The Nature Conservancy of Canada

The Boreal Owl (Aegolius funereus) and the Northern Saw-whet Owl (Aegolius acadicus) of Northern Nova Scotia

Final Report - October 2002

My investigations of the Boreal Owl (*Aegolius funereus*) and the Northern Saw-whet Owl (*Aegolius acadicus*) have advanced, and I continue to document the trough in the owls' cycle. Of the 39 nest boxes available for the 2002 breeding season, only one was occupied by an owl, that being box 34 in Jim Campbells Barrens; that box housed a Northern Saw-whet Owl.

Low occupancy is expected every four years on average, and may last more than one year. Although there is no one cause to this cycle, the main factors are likely food and weather. There was a sharp decrease in the populations prior to the 2000 breeding season, which was likely correlated with the overall scarcity of small mammals (J. Gilhen, NS Museum curator (retired), *pers. comm.*). Hard winters in 2000/2001 and 2001/2002 caused the deaths of many of these owls. Qualitatively speaking, the cone crop of both spruces and firs was dismal in 2001, and likely contributed to the continued lack of rodents, and therefore owls in 2002. Incidentally, Harry Brennan (of Pictou County) has had Saw-whet Owl nest boxes up for dozens of years; last year, he only found one Saw-whet nest, whereas this year was his first year for not finding a single nest. This speaks of the widespread trough in the owls' cycle.

The Saw-whet Owl nest (Box 34) was originally discovered on 06 June, and had five eggs (Table 1). On a normal year in Pictou County, most Saw-whets would have nesting complete by that date, i.e. the young would have already fledged (Harry Brennan, *pers. comm.*). Either this late nesting date in Jim Campbells Barrens represents normal later nesting for this altitude and latitude (snow stays much later up there), or this could have been a second nesting attempt, or the owls purposefully delayed nesting to time the hatching of their young with the arrival of more rodents. This latter hypothesis sounds incredible, but recent work in Sweden suggests that the timing of nesting is variable, and seems very much to be correlated with near-future rodent fecundity. What clues the owls are using to predict this remains unknown.

As is often the case, especially in low-rodent years, not all of the eggs hatched, and of those that did, not all fledged (Table 1). By using the masses of the three chicks on June 17, I was able to extrapolate back to their hatching dates, and therefore the egg laying dates (17 May for the first egg). Given that on 25 June there was still an unhatched egg in the nest, I concluded that it must have been infertile; it was collected and has been deposited at the NS Museum of Natural History.

Table 1. Phenology of Owls in Box 34

Date	Results
06 June	5 eggs
17 June	3 chicks, 2 eggs
25 June	2 chicks, 1 egg
03 July	2 chicks
21 July	empty, nest material removed, shavings added

The nest material was removed after the young had fledged. One subsample was used for insect extractions, and the other subsample used to look for prey remains. The identification of these insects and prey items is ongoing, but so far, *Blarina brevicauda*, *Sorex hoyi* and *S. palustris* are among the shrews identified. The specimen of *S. hoyi* is significant in that this is only the fourth record of this species from Cape Breton Island; there are only 29 records for the Province as a whole (Fred Scott, NS Museum curator (retired) *pers. comm.*).

Table 2 Nest Box Installations

Year Erected	Number Erected	Total Available for Breeding Season
1999	16	0
2000	18	16
2001	5	34
2002	13	39
2003	0	52

No Northern Flying Squirrels were confirmed nesting in 2002 (or 2001), which was different from 2000 where two nests were found in my boxes (see previous report). Two Red Squirrel nests were found in my boxes this year. In addition, an American Kestrel nested in box 13 at Paquets Lake. Five eggs were laid, though I did not monitor this box diligently, since it was not really part of my study. I removed the contents of the nest box on 04 October 2002 so I could check for prey remains (which consists of many isolated bird feet/tarsi and at least one *Blarina* skull). There was no evidence that the nest failed, i.e. no sign of predation.

It has taken me four years to install these boxes since all of my research is done on my own time (and that of my volunteers)…I have never won enough grant money to pay myself, and therefore to afford the luxury to work full time on this. My initial grant money from Stora Enso allowed me to build 50 nest boxes; the last ones went up on 04 October, 2002 (Table 2, Fig. 1). The nest boxes are in a variety of habitats, including Trembling Aspen (*Populus tremuloides*) clones, budworm-killed forest with small stands of living trees, forests around bogs and mixed forests. Therefore, in the upcoming breeding season (2003), 52 nest boxes will be available.

I will be continuing to monitor these nest boxes, and once we're out of this slump in the population, to gather more ecological data that reflect what these owls do when they're breeding in higher numbers. I maintain a website for my owl research, and refer interested people to that site (http://www.stfx.ca/people/ rlauff/research/Owls.html).

My current funding from the DNR Habitat Conservation Fund is gratefully acknowledged.

I am already planning my trips for next year, let me know if you're interested in joining me.

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