

Accidental destruction of Greater Prairie Chicken eggs.—A nest of the Greater Prairie Chicken (*Tympanuchus cupido pinnatus*) was found in Garfield County, Nebraska, 20 miles north of Burwell, on 9 May 1961. This locality is situated in the Sandhills, the vegetation of which has been described as a tall-grass postclimax (J. E. Weaver and F. E. Clements, *Plant ecology*, Second edit., 1938). The nest was located in an odd corner of an ungrazed meadow 25 feet from a barbed wire gate which was situated on a heavily used sand trail. When the gate was approached, the hen usually flushed from the nest without first moving to a standing position. As a result of this reaction over a period of time, 10 eggs of the clutch of 13 were cracked and failed to hatch. Although the hen was flushed on numerous occasions, she continued to incubate and the remaining 3 eggs hatched. This bird was wilder than most other nesting hens flushed, although the sudden emergence of humans from a vehicle may have been more startling than their gradual approach afoot.

Although prairie chicken eggs have reportedly been destroyed by several agents (R. E. Yeatter, *Bull. Illinois Nat. Hist. Surv.*, 22: 377-416, 1943), this seems to be the first recorded instance of accidental destruction of eggs by the hen. Judging from the lack of additional records of this kind of destruction resulting from this and other studies, losses of prairie chicken eggs from this type of accident are apparently insignificant.

This paper is a contribution from Nebraska Pittman-Robertson Project W-33-R "Studies in the ecology and management of prairie grouse."—LAWRENCE J. BLUS, *Nebraska Game, Forestation and Parks Commission, Thedford, Nebraska.*

An early reference to the technique of owl calling.—A specialized technique employed in the study of owls involves the uttered or whistled imitation of their calls. This technique, first used by Loye Miller, and independently by Edouard Jacot (Miller and Miller, 1951: 161), makes use of the tendency of many owls to defend territories against intrusion by other owls of their own species and also to respond in various ways to members of related species. The imitation of an appropriate call often elicits seemingly aggressive calls of apparent protest and an approach by the owl.

In the most commonly cited reference to the use of this technique, Miller (1930) states: ". . . immediately after sunset I began giving the four-note 'hoot' of the Great Horned Owl [*Bubo virginianus*]. Within a few minutes a male bird answered from the southwest about a quarter of a mile away Calling continued, and this bird answered from a nearer point and then approached to within seventy-five feet and moved from perch to perch about our campfire out in the open Each time I hooted it turned quickly and looked in the direction of the sound." From this he concluded that the horned owl hoots from a point in his territory, an area within which he generally responds quickly to the note of a supposed invader.

Apparently this technique is equally effective with certain other species of owls. Campbell (1934), by imitation of their calls, was able to rouse Spotted Owls (*Strix occidentalis*) in early twilight, though this species seldom becomes active before nightfall. Van Rossem (1936) was also successful in "calling up" this species, as well as the Whiskered Owl (*Otus trichopsis*). After locating individuals of the latter species at five different sites, he imitated their call from a central point and induced four to approach him simultaneously. Marshall (1943: 23) was able to call them up in broad daylight and reported (see Pough, 1957: 137) that males of

this highly responsive species may become so excited by imitated hoots within their territories that they will strut along the ground toward the observer and allow themselves to be picked up.

Also known to respond to this technique are the Screech Owl, *Otus asio* (Miller and Miller, 1951: 161); the Striped Horned Owl, *Rhinoptynx clamator* (Marshall, 1943: 24); the Pygmy Owl, *Glaucidium gnoma*, which decoys easily at all seasons (Marshall, 1957: 77); the Flammulated Owl, *Otus flammeolus* (Miller, 1936; van Rossem, 1936; Marshall, 1939); and the Costa Rican Saw-whet Owl, *Aegolius ridgwayi* (Marshall, 1943). In addition to their own calls, the latter two species will answer imitated calls of other owls. The Flammulated Owl can be attracted by imitations of the Great Horned Owl and the Spotted Owl (Miller, 1952: 90), presumably in direct response to the auditory recognition of a predator. Marshall was able to call up the Costa Rican Saw-whet by imitating the Saw-whet (*Aegolius acadicus*) and Barred (*Strix varia*) owls.

I have recently discovered a reference which indicates that this technique has been in use since as early as the eighteenth century. In *The Prelude*, an autobiographical work written mainly in 1805 though not published until 1850, after his death, the English poet William Wordsworth wrote as follows:

There was a Boy: ye knew him well, ye cliffs
And islands of Winander!—many a time
At evening, when the earliest stars began
To move along the edges of the hills,
Rising or setting, would he stand alone
Beneath the trees or by the glimmering lake,
And there, with fingers interwoven, both hands
Pressed closely palm to palm, and to his mouth
Uplifted, he, as through an instrument,
Blew mimic hootings to the silent owls,
That they might answer him; and they would shout
Across the watery vale, and shout again,
Responsive to his call, with quivering peals,
And long haloos and screams, and echoes loud,
Redoubled and redoubled, concourse wild
Of jocund din; and, when a lengthened pause
Of silence came and baffled his best skill,
Then sometimes, in that silence while he hung
Listening . . .

Book V. *Books*, II. 364–382.

The phrases “many a time” (l. 365) and “his best skill” (l. 380) imply that this was not a passing diversion but a skill which Wordsworth had spent much time perfecting. His several nonfictional guides (1810, 1820) to the scenery of the lake areas in northern England reveal his interest in nature. Furthermore, Harper (1916), in his biography of the poet, points out that Wordsworth is known for the truth of his reports about nature, and for writing “with his eye on the object” giving exact, scientific descriptions.

Winander (actually “Windermere”) is one of the lakes of the wooded, hilly lake district of Westmoreland. Four owls are resident in this region (Witherby *et al.*, 1938): the Barn Owl (*Tyto alba*), Short-eared Owl (*Asio flammeus*), Long-eared

Owl (*Asio otus*), and Tawny Owl (*Strix aluco*). It is likely that the owls in Wordsworth's poem are of one of the last two species, since Barn Owls are not known to hoot and Short-eared Owls do not occur in habitat of the type found around Windermere.

I conclude that the technique of owl calling, increasingly used in modern ornithology, originated early in, if not well before, the eighteenth century.

LITERATURE CITED

- CAMPBELL, B. 1934. Bird notes from southern Arizona. *Condor*, **36**: 201-203.
- HARPER, G. M. 1916. William Wordsworth. New York, Scribner and Sons.
- MARSHALL, J. T., JR. 1939. Territorial behavior of the Flammulated Screech Owl. *Condor*, **41**: 71-78.
- MARSHALL, J. T., JR. 1943. Additional information concerning the birds of El Salvador. *Condor*, **45**: 21-33.
- MARSHALL, J. T., JR. 1957. Birds of pine-oak woodland in southern Arizona and adjacent Mexico. *Pacific Coast Avif.*, no. 32: 1-125.
- MILLER, A. H., AND L. MILLER. 1951. Geographic variation of the screech owls of the deserts of western North America. *Condor*, **53**: 161-177.
- MILLER, L. 1930. The territorial concept in the horned owl. *Condor*, **32**: 290-291.
- MILLER, L. 1936. The Flammulated Screech Owl on Mount Pinos. *Condor*, **38**: 228-229.
- MILLER, L. 1952. Auditory recognition of predators. *Condor*, **54**: 89-92.
- POUGH, R. H. 1957. Audubon western bird guide. Garden City, New York, Doubleday and Co.
- VAN ROSSEM, A. J. 1936. Notes on birds in relation to the faunal areas of south-central Arizona. *Trans. San Diego Soc. Nat. Hist.*, **8**(18): 121-148.
- WITHERBY, H. F., F. C. R. JOURDAIN, N. F. TICEHURST, AND B. W. TUCKER. 1938. The handbook of British birds, vol. 2. London, H. F. and G. Witherby.
- WORDSWORTH, W. 1810. A guide through the district of the lakes in the north of England. London, R. Hart Davis.
- WORDSWORTH, W. 1820. A topographical description of the country of the lakes in the north of England. London, Longman, Hurst, Rees, Orme, and Brown.
- WORDSWORTH, W. 1850. The Prelude. London, E. Moxon.

MERCEDES FOSTER, *Museum of Vertebrate Zoology, University of California, Berkeley, California.*