NORTHERN SAW-WHET OWLS CAPTURED AND BANDED IN LAMAR COUNTY, GEORGIA

Charlie Muise
368 Eady Creek Road, Barnesville, GA 30204
cmmbirds@yahoo.com

The Northern Saw-whet Owl (*Aegolius acadicus*) is a small northern owl that primarily inhabits evergreen forests. Most of its breeding range is in Canada and the northern United States, with populations found farther south at high elevations (Robinson 1990, Cannings 1993, Nicholson 1997). The species nests in the Smoky Mountains of Tennessee and North Carolina (Stupka 1946), although damage to the spruce-fir forest by the balsam wooly adelgid (*Adelges piceae*) has apparently reduced this population (Alsop 2001).

Because Northern Saw-whet Owls are north-south migrants, individuals that nest in the southern Appalachians may migrate up and down slope with the seasons. Northern Saw-whet Owls display a cyclic irruptive pattern similar to some northern finches, possibly due to increased competition for mammalian prey resources (De Ruyck 2009). To illustrate, Brinker et al. (1997) found that owls caught during the irruption year of 1995 had lower than typical fat and mass. They are found wintering in larger numbers and farther south than usual approximately every 8 years. A concerted effort to document this species in Georgia during the irruption of 1999-2000 (Brittain 2009) located several birds in Rabun County (Beaton 2001). Winter 2007-2008 featured another irruption, as reported by banding stations across the United States, though only one bird was documented in Georgia.

The winter range of the Northern Saw-whet Owl in Georgia is poorly understood, and likely underestimated, as it is rarely observed in the state. The Annotated Checklist of Georgia Birds (Beaton et al. 2003) mentions just 13 published records, all between October and March. It is a rare wintering bird along the coast and north of the Fall Line (Haney 1986), particularly in Rabun County (Chaffin 1995, Bell 2000, Beaton 2001, Bell 2002). There is also an undocumented report of a bird at Brasstown Bald in May 2000. In October 1982, Cliff Kevill found an injured owl in Cobb County (Brisse 1983). Gaining a better understanding of this very secretive bird is important, because it is one of the Georgia species predicted to be impacted significantly by climate change (Oberle 1987, Price 2001).

No Georgia records exist for Northern Saw-whet Owls in breeding season, nor does Georgia have spruce-fir forest, which most observers believe to be necessary for nesting in the south. However, there are breeding season records for Jackson and Transylvania Counties, North Carolina (Peake 1965, Kneidel 2007), and 4 juveniles were banded at Whigg Meadow, Monroe County, Tennessee, in 2009 (Eric Soehren, pers. comm.). Neither of the latter 2 sites is above 1525 m, nor have they spruce-fir forest. Although many experts assumed Northern Saw-whets nested in North Carolina, this was not documented until 1989 (LeGrand 1990). Thus, nesting is theoretically possible in high elevations of north Georgia.

A major cross-continent banding effort for Northern Saw-whet Owls began in the early 1990s, and resulting data have greatly altered what is known about this species. Northern Saw-whet Owls are now caught regularly in places formerly considered well outside their range (Erdman 1997). They are also caught in numbers much higher than previously expected, perhaps because the species' secretive nature outside the breeding season caused it to go unreported.

Northern Saw-whet Owls have been captured in Tennessee and South Carolina during the winter in areas where they are not believed to nest (e.g., Knox and Monroe Counties, TN; York County, SC; Jim Giocomo, pers. comm.). They are very rarely found in these same areas by birders, probably because unlike other owls, they do not typically respond vocally to recordings.

In Tennessee, Northern Saw-whet Owls are currently listed as a locally rare resident in east, rare migrant and winter resident in the middle and western portions of the state. Although there is no documented evidence of Northern Saw-whet Owls nesting in Great Smoky Mountains National Park, Ranger Bill Stiver (pers. comm.) mentions them as singing regularly from high points along the Appalachian Trail and Gregory's Ridge. All but one Tennessee sighting of this species outside the park occurred in the months October through March (Robinson 1990). On 2 occasions I found this species in low elevations of Blount County, Tennessee, in winter.

In Alabama Northern Saw-whet Owls are considered occasional in winter and fall in the inland Coastal Plain, Mountain, and Tennessee Valley regions (Haggerty et al. 2004). As of November 2007, the state had only 8 records of this species, all in winter (Eric Soehren, pers. comm.)

Bill Hilton, Jr. (http://www.hiltonpond.org/ResearchOwlSawWhetMain.html) used audio lures to capture 7 Northern Saw-whet Owls in the Piedmont of South Carolina in November and December 1999. Over the following decade, with greatly reduced effort, he caught 3 more. From 2001-2006, Daniel Kim

and Jim Giocomo (pers. comm.) of the University of Tennessee used audio lures to capture Northern Saw-whet Owls in low elevation areas of Knox and several surrounding counties in eastern Tennessee. Because of the similarity of the former locations to the Georgia Piedmont, and my experience assisting the latter endeavor, I decided to attempt to document the presence of the species in Georgia in winter.

Methods

The study area was my yard in Lamar County, Georgia. The yard is within the Georgia Piedmont, approximately 8 km north of Barnesville (33˚07'33.9"N, 84˚08'18.2"W; 218 m elevation). In 2006 and 2007, I used 3 30-mm mesh mist nets that were 10 m long by 2.6 m tall. I used a compact disk player to broadcast owl calls. Starting in December 2007, I used 4 61-mm mesh nets of the same size and in the same locations. In 2010, I replaced the compact disk player with a much louder, higher-quality sound system I made with a car amplifier, mp3 player, outdoor speakers and marine battery. I opened nets shortly after dusk (after checking that Northern Cardinals (*Cardinalis cardinalis*) were no longer active, thus, avoiding capture of nontarget species) and I checked nets every 45 min. I photographed every bird caught and I banded each with a USGS metal band with a unique 9-digit number. I recorded various measurements and other notes depending on species. For Northern Saw-whet Owls, I recorded age class based on inspection of feathers, wing chord, and mass. I used an unpublished discriminant function of mass and wing chord table developed by Brinker (2000) to determine sex. The number of hours nets were open was not consistent, varying due to weather and other factors. Nets were open 7 nights during the winter of 2006-2007. During the subsequent 3 winter seasons, nets were opened an average of 3 hours per night, approximately 20 nights per season (approximately 240 net-hours).

Results

At 1900 hrs on 2 December 2007, I captured and banded a Northern Saw-whet Owl. This capture is believed to be the southern-most record of the species to that date. Bob and Martha Sargent (pers. comm.) have since banded 35 Northern Saw-whet Owls at similar latitude in Clay, Jefferson County, Alabama. Three birds they banded have since been encountered in Virginia, Minnesota, and Ontario. Eric Soehren (pers. comm.) banded one bird in the same region of that state.

The first Northern Saw-whet Owl I banded had 3 age classes of flight feathers and the wings were symmetrically-patterned, typical for a hatch-year bird. The outer secondaries and inner primaries were much more faded and had narrower, lighter-colored shafts than the inner secondaries or outer primaries. The bird's mass and wing chord length fell within normal limits for a male.

I caught a Northern Saw-whet Owl on 3 December 2008, and another one on 5 December 2009. These captures are perhaps especially notable because neither occurred during an irruption year – such as the fall of 2007. During winter 2007-2008, banding stations in Canada and the Great Lakes region of the U.S. reported capturing record numbers of Northern Saw-whet Owls, and high numbers of observations were reported from some southern states (Davis 2008). The 2009 bird was a foreign recapture, having been banded in Ontario, Canada, on 22 October 2009, just 44 days before my capture. The 2008 bird was an after hatch-year female, and the 2009 bird was an after second-year female. Pictures of all 3 birds were posted to the Georgia Ornithological Society website (http://www.gos.org/sightings/33-owls/nswo-20071202-tm-1.jpg).

Conclusions

Most of what is known about the Northern Saw-whet Owl's life history has been learned in recent years. This is due in large part to the "Project Owl Net" (http://projectowlnet.org/) of bird banders across the U.S., organized by David Brinker. Much is left to learn about the winter range of this bird within Georgia. This information can only be accurately accumulated through labor-intensive targeted banding, as was done in this study. Despite the paucity of documented records for the species in Georgia, it is entirely possible that the owl is much more common in the state during winter than the literature suggests. Northern Saw-whet Owls deserve special attention because the species has suffered loss of habitat due to infestations of the balsam wooly adelgid, and is likely currently losing habitat due to damage caused by the hemlock wooly adelgid (*Adelges tsugae*). Additionally, some researchers have speculated that Georgia bird species whose survival is linked to the health and abundance of high elevation coniferous forests are especially at risk to the habitat losses that could result from climate change. If this speculation has merit, then the Northern Saw-whet Owl would be especially vulnerable to these landscape changes.

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Literature Cited

Alsop, F.J. III. 2001. Smithsonian birds of North America. DK Publishing, New York, NY.

Beaton, G. 2001. Northern Saw-whet Owls in Rabun County. Oriole 66:56-57.

_____, P.W. Sykes and J.W. Parrish Jr. 2003. Annotated checklist of Georgia birds. Georgia Ornithological Society, Occasional Publ. No. 14.

Bell, M. 2000. From the field, March - May 2000. Oriole 65:66.

_____. 2002. From the field, December 2001 - February 2002. Oriole 67:28.

Brisse, P. 1983. From the field, 1982. Oriole 48:16.

Brinker, D.F. 2000. [online] http://www.projectowlnet.org/df.htm

_____, K.E. Duffy, D.M. Whalen, B.D. Watts, and K.M. Dodge. 1997. Autumn migration of Northern Saw-whet Owls (*Aegolius acadicus*) in the middle Atlantic and northeastern United States: what observations from 1995 suggest. [online] http://www.ncrs.fs.fed.us/epubs/owl/introduction.html

Brittain, R., V.J. Meretsky, J.A. Gwinn, J.G. Hammond, and J.K. Riegel. 2009. Northern Saw-whet Owl (*Aegolius acadicus*) autumn migration magnitude and demographics in south-central Indiana. Raptor Research 43(3):199-209.

Cannings, R.J. 1993. Northern Saw-whet Owl (*Aegolius acadicus*). In: A. Poole and F. Gill, editors. The birds of North America, No. 42. Philadelphia (PA): The Academy of Natural Sciences and Washington (DC): The American Ornithologists' Union.

Davis, R. 2008. Briefs for the files. Chat 72:62.

De Ruyck, C.D. 2009. Northern Saw-whet Owls: migration and population trends in Manitoba. Master's Thesis. Nat. Res. Inst., University of Manitoba.

Erdman, T.C, T.O. Meyer, J.H. Smith, and D.M. Erdman. 1997. Autumn populations and movements of migrant Northern Saw-whet Owls (*Aegolius acadicus*) at Little Suamico, Wisconsin. North Central Research Station, U.S. Dept.

Agric., For. Serv. Proceedings of the Biology and Conservation of Owls. [online] http://www.ncrs.fs.fed.us/epubs/owl/introduction.html

Haggerty, T.M., D. Cooley, G. Hill, G.D. Jackson, P. Kittle, R.E. Mirarchi, E.C. Soehren, and J.W. Tucker, Jr. 2004. Birds. In: R.E. Mirarchi, editor. Alabama wildlife. A checklist of vertebrates and selected invertebrates: aquatic mollusks, fishes, amphibians, reptiles, birds, and mammals. Vol. 1. University of Alabama Press, Tuscaloosa, p. 133-184.

Haney, J.C., P. Brisse, D.D. Jacobsen, M. Oberle, J. Paget, and M.N. Hopkins, Jr. et al. 1986. Annotated checklist of Georgia birds. Georgia Ornithological Society, No. 10.

Hilton, B, Jr. [online] http://www.hiltonpond.org/ResearchOwlSawWhetMain.html

Kneidel, A. 2007. [online] http://www.carolinabirdclub.org/gallery/Kneidel/nswo.html LeGrand, Jr. H.E. 1990. Briefs for the files. Chat 54:68.

Nicholson, C.P. 1997. Atlas of the breeding birds of Tennessee. University of Tennessee Press, Knoxville.

Oberle, M.W. 1987. The greenhouse effect and avian distribution: what might happen in Georgia? Oriole 52:1-10.

Peake, R.H. Jr. 1965. Saw-whet Owls in Jackson County, North Carolina. Chat 29:110-111.

Price, J. 2001. Modeling the potential impact of climate change on the summer distribution of Georgia's non-game birds. Oriole 66:1-8.

Robinson, J.C. 1990. An annotated checklist of the birds of Tennessee. University of Tennessee Press, Knoxville.

Stupka, A. 1946. Occurrence of the Saw-whet Owl in the Great Smoky Mountains during the breeding season. Migrant 17:60-62.