

# Vocalizations and territorial behavior of wintering Snowy Owls

*A discussion of their possible relationship to territory maintenance*

David L. Evans

**S**NOWY OWLS (*Nyctea scandiaca*) are believed to be silent during the non-breeding season. Robbins *et al.* (1966) state that the Snowy Owl is "silent south of its breeding grounds." Peterson (1947) and Godfrey (1966) do not mention winter vocalizations. Keith (1964) observed wintering Snowy Owls defending mutually exclusive territories but does not report winter vocalizations. Weir (1973) mentions Snowy Owls screaming at his approach but does not correlate vocalizations with territorial interactions. Vocalizations and behavioral displays of wintering Snowy Owls and their possible relationship to territory maintenance are discussed in this paper.

I have spent over 400 hours observing Snowy Owls on their winter territories (November through February) in the Duluth, Minnesota - Superior, Wisconsin area from 1974 through 1978 and, to a lesser extent, in other areas since 1970. The Duluth - Superior harbor area grain terminals provide an abundant food source for a variety of prey species (primarily the Norway Rat, *Rattus norvegicus*) which attract a concentration of Snowy Owls. In 1974-75 and 1975-76 observations were made only on weekends. Observations were made on an average of 5 days per week in 1976-77 and 2-3 days per week in 1977-78. I banded and individually color-marked 16, 116, 27, and 6 owls in 1974-75 through 1977-78, respectively. The low frequency of observations and relatively low proportion of marked owls precluded estimates of the total number of owls that passed through the harbor area during the first two winters. In 1976-77 I estimated that at least 60 owls passed through, with approximately 20 maintaining territories. Some birds, especially immature males, established territories early in the season only to be displaced later as additional

females arrived (females average 1.3 times as heavy as males). In years of high owl numbers, essentially all territories were held by mid-December by females and an occasional adult male. These individual territories were then maintained until spring departure. Minor changes in territory boundaries were not uncommon as the season progressed (especially when an owl disappeared owing to mortality or more rarely, displacement). In 1977-78 I estimated that a maximum of 15 owls passed through but only 3 or 4 owls could be found in the area at any one time.

During the winters of 1974-75, 1975-76, and 1976-77, when Snowy Owl numbers were high, territorial interactions were frequent. One location between two grain elevators, approximately 40 hectares in size, was occupied by as many as six owls at one time. On the other hand, territorial interactions were rare in farmland or open country situations, where considerably lower densities prevail. I observed only one territorial interaction during a four-day banding trip on Wolfe Island, Ontario, where the highest density attained was 2.3 owls per 100 ha (from Weir 1973, fig. 1). Similarly, during the winter of 1977-78, when only 3-4 owls could be found in the entire Duluth - Superior harbor area, territorial interactions were rarely observed.

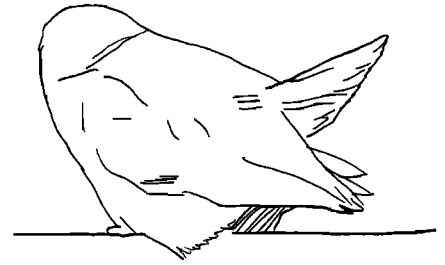
**D**URING DAYLIGHT, territories were maintained by vocalization accompanying agonistic displays, chases, and attacks. The intrusion of another owl invariably elicited high pitched, drawn out screams from the resident owl, with a defense posture characterized by lowered head, leaning forward, slightly drooped and spread wings, and elevated tail (Figure 1). At maximum display, which usually occurred concomitantly with a scream, the owl's back was paral-

lel to the ground with the tail held nearly perpendicular to the ground. A flying owl elicited a stronger response than a perched owl. A low level response, consisting of the scream only, was sometimes elicited by an adjacent owl flying well within its own territory. Territories were defended both against owls passing through and neighbors. The majority of my observations involved neighboring owls; transients were uncommon after early winter, at least during daylight hours. I have designated this behavior the 'territorial screaming display' because of its similarity to the territorial hooting display of breeding Snowy Owls. Taylor (1973) describes the raised tail and body position as part of the defense posture of breeding owls. The relevance of the behavior to territory maintenance seems evident.

Occasionally, encounters became more intense and culminated in one or both owls flying aggressively toward the other. Their flight was direct and purposeful, with deep wingbeats which, although much more accentuated than in perch-to-perch flights, did not appear more so than in flights after avian prey (pheasants, pigeons). The territorial scream was often given during these chases. When the intruding owl did not leave immediately, there was a strong tendency for it and the attacking owl to land on the ground, facing each other with lowered head and half opened wings in which appeared to be a threat display. This display appears identical to that pictured in Burton (1973: 93) although he, I believe mistakenly, terms it a distraction display. Actual contact, consisting of a brief mid-air clash with clasped talons, was observed only three times; in these cases the intruding owl appeared unaware of the approaching owl until shortly before contact.



**Figure 1.** End of Territorial Screaming Display of Snowy Owl. The tail remains somewhat elevated while the displaying owl watches the retreating owl intently.



*Snowy Owl screaming posture.*



*Snowy Owl at rest.*  
Drawings/D.L. Evans

An additional vocalization and behavior sequence was noted on January 23, 1976 during a territorial screaming display. At one point, the displaying owl uttered a series of 10-15 soft grating sounds. It then bit pieces of wood out of the pole on which it was sitting and flicked them out of its beak. This behavior appears similar to the 'redirected' aggression of several species of birds (e.g., gulls, cranes). While photographing at a nest, Sutton (1932) heard a similar sound given by both birds. He described it as sounding like heavy teeth grinding together.

**S**CREAMING SIMILAR to the territorial defense scream was heard in several contexts not obviously connected with territory defense. My approaches to perched owls occasionally elicited screams. Birds working over a baited trap sometimes moved around it, a few meters away, and screamed directly toward the trap. Similarly, I heard an owl scream several times after unsuccessfully

attempting to penetrate a willow thicket containing a flock of pheasants (*Phasianus colchicus*). The defense display was not observed in these situations. My approaches to perched Snowy Owls elicited two other vocalizations, each noted only twice. One consisted of an extremely soft melodious warbling sound, lasting 2-3 seconds, uttered while the owls remained perched. The other was a low pitched, two syllable, grunting sound uttered after the owls flew from their perches. These four isolated observations arose from many approaches to perched owls, the purpose being to identify, in flight, color-marked owls. This did not appear to disturb the owls unduly. They typically flew only a short distance, and in several instances merely circled and returned to the perch above me.

I thank Mary Jane Kohlbry for field assistance and D. Gilmer, J. Grier, H. C. Mueller, H. Postovit, and J. F. Casel for comments on earlier drafts of the manuscript.

## LITERATURE CITED

- BURTON, J. A. 1973. Owls of the world—their evolution, structure and ecology. E. P. Dutton, New York. 216 pp.
- GODFREY, W. E. 1966. The birds of Canada. National Museums of Canada Bulletin No. 203, Biological Series No. 73. 428 pp.
- KEITH, L. B. 1964. Territoriality among wintering Snowy Owls. *Canadian Field-Naturalist* 78: 17-24.
- PETERSON, R. T. 1947. A field guide to the birds. Boston: Houghton Mifflin Co. 230 pp.
- ROBBINS, C. S., B. BRUUN, and H. S. ZIM. 1966. Birds of North America. New York: Golden Press. 340 pp.
- SUTTON, G. M. 1932, as cited in Bent, A. C. 1938. Life histories of North American birds of prey (Part 2). U. S. National Museum Bulletin 170. 482 pp.
- TAYLOR, P. S. 1973. Breeding behavior of the Snowy Owl. *Living Bird* 12: 137-154.
- WEIR, R. D. 1973. Snowy Owl invasion of Wolfe Island, winter 1971-72. *Ontario Field Biologist* 27: 3-17.

—Department of Zoology, North Dakota State University, Fargo, ND 58102, Present address: 2928 Greysolan Rd., Duluth, MN 55812.