

large salivary glands providing an insect-holding or formic acid-neutralizing film (Welty, *The Life of Birds*, Saunders, New York, 1962).

There are areas of lower trees and thicker vegetation in the forest at Tikal and it was in one of these that I observed the Chestnut-colored Woodpecker. The species is sexually dimorphic. In poor light, however, I could not be sure whether the birds observed were male and female, even though both appeared to be adults. I thank Lester L. Short for reading and commenting on this note.—LAWRENCE KILHAM, *Dept. of Microbiology, Dartmouth Medical School, Hanover, NH 03755. Accepted 20 Dec. 1977.*

*Wilson Bull.*, 91(1), 1979, pp. 150–151

**Off-lek copulation in Sharp-tailed Grouse.**—The Sharp-tailed Grouse (*Pedioecetes phasianellus*) is a lek species (Hjorth, *Viltrevy* 7:184–596, 1970). While males typically gather in morning and evening at specific sites to establish territories and display, some have been reported displaying as solitary birds (Hammerstrom, *Wilson Bull.* 51:105–120, 1939; Amman, *Michigan Dept. Cons. Rept.*, 1957). There has previously been no evidence that lone males copulate successfully with females at these sites. I observed a copulation at such a site at 19:52 on 2 June 1976.

A solitary male Sharp-tailed Grouse was seen displaying on a trail 5 km south of Chatfield, Manitoba (50° 47' N, 97° 34' W). A female grouse walked onto the trail 3 min later and the male intensified his display. The second grouse remained at the trail edge for 12 min before walking to the center where it crouched in a precopulatory position. The male mounted this bird and after copulating successfully continued to display. The female ruffled her feathers, preened, and walked off the trail 4 min after copulation. The male continued displaying until I flushed it 22 min later. I checked the next morning and saw 1 non-displaying Sharp-tailed Grouse within 50 m of the above site. On subsequent checks no grouse were observed at this location.

From studies of grouse since 1969 in the Chatfield area (McKay and Carmichael, *Manitoba Dept. Mines and Nat. Res. MS Rept.*, 1970) I was familiar with the locations of known past and present leks. The site described above was not an established lek and had not been used before or during 1976 or 1977. Two nearby leks (500 m and 800 m), with 16 and 22 males, were active (audible from site) when the observed copulation occurred.

Hamerstrom (Ph.D. Thesis, Univ. of Wisconsin, 1941) and Peterle (Ph.D. Thesis, Univ. of Michigan, 1957) observed solitary males “dancing” and attracting females but saw no copulation at these sites. Others have suggested that mating does sometimes occur off the lek (Lehmann, *North Am. Fauna* 57, 1941; Symington and Harper, *Saskatchewan Dept. Nat. Res. Cons. Bull. No. 4*, 1957). Hjorth (op. cit.) reported “solo” displaying male Black Grouse (*Lyrurus tetrix*) and concluded many, if not most, copulations occur away from leks. Kruijt et al. (*Proc. XV Int. Ornithol. Congr.* 399–423, 1970) studied male Black Grouse that displayed solitarily at fixed sites and found these males often copulated successfully. My observation provides evidence that similar behavior occurs in North American lekking grouse.

Rippin and Boag (*J. Wildl. Manage.* 38:616–621, 1974) found nonterritorial males in a population of Sharp-tailed Grouse and suggested that since they did not attend a lek they were a nonreproductive element in the population. Robel (*J. Wildl. Manage.* 34:306–312, 1970) found a similar situation with Greater Prairie Chicken (*Tympanuchus*

*cupido*). Such males may represent a segment of the population that display solitarily. Robel (op. cit.) noted that female aggressive behavior at leks may prevent mating of subordinate females. It is possible that non-lekking males and subordinate females contribute to the reproducing output of the population by mating off the lek. The incidence of such mating may be dependent on population and aggression levels as suggested by Robel (Proc. XV Int. Ornithol. Congr. 121-133, 1970).

These observations were made while I was engaged in studies of movements and habitat use of female Sharp-tailed Grouse. Financial support was provided by the Manitoba Department of Renewable Resources and Transportation Services. I thank S. G. Sealy and R. Wishart for constructive comments.—DONALD A. SEXTON, *Dept. of Zoology, Univ. of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2. Accepted 10 Apr. 1978.*

*Wilson Bull.*, 91(1), 1979, pp. 151-154

**Differences between nestlings and fledglings of Screaming and Bay-winged cowbirds.**—Authors that have written about brood parasitism of Screaming Cowbirds (*Molothrus rufoaxillaris*) on Bay-winged Cowbirds (*M. badius*) have stated that the nestlings of both species are so similar in appearance, behavior, and vocalizations that they cannot be told apart. They also state that the resemblance of the 2 species persists through the post-fledgling period until the young Screaming Cowbird begin molting into the black adult plumage (Hudson, *Birds of La Plata*. Vol. 1, J. M. Dent and Sons, Ltd., London, 1920:105; Friedmann, *The Cowbirds*, C. C. Thomas, Springfield, Ill., 1929:52, 54; see also summary in Lack, *Ecological Adaptations for Breeding in Birds*. Methuen, London, 1968:94). Without denying the high degree of similarity between the juveniles of both species I will describe the differences that can be observed between the young of the host and the parasite.

All data reported here were collected near Lobos, Buenos Aires Province, Argentina. I have published a short preliminary account on both species (Fraga, *Auk* 89:447-449, 1972).

At hatching both species have a reddish skin color, but as soon as their skin has dried it can be noted that the skin of nestling bay-wings is orange. The bill is pinkish with a darker pigmented area around the white eggtooth. There is some variation in the size, shape, and color of this pigmented area but the subterminal dark tip of the bill is usually conspicuous upon close examination.

Nestling Screaming Cowbirds have pink or pale pink skins. The bill is also pinkish, but it lacks a dark pigmented area around the white eggtooth (Fig. 1).

I discovered these differences in the breeding season of 1971-1972. Since that time I have followed the development of 57 young birds that initially had orange skin and dark bill tips. These 57 juveniles, which I banded, survived at least 2 months after leaving the nest; 36 of these lived 1 year or more. All of these turned out to be bay-wings. Up to 1977 I also followed the development of 11 banded nestlings with pink skins and uniformly colored bills, and that survived for at least 45 days after leaving the nest; all of these turned out to be Screaming Cowbirds. The same differences were also detected in an additional sample of 31 nestlings of both species hatched from marked and measured eggs found in bay-wing nests. As a rule they confirmed my prior identification of the eggs. I do not know if the above mentioned differences in the coloration of the nestlings occur over the entire range of the species.