

placed in the Florida Museum of Natural History Bio-acoustic Archives (FMNH 984-1-11). The bird was calling above the understory in tropical rain forest. We heard a repeated "barking" *ahrrr* or *bgrrr* at short intervals, followed by a hoarse *baahoo* or a guttural *wah-h-h oo-oo-oo*, similar to that described by Slud (1979). The Great Potoo was disturbed by a Mottled Wood Owl (*Ciccaba virgata*) call, allowing us to see the silhouette of the bird as it flew to the forest canopy, 50 m away from the previous perching point, where it continued calling. We compared our recording with those of Hardy (1980) and Coffey and Coffey (1984), and we concluded it was the same species. *Nyctibius grandis* is known to occur as a resident bird from Guatemala to Bolivia, Brazil, and Peru (Wetmore 1968, Land 1970, Meyer de Schaunsee and Phelps 1978, AOU 1983). It inhabits solid or patchy tropical evergreen forest (Stiles 1985). For this reason, its presence in the Lacandona area was suspected. This record represents the second northernmost observation of this Neotropical species (Land and Schultz 1963), however it is the first for Mexico.

*LYMNOTHLYPIS SWAINSONII*  
(SWAINSON'S WARBLER)

A male (Instituto Nacional de Investigaciones Sobre Recursos Bioticos [INIREB] National Ornithological Collection No. 02065; weight = 10.6 g; total length = 117 mm; wing chord = 71 mm; tarsus = 17 mm; beak = 13 mm; tail = 49 mm; skull = partially ossified; no fat; no molt; testes = L. 1.2 × 1.6 mm; R. 1.7 × 1.7 mm) was collected on 23 October 1987. The species in Mexico is reported as a North American winter visitor along the Gulf Coast and winters on the Yucatan Peninsula (AOU 1983). Coates-Estrada and Estrada (1985) considered it to be a rare transient in tropical rain forest of Los Tuxtlas, southern Veracruz and it is uncommon even in Yucatan and Quintana Roo (Eugene S. Morton, pers. comm.). An additional specimen for this species is at INIREB's Collection, netted at Aztlán County (16°44'N, 92°54'W), this record reinforces its presence in Chiapas. Further information is

needed to define whether it is a migrant wintering in the state or only a transient.

We are grateful to the following people for their careful revision of an earlier version of the manuscript: George B. Reynard, John W. Hardy, Eugene S. Morton, John H. Rappole, Joe T. Marshall, Mario A. Ramos, and Marco A. Lazcano-Barrero. Our fieldwork was supported by INIREB and the Consejo Nacional de Ciencia y Tecnologia (CONACyT) Grant No. 53797.

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*The Condor* 91:215-217  
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NOTES ON THE BREEDING OF CHESTNUT-BELLIED HERONS  
(*AGAMIA AGAMI*) IN COSTA RICA<sup>1</sup>

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*Key words:* Chestnut-bellied Herons; breeding distribution; nest; eggs; nestlings; Costa Rica.

During a survey of the breeding birds of Costa Rica conducted by the Western Foundation of Vertebrate

Zoology (WFVZ), I found a nesting colony of the Chestnut-bellied Heron (*Agamia agami*) at Westfalia, 7 km SE of Puerto Limon, Prov. Limon, on 19 August 1985 (Fig. 1). This is the first breeding record for this species in Central America, although previous notes on its nesting habits have been published for Mexico (Michener et al. 1964), Surinam (de Vries in Haverschmidt 1968), Venezuela (Ramo and Busto 1982), and Trin-

<sup>1</sup> Received 11 May 1988. Final acceptance 28 September 1988.



FIGURE 1. Adult Chestnut-bellied Heron.



FIGURE 2. Nest and eggs of Chestnut-bellied Heron.

idad (R. Kreuger *in* Hancock and Kushlan 1984). Slud (1964) provided behavioral notes on nonbreeding adults in Costa Rica.

The nesting colony was located in a small oxbow lagoon partially surrounded by mangroves about 300–400 m from the ocean. When discovered, it contained six nests concentrated in an area of about 30 m<sup>2</sup>. Five nests contained two well-grown chicks each. One nest contained a nestling only a few days old, which was covered with sooty black down, and whose skin was pinkish except for a dark bluish area surrounding the eyes. The iris was bright yellow, the maxilla blackish with a greenish tone at the base, the mandible flesh-colored with a black tip, and the legs and feet were bluish-gray. This early plumage apparently has not been previously described.

The soft color parts of the immatures, also apparently undescribed, were: Irish grayish-white, maxilla black, the mandible greenish-yellow with facial skin dull greenish yellow except for a dusky band across the lores, a dusky-horn smudge on the medial portion, legs and feet greenish yellow with the anterior scutes grayish-green, and the claws dusky-horn. An immature bird was collected and deposited in the collection of the Museo de Zoología de la Universidad de Costa Rica (MZUCR 2,348) and weighed 366.5 g. The irides of the adult birds were bright red. An adult female was collected (WFVZ 34,321) and weighed 526.5 g.

The area was visited again in 1986 on 24 March, 24 May, and 27 June, and the herons were observed on the latter date building nests at the same site as in 1985. However, local villagers soon cut a stand of trees and tall grass adjacent to the nesting area, and most of the Chestnut-bellied Herons moved about 65 m to a more secluded area. By 17 July most Chestnut-bellied Herons had moved to the new site. On that date 11 active nests were discovered, each of which held two eggs (Fig. 2). Two of the nests were in the original site, and nine were in the new, more secluded location. All nests

were loose, thick platforms of coarse sticks located 1–2 m above the water in dark secluded locations well within the canopy of mangroves or fig (*Ficus costaricana*) trees.

One nest and four clutches of eggs were collected (WFVZ 154,683–6). The latter are typical heron eggs, being bright bluish-green and unmarked. Most are subelliptical in shape, although a few are short subelliptical (Preston *in* Palmer 1962). Average measurements of the eight eggs are 49.9 (range = 46.0–51.7) × 36.4 (range = 34.7–38.7) mm which are within the measurements given by Schönwetter (1960), de Vries (*in* Haverschmidt 1968), and Kreuger (*in* Hancock and Kushlan 1984). However, Hancock and Kushlan (1984) give the measurement of an end-blown egg from the “Amazon” as 55.8 × 39.5 mm, which is considerably longer than our extreme measurement.

Other herons nesting at this locality at the same time included Boat-billed Herons (*Cochlearius cochlearius*) (10 nests), Green-backed Herons (*Butorides striatus*) (20–25 nests), and Cattle Egrets (*Bubulcus ibis*) (5–7 nests).

Several similarities between this colony and the one observed in Venezuela by Ramo and Busto (1982) were noted: The species breeds during the wet season in both countries. At both sites chicks large enough to leave the nest climbed with remarkable agility through the branches of the trees when the nests were approached. After the Chestnut-bellied Heron chicks fledged at the Westfalia site, as in Venezuela, the nests were appropriated by Cattle Egrets, which then initiated egg laying on 27 August. Finally, at the end of the breeding season the Chestnut-bellied Herons departed from the nesting areas at both localities, presumably to more forested areas, and did not return until the beginning of the next breeding season.

I thank Eduardo Lopez of the Ministerio de Agricultura y Ganadería, Section of Vida Silvestre, who provided the permits to work in Costa Rica; Gary Stiles of the Universidad de Costa Rica and Rolando Delgado for field support; and Lloyd Kiff, Fred Sheldon, Jon Fisher, John C. Ogden, and Betsy T. Thomas for their suggestions and improvement of the manuscript. The fieldwork was supported by the Western Foundation of Vertebrate Zoology.

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*The Condor* 91:217-219  
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## MATE FIDELITY AND BREEDING-SITE SPECIFICITY OF THE TURQUOISE-BROWED MOTMOT<sup>1</sup>

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Although the framework of the reproductive pattern is known for most members of the Neotropical family Motmotidae, and extensive studies have been conducted of several (Skutch 1945, 1947, 1964, 1971; Orejuela 1977, 1980; Scott and Martin 1983, 1986), nearly all long-term (year-to-year) aspects of individual breeding behavior of motmots remains conjectural.

Observations of the activities of several species of motmots evoke the hypothesis that mate and burrow (cavity) fidelity may exist from year to year in this family—Guatemalan Blue-throated Green Motmots (*Aspatha gularis*) and Costa Rican Blue-crowned Motmots (*Momotus momota*) excavate postbreeding burrows (separate from but near to those from which their young were fledged) in which, presumably, they breed

the following year (Skutch 1945, 1964; but, see Orejuela 1977, for possible variation in Campeche *M. momota*); also, Orejuela (1977) has documented mate and site fidelity over two successive years for a single pair of *M. momota*—but corroborative data have not been published. Here, as part of our studies of populations of the Turquoise-browed Motmot (*Eumomota superciliosa*) in Yucatán, México (Scott and Martin 1983, 1986; Martin and Martin 1985), we provide recapture data on 115 banded adults that confirm this hypothesis; additionally, we establish minimum survival records for the species.

#### STUDY AREA AND METHODS

The study population deposited eggs in beam-socket recesses (holes) in the interior masonry walls of chambers (rooms) of structures at five archaeological sites (Uxmal, Kabah, Sayil, Xlapak, Labná) in southwestern Yucatán, México. Most holes were >2 m above the floors of rooms, >1 m in length, and approximately 10 × 10 cm in cross section. Holes were inspected at least twice weekly throughout the reproductive period (May–August) in 1982 and 1983 during the course of investigation of other aspects of breeding biology; adults were captured there and number-banded on their right tarsometatarsi. Subsequently, birds were recaptured

<sup>1</sup> Received 21 July 1988. Final acceptance 16 November 1988.

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