

# BIRD-BANDING

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## MIGRATION OF THE SAW-WHET OWL IN EASTERN NORTH AMERICA

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### INTRODUCTION

Bent (1938) was reluctant to call the movements of the Saw-whet Owl (*Aegolius acadicus*) migration. However, Taverner and Swales (1911) and several recent authors have recognized the migration of the Saw-whet Owl. This paper will further substantiate the migratory character of this owl using data obtained from banding records.

### METHODS

Banding records and recoveries of Saw-whet Owls were made available by the banding office of the Canadian Wildlife Service. The data were analyzed to determine the timing of the seasonal movements and the routes of the migration of the Saw-whet Owl.

### RESULTS

During the 15-year period, 1955 to 1969, 4,802 Saw-whet Owls were banded in North America. Of these 80 were nestlings. East of the Mississippi River 4,464 (92%) Saw-whet Owls were banded and these were concentrated in Ontario (48%) and the northeastern United States.

Banding records and published information indicate that spring migration occurs from 1 March to 31 May. Michigan, New Jersey, and Ontario had sufficient data available to enable plotting of the mean banding date and the periods that encompassed 66% and 90% of the bandings (Fig. 1). The mean banding date was earliest in New Jersey and later in Ontario and Michigan. Migration ended by mid-April in New Jersey but did not start until late April in Michigan. The numbers of migrant Saw-whet Owls decreased in both Ontario and Michigan by mid-May.

Fall migration occurs from 1 September to 30 November. Mean banding dates and banding periods were plotted for five areas in the Great Lakes-Mississippi Lowlands and four areas of the Atlantic Coastal Plain (Fig. 2). New York banding records were almost exclusively from the Atlantic Coastal Plain. The few records from upper New York were excluded.

Mean banding dates in the fall were from mid-October until early November. In the Great Lakes - Mississippi Lowlands the migration started in early October in Michigan and Wisconsin and ended in mid-November in Ohio and Pennsylvania. Although

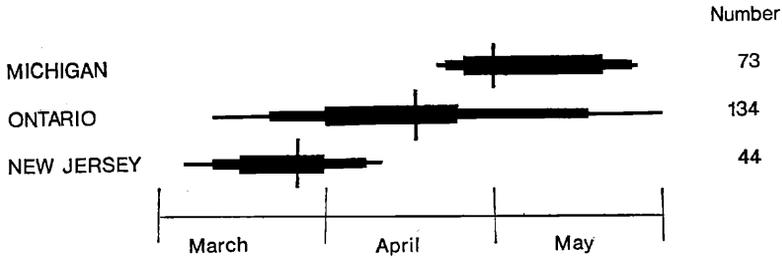


FIGURE 1. Timing of the spring banding of Saw-whet Owls from 1955 to 1969. Vertical bar indicates the mean banding date, the wide bar indicates the period covering 66% of the banding, the medium bar, 90%, and the narrow line, 100%.

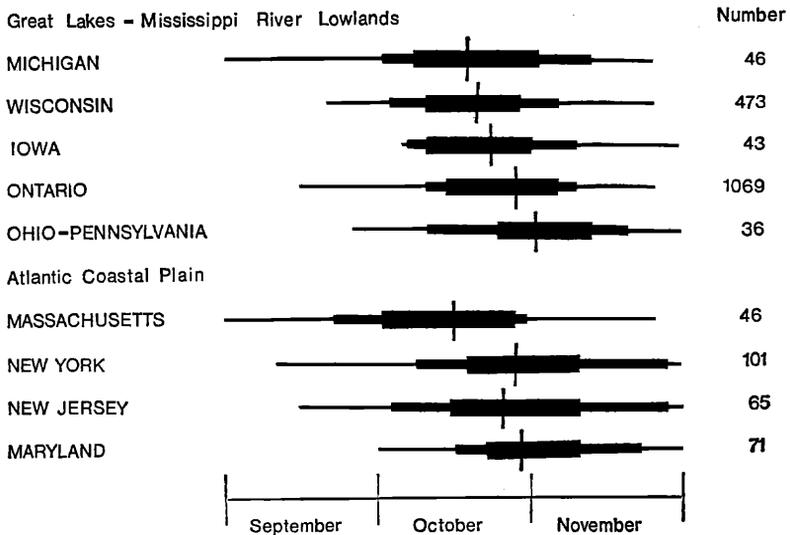


FIGURE 2. Timing of the fall banding of Saw-whet Owls from 1955 to 1969 in 10 provinces and states. Symbols as in Fig. 1.

the province and states cannot be ordered linearly on a map there is a trend in the timing of the migration. The relatively late migration in Ontario results from the majority of the banding occurring in Toronto and the southwestern part of the province.

Along the Atlantic Coast migration in Massachusetts begins in late September and continues until late November in New York and New Jersey. The migration peaks in mid-October in Massachusetts and late October in Maryland. The four states shown are ordered from north to south. The migration tends to be later in the south although the trend is not perfect.

To the end of 1969, 5,843 Saw-whet Owls have been banded in North America. Up to March 1971, 45 had been recovered at locations other than the banding location, and 7 returned to the banding location more than 3 months after their banding date.

The crude recovery rate reported here (0.89%) is the same as that reported by Baldwin (1965) for his five-year sample. The longest interval between banding and recovery was 3 years and 5 months. Two other intervals were over 3 years, and a fourth was 2 years and 9 months. The most direct recovery was number 613-63397 that was banded near Boston on 27 October 1969 and was found dead on Long Island, New York, four days later, a distance of 150 miles.

The most frequently reported method of recovery was "found dead" (47%). Of the reported mortalities 12.5% resulted from collisions with motor vehicles. All of the recoveries (excluding returns) were in eastern North America (Fig. 3).

#### *Route of the Fall Migration*

Fall recoveries indicate that this owl migrates along two distinct routes (Fig. 3). The most obvious route starts in central Ontario and extends southwest down the Ohio River valley as far south as Kentucky. The two Wisconsin records indicate that the Mississippi River valley extending into Tennessee may be included in this same route. The second migration route follows the Atlantic coastal lowlands from Maine to North Carolina. The single Georgia recovery originated in the mountains of Pennsylvania. This record appears to lie between the two routes but the recovery location is on the coastal lowland. There is no recovery that completely crosses the Appalachian mountain chain.

Two owls were recovered north of the banding location within three months of the banding date. One, banded at Toronto, Ontario, on 30 October 1949, was recovered 110 miles to the north-northwest in mid-January 1950. Another, banded at Point Pelee on 5 November 1969, was recovered 50 miles to the north-northwest on 21 December 1969. These northward fall movements are unexplained.

#### *Route of the Spring Migration*

There are few recoveries of birds banded in the spring (Fig. 3). However, the pattern that emerges is similar to the fall migration with the direction reversed. Again no recoveries indicate that the birds cross the Appalachians.

#### DISCUSSION

The first evidence for fall migration was presented by Taverner and Swales (1911) in Ontario. Fall migration has also been noted by Davis (1966) in various northeastern stations, by Green (pers. comm.) along the shore of Lake Superior in Minnesota, by Mueller and Berger (1967) along the western shore of Lake Michigan in Wisconsin, and by Woodford (1959) in Ontario. Catling (1971) and Holroyd and Bradshaw (1971) reported spring migration in Ontario.

Most authors have reported fall migration of the Saw-whet Owl in the northeastern United States and adjacent Canada during October and November. Mueller and Berger (1967) showed that

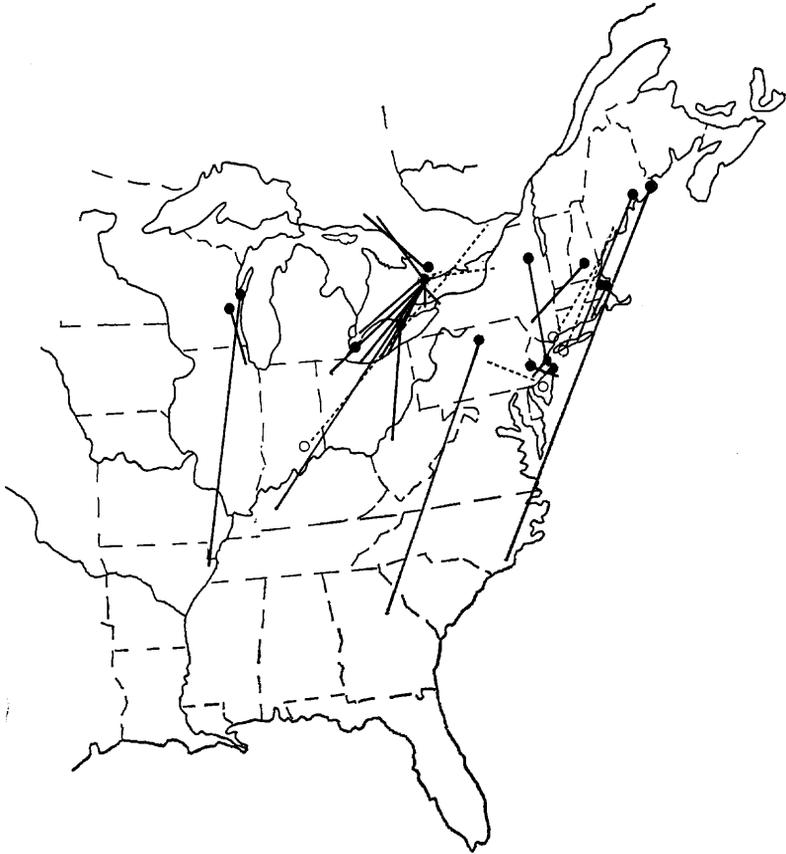


FIGURE 3. Recoveries of Saw-whet Owls. The banding locations of birds banded in September, October, and November are represented by solid dots. Open end of lines indicates the recovery location. January, February, and April bandings are represented by open circles and broken lines.

two-thirds of the birds they banded in Wisconsin were handled within two weeks centering on 23 October. Their data agree with the records from the whole state in Figure 2. Migration occurs later in the provinces and states south of Wisconsin.

Spring migration is less well known than fall migration. Evidence has been presented for spring migration through Toronto, Ontario (Catling, 1971) and through Long Point, Ontario (Holroyd and Bradshaw, 1971). These data correspond well to the late March - late April timing indicated in Figure 1.

Widespread and dramatic seasonal increases in the number of owls banded reflect both migration through these areas and the activities of banders. The studies by Mueller and Berger and by Catling were at fixed locations through several seasons. Our data result from unknown efforts by banders. Agreement of the fall data from Wisconsin and the spring data from Ontario with the

published studies supports our belief that the other migration peaks in Figures 1 and 2 represent migration of the owls more than banding activity.

A comparison of Figures 1 and 2 shows that many more owls have been banded in the fall than in the spring. This may be explained in a number of ways. First, heavy winter mortality could reduce the number of returning birds. Secondly, number of fall concentration points are well known along the north shores of Lakes Erie and Ontario (Point Pelee, Long Point, and Toronto Island). Each year banders make a considerable effort to capture owls at these points during fall flight. Spring migration concentration points are much less known. More work is required during the spring to monitor the return flight.

Woodford (1959) mapped the movements of fall banded Saw-whet Owls from Toronto, Ontario, which showed a general southwest displacement. This fall flight direction is further substantiated by data presented in this paper. The second route, along the eastern seaboard, has not been previously reported. The Saw-whet Owl migrates along the Ohio and Mississippi River lowlands and along the coastal lowland.

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