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# Techniques for Locating and Capturing Nesting Female Short-eared Owls (*Asio flammeus*)

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## INTRODUCTION

Short-eared Owls nest on the ground in open grasslands, agricultural areas, and tundra (Clark 1975, Mikkola 1983). Searching for nests on foot is time consuming, difficult, and frequently unproductive. Once nests are located, adult owls prove difficult to trap.

Clark (1975) used quonset Bal-chatri traps (Berger and Mueller 1959) to capture Short-eared Owls; however, he never mentioned how many owls were captured. Kahn and Millsap (1978) used a noose carpet on fence posts to trap Short-eared Owls. Their success rate was low, catching four of ten owls that landed on the trap. Pete Bloom (pers. comm.) had approximately 70% capture success with Short-eared Owls (N = 10 captures) using square, flat Bal-chattris (see Bloom 1987).

This paper describes and illustrates a technique for locating and trapping nesting female Short-eared Owls. These techniques decrease time needed to locate nests and increase capture success.

## STUDY AREA AND METHODS

Sandsmark Waterfowl Production Area is located 3 km south of Ninepipes National Wildlife Refuge, Charlo, Montana in the Flathead Valley and 83 km north of Missoula, Montana. The habitat consists of tall wheatgrass (*Agropyron elongatum*), intermediate wheatgrass (*Agropyron intermedium*), and alfalfa (*Medicago sativa*), planted primarily as cover for nesting waterfowl.

Nest searches were conducted during the first week of May and the first week of June, 1990. A 53 m cable-chain drag (Higgins et al. 1977, Klett et al. 1986) was used to locate nests. The drag consisted of 1.6 cm cable and 0.6 cm chain links. See Higgins et al. (1977) for construction details. Two open-topped jeeps pulled the drag through

nesting cover. Drivers tried to keep the jeeps parallel and between speeds of 3 to 10 km/h, depending on terrain.

When an owl flushed, its nest was located and marked 4 m to the north with a 2 m willow sapling (*Salix* spp.). Willows were flagged with surveyors tape and numbered. Numbered nests were plotted on an aerial photograph (1:6669) to facilitate relocation. Number of eggs and nestlings were recorded and nestling ages estimated.

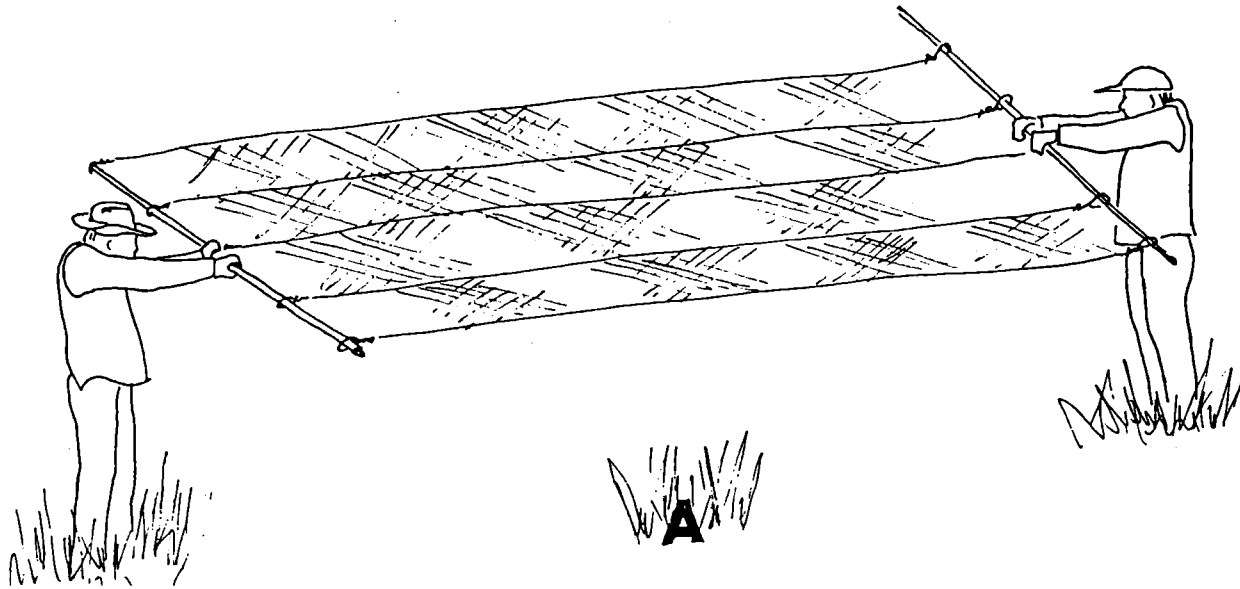
Short-eared Owl eggs hatch asynchronously; therefore, female owls were captured when the two oldest nestlings were approximately ten days old. A four-shelf, black nylon mist net was used to capture the females. Net dimensions were approximately 2 x 12 m with 10 cm mesh size. The net was attached to two, three-meter poles. Capture plans were generally discussed prior to nest approach. To increase success, only two people should perform this technique.

The net was stretched horizontally, walked to and placed over nests (Figure 1). We used hand signals and head nods to determine final net placement. Each person rotated to one side of the net and prepared to flush the owl. As we approached nests, each person then pulled a side of the net down to ensure the owls did not slip under. This is important when tall vegetation holds up the net.

After females were captured, they were banded, weighed, and measured. Nestlings approximately ten days old were banded at this time. Smaller nestlings were checked very three to four days until they were large enough to band.

## RESULTS AND DISCUSSION

Weather conditions should be considered when trapping. Avoid trapping during extreme heat, cold, or wet condi-



**Figure 1.** Net is stretched horizontally, walked to and placed over the nest **(A)**.

tions. Avoid trapping when vegetation is wet or covered with dew because it tends to be trampled by human activity. Two searches increased the chances of locating late nesting or possible re-nesting attempts. Short-eared Owl incubation period is approximately 26 days, and nestling period approximately 15 days; therefore, the second search should detect late or re-nesting owls.

Willow saplings were used because (1) they were flexible—the drag did not break or pull them out, and (2) they were more aesthetically pleasing than other possible markers. Nestling size and age are important factors when determining the time females should be captured. As nestlings age and begin to disperse, females begin to roost away from the nest and are difficult to trap. Holt (in prep.) reported that nestlings begin to disperse at approximately 15–16 days or 250 grams. Holt also noted that during the second week of growth, the nestlings can increase in body mass by approximately 20 grams per day. Therefore, females should be trapped when the oldest nestlings weigh close to 200 grams or are 12–15 days old. Nineteen of 21 females were captured using this technique during the 1990 field season. Of the two females not caught, one regularly flushed approximately 5 to 10 m before the net could be placed over the nest. The second owl got under the net and the nestlings had dispersed before our next attempt; therefore, the female was not present.

We experienced no egg breakage, nestling mortality or nest abandonment. The drag was supported by vegetation at each nest and rolled over the nest and eggs. It was

possible that dispersed, flightless owls could have been run over by the jeeps or crushed by the drag; however, we have no evidence of this. Higgins et al. (1977) report mortality from the cable-chain drag technique.

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