

or hermit hummingbirds in general, further intensive studies of the breeding biology of this avian group may yield some interesting surprises.

Acknowledgments.—We thank P. and A. Weston for permission to conduct these observations on their biological reserve and for their gracious hospitality. We also thank G. Stiles, L. Wolf, and W. Baltosser for providing helpful suggestions for this manuscript. This study was completed in conjunction with a tropical ecology course through the Department of Ecology and Evolutionary Biology, Princeton Univ., which provided financial assistance.

LITERATURE CITED

- CLYDE, D. P. 1972. Anna's Hummingbird in adult male plumage feeds nestling. *Condor* 74:102.
- MOORE, R. T. 1947. Habits of male hummingbirds near their nests. *Wilson Bull.* 59: 21–25.
- SCHAFFER, E. 1954. Sobre la biología de *Colibri coruscans*. *Bol. Soc. Venez. Cienc. Nat.* 15: 153–162.
- SNOW, B. K. 1973. Social organization of the Hairy Hermit *Glaucis hirsuta*. *Ardea* 61:94–105.
- WAGNER, H. C. 1952. Beitrag zur biologie de Blaukehkolibris, *Lampornis clemenciae* (Lesson). *Veroff. Mus. Bremen, Reihe A*, 2:5–44.
- WOLF, L. L. AND F. G. STILES. 1970. Evolution of pair cooperation in a tropical hummingbird. *Evolution* 24:759–773.

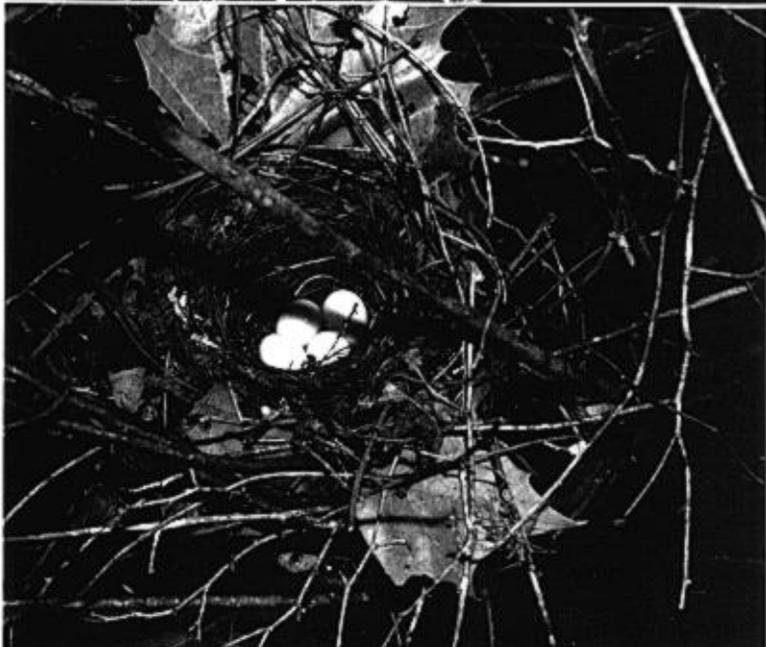
KYLE E. HARMS AND JORGE A. AHUMADA, *Dept. of Ecology and Evolutionary Biology, Princeton Univ., Princeton, New Jersey 08544. Received 16 May 1991, accepted 11 Oct. 1991.*

Wilson Bull., 104(2), 1992, pp. 370–373

A case of aggregated nest placement and probable polygyny in the Swainson's Warbler.—Field studies of wood warblers (Parulinae) have shown that their mating systems are more complex and variable than previously suspected (cf Verner and Willson 1969, Ford 1983, Morse 1989). In particular, facultative polygyny may be widespread in wood warblers. In the most thoroughly studied species, Prairie Warbler (*Dendroica discolor*), polygynists are usually monoterritorial but occasionally defend widely spaced territories (Nolan 1978). The distance between simultaneously active nests of females mated to the same male ranged from 50 to 300 m ($N = 36$; $\bar{x} = 124 \pm 59$ m). Female wood warblers mated to monoterritorial polygynists defend exclusive territories. Aggregated nest placement, the tight clustering of nests within a territory, is unknown in wood warblers. Here I report an unusual case of aggregated nest placement and the first probable record of polygyny in the Swainson's Warbler (*Limnothlypis swainsonii*). The breeding biology of this uncommon species remains poorly known, owing to the inhospitable nature of the habitat where it reaches its greatest abundance—wooded floodplains of rivers in southeastern North America. The bulk of what

→

FIG. 1. Nests of Swainson's Warbler placed 2.8 m apart in St. Martin Parish, Louisiana: (top) nest exhibiting typical construction (see Meanley 1971); (bottom) atypical nest lacking bulky outer layer of dead leaves. Eggs are pure white.



is known is due to the efforts of Meanley (1945, 1966, 1969, 1971). Of the approximately 30 nests found by Meanley over the course of 50 years of field work, none was believed to have been the product of polygynous matings (pers. comm.).

On 2 May 1991 (15:00 h), I found two active Swainson's nests (Fig. 1), 2.8 m apart, near the center of a male's territory on the east bank of the Whiskey Bay Pilot Channel of the Atchafalaya River, St. Martin Parish, Louisiana. The nests were placed in the understory of tall second growth woodland (15–20 m tall) dominated by cottonwood (*Populus deltoides*), sycamore (*Platanus occidentalis*), boxelder (*Acer negundo*), and roughleaf dogwood (*Cornus drummondii*). I noticed the higher (0.95 m above ground) of the two nests from a distance of 8 m, but did not see the lower nest (0.4 m above ground) until the warbler flushed in front of me in the undergrowth as I moved closer. The first bird flushed a split second later, and both warblers performed a rodent-like display on the ground, with wings and tails drooped, accompanied by soft chipping vocalizations. The higher nest contained three and the lower nest four eggs in the early stages of incubation. The lower nest was atypical in lacking a bulky outer shell of dead leaves (Meanley 1971). Both warblers returned to incubate within 20 minutes. The male singing nearby had an unusual song dialect that I tape recorded. Neither incubating warbler was mist netted, but I assume that both were females (plumages of sexes are indistinguishable), since incubation by males is unknown (Meanley 1971).

On 12 May, I returned briefly and found that the higher nest was tipped to the side and abandoned. One egg was missing; the other two, which contained large, well-developed embryos, and the nest were collected (USNM 48023). The unhatched eggs of the lower nest were attended by an incubating bird. The male that had been present on 2 May was again singing.

Although male-female interactions were not observed, the circumstantial evidence for polygyny is substantial. Because the nests were near the center of a vigorously defended territory, it is unlikely that the females were mated to different males. Swainson's territories are exceedingly large (pers. obs.) compared with territory sizes of most species of wood warblers (Nolan 1978, Morse 1989) and male defense of territory is strong for an extended period of time. In southern Louisiana, males arrive and establish territories during the first and second weeks of April, defend them vigorously until early July, and continue to sing, at least sporadically, until the first week of September. Males respond aggressively to playbacks of songs from neighboring, and especially non-neighboring, males (pers. obs.). The territorial boundary of the closest neighboring male was approximately 150 m north of the nest site.

Because the Swainson's breeding biology is so poorly known, I can only speculate on whether this case represents opportunistic or facultative polygyny. Vigorous defense of large territories, the norm for this species, may be correlated with the establishment of monoteritorial polygyny (Slagsvold and Lifjeld 1988). However, other factors associated with polygyny, such as sexual dimorphism or low population density, do not seem responsible in this instance. The population density of Swainson's Warbler in May 1991 along the Whiskey Bay Pilot Channel was among the highest ever recorded (ca 17 singing males/km²) (see Meanley 1971). Meanley (1971) reported that the dry weights of the second and third nests built in one season are progressively lighter than the first. This suggests that the less bulky lower nest (Fig. 1, bottom) may have been built by a female whose earlier nesting effort failed. Because the male's territory included many suitable nesting sites, it is puzzling as to why a second female would build a nest so close to the first.

Acknowledgments.—I thank B. Meanley, V. Nolan, and T. Sherry for helpful comments. Field work was supported by a grant from the Research Opportunities Fund, Smithsonian Institution. Collecting permits were issued by the Louisiana Dept. of Wildlife and Fisheries.

LITERATURE CITED

- FORD, N. L. 1983. Variation in mate fidelity in monogamous birds. *Current Ornith.* 1: 329–356.
- MEANLEY, B. 1945. Notes on Swainson's Warbler in central Georgia. *Auk* 62:395–401.
- . 1966. Some observations on habitats of the Swainson's Warbler. *Living Bird* 5: 151–165.
- . 1969. Pre-nesting and nesting behavior of the Swainson's Warbler. *Wilson Bull.* 81:246–257.
- . 1971. Natural history of the Swainson's Warbler. *North Am. Fauna* 69:1–90.
- MORSE, D. H. 1989. American warblers: an ecological and behavioral perspective. Harvard Univ. Press, Cambridge, Massachusetts.
- NOLAN, V., JR. 1978. The ecology and behavior of the Prairie Warbler, *Dendroica discolor*. *Ornithological Monographs* 26:1–595.
- SLAGSVOLD, T. AND J. T. LIFJELD. 1988. Why are some birds polyterritorial? *Ibis* 130: 65–68.
- VERNER, J. AND M. F. WILLSON. 1969. Mating systems, sexual dimorphism, and the role of the male North American passerine birds in the nesting cycle. *Ornithological Monographs* 9:1–76.
- GARY R. GRAVES, *Dept. of Vertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560. Received 1 Oct. 1991, accepted 1 Dec. 1991.*

Wilson Bull., 104(2), 1992, pp. 373–374

Buff-throated Saltator eats army ants.—The relationship between army ants and birds in Neotropical forests has been studied carefully by Willis and others (see Willis and Oniki 1978, and included references). The birds that attend the ant swarms forage upon the invertebrates and small vertebrates that flee the ants (Willis and Oniki 1978), and several bird species obtain virtually all of their food from this source. Although a number of species of birds occasionally eat adult ants, and some woodpeckers are specialists on ants (Bequaert 1922, Schubart et al. 1965, Short 1982, Willard et al. 1991), the attendant species at army ant swarms do not ordinarily eat the army ants themselves (Willis and Oniki 1978), despite some initial confusion about this issue (see Bequaert 1922). The few army ants recovered from the stomachs of attendant species (Willis and Oniki 1978, Sick 1984, pers. obs.) were probably due to accidental ingestion of ants that were on prey items. The only certain report of a bird intentionally eating army ants is by Lancaster (1966), who noted that an incubating Slaty-breasted Tinamou (*Crypturellus boucardi*) ate some when a swarm passed over the nest. However, there are no published records of attendant species deliberately eating army ants. Here I report the first confirmed exception to this pattern, a record of a Buff-throated Saltator (*Saltator maximus*) feeding on army ants (*Eciton burchelli*) in the Reserva Florestal Rio Doce, about 30 km north of Linhares, Espírito Santo, in eastern Brazil.

I observed a small swarm of army ants along the edge of disturbed forest near a marsh on 8 August 1988 at about 12:25. The swarm had attracted only a few birds: Squirrel Cuckoo (*Piaya cayana*), Planalto Woodcreeper (*Dendrocolaptes platyrostris*), White-shouldered Fire-eye (*Pyriglena leucoptera*) and Cocoa Thrush (*Turdus fumigatus*). After watching the activity for about 5 min, I became aware of repeated bill-snapping coming from a vine tangle about 4 m up in a small tree. Because the insects that army ant attendants eat are fleeing from the