

1991

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### Recommended Citation

Grigg, William N. (1991) "Spring Owl Banding at the Whitefish Point Bird Observatory, Michigan from 1981 to 1990 Part I: Species Status and Occurrence," *North American Bird Bander*. Vol. 16 : Iss. 2 , Article 1. Available at: <https://digitalcommons.usf.edu/nabb/vol16/iss2/1>

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# Spring Owl Banding at the Whitefish Point Bird Observatory, Michigan from 1981 to 1990. Part I: Species Status and Occurrence

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## INTRODUCTION

The Whitefish Point Bird Observatory (WPBO) is located at the tip of Whitefish Point in Michigan's Upper Peninsula. The point is a broad peninsula extending northeastward towards Ontario, which is 27 km distant from the tip. This land, bordered to the west and north by Lake Superior and to the east by Whitefish Bay, narrows to a point and thus creates a funneling effect to northbound spring migrants, concentrating them at the tip of Whitefish Point (Wood 1914, Kelley 1972).

The presence of owls here was discovered in 1966 by members of the Ontario Bird Banding Association (Kelley and Roberts 1971). During the 1966-70 period, 280 owls of six species were banded.

During the springs of 1972 to 1978, several banders were at Whitefish Point in an uncoordinated banding effort. The Whitefish Point Bird Observatory was formed in 1979, with owl research one of its primary goals. This paper will present the results of the WPBO owl banding program from 1981 to 1990.

## METHODS

Large mesh nets--from six to eighteen meters long with stretched mesh size of 61 to 121 mm--were set in an irregular pattern in the mixed jack pine-tag alder woods near the tip of the point. From 1981 to 1987, each volunteer bander ran his own banding operation, following WPBO guidelines. Banding effort varied greatly from bander to bander and season to season (Carpenter 1987). The number of large mesh nets used nightly varied from four to twenty-four.

In 1985, the Research Committee of WPBO designated six net sites as the "standardized net sites," and all banders had to set nets at these locations. Other nets could be run, but the standardized net sites had to be used first. This was done so that at least part of the banding

effort was constant from year to year, and so that annual comparisons could be made more meaningful. Grigg (unpublished document 1982) mapped out the locations of 33 possible net locations at WPBO, with others being possible. In the spring of 1985, for example, banders operated nets at 38 different locations, but all had at least six nets at the same standardized sites. The number of standardized net locations was increased to ten in subsequent years, and the results from past years were back-calculated for comparability.

In 1988, WPBO got its own station banding permit, and all subsequent banding at the point was done using WPBO bands and equipment. A staff of two experienced banders was hired to run the banding program. The basic owl banding project remained unchanged; that is, running large mesh nets at night for owls in the standardized net locations.

All owls captured were banded with U.S. Fish and Wildlife Service bands, and most were weighed and measured. Measurements taken include weight, natural and flattened wing chord, and tail length. Whenever possible, owls were aged according to remex molt, with owls having same-aged primaries being aged as "second-year" birds, and those whose wing feathers exhibited two or more generations of flight feathers were aged as "after-second-year" birds (USF&WS 1977). Since 1988, all owls were aged and molt was recorded.

## RESULTS

Volunteer banding coverage during the springs of 1981 to 1987 generally began in early April and ran through mid to late May. The number of nights a bander was present during April and May ranged from 30 in 1982 to 50 in 1985, with an average of 42 nights per spring (Table 1). Occasionally, during late April and early May, more than one bander was present. Sometimes in early April, no bander

was there to provide continuous coverage after the banding season began. Nocturnal net hours averaged 4786 over the same seven seasons, with a maximum of 5709 in 1985 and a minimum of 3313 in 1982. (A nocturnal net hour is defined as one twelve meter net being open for one hour during the period from one-half hour after sunset to one-half hour before sunrise.)

Much better coverage throughout April and May was achieved during the springs of 1988, 89, and 90 by staff banders. They were present an average of 59 nights and averaged 5023 net hours per spring.

The number of owls banded ranged from 52 in 1985 to a record 259 in 1988 (see Grigg 1989 for a description of that amazing season). The owl banding rate--expressed as the number of owls banded per 100 nocturnal net hours--ranged from 0.91 in 1985 to 5.54 in 1988, with a ten-year average of 2.78.

The spring owl migration at Whitefish Point begins in early April of most years. Banding in March, with net poles sticking in two to five feet of snow, has been shown to be futile: large mesh nets were run on twenty-two complete and four partial nights in March of four different years (1981, 83, 86 and 90), with 2243 nocturnal large mesh net hours accumulated. During this time, only three owls were caught--a Barred, a Boreal, and a Northern Saw-whet--and all in the 28-31 March period. The capture rate for March was 0.13 owls per 100 nocturnal net hours.

The owl migration peaks between 11 and 30 April, when 66% of all owls caught in the standardized nets during the 1985-90 period were caught (Figure 1).

Small numbers of owls continue to migrate past WPBO in early June. Large mesh nets were run on thirteen different nights in three years (1982, 85, and 86) during 1-10 June period and sixteen No. Saw-whets and one Long-eared Owl were banded.

## SPECIES SUMMARY

1. Long-eared Owl, *Asio otus*. Seasonal totals for Long-eared Owls range from 142 in 1981 to 11 in 1989, with a ten-year average of 39. They have been caught from 2 April to 26 May, except for a tardy individual on 4 June. Their spring migration peaks in late April (Figure 1). A total of 389 individuals have been banded in the ten springs from 1981 to 1990, making this the second most common owl banded at WPBO. While little is known about the irruptive nature of this species, the record 142 banded in

1981 indicates an invasion tendency.

2. Barred Owl, *Strix varia*. While not normally thought of as irruptive species, the number of Barred Owls banded at WPBO each spring indicates a possible invasion tendency. The number banded varies from none in 1986 to 37 in 1984, which is nearly half (48.7%) of the ten-year total of 76 banded. Barred Owls have been banded from 28 March to 22 May, with their migration peaking in late April.

3. Great Gray Owl, *Strix nebulosa*. The largest *Strix* is a rare visitor to WPBO in the springtime. During the winter of 1983-84, there occurred a large invasion of Great Gray Owls into the Western Great Lakes region (Powell 1984). In the spring of 1984, there were a record ten individuals banded at WPBO. On four other years, none were caught, and one or two individuals were banded in the other five springs.

4. Boreal Owl, *Aegolius funereus*. Numbers of Boreal Owls mist netted each spring fluctuate greatly, from none in 1981 and 1990 to 159 in 1988, with a ten-year average of 29. Their migration past WPBO extends from 30 March to 22 May, and peaks in late April. Of the 179 Boreals banded during the springs of 1988-90, 94 (52.5%) were aged as after-second-year birds, and 85 (47.5%) as second-year birds. As with many diurnal raptors, the adults migrate north first, with a median arrival date of 20 April at WPBO. Second-year birds follow, with a median arrival date of 25 April.

5. Northern Saw-whet Owl, *Aegolius acadicus*. This is the most commonly banded owl at WPBO, with the annual spring totals ranging from 17 in 1982 to 91 in 1986, with an average of 54. Saw-whets have been caught from 31 March to 7 June. Their migration peaks in mid-April, with a smaller, secondary peak at the end of May.

Of the 149 owls banded during the 1988-90 period, 69 (46.3%) could be sexed by wing chord (USF&WS 1977). Fifty-eight (84%) were found to be males and 11 (16%) females. Other researchers have found this skewed sex ratio with a strong bias toward males (Weir et al. 1980). Adult (ASY) birds have been caught throughout April and May, but are more frequent after mid-May. Second-year birds migrate past WPBO before the adults do: the median date for second-year birds is 27 April and for adults, 9 May. This contrasts with banding results in New York, where it was found that SY birds arrive on the average eleven days later than ASY birds (Slack et al. 1987). Carpenter (1987) suggests a few of the late May-early June birds might be post-breeding wanderers, or birds whose nesting was

interrupted. Three of the Saw-whets caught after mid-May had well developed brood patches. While they might be local breeders, it seems more likely they nested, or attempted to nest, elsewhere.

6. Great Horned Owl, *Bubo virginianus*. Thirty-four Great Horned Owls have been mist netted at WPBO during the springs of 1981 to 1990. Undoubtedly, others have blundered into the mist nets but have escaped due to their large size and aggressiveness. The numbers banded from mist nets range from none in 1981 and 1988 to a maximum of fifteen in 1984. Great Horned Owls have also been caught using nocturnal luring with pigeons, *Columba livia*, or Starlings, *Sturnus vulgaris*, as lure birds, either by using bow nets or mist nets (Grigg 1975). The total number of Great Horned Owls banded, caught by all methods, ranges from none in 1981 to 36 in 1984. Of the 67 banded since 1984, 54 (80.6%) were brown-plumaged birds and 13 (19.4%) were very pale-plumaged birds, presumably *Bubo virginianus subarcticus*, the more northern, Arctic, race. Interestingly, the median arrival date for brown-plumaged birds is 21 April and for white-plumaged individuals, 25 April. This seems to represent a "leap-frog" type of migration for these spring northbound migrants, in which the more southern members of the breeding population arrive back on their nesting grounds before the more northerly members pass through the same area (Kerlinger 1989). In 1984 when Great Horned Owls were most frequent at WPBO, ten of the thirty-six caught (27.8%) were white-plumaged birds. During the 1985-90 period, thirty-one were banded of which three (9.7%) were the Arctic race.

7. Northern Hawk Owl, *Surnia ulula*. Two of these rare northern owls have been caught at WPBO: one on 20 April 1988 and another on 27 April 1987.

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**Table 1. Nocturnal large-mesh net banding results at WPBO - April and May of 1981-1990.**

<u>O W L</u> <u>SPECIES</u>	<u>SPRING OF</u>										<u>TEN</u> <u>YEAR</u>		<u>Banding</u> <u>Rate:</u> <u>Owls</u> <u>Per</u> <u>100</u> <u>Net</u> <u>Hours:</u>
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>TOTL</u>	<u>AVE.</u>	
Long-eared	142	17	22	22	18	40	60	35	11	22	389	39	0.80
Barred	1	11	4	37	3	0	1	7	7	5	76	8	0.16
Great Gray	0	0	1	10	2	1	0	0	2	2	18	2	0.04
Boreal	0	35	18	47	5	1	12	159	16	0	293	29	0.60
N. Saw-whet	50	17	74	63	23	81	66	58	43	45	541	54	1.11
Gr. Horned	0	1	4	15	1	3	7	0	2	1	34	3	0.07
Total Owls Banded	193	81	123	194	52	136	157	259	81	75	1351	135	
Total Net Hours	5195	3313	4821	4696	5709	5447	4318	4672	5350	5048		4857	
Banding Rate: Owls/100 nh	3.71	2.45	2.55	4.13	0.91	2.50	3.64	5.54	1.51	1.49		2.78	2.78
Banding period from night of to night of	4/1	4/6	4/1	4/8	4/7	4/5	4/2	4/1	4/1	4/1			
	5/19	5/12	5/30	5/20	5/31	5/23	5/13	5/26	5/31	5/30			
No. nights within period with no bander present													
	6	7	12	8	5	0	4	0	0	0			



**Figure 1.** Seasonal Variation in Capture of the Three Most Common Owl Species and All Owls Combined, Caught in the Standardized Mist Nets During the Springs of 1985-1990.

