



A Method for Locating Barred Owl (*Strix varia*) Nests in the Southern
Boreal Forest of Saskatchewan

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Abstract.—Barred Owl (*Strix varia*) nests are often very difficult to locate. We developed a method for locating Barred Owl nests within the boreal forest of central Saskatchewan, Canada. During the nesting period, we located pairs of Barred Owls through call-playback surveys. We returned to the survey location at sunset and listened for vocalizations from the pair. These vocalizations often occurred near the nest, providing an estimate of its location. The following day, prospective-looking nest trees in the area were hit with a stick in order to flush the incubating owl. We searched for seven nests this way, locating five or 71.5 per cent of them.

In the boreal forest, Barred Owl (*Strix varia*) nests are very difficult to find. This may be due to a number of factors: they occur in low densities with large home range sizes (Elody and Sloan 1985, Hamer 1988, Mazur 1997); their nest sites are clean and free of signs of their presence (Devereux and Mosher 1982); the incubating owls are rarely visible from the ground; and the nest tree species and nest structures are quite variable including cavities, broken-top snags, and stick nests (Bent 1938, Johnsgard 1988, Mazur et al. 1997). As a result, little is known regarding the nesting ecology of Barred Owls in the boreal forest.

One method used to locate Barred Owl nests is to radio-mark adult females and follow them to their nest site (Mazur et al. 1997). However, this is a costly and time consuming method, especially if the only focus of radio-marking is to locate nests. Furthermore, radio-marking owls is a relatively invasive means of locating nests.

A variety of methods have been used for locating nesting raptors. A systematic search and mapping of potential nest sites in the pre-nesting period has been used to locate some raptor nests (Hager 1957). Observations of hunting adults or tracking radio-marked prey

that were captured and taken back to the nest were methods used by Dunstan and Sample (1972) to locate Barred Owl nest sites.

A number of researchers have utilized vocalizations to cue in on owl nests including Lane and Anderson (1995) for Boreal Owls (*Aegolius funereus*), and Rohner and Doyle (1992) for Great Horned Owls (*Bubo virginianus*). Devereux and Mosher (1984) systematically searched their Maryland study area for Barred Owl nests, while narrowing their search by broadcasting Barred Owl calls to elicit responses in order to localize nesting pairs. However, home range sizes of Barred Owls in the boreal forest of Saskatchewan, Canada, are the largest reported for this species to date (Mazur 1997), and we found that relying solely on call-playback recordings to elicit responses did not narrow the nest search area sufficiently to be effective. During a 4-year study of Barred Owl ecology, we developed a more effective method of locating Barred Owl nests.

STUDY AREA

This method was developed and tested between 1994 and 1996 in the Prince Albert Model Forest located in the southern boreal forest of central Saskatchewan, Canada (53°35' - 54°15'N, 105°05' - 106°45'W). Tree species present in the study area were trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), white birch (*Betula papyrifera*), white spruce (*Picea glauca*), black spruce (*Picea mariana*), tamarack (*Larix laricina*), jack pine (*Pinus banksiana*), and balsam fir (*Abies balsamea*). For a more detailed description of the study area see Mazur et al. (1997).

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This method involved repeated call-playback surveys intended to indicate the general area of a nesting pair of Barred Owls, followed by a modification of the "triangulation and search" technique reported by Rohner and Doyle (1992).

Objective 1.—Location of Territory

Through call-playback surveys, with evenly spaced survey stops 1 km apart along roads, we determined the rough location of Barred Owl territories. Often, the first indication of a territory was the response of a male to the call-playback recording. We either continued the call-playback recording, attempting to elicit a response from the female, or we moved to the next survey location. When both the male and female responded, we noted the direction and the approximate distance from where they called. If no female vocally defended the territory during call-playback surveys the search was abandoned.

The following night, we surveyed the area from which the owl pair appeared to have come from in order to gain a more accurate estimate of the location of the nesting area. If the survey location was close to the nest (~500 m), both the female and the male typically responded within approximately 5 minutes of initiating the call-playback recording. Both male and female often flew to the tape recorded call, with a raucous vocal display including caterwauling. If the response occurred after a longer period of time, the location was likely not within 500 m of the nest. Females did not vocally defend the nest site unless the call-playback recording was broadcast within 1 km of the nest (K. Mazur, unpubl. data).

Objective 2.—Dusk Pair Vocalization

At sunset, we returned to the survey location from which the call-playback recording elicited a rapid response from both owls of the pair. At dusk we found that Barred Owl pairs often participate in a vocal exchange and caterwaul at or near the nest. This may have been a food exchange as observed by Devereux and Mosher (1982), or a form of pair bonding. The direction (azimuth) and approximate distance to the vocalizing owls were recorded.

Objective 3.—Nest Search

The following day, we searched the area where dusk pair vocalizations were heard. The area immediately surrounding suitable looking nest trees was searched for pellets or feathers clinging to branches. Potential nest trees were struck with a large stick. This typically flushed an incubating owl. The presence of a male Barred Owl sometimes indicated that a nest was located in the immediate area. Our search times ranged from 20 minutes to 4 hours. If we were unsuccessful, we would repeat Objective 2 from subsequent listening stations in order to facilitate triangulation of the owls' location.

RESULTS AND DISCUSSION

This method relies on the presence of the adult female on the nest and is therefore only effective during incubation and brooding periods. This is approximately 7 to 8 weeks (Johnsgard 1988) and, in this study area, from early April to mid-June. We avoided keeping females off the nests for long periods to prevent the eggs or chicks from chilling. We recommend avoiding excessive call-playbacks to minimize disturbance to nesting owls.

Of the seven Barred Owl territories identified using this method we located five of the nests, representing a 71.5 percent success rate. In both cases in which we were unable to find the nest, we were also unable to hear a dusk vocal exchange. These two nests may have been too far from the listening location.

We found the dusk vocal exchanges at or near the nest to be important in narrowing the search area. Therefore, a limitation of this method is that the nest must be within the audible range of a survey location. Call-playback surveys and listening for dusk vocal exchanges may need to be undertaken within the forest, in areas of low accessibility, in order to locate nests far from roads. The five nests located using this technique were all within 500 m of the road (mean 250 m). We found this method of locating Barred Owl nests to be effective and recommend its use in the boreal forest.



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