

Nocturnal Owl Monitoring Project Report 2009

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Introduction:

The Northern Saw-whet Owl (*Aegolius acadicus*) is a small, migratory raptor which has been monitored extensively in eastern North America with well over 150,000 individuals banded since 1955.

Since the fall of 2002, Northern Saw-whet Owls have been actively monitored at Rocky Point during their southward migration. A total of 2278 Northern Saw-whet Owls have been banded at Rocky Point since this project's inception.

Study Area and Methods:

Northern Saw-whet Owl migration is monitored following protocols established by Project OwlNet (www.projectowl.net), a continent-wide consortium of banding stations. Owl monitoring at Rocky Point was conducted nightly from one half hour after sunset for six consecutive hours during the period from 15 September to 31 October, except when constrained by military activities or inclement weather. Banding occurred on a total of 43 nights during this period.

The mist-netting site established in 2008, southeast of the banding station was used again in 2009. As in 2008, trees damaged by winter winds forced the relocation of nets; two existing lanes were blocked by fallen trees, so a new net was added between the former net lanes. In 2009, a triangle of three proximate 12-meter-long x 2.6 meter-high mist nets was erected among the willow and alder, and an audio lure (playing a Northern Saw-whet Owl territorial call) was placed in the centre of the triangle. Four passive nets were also employed: one to the southwest, one to the northwest, and two to the east of the owl-triangle.

Once captured, the owls were removed from the nets and numbered aluminum leg bands were affixed. In addition, various morphometric measurements were taken and the age of the birds was determined. When possible, using the criteria from Project

Owlnet, the sex of the owl was also determined, and then the bird was released.

Results:

In 2009, 344 Northern Saw-whet Owls and 5 Barred Owls (*Strix varia*) were banded during 1455.3 net hours of operation. The capture rate of Northern Saw-whet Owls was 0.27 birds/net hour. The capture rate was well below the best rate of 0.42 birds per net hour achieved in 2003. Of the 344 Northern Saw-whet Owls banded, 50.87% were hatch-year birds, 31.98% were second-year, 15.99% were after second-year and 1.16% were unspecified after hatch-year birds. Three of the Barred Owls captured in 2009 were hatch-year birds and two were second-year individuals.

The captures were well distributed throughout the banding period, with the peak week occurring between 2 October and 8 October. 132 (38.37%) of the owls were banded within this week, with the nights of 2 October and 7 October both having the maximum nightly capture of 23 Northern Saw-whet Owls.

During the banding period, a Northern Saw-whet Owl banded on 5 October at Rocky Point was captured on Bainbridge Island (Seattle), Washington on 18 October. This was the fourth recapture of a Rocky Point bird at the Bainbridge Island site. A banded Northern Saw-whet Owl captured at Rocky Point on 1 October 2009 was originally banded on Bainbridge Island on 19 October 2008. This was only the second foreign recapture at Rocky Point of a Northern Saw-whet Owl banded at another site.

As in previous years, the majority (60%) of the Northern Saw-whet Owls captured were determined to be females using the combination wing chord/mass criteria established by Project Owlnet. Only 12% were identified as male. The remaining birds fell within the overlap range of the two sexes and thus their gender could not be determined through measurements.

Five Northern Saw-whet Owls banded at Rocky Point in 2009 were subsequently recaptured on-site; four were recaptured on the same night as they were banded, as is

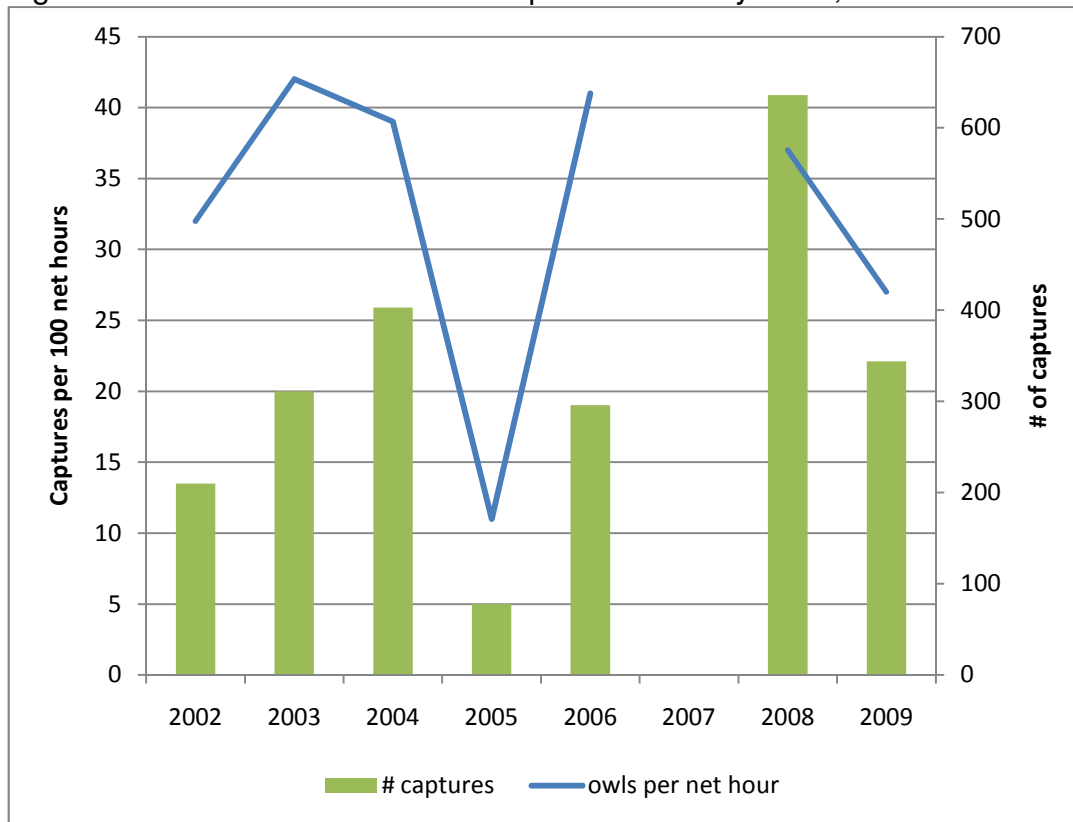
the usual case. One bird, however, was banded on 28 September, then recaptured twice on the night of 4 October, indicating a stopover at the site of at least six days. There were no between-year recaptures in 2009.

Five Barred Owls were banded during the fall 2009 season, three of which were aged as hatch-year and two as second-year. Based on the criteria in Pyle (1997), one bird was sexed as male, while the four others' measurements fell in the range common to both males and females, so were sexed as unknown. RPBO had its first recapture of a Barred Owl in the mist-nets in 2009. A hatch-year bird banded on 6 October was recaptured on 10 October.

Discussion:

Northern Saw-whet Owls are believed to have a four-year population cycle synchronized with that of their most common prey species (Swengel and Swengel 1995). 2009 was the fourth year of the cycle that is developing at Rocky Point, so a much slower year than last year was anticipated. Although the capture of 344 owls was well below the record of 636 set in 2008, the season recorded the third highest number of captures since the project began in 2002 (Figure 1).

Figure 1. Northern Saw-whet Owl Captures at Rocky Point, 2002-2009



The ratio of hatch-year birds was considerably lower than the norm, and was similar to the data collected in 2005, lending support to the concept of a four-year cycle. During migration, hatch-year birds of the majority of species studied at Rocky Point tend to comprise about 70-90% of birds captured. In 2009, only 50.87% of the Northern Saw-whet Owls captured at Rocky Point were hatch-year birds, suggesting relatively poor breeding success. Reproductive success was poorer only in 2005, with just 40% of the captures being hatch-year birds. The proportion of second-year birds (31.87%) was much higher than usual, but was comparable to the year following the first peak in captures observed at Rocky Point. In 2005, 33.33% of the captures were second-year birds. This could be expected because in peak years, an unusually high percentage of the captures are hatch-year birds. If normal winter survival rates occur, a greater proportion of birds in the next year will be second-year individuals.

The statistical tool that is used to determine sex of the owls was developed using data

from eastern populations, primarily during breeding season. A number of owls captured at Rocky Point were considerably larger than the maximum values listed on the sexing chart, suggesting that there may be differences between eastern and western populations or between the weights of birds during breeding and migration. Beaverhill Bird Observatory in Alberta has found similar discrepancies (Lisa Priestley, personal communication, October 2009) and is developing a tool to better identify the sex of western birds, particularly during migration when primary sexual characteristics cannot be observed.

There is considerable debate as to whether Northern Saw-whet Owls are truly migratory or if they are instead nomadic. Little is known, particularly in western North America, about the relationships between the birds' breeding grounds and their fall movements. The two foreign encounters since this project began were both recaptured north of their banding sites in Forks, Washington and Bainbridge Island, Washington. Given the significant numbers of captures of this species at Rocky Point, there is potential for the use of stable isotopes to provide answers to the growing number of questions about Northern Saw-whet Owl movement.

Conclusions:

The number of captures in 2009, with the low ratio of hatch-year birds indicates a poor breeding season for this species. Longitudinal information on this species will help determine the nature, although not the cause, of population cycles. Stable isotope research could identify the breeding areas of birds which pass through Rocky Point allowing for deeper analyses of conditions leading to productivity changes.

Rocky Point is a significant location on the southward route of the Northern Saw-whet Owl. As one of only five Project OwlNet sites west of the Rocky Mountains actively monitoring this species, continued banding operations at Rocky Point contributes greatly to the knowledge base for western populations. RPBO will be able to provide a

coastal perspective to the development of sexing measurement criteria, which appear to have geographic variances.

All data from this project have been submitted to the Canadian Wildlife Service for inclusion in their database and submission to the Bird Banding Laboratory of the U.S. Geological Survey.

Acknowledgements:

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