GENERAL NOTES

Notes on Nesting Habits of the American Bittern.—On May 2 at 5:00 P.M., the writer accidentally flushed an American Bittern (*Botaurus lentiginosus*) from its nest in a wet meadow of cord grass (*Spartina pectinata*) 7 miles north of St. Paul, Minnesota. At that time there were two warm eggs in the nest. In the afternoon of May 12, my field partner found another American Bittern nest containing four warm eggs. This nest was only 150 feet from the one first discovered. Both nests were in the same five-acre meadow of cord grass, and they hatched successfully on the same day. In spite of the proximity of the two nests, there was no evidence of strife between the adults during the period of incubation and care of the young in the nests. Both Bent (*U. S. Nat. Mus. Bull. No.* 135, 1926:75) and Forbush (Birds of Mass. and Other New England States, 1, 1925:321) comment on the fact that several Bittern nests may be found in a small meadow, and Forbush implies that this may be a suggestion of the gregariousness so characteristic of the nesting habits of other herons.

The nests were placed directly on the ground, and they consisted of a platform of loosely gathered cord grass. The nests were shallow and measured ten inches in diameter. They were elevated only 3 or 4 inches, and were placed in good patches of cover formed by dead cord grass and three-foot willows. Concealment from above was fair. The nearest open water was 200 feet from the nest first discovered and 350 feet from the other. The meadow which was chosen for the nesting sites was surrounded by low, sloping hills that supported a medium growth of oak. Each nest was approximately 150 feet from the closest break in cover type between the meadow and the base of the timbered hills.

The adults did not flush from either nest until we were within 2 or 3 yards. Both the eggs and the nesting sites had been considerably fouled by the excrement of the adults. However, there was no wasted or uneaten food in or around the nests. Egg shells and infertile eggs were not removed from the nests after hatching.

F. L. Burns (*Wils. Bull.*, 27, 1915:282) and Bent (*loc. cit.*) placed the incubation period at 28 days, but Mousley (*Wils. Bull.*, 51, 1939:83–5) found it to be 24 days, and my data confirms this.

On May 2 at 5:00 P.M., there were two warm eggs in the nest first discovered. On my next visit, May 4 at 11:45 A.M., the adult was flushed and 4 warm eggs were found in the clutch. On May 12 the nest was intact, and 35 minutes after flushing the adult had still not returned to the nest. On May 16 both nests were intact, and on May 26, 2 young were found in each nest. In the nest first discovered one of the young was thoroughly dried and the second, which was wet, had apparently just emerged from the shell. In fact, the mucous membrane in the egg shell was still moist. In the other nest one of the young was completely dried and the other was partially so. One of the eggs was noticeably pipped.

On June 6 there were three young Bitterns in each nest. Since the young hatched on different days, and the eggs were deposited on successive days, incubation presumably started with the deposition of the first egg. From the (assumed) deposition of the first egg on May 1 to the hatching of the first bird on May 25 is an incubation of 24 days. The fourth egg in each nest was infertile.

On June 6 both nests were visited. In the nest first discovered, the two larger young crawled from the nest and attempted to hide in the cord grass, but the third and smaller one was inclined to remain in the nest. In the other nest the three were all of the same size, and when approached, they left the nest and attempted to escape in the dead cord grass. By June 8 all young had left both nests, having remained in the nests for about 13 days. This checks closely with the period of "two weeks" reported by Bent (*loc. cit.*)

Although this swamp was hunted over regularly by a male Marsh Hawk (*Circus hudsonius*), the Bittern nest was never disturbed.—DAVID B. VESALL, *Carlos Avery Nursery, Forest Lake, Minnesota.*

A Suggestion Concerning Territorialism In Tapera naevia.—So little is known of the breeding habits of *Tapera naevia,* the only Western Hemisphere cuckoo proven to be parasitic, that it seems desirable to record fragmentary yet suggestive observations concerning the territorialism of the species. Present knowledge of the breeding habits is summarized by Friedmann (*Ibis,* 1933:532–9). To these records of the hosts I wish to add that on Dec. 27, 1939 near Santa Elena, Entre Rios, Argentina, I found a young *Tapera* in the nest of the Oven-bird, *Schoeniophylax phryganophila.* In addition there were two young and three eggs of the host ready to hatch. The *Tapera* had probably hatched about two days before the others.

In the vicinity of Santa Elena the species is abundant, and although seldom seen, is conspicuous because of its loud, persistent call. About the first of November the birds begin to repeat their monotonous two-syllabled note "crespín," frequently calling throughout the night. Each bird calls from one circumscribed locality and remains there for a long time. Four birds, presumably the same although not marked for identification, called for a month, each from its own limited area. This habit of calling from one location is also known to all the natives and may be considered a universal behavior. Friedmann (*loc. cit.*) states that both sexes call and proved that the female calls by collecting one in the act. The sex ratio of the species is not known. The fact that in museum collections there are many more males than females (74 to 28) may be interpreted to indicate that the male calls more frequently and thus is more frequently collected or that there really exists a surplus of males in the population. This latter condition is the more likely since a species with abnormal breeding habits usually has an abnormal sex ratio (Mayr; *Amer. Nat.,* 73, 1939:156–79).

The fact that *Tapera* calls persistently from one circumscribed area is of great importance in relation to the territorialism of the Cuculidae. In order to ascertain the sex of the bird calling from one definite spot I tried unsuccessfully for three weeks to collect one of the four calling birds but their wariness and ventriloquial ability always outwitted me. For *Cuculus canorus* it is known (Makatsch, 1937, Der Brutparasitismus der Kuckucksvogel) that each female has a definite territory and also that the males live in a more or less limited area. Molnar (*Aquila,* 1939: 257–64) reports that each female has a territory but mates with several males. However, at times other females lay eggs in this territory. In the parasitic African Cuckoos, Friedmann (*Auk,* 45, 1928:33–8) finds that, although two species have weak territorial instincts, several species establish definite territories which are dependent upon available nests to be parasitized. The male is more faithful to the territory than the female. Thus the habit of maintaining one definite area occurs in two subfamilies (Cuculinae and Geococcyginae) which are widely separated geographically and taxonomically.

In terms of the phylogeny of the Cuculidae there are two possible interpretations of the development of territorialism. Either the habit of maintaining a territory has developed independently in the Cuculinae and the Geococcyginae (the subfamily to which *Tapera* belongs) or the Geococcyginae are descended from a cuculine stock which had already developed territorialism. If this latter interpretation is correct, then, since many members of both subfamilies are non-parasitic, it is necessary to conclude that territorialism developed in the group prior to parasitism and also before the family spread to the western hemisphere.—DAVID E. DAVIS, *Sheldon Traveling Fellow, 1939–40, Harvard University, Cambridge, Massachusetts.*