



The Influence of Broadcast Tape-recorded Calls on Captures of Fall Migrant Northern Saw-whet Owls (*Aegolius acadicus*) and Long-eared Owls (*Asio otus*)

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Abstract.—Nocturnal netting operations have been conducted at the Hawk Ridge Nature Reserve since 1972. From 1988 to 1992 a recording of human whistles simulating the calls of fall migrant Northern Saw-whet Owls (*Aegolius acadicus*) was broadcast on a random, on or off, half-night basis. Mist net captures of Saw-whet Owls increased about fourfold during the broadcast sessions, while captures of Long-eared Owls (*Asio otus*) decreased as much as 24 percent.

Broadcast tape-recorded calls (audiolure) have been widely utilized during the breeding season to attract and/or census territorial raptors. The employment of an audiolure to attract fall migrant Northern Saw-whet Owls (*Aegolius acadicus*) was initiated in 1986 at the Little Suamico Ornithological Station near Green Bay, Wisconsin, increasing capture rate by about a factor of 10 (T. Erdman, pers. comm.). To further investigate the effects of the audiolure, I broadcast a tape-recorded call on a random, on or off, half-night basis from 1988-1992.

METHODS

Trapping by mist net ('CTX', Association of Field Ornithologists) was conducted nightly from mid-September to mid-November at the Hawk Ridge Research Station, Hawk Ridge Nature Reserve, Duluth, Minnesota beginning in 1972. The study area, net placement, and owl capture techniques are described in Evans (1980). From 1988 to 1992 I broadcast a tape recording of human whistles simulating the calls of fall migrant Saw-whet Owls, as heard in previous years when large numbers of migrants were apparent (see below). The tape was played in a cassette car stereo powered by a 12 volt deep cycle marine battery and broadcast in the trapping area with a 4 x 8 inch (10.25 x 20.5 cm) speaker. On a random half-night basis (before or after midnight CST), netting

was conducted either passively or with the audiolure being broadcast (on a random basis). Thus, the four treatment groups implemented were: evening with no broadcast (eve off), morning with no broadcast (morn off), evening with audiolure (eve on), and morning with audiolure (morn on).

RESULTS

A total of 3,708 Saw-whet Owls were captured during the 5-year period: 724 (19.5 percent) passively and 2,984 (80.5 percent) with the audiolure (table 1). Adjusting for an unequal number of treatment groups (100 eve off, 89 morn off, 97 eve on, 99 morn on) resulted in the following values for number of owls caught per half-night: 4.59/eve off, 2.97/morn off, 15.63/eve on, and 14.83/morn on. The proportion of owls caught during morning was 65 percent of evening while netting passively but increased substantially to 95 percent with the audiolure. We also noted a change in the juvenile to adult ratio when playing the audiolure. While netting passively the ratio was 0.83. For both groups, the ratio increased slightly from evening to morning, from 0.55 to 0.59 with the tape off, and from 0.79 to 0.87 with the audiolure. With the audiolure on, we caught 5.16 times as many juveniles and 3.53 times as many adults.

Initial concerns that the audiolure would result in increased numbers of recaptures, and possible interference with migration, proved unfounded. Numbers of recaptures during the same night were 37 for eve off, 56 for morn off, 78 for eve on, and 157 for morn on. The larger

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Table 1.—Captures of Northern Saw-whet Owls (*Aegolius acadicus*) at Hawk Ridge, Minnesota, comparing passive and broadcast audiolure netting between evening (eve) and morning (morn).

Year	Eve off	Morn off	Eve on	Morn on
1988	68	57	250	274
1989	63	56	595	388
1990	119	70	184	207
1991	80	49	363	358
1992	130	32	124	241
Total	460	264	1,516	1,468

numbers in the morning occur predominantly in the last hours before sunrise and appear to be owls that do not resume migration and may be searching for a place to roost. An additional 35 owls were recaptured one or more nights later: 16/eve off, 2/morn off, 14/eve on, and 3/morn on. The bulk of those recaptured in the evening (usually early evening) were those that had been released late the previous morning. Seven of the 35 owls were recaptured more than one day later; two at 3 days, two at 6 days, two at 9 days, and one at 10 days later. Expressed as a percentage of total owls caught per period, recapture rates were 11.6/eve off, 22.0/morn off, 6.1/eve on, and 10.9/morn on, thus, roughly half with the audiolure on.

Playing the audiolure appeared to have a detrimental effect on the capture of Long-eared Owls (*Asio otus*), with values per half-night at 0.84/eve off, 0.74/eve on, 0.88 morn off, and 0.67 morn on. Thus, with the audiolure on, we caught 12 percent fewer Long-eared Owls in the evening and 24 percent fewer in the morning.

DISCUSSION

Broadcasting the audiolure increased capture rates of fall migrant Saw-whet Owls about fourfold at Hawk Ridge, with juvenile owls more responsive to the tape than adults. It appears that the attraction to the audiolure is related to interactions of Saw-whet Owls when large concentrations occur. Prior to using the audiolure, we commonly heard saw-whets calling on nights when we had high capture rates. None of the three major owl banding stations in Wisconsin, which typically caught considerably fewer owls, had ever heard Saw-whets calling in the fall (T. Erdman, pers. comm.).

The considerable increase in owls caught in the morning when the audiolure was playing suggests that migration occurs at higher altitudes (above mist net level) later in the night, with hunting and feeding activities occurring at lower altitudes earlier in the night. The moderate increase in the proportion of juveniles caught in the morning may reflect their relative inexperience in hunting, thus resulting in them spending more time at lower altitudes searching for prey.

The decrease in Long-eared Owl captures, and why the decrease differs between evening and morning, is puzzling. Whether this suggests an actual avoidance of the audiolure or merely reflects the increased human activity involved in removing greater numbers of Saw-whet Owls is unknown.

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LITERATURE CITED

Evans, D.L. 1980. Multivariate analyses of weather and fall migration of Saw-whet Owls at Duluth, Minnesota. Fargo, ND: North Dakota State University. 49 p. M.S. thesis.