

Tim Dyson invested a tremendous amount of time studying the Great Gray Owls in a portion of southern Peterborough County and adjacent Northumberland County, and his studies provide further insight into the calculation of a county-wide estimate. For example, in places where he would see only four or five from the road, a walk through the property between the roads would reveal that there were actually 17 present (Tim Dyson, pers. comm.). At least 105 individual Great Gray Owls were present in his study area (bordered by Lakefield in the northwest, Keene in the southwest, Campbellford in the southeast and Round Lake in the northeast), and based on this total, he estimated that over 500 Great Gray Owls were present in Peterborough County (Tim Dyson, pers. comm.). As was the case in Simcoe County, numbers appeared to be stable through February, but in March the owls seemed to be moving around more (Tim Dyson, pers. comm.). By mid April, virtually all of the birds had left Peterborough County. Tim Dyson's last observation was, for example, a single bird on 18 April (Tim Dyson, pers. comm.). However, a dead individual was reported to have been hit by a vehicle on 12 May near Young's Point (OMNR 2005).

The Ottawa area also was well

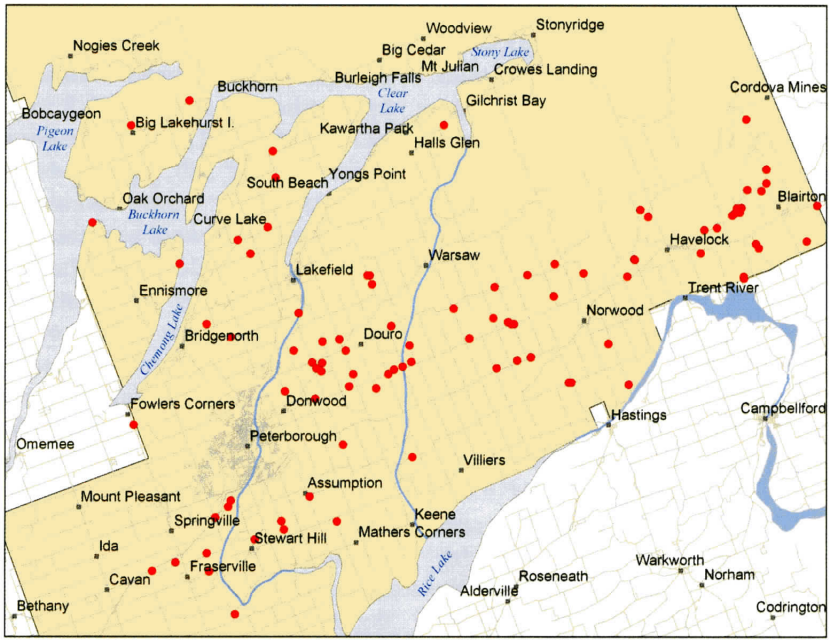

Figure 3: Map of the southern half of Peterborough County indicating the location of the 96 Great Gray Owls recorded during an organized survey on 8-9 January 2005.

known to have a large concentration of Great Gray Owls. By the end of February, within 50 km of Ottawa, at least 111 individuals were present on the Ontario side, with an additional 90 on the Quebec side (Bernie Ladouceur, pers. comm.). Bruce Di Labio tallied the highest one-day count in the Ottawa area when, on 9 January, he found 46 southwest of the city (Bruce Di Labio, ONTBIRDS, 9 January 2005). As was the case in other areas, numbers seemed to be more or less stable through February. By 9 March, a definite drop in the number of Great Gray Owls present in the Ottawa area was noted (Bruce Di Labio, ONTBIRDS, 9 March 2005), although on 23 March, significant numbers were once again observed in the same area (Bruce Di Labio, ONTBIRDS, 23 March 2005), perhaps indicating that a movement was occurring. Most had left the Ottawa area, however, by the end of March, although a few were reported as late as 9 April (G. Gray, ONTBIRDS, 9 April 2005).

In Durham Region, three one-day counts of Great Gray Owls were performed, with totals of 31 (16 January), 40 (13 February) and 32 (13 March) present (Rayfield Pye, pers. comm.). It was noted on the last survey that many of the regular locations where owls were

present all winter had none (Rayfield Pye, ONTBIRDS, 13 March 2005). The owls seemed to be concentrated in certain areas, and noticeably lacking in others. For example, in central Durham Region, the area between Brooklyn and Sunderland did not have any owls until March, despite persistent checking by local birders (Rayfield Pye, pers. comm.). The small mammal population in that area was presumably low. The highest concentration of Great Gray Owls in Durham Region was on Halls Road, Whitby (just north of Lake Ontario) where up to 15 Great Gray Owls spent the winter (Rayfield Pye, pers. comm.). The last record in Durham was one on 22 April (Rayfield Pye, pers. comm.).

The southern limits of Great Gray Owl records in Ontario were as follows. In Toronto, a few birds were present through the winter, mostly within parkland where small mammals could be found. Southwest of Toronto, there were only three records: two from Halton Region, both of which occurred in February (Cheryl Edgecombe, ONTBIRDS, 10 and 17 February 2005); and, a single bird in Hamilton at the Dundas Valley Conservation Area, that was present between at least 2 January and 12 March (Cheryl Edgecombe, ONTBIRDS, 3 January, 10 February, 10 and 17 March, 2005). Birds were present along the north shore of Lake Ontario east to Prince Edward County, where at least nine birds were recorded, and Amherst Island, where one bird spent the winter (Terry Sprague, pers. comm.). The Kingston area reported that 100 birds had over-wintered (Ron Weir, pers. comm.). Far fewer birds were reported from counties bordering the St. Lawrence River, especially the United Counties of Stormont, Dundas & Glengarry, where only one dead bird was reported (OMNR 2005) and no records of living owls were received.

There were lower numbers over-wintering in areas north of the concentration zone, e.g., Renfrew County (Chris Michener, pers. comm.) and Muskoka District (Al Sinclair, pers. comm.).

The Return Passage

As is usually the case with Great Gray Owl irruptions, the return passage of birds northward in the spring was nowhere near as noticeable as the movement south in the early winter.

It seems plausible, however, that the increased movement of owls witnessed in March in both Peterborough and Simcoe counties, as well as the shift in numbers noticed in Ottawa during the same time period, may have corresponded with birds moving back northward from over-wintering sites farther south. This is further supported by the absence of birds from sites in the south where they had been present in January and

February (e.g., Durham Region, as well as in the Kingston area; Ron Weir, pers. comm.). The movement north, therefore, seems to have begun sometime in March. In the Hearst area (Cochrane District), after being absent all winter, the first returning bird was noted on 29 March (Marc Johnson, pers. comm.). Birds apparently continued to travel northward through the month of April as the records from Algonquin Provincial Park and nearby would indicate. No birds were thought to have spent the winter there, but there were 10 records between 2 and 29 April, with none thereafter (Ron Tozer, pers. comm.). In the Thunder Bay area, a movement in April through early May seems to have occurred. Despite the fact that only three reports of live birds were received (one on 6 April from Pukaskwa National Park, six in Sleeping Giant Provincial Park on 23 April and one near Jellicoe on 7 May; Nick Escott, pers. comm.), there were an additional four records of dead birds in April and two more in early May from Thunder Bay District (OMNR 2005). Interestingly, unlike the situation in the summer of 2004, when there were more sightings of Great Gray Owls than usual in the Thunder Bay area, no owls could be found in the summer of 2005 despite searching several times (Nick Escott, pers. comm.). Birds appeared to have returned to more remote sections of the boreal forest.

Lingering Birds

Although in most areas of Ontario, south of the usual breeding range of the Great Gray Owl, most of the birds that were present in significant numbers all winter were gone by the end of April, a few lingered into May, June and even July. As mentioned earlier, five lingered until the first week of June in Simcoe County, with another report on 19 June near Penetanguishene. In Bruce County, two birds were present until the last week of May (Ethan Meleg, pers. comm.), a single bird was seen on 9 June at Cove Island (John Haselmayer, pers. comm.), and one bird was found on the Crane Lake Road on 26 June during the OFO Bruce Weekend (John Miles, ONTBIRDS, 27 June 2005). On Manitoulin Island, a bird was present near Sheguiandah on 21 May (Lemon 2005). Also on Manitoulin, a possible pair was present in Billings Township, but one was hit by a car on 9 May, while the other bird was regularly seen in the area until mid June (Lemon 2005). It is possible that any of the above birds could have bred, as breeding records in Ontario have occurred as far south as Algonquin Provincial Park (Forbes et al. 1992) and Barrie Island, Manitoulin District (Whitelaw 1998). Perhaps the most noteworthy lingering bird was one reported by a property owner northeast of Belleville, Hastings County, into the first week of July (fide Tim Dyson, pers. comm.)!

Total Number of Birds

Although in this analysis, for the reasons mentioned in the introduction, it was not practical to perform an actual count of the number of birds involved in the irruption of 2004-2005, it is possible to provide a rough estimate, based on the summaries and estimates from the few areas highlighted above. We do know, for example, that there were over 400 Great Gray Owls recorded from Simcoe County, an estimate of approximately 500 individuals from Peterborough County, as well as at least 111 birds in the Ontario portion of the Ottawa 50-km circle. We also know that based on records of both living and dead owls in-between these three locations, Great Gray Owls were present (potentially in the same kind of concentrations) throughout the entire zone roughly corresponding to the marginal farmland along the southern edge, and immediately south of, the Canadian Shield. In addition, significant numbers were present in certain areas south of this zone, especially east of Toronto (e.g., Durham Region, Northumberland County, Prince Edward County, and the Kingston area). We also have documentation for a total of 501 dead Great Gray Owls throughout Ontario, during the irruption of 2004-2005 (see the article by Peck and Murphy on page 122). A significant number of owls (double? triple?) must have met a similar fate to the 501 dead birds actually found and reported. Based on the above information, therefore, the number of Great Gray Owls actually involved in the 2004-2005 Ontario irruption must have numbered in the thousands.

Comparisons with Other Irruptions

Previously, the largest recorded irruption of Great Gray Owls in Ontario took place during the winter of 1995-1996, with a significantly large "echo" flight the following winter. Sadler (1998) reported more than 330 different Great Gray Owls in 1995-1996 and 265 in 1996-1997, from an area including all of Peterborough County, west to Lake Simcoe, the Kawartha Lakes, and north and eastward into Haliburton and Hastings counties. A conservative estimate of the total number of Great Gray Owls present across southern Ontario in March 1996 was over 600 birds (Ridout 1997).

It is difficult to directly compare the irruption of 1995-1996 with that of 2004-2005, since we do not have numbers for each irruption from the same geographic areas. In addition, the estimate of over 600 birds in 1995-1996 was a conservative one; the actual numbers recorded might have been much larger if more information had been readily available. With the age of the internet and electronic communicating and reporting (such as ONTBIRDS), it has become much easier and quicker to collect and compile information. I think that it is safe to say that the Great Gray Owl irruption of 2004-2005 was at least equal to the

irruption of 1995-1996, and probably bigger. It will be interesting to see if a similar "echo" flight occurs again this winter.

The timing of the advance southward in 2004-2005 was very similar to that witnessed in the 1983-1984 irruption, when birds in small numbers were seen across northern Ontario in October, followed by a build-up in the Sudbury area in November, with a few birds reaching as far south as Simcoe County (James 1989). In 2004-2005, most areas in the south did not receive their first owls until toward the second half of December, similar to both the 1978-1979 and 1983-1984 irruptions. Unlike the 1983-1984 irruption, however, when the movement of owls seemed to come to a stop by early January (James 1989), the number of birds continued to build through to the end of the month in 2004-2005 and was then more or less stable through February. During the 1978-1979 irruption, the movement south continued through February, and in the 1995-1996 and 1996-1997 irruptions, most owls didn't appear to arrive until February, with reports building through March. In most of the previous irruptions, the owls quickly retreated northward in early March (James 1989). The 2004-2005 irruption, however, was much like that of 1995-1996 and 1996-1997, when many birds lingered into April, with a few even persisting into May and June (Sadler 1998). Overall, the 2004-2005 irruption differed in the timing from other irruptions in that the owls were present in southern Ontario over a much longer time period, arriving relatively early and persisting relatively late.

As far as the distribution of over-wintering owls is concerned, the main concentrations were in areas where concentrations have occurred in the past (e.g., Simcoe County, Peterborough County, and the Ottawa area), specifically in somewhat marginal farmland, interspersed with forest, along the southern edge of the Canadian Shield. There was a significant movement south of this zone, however, during the irruption of 2004-2005, which has not occurred in all past irruptions. This may have been related to the sheer number of owls involved

(i.e., in order to avoid competition for food, some individuals may have moved farther south where there were fewer owls). In northern areas, including Rainy River, Thunder Bay, Algoma, Sudbury and Manitoulin districts, although a significant movement was noticed in the early winter, most owls moved on to other areas with only a few actually over-wintering.

Summary

The Great Gray Owl irruption of 2004-2005 was undoubtedly one of the largest irruptions to have occurred in Ontario. A total of 501 documented cases of dead birds, combined with regional counts and estimates in the hundreds equate to an overall estimate numbering in the thousands. The movement was detected early, when birds became obvious in both Thunder Bay and Cochrane Districts in September. Numbers began to build and movement peaked in the northern districts during November and December. By the end of December, most counties in southern Ontario had begun to witness the irruption, with numbers gradually building in the south through January. Numbers of over-wintering birds became stable through February. The main area of concentration extended from Simcoe County, across the southern edge of the Canadian Shield to Ottawa, with significant numbers also found in many areas to the south of this, south to Lake Ontario. Smaller numbers over-wintered in parts of central and northern Ontario. By March, some kind of movement appeared to be taking place, although slowly. Numbers remained high through most of March but by the end of the month and through April, most of the birds returned northward. A few birds lingered in areas south of their normal breeding range into May, June and even July, but no reports of breeding were received. In many ways, this irruption was similar to that of 1995-1996, when the following year, an "echo" flight occurred that was nearly as large as the irruption the previous year. Will we see a similar echo flight of these beautiful and charismatic birds in 2005-2006 or will we have to wait a few years for the next irruption?

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Documents Cited

Lemon, J.G. 2005. Summary of Great Gray Owl activity in the Sudbury area during the winter of 2004-2005. Unpublished report.

[OMNR] Ontario Ministry of Natural Resources. 2005. Certificates of Reporting spanning 1 October 2004 through 7 June 2005. ELIS Database.

Literature Cited

Bannon, P., S. Denault, Y. Aubry, and N. David. 2005. Québec. North American Birds 59: 234–235.

Bull, E.L. and J.R. Duncan. 1993. Great Gray Owl (*Strix nebulosa*). *In* The Birds of North America, No. 41 (A. Poole and F. Gill, editors). Academy of Natural Sciences, Philadelphia, Pennsylvania, and American Ornithologists' Union, Washington, D.C.

Forbes, G., M. Runtz, and R. Tozer. 1992. New breedng record for Great Gray Owl: Most southerly in Canada. Ontario Birds 10: 117–118.

Granlund, J. 2005. Western Great Lakes. North American Birds 59: 270–272.

James, R.D. 1989. The Ontario Great Gray Owl invasion of 1983-1984: Numbers, dates and distribution. Ontario Birds 7: 5–15.

Sadler, D. 1998. The 1995-1997 Great Gray Owl invasions in the Peterborough area. Ontario Birds 16: 81-87.

Whitelaw, C.J. 1998. Northern owls in Sudbury and Manitoulin Districts: High numbers, out of season occurrences and breeding. Ontario Birds 16: 1–4.

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