

First documented nesting of the Boreal Owl south of Canada

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ALTHOUGH THE BOREAL OWL (*Aegolius funereus*) is widely distributed as a breeding bird in the boreal forests of Canada and Alaska (Godfrey, 1966), relatively little is known about its territorial behavior, nest and young. Furthermore, there has never been a recorded nesting in the forty-eight contiguous United States, although fledged juveniles were seen in Colorado in August 1963 (Baldwin and Koplin, 1966) and in Montana in July 1973 (Skaar, 1975), and a lone adult was found in Vermont in July, 1923 (Bent, 1938). Therefore, our discovery of several calling males and a nesting pair with five young in Cook County, Minnesota, is significant.

The possibility of Boreal Owls nesting in extreme northern Minnesota had been considered but never investigated in the past. The impetus for our search came when recent nesting of this species in nearby northern Ontario was brought to our attention (Bondrup-Nielsen, 1976). Correspondence with the observer there advised us of his findings: the males began calling in late March or early April, primarily from after sunset until about midnight. A male called from a favored tree which was very near a potential nesting cavity; this cavity, found by the male and to which he was trying to attract a female, was usually high in a live aspen, although dead stumps were also used (all four of the nests mentioned by Bent [1938] were in dead stumps); mixed deciduous-coniferous forest was the preferred habitat; and the male's calling ceased once he had attracted a female, which was normally by late April when there was no snow cover and night temperatures remained above freezing (Bondrup-Nielsen, pers. comm.).

ACCORDINGLY, WE CONCENTRATED our search along the Gunflint Trail in northern Cook County which offers access to appropriate habitat within a few miles of the northeastern Minnesota-Ontario border. We were unable to investigate this area until late April, but April 21-22 and May 6-7, 1978, we heard a total of 15 calling ♂ Boreal Owls. All were located within 16.5 — 35.5 miles (26.5 — 57.1 km) north of Grand Marais in these townships: T63N, R1E; T64N, R1E; T64N, R1W; T64N, R2W; and T65N, R2W. Calling never began earlier than approximately one-half hour after sunset and ceased approximately 1:00 or 2:00 a.m. Calling was at its peak on April 27-28 when most of the owls were heard; five were heard April 21-22 and five were still calling May 5-7. This period was later than expected and probably owing to colder-than-normal temperatures from March until early May. As expected, the owls were heard in mixed woodlands composed primarily of Quaking Aspen (*Populus tremuloides*), Balsam Poplar (*P. balsamifera*), Paper Birch (*Betula papyrifera*), Black Spruce (*Picea mariana*), White Spruce (*P. glauca*) and Balsam Fir (*Abies balsamea*). There seemed to be

no preference for a stand of a particular mix or proportion of particular trees. Some owls were heard in predominantly deciduous woods while others were in areas comprised mainly of spruce.

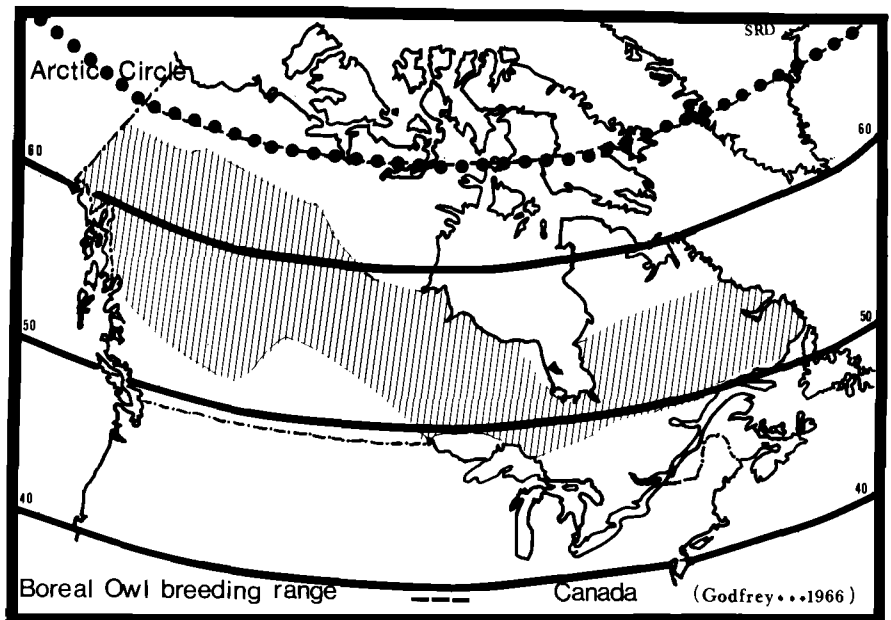
The males called continuously and vigorously, each from what seemed to be a single tree, and could be heard up to a distance of one mile (1.6 km). Taped recordings of a ♂ Boreal Owl obtained in northern Ontario and of two males recorded here were occasionally played back, but there was little or no response. This unexpected indifference may be owing to the male calling functioning only to attract a female and not as a territory defense. It is important to note here that the Boreal Owl call, accurately enough recorded on *A Field Guide to Western Bird Songs* (Houghton Mifflin Co., Boston, 1962), is best described as being very similar to the winnowing of the Common Snipe (*Capella gallinago*) and bears little resemblance to dripping water or a high-pitched bell, as most sources claim. It is our belief that this standard description, which, to us, describes the Saw-whet Owl (*Aegolius acadicus*) call, was mistakenly attributed to the Boreal Owl by early ornithologists who were in fact hearing Saw-whets, and that their error remained uncorrected since so little is known of the Boreal Owl.



Boreal Owl. Photo/David Ainley.

OF THE 15 OWLS WE HEARD four were close enough to the road for us to mark their exact locations and to return in daylight hours to look for nearby nest cavities. In these four territories we were able to find only one cavity that appeared suitable for a nest. It was located in a dead Black Spruce stump which was near the edge of a solid stand of Black Spruce, approximately 10 feet (3.0 m) from a parking area adjacent to the road in section 32 of T64N, R1E. The stump measured 11 feet (3.4 m) high and 1 foot (30.5 cm) in diameter. The entrance hole, located 1 foot (30.5 cm) from the top of the stump, measured 3 inches (7.6 cm) in diameter, and the cavity was about 12 inches (30.5 cm) deep and about 10 inches (25.4 cm) in diameter. Although the cavity was unoccupied, the male returned the evening of May 6 and, after calling for a minute or two, entered the cavity for a few seconds as if to inspect it, after which he resumed calling. By the next day there was still no female present, and when the cavity was next checked on May 20 it was still empty, although since the male was not listened for that night it is not known whether he was still calling. We assumed that he was not, because it was so late in the season, and assumed that he had been unable to find a mate.

It therefore came as a great surprise when on June 16 a check of this cavity by other observers revealed a female present. Light tapping or scratching on the

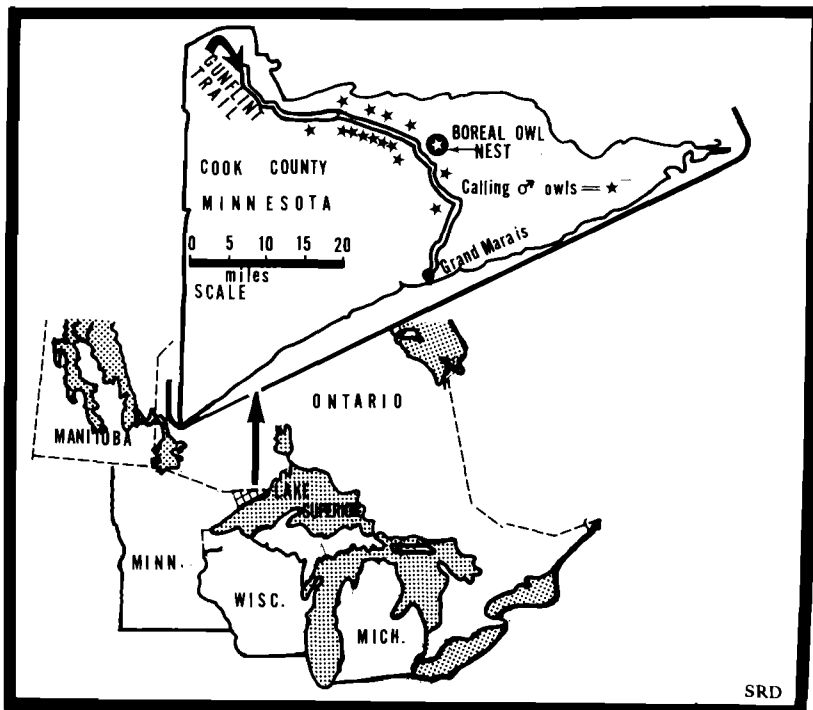


stump resulted in her appearance at the entrance hole and scrutiny of the observers below. This behavior never varied as long as she was present in the cavity. On June 24 eggs were seen for the first time. They appeared to be light brown in color, but, since the eggs of this species are white (Bent, 1938), this may have been the result of being soiled.

THE FEMALE WAS STILL PRESENT when the nest was checked during the day of July 8, but she refused to vacate the cavity. We assumed then that young had hatched, and at dusk on July 12 she did

leave the nest and the young were seen for the first time. Visibility into the cavity was difficult, and it was not possible to determine the number of young, their size or plumage, but the impression was that they were dark gray or brown in color with only slight traces of white natal down still present. The female again refused to vacate the nest during the day on July 15, but, after first appearing at the entrance hole as usual, she went back down into the cavity and could be seen mantling the young with her wings.

By July 17 the female had left the nest, the young apparently being large enough to be left on their own. On July 22 all five young could be seen for the first time. Their irides were yellow, and their plumage was basically dark brown with a white "V" above and between the eyes and a white spot below each eye. This plumage became more plainly marked but remained basically the same until our last observation on August 3. By July 28 two of the young had fledged and were concealed in ground cover a short distance from the stump. By August 3 none of the young were left in the nest, but some were heard approximately 100 yards (90 m) distance from the nest tree in the higher branches of spruce trees. Based on the time of fledging and plumage development, the young had probably hatched within a few days of July 1, and, with an incubation period of approximately 28 days (Bondrup-Nielsen, 1976), the eggs were laid during the first few days of June. Again, this was much later than expected and presumably owing to below-average temperatures earlier.



Boreal Owl nest site, June, 1978, Cook County, Minnesota.

THE MALE WAS THE SOLE PROVIDER of food. He usually arrived soon after dusk with prey items, and announced his presence with a muted and abbreviated version of his mating call to the female who was still in the cavity. The female then vacated the nest, and the male deposited the prey directly into the nest, with the female sometimes looking on but not participating. During this period the young gave a loud and continual "peeping" call which began about dusk and increased in intensity as feeding progressed. The adults often repeated this call, which reinforced the young's vocalizations; taped recordings of this call would also elicit vocal response from the young. It is unknown how late into the night feeding continued since our observations always ended before midnight, but on one occasion the young were heard for approximately one-half hour just before dawn. The male continued to feed the young and the same begging calls continued after the young were fledged and had left the nest, at least until the time of our last observation when the juveniles were assumed to be about a month old.

Mouse-size prey was all the male was

ever seen with, but during incubation what appeared to be tail feathers of a Dark-eyed Junco (*Junco hyemalis*) were seen in the cavity, and after the juveniles had vacated the nest the following partly eaten remains were recovered from the floor of the cavity: eight Boreal Redback Voles (*Clethrionomys gapperi*), two Woodland Jumping Mice (*Napaeozapus insignis*), one Meadow Jumping Mouse (*Zapus hudsonius*) and one Northern Flying Squirrel (*Glaucomys sabrinus*). Evidence is strong that this male was a most efficient predator, as indicated by the amount of uneaten prey left in the nest, by the unexpected presence of prey as large as a flying squirrel, and by observations during two nights when the male repeatedly returned with prey at ten- to fifteen-minute intervals.

In conclusion, it should be noted that during the preceding winter of 1977-78 a massive influx of Boreal Owls occurred in northeastern Minnesota. A total of 66 individuals was recorded, representing the largest invasion ever in this state by a large margin. Therefore, future investigations are needed to determine whether Boreal Owls normally nest in northeastern Minnesota or if our find-

ings in 1978 were an isolated consequence of the preceding invasion.

We would like to acknowledge the assistance of Soren Bondrup-Nielsen who provided advice on locating calling males and finding nests, Tom Davis and Denny Olson who checked the nest cavity in late May and mid-June, Warren Nelson who made extensive observations of feeding behavior, and Lee Carson and Dave Evans who retrieved and identified prey left in the nest.

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Editorial Items

The Blue List of threatened species, originated by *American Birds* in 1971 has become a recognized and widely quoted early warning roster of declining species. But over the years we have repeatedly deplored the fact that, in many instances, it does not give us a broad enough statistical base to form valid conclusions. Granted that observer reports backed by accurate year-by-year records are hard to come by, our conclusions would be infinitely more valid if we had input from five to ten times as many observers as are now cooperating, even if those reporting observers were merely reporting impressions and gut feelings.

Last year (1978) we attempted to reach a broader cross section of our readership by including the report form as a removable page of the May issue. It simply didn't work, for reasons that are unclear. We suspect that many subscribers were unwilling to deface their copies by removing that page. Perhaps, too, the deadline for submission was too far distant from the time of arrival of the pub-

lication; an excuse for forgetfulness. Or, perhaps most observers feel that they really do not know whether any of the species they see are maintaining increasing, decreasing, or stable populations. We doubt that.

This year the May issue will also include a cooperator's Blue List form. It will be a loose sheet. It will not list any of the species presently on the list, or recently nominated. Every cooperator will thus "start from scratch," and will be invited to make up his or her own Blue List strictly from personal experience. This year, we are hoping to receive at least one thousand cooperator's forms. The Blue List has been judged one of the most valuable features of *American Birds*, and a truly important, largely amateur contribution to our knowledge of the welfare of North American avifauna.

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We think this issue is one of the best we have recently published. We are

grateful for the many expressions of pleasure at our new page size; this issue incorporates several new design refinements that we hope will improve appearance and readability. The May issue, now well along, promises to be even better. Its feature article, illustrated by specially-commissioned paintings in color, is a report on the birds of the American Marianas. A highly authoritative discussion of Accipiter identification, a comprehensive summary of the round-up of the phenomenal Great Gray Owl invasion of the Northeast, plus papers on American passerines at sea, two papers on North Atlantic pelagics, an update of the Light-footed Clapper Rail, (tentatively) a Site Guide, and always, the Winter Season report from 23 reporting regions, summarized in a Changing Seasons report by Dave Shuford with help from David DeSante and the P.R.B.O. staff. Book reviews, letters, announcements . . . don't miss it.

—The Editors