

WINTER ROOSTING AND FOOD HABITS OF A NORTHERN SAW-WHET OWL IN COLUMBIA COUNTY, NEW YORK

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The Northern Saw-whet Owl (*Aegolius acadicus*) has been described as a fairly common breeder in New York's Adirondack region, though rarely found elsewhere in the state (Levine 1988). Bull (1974) indicates that this smallest of New York's breeding owls is a rare to fairly common migrant and winter visitant. Both sedentary and migratory in habit, individuals winter throughout much of their breeding range. North American Christmas Bird Count data indicate that this owl winters primarily between 35° and 50° latitude (Root 1988). In the Mohawk-Hudson reporting region of New York, a Northern Saw-whet Owl was found dead in December 1988 in the southern Catskill Park (*Kingbird* 32(2):127), while during the winter of 1989-90 a total of six individuals was observed at three separate locations: Coxsackie, Berne and Loudonville (*Kingbird* 40(2):119). No details, however, were given concerning the specific habitats used by these individuals. This note describes a recent sighting of a Northern Saw-whet owl in the Town of Greenport, Columbia County.

STUDY AREA AND METHODS

In the early afternoon of 8 Feb 1991 a group of Department of Environmental Conservation wildlife biologists and wildlife technicians were conducting a deer wintering survey on Blue Hill, located in the Town of Greenport. Due to recent weather conditions, there was virtually no snow on the ground. We had stopped to evaluate deer browsing activity on a portion of a northerly-facing, wooded hillside situated adjacent to a large apple orchard. The plot was about 7 meters (20 feet) in from the orchard/woodland edge. The area was at approximately 107 meters (350 feet) elevation with vegetation consisting of White Pine (*Pinus strobus*), Paper Birch (*Betula papyrifera*), Eastern Hemlock (*Tsuga canadensis*), Rock Oak (*Quercus prinus*), and Staghorn Sumac (*Rhus typhina*). Understory vegetation consisted of Maple-leaf Viburnum (*Viburnum acerifolium*), and dogwood (*Cornus* sp.). A gravel road was located approximately 60 meters from the site, while an irrigation pond was about 100 meters away.

While scanning the vegetation for evidence of deer browsing, one of our group noticed a large number of raptor pellets on the forest floor. A conspicuous amount of whitewash was evident on the ground and upon the foliage of an adjacent tree, a 8 cm (3 inch) diameter (at breast height) Eastern Hemlock. Upon closer inspection, we found a Northern Saw-whet Owl roosting about 2 meters (6 feet) up in a branch of this tree. In its talons was the posterior half of a Short-tailed Shrew (*Blarina brevicauda*). We observed the owl for approximately five minutes before it flew off into the woods, leaving the remains of the shrew on the hemlock branch.

Eleven of the 17 pellets scattered beneath the hemlock were collected. In the office they were weighed to the nearest gram and measured at the major axes with a Vernier caliper. After being allowed to air-dry at room temperature for 10 days, the pellets were again weighed, this time to the nearest hundredth-gram, and measured. Pellets were immersed in warm water, and teased apart to separate skeletal remains from hair and skin, which were discarded. Taxonomic identification of the bones found in each pellet was performed by staff of the New York State Museum Science Service.

RESULTS

The capsule-shaped pellets were grayish black in coloration, though some of the pellets had been splattered with whitewash. The exterior surface of many of the pellets was covered with vibrissae. One vibrissa measured 3.8 cm total length. The initial 0.1 cm (its root) was white, the next 1.3 cm was black, while the remainder was white, finely tapering to the end. Ten pellets were 2 or 3 (mean 2.5, s.d. 0.5) g wet weight, while the dry weight of these same pellets was 0.50 to 1.47 g (mean 1.17, s.d. 0.297). Wet length of the pellets was 19 to 39 (mean 27.5, s.d. 3.78) mm; dry length was slightly less, averaging 27.1 mm. Pellets were somewhat flattened in cross section - the larger diameter of dry pellets averaged 15.3 mm, while the smaller averaged 12.5 mm.

One pellet opened in the field contained the remains of a single Short-tailed Shrew. Of the 11 pellets opened in the office, 7 contained field mice (*Peromyscus* sp.), 3 contained Short-tailed Shrew, and 1 contained a Meadow Vole (*Microtus pennsylvanicus*). Because of similarity between the congeneric Deer Mouse and White-footed Mouse, it was not possible

to identify the skeletal remains to species (P. Steblein, pers. comm.). One of the pellets containing field mouse bones was also thought to contain a pelvis resembling that of a Woodland Jumping Mouse (*Napaeozapus insignis*).

One pellet contained the remains of at least 2 individuals, though duplication of only posterior bones (pelvis, femur, tibia, and tarsus) was found. Two pellets, both containing Short-tailed Shrew remains, likely contained the posterior and anterior halves of the same individual. Of the pellets containing field mice, one contained the posterior half only while two contained the anterior half only. Although the actual number of prey represented in the 11 pellets examined in the office cannot be determined, it could be as low as 9 if all the anterior and posterior prey halves matched up. If each of these halves was from a different individual, the count would be 12 prey. Our mid-afternoon observations of this nocturnal predator with half a shrew in its talons, and the evidence from the pellets themselves, suggests that a single prey item may be divided and the segments consumed at intervals far enough apart to allow the remains to be formed into two separate pellets.

DISCUSSION

Saw-whet owls consume small mammals including mice, voles, shrews, as well as chipmunks and young squirrels (DeGraaf and Rudis 1986). Eaton (1914) described its food habits as consisting exclusively of mice and insects, while Bent (1938) recorded an account of a N. Saw-whet Owl that, upon dissection, proved to have a flying squirrel in its stomach.

According to Connor (1960) the Short-tailed Shrew is one of the most abundant small mammals, occurring in virtually all habitats. In a study of the small mammals of Otsego and Schoharie counties, he found that this mammal typically comprised 20-50% of the total small mammal catch. Overall, more of this species were trapped than any other, and only the two *Peromyscus* species combined were trapped as frequently. However, trapping in upland grazed pastures produced the fewest shrews of any habitat, probably due to a lack of cover and poor tunneling conditions. In those situations, *Peromyscus* was found to be the most common species.

The prevalence of *Peromyscus* rather than *Blarina* in the pellets collected can probably be best explained by habitat conditions. The carefully maintained and mowed apple orchard, which probably constituted the primary foraging site for the owl, may closely duplicate the conditions in the "upland grazed pastures" which Connor (1960) found favored *Peromyscus* over *Blarina*.

While it is impossible to determine the length of time the Blue Hill roost was utilized by the owl, an estimate can be made from information contained in the literature. Marti (1973) studied food consumption in four owl species kept in outdoor aviaries for a period of a year. The smallest of these owls, the Burrowing Owl (*Speotyto cunicularia*), averaged 166 g in weight and consumed an average of 26.4 g of mice (15.9% of body weight) per day. The Northern Saw-whet Owl weighs considerably less than the Burrowing Owl. Johnsgard (1988) reported that 27 male N. Saw-whet Owls averaged 74.9 g, while 18 females averaged 90.8 g.

Adult Deer Mice taken from Otsego and Schoharie counties weighed approximately 20 g, adult White-footed Mice approximately 21 g and adult female Short-tailed Shrews about 19 g (Connor 1960). A single prey item weighing 20 g would therefore make up 26.6% of an average male N. Saw-whet Owl's body weight and 22% of an average female's body weight. Based on these figures and analysis of the pellets, a wintering N. Saw-whet Owl might be expected to consume 1.0 to 1.5 prey items per day. The cache of 17 pellets found under the hemlock suggests usage of that roost by this owl for a period of from 9 days, calculated as $17 \text{ pellets} \times (9 \text{ prey}/11 \text{ pellets})/1.5 \text{ prey per day}$, to 18 days, calculated as $17 \text{ pellets} \times (12 \text{ prey}/11 \text{ pellets})/1.0 \text{ prey per day}$.

Observations of a N. Saw-whet Owl roost similar to that reported here were described by Miller (in Bent 1938). Near Philadelphia, he found a bird roosting about 5 feet off the ground in a dense canopy of honeysuckle vines. A total of 66 pellets were found in two adjacent piles, suggesting that the bird had wintered there.

The association of the N. Saw-whet Owl with water (a nearby irrigation pond) and conifers (roost in a hemlock) has been noted previously: Eaton (1914) described the N. Saw-whet Owl as a forest inhabitant that preferred swampy woods where it remained hidden during the day in a tree cavity or among dense evergreens. In migration, he said, it could be found in wet areas among alders and tangles of vines.

Bendire (in Bent 1938) stated that in winter, N. Saw-whet Owl was fond of dense evergreen thickets in swampy places or near water courses.

The most exceptional characteristic of this bird was its fearlessness. Eaton (1914), Bent (1938), Bull (1974), and virtually every other writer dealing with this bird have described the N. Saw-whet Owl's tame and unsuspicious, or "stupid" behavior. The owl observed in Columbia County was no exception. A group of 6 persons approached and stood around the bird, watching it for almost 5 minutes. Had we desired, we could have easily captured the bird.

ACKNOWLEDGMENTS

M. Vance first spotted the owl pellets. N. Heaslip assisted in pellet collection and separation. W. Stone provided use of a balance beam. Taxonomic identification of the skeletal remains was kindly provided by P. Steblein and his assistants of the New York State Museum Science Service. Several of my colleagues, including R. Miller, reviewed the manuscript.

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