

NESTING RECORDS OF FIVE ANTBIRD SPECIES FROM THE COLOMBIAN AMAZON

CARLOS DANIEL CADENA,^{1,2,3} GUSTAVO A. LONDOÑO,¹ AND JUAN LUIS PARRA¹

ABSTRACT.—Few nests of Amazonian antbirds (Thamnophilidae and Formicariidae) have been described. Here we present nesting records for five species of antbirds found in Tinigua National Park, Colombia. A pouch-shaped pensile nest of the Warbling Antbird (*Hypocnemis cantator*) in a treefall gap within seasonally flooded forest contained two eggs colored like those found in French Guiana but different from those in Amazonian Brazil and Peru. The Black-spotted Bare-eye (*Phlegopsis nigromaculata*) also nested in seasonally flooded forest; it constructed a cup-shaped nest inside a hollow rotten stump and laid two eggs. Two naked nestlings with bright yellow bills disappeared soon after hatching. Two cup-shaped nests of the Scale-backed Antbird (*Hylophylax poecilinota*) were in mature terra firme forest. Both contained two eggs similar in color to those of other subspecies; nestlings were naked and had conspicuous yellow bills. Those found in one nest disappeared 11 days after hatching. A nest of the Amazonian Streaked-Antwren (*Myrmotherula multostriata*) containing one egg was in seasonally flooded forest close to the river bank. This egg differed in coloration from others found in Brazil and from those of other members of the *M. surinamensis* complex, with which it was formerly considered conspecific. A Striated Antthrush (*Chamaeza nobilis*) nested in an unlined natural cavity some 3 m above the ground. The nestling closely resembled the adult but was smaller, had yellow bill commissures, and a shorter tail. Received 29 Dec. 1999, accepted 8 May 2000.

Little is known about the nests, eggs, and young of many of the antbirds (Thamnophilidae and Formicariidae) of lowland forests east of the Andes. Antbird species-level taxonomy is presently being reexamined using new techniques and analyses that include natural history information such as vocalizations (Isler et al. 1997, 1998, 1999). Data on reproductive biology of these species not only adds useful basic natural history knowledge, but could be important in studying systematics, phylogeny, and geographic variation of the group (see Zyskowski and Prum 1999).

Here we present nesting records for five antbird species that occur in a Colombian lowland rain forest in the upper Amazon basin. We describe the nests and eggs of the geographically variable Warbling Antbird (*Hypocnemis cantator*) and Scale-backed Antbird (*Hylophylax poecilinota*). We also describe the first nest and egg of the Amazonian Streaked-Antwren (*Myrmotherula multostriata*) found in Colombia, and offer the first complete descriptions of nest, eggs, and young of

the Black-spotted Bare-eye (*Phlegopsis nigromaculata*) and the first nest and young of the Striated Antthrush (*Chamaeza nobilis*).

STUDY AREA

We made observations in a lowland tropical rain forest of northwestern Amazonia between the eastern Andes and the Sierra de la Macarena, on the eastern border of Tinigua National Park, Depto. del Meta, Colombia. Our study site, the Centro de Investigaciones Ecológicas Macarena (CIEM), is located on the western bank of Rio Duda (2° 40' N, 74° 10' W, 350–400 m elevation) and encompasses a variety of vegetation types (Stevenson et al. 1994, 1999). Low lying seasonally flooded forests are characterized by a discontinuous canopy dominated by *Guarea guidonia*, *Laetia corymbulosa*, *Ficus* spp., *Inga* spp., and *Cecropia* spp. with a dense understory primarily of *Heliconia* spp. Rolling hills dissected by streams support two types of terra firme forests; hill ridges are covered by mature forests with a continuous 20–25 m canopy with emergent trees to 30 m, while the lower eroded hill slopes, small valleys, and gulleys formed by creeks support open degraded forests with numerous vines, lianas, bamboo, and a dense understory. The temperature is relatively constant throughout the year (25° C), but precipitation (2600 mm annual mean) is strongly seasonal with a dry season from December through March and rainy season the rest of the year.

The CIEM supports a rich bird community with 441 species reported so far (Cadena et al. 2000). As with other Amazonian forest localities, a numerically important element of the study site's avifauna are the antbirds. To date, 51 species (47 Thamnophilidae and 4 Formicariidae) have been recorded.

¹ Depto. de Ciencias Biológicas, Univ. de los Andes, Bogotá, Colombia.

² Corresponding author; E-mail: cadenas@polcola.com.co

³ Address after August, 2000: Dept. of Biology, Univ. of Missouri-St. Louis, 8001 Natural Bridge Rd., St. Louis, MO 63121-4499.

RESULTS AND DISCUSSION

Hypocnemis cantator flavescens or *saturata* (subspecies undetermined).—The Warbling Antbird is common in the thick undergrowth of seasonally flooded forests and less numerous in mature terra firme and open degraded forests at the CIEM. During routine bird censuses, we discovered an active nest of this species in seasonally flooded forest on the eastern bank of Rio Duda on 29 June 1997. The pouch-shaped pensive nest was located beside the trunk of a large recently fallen tree (*Burseraceae*) that had formed an extensive treefall gap in the forest. The nest was suspended about 1 m above the ground, attached in two points to a forked twig. A *Heliconia* leaf provided a roof over the nest and shielded it from view. The nest contained two pinkish eggs with purple streaks and spots, mostly on the large end. The eggs had not hatched by 6 July when we left the study site.

The *H. cantator* nest was similar in shape and placement to nests reported from other populations of this species, but there appeared to be variation in egg color. The eggs we found are similar to those of *H. c. notaea* of French Guiana (Tostain et al. 1992), but differ from those of *H. c. cantator* in Manaus, Brazil (white with brown spots, Oniki and Willis 1982) and of *H. c. collinsi* from the Rio Tambopata, Peru (white with brownish red specks and streaks, P. Marra, pers. comm.). Plumages of *H. cantator* also vary among populations, and species limits within *Hypocnemis* are being reconsidered (M. and P. Isler, pers. comm.). Further analyses using vocalizations, morphology, distribution, or molecular analyses may help to determine whether egg color variation is simply polymorphic variation or the result of some deeper evolutionary history.

Phlegopsis nigromaculata.—The Black-spotted Bare-eye, a “professional” ant-follower (Willis 1979), is a common attendant of ant swarms in open degraded and seasonally flooded forests at the CIEM, but is apparently absent from mature terra firme forests. On 30 June 1999 we observed two individuals carrying nest material in seasonally flooded forest and by 5 July the nest had been completed and contained two eggs. The nest was placed inside a 10 cm deep hollow rotten stump next to a small stream, 1 m above the ground (Fig.

1A). The cavity entrance was partially covered by leaves of an epiphytic aroid. The open cup nest was constructed of dry bamboo leaves and lined with small plant fibers. The eggs were vinaceous, heavily streaked, and spotted with purple (Fig. 1B); one measured 25.4×20.6 mm. Because the species is monomorphic, we were unable to determine if both sexes incubated but we observed at least two individuals near the nest during incubation. One egg hatched on 16 July, the other the next day. The chicks were completely naked and had yellow bill commissures (Fig. 1C). After heavy rains during the night of 17 July the stump broke apart and the nestlings disappeared. Subsequently, we collected the nest and deposited it in the ornithological collection of the Instituto de Ciencias Naturales, Universidad Nacional de Colombia (ICN nest collection catalog #140).

Our observations on the microhabitat nest placement, nest architecture, and eggs of the Black-spotted Bare-eye are consistent with the scanty information from other parts of this species range. In southeast Peru, C. Munn [cited in Hilty and Brown (1986)] found two barely lined nests 0.3 and 0.5 m up in hollow tops of tree stumps.

Hylophylax poecilinota duidae or *lepidonota* (subspecies undetermined).—The Scale-backed Antbird is found regularly in mature terra firme forests, rarely in open degraded forests, and is absent from seasonally flooded forests at the CIEM. In recent years we found two nests of this species, both in mature terra firme forest. The first, found on 3 August 1996, was cup-shaped and located among the bases of the leaves of a live understory palm about 50 cm above the ground. It contained two pinkish white eggs with purple streaks and spots more concentrated on the large end. We observed both male and female incubating. The eggs had hatched by 5 August. The nestlings were completely naked and had yellow bills. We made no further observations on this nest.

We located a second nest on 20 April 1999 and observed it until 5 May. It was inconspicuously placed inside a $8.2 \times 5.3 \times 11.5$ cm deep natural cavity in a live tree 22 cm above the ground (Fig. 1D). The cavity was wider inside than at the entrance and deeper than the base of the nest, but was full of de-



FIG 1. Antbird nests, eggs, and young found at the Centro de Investigaciones Ecológicas Macarena (all photographs by Gustavo A. Londoño). (A) Nest of the Black-spotted Bare-eye (*Phlegopsis nigromaculata*). (B) Eggs of the Black-spotted Bare-eye. (C) Black-spotted Bare-eye hatchlings. (D) Cavity containing a nest of the Scale-backed Antbird (*Hylophylax poecilinota*). (E) Eggs of the Scale-backed Antbird. (F) Scale-backed Antbird hatchlings. (G) Ten day old Scale-backed Antbird nestlings. (H) Nest of the Amazonian Streaked-Antwren (*Myrmotherula multostriata*). Photos are not to scale so size comparisons should not be made; see text for measurements. Color photographs in jpg format are available from the authors upon request via e-mail.

composing leaves. The entrance was partially covered by ferns and other understory plants. The 11.5×9.5 cm open cup-shaped nest was made of dry fibers and pieces of dry palm leaves. It contained two pinkish eggs heavily streaked and spotted with purple (Fig. 1E) that measured 19.1×15.2 mm and 19.0×14.7 mm. On the morning of 24 April, we found two hatchlings in the nest (Fig. 1F). The hatchlings' eyes were closed and their naked

skin was grayish above and reddish below; the bill and soft palate were yellow. Three days after hatching, feather sheaths appeared on the wings and by days four and five on the head and back. By the tenth day, the chicks had their eyes completely open and were covered by gray down with two buffy wing bars (Fig. 1G). The nestlings were observed on the early morning of 5 May but by midday they were no longer in the nest. We could not determine

if they fledged or if they were taken by a predator. Both male and female incubated the eggs and fed the chicks, but only the male was observed brooding them. We collected the nest after it was abandoned and deposited it in the ICN ornithological collection (catalog #139).

Nests have been reported from Pará, Brazil for *H. p. vidua* (Snethlage 1935, Pinto 1953) and French Guiana for *H. p. poecilinota* (Tostain et al. 1992). Plumages of *H. p. poecilinota*, especially those of the female, vary substantially among populations (Hellmayr 1929) yet the nests and eggs of the northwestern Amazonian form (*H. p. duidae* or *H. p. lepidonota*) appear to be similar to those from other populations.

Myrmotherula multostriata.—The Amazonian Streaked-Antwren was formerly considered a subspecies of *M. surinamensis*, but recent analyses of vocal characters, morphology, and distribution indicate that species status is merited (Isler et al. 1999). The English names proposed by Isler and coworkers (1999) were inadvertently reversed and *M. multostriata* should be the Amazonian Streaked-Antwren whereas *M. surinamensis* should be the Guianan Streaked-Antwren (M. and P. Isler, pers. comm.). At the CIEM *M. multostriata* is common in seasonally flooded forest, especially in the dense vegetation close to the bank of Rio Duda. On 4 July 1999 a male Amazonian Streaked-Antwren flushed by a Black Curassow (*Crax alector*) revealed the location of a nest about 40 m from the river bank. After being flushed, the bird sang its characteristic loudsong, confirming our initial species identification. The pouch-shaped pensile nest was firmly attached to two branches of a 40 cm tall seedling (Fig. 1H). Measurements of the nest were: external dimensions 80 × 65 mm, internal dimensions 52.5 × 38.6 mm, outside height 150 mm, depth 70 mm. The nest was composed of dry leaves (mostly *Heliconia* spp.), mosses, and thin plant fibers and contained one white egg spotted and streaked with purple. Five days later, the egg was gone, probably taken by a predator. We deposited the nest in the ICN ornithological collection (catalog #138).

Egg coloration in *M. multostriata* appears to be variable. The egg we found at the CIEM is similar to eggs of this species found in Pará, Brazil (white with brownish purple sprinkles

and spots, Pinto 1953), but differs in coloration from other eggs from that same locality (white with black spots, Snethlage 1935). It is also different from the eggs of the Pacific Antwren (*M. pacifica*, formerly considered conspecific with *M. multostriata*), which are grayish white heavily speckled, mottled, and washed with shades of cinnamon-brown, with a heavier wreath around the large end in Panama (Stone 1918) or white with a faint tint of buff, spotted heavily on the larger end with dark brown in Antioquia, Colombia (Wetmore 1972).

Chamaeza nobilis.—The Striated Antthrush is rare at the CIEM, having been recorded only a few times during several years of field work. On 20 June 1997 we captured an adult Striated Antthrush in a mist net in mature terra firme forest. While taking the bird out of the net, another individual called constantly from inside a natural cavity in a tree next to the mist net. The following day, we inspected the cavity but the calling bird, a juvenile Striated Antthrush, was outside on the ground and continued to vocalize persistently. It resembled the adult but had yellow bill commissures and the rectrices were not yet fully grown. When we approached the bird, which was noticeably stressed by our presence, it did not attempt to fly but walked away, indicating that perhaps its wings were not yet suited for sustained flight. The nest cavity was 30 cm deep and located in a live tree approximately 3 m above the ground. Inside we found some feathers but no egg shells, plant fibers, leaves, or any other sign of a nest.

Relatively little is known about the nesting of species in the genus *Chamaeza*. As with the Striated Antthrush, the Rufous-tailed Antthrush (*C. ruficauda*; K. Zyskowski, pers. comm.) and Short-tailed Antthrush (*C. campanisona*; Bertoni 1901, Canevari et al. 1991) nest in natural tree cavities close to the ground. However, these species build a nest, typically a loose platform of dry leaves and fungal rhizomorphs.

Based on our observations and those of other researchers, geographic variation appears to be widespread in antbird egg coloration. It is important for studies of evolution and natural history that researchers determine the extent of this variation (see Sheldon and Winkler

1999) and continue to publish their observations and collect reference material.

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LITERATURE CITED

- BERTONI, A. DE W. 1901. Aves nuevas del Paraguay. *Anal. Cient. Parag.* 1:1–216.
- CADENA, C. D., M. ALVAREZ, J. L. PARRA, I. JIMÉNEZ, C. A. MEJÍA, M. SANTAMARÍA, A. M. FRANCO, C. A. BOTERO, G. D. MEJÍA, A. M. UMAÑA, A. CALIXTO, J. ALDANA, AND G. A. LONDOÑO. 2000. The birds of CIEM, Tinigua National Park, Colombia: an overview of thirteen years of ornithological research. *Cotinga* 13:46–54.
- CANEVARI, M., P. CANEVARI, G. R. CARRIZO, G. HARRIS, J. R. MATA, AND R. J. STRANECK. 1991. Nueva guía de las aves Argentinas. Fundación Acindar, Buenos Aires, Argentina.
- HELLMAYR, C. E. 1929. On heterogynism in Formicarian birds. *J. Ornithol.* 1929:41–70.
- HILTY, S. L. AND W. L. BROWN. 1986. A guide to the birds of Colombia. Princeton Univ. Press, Princeton, New Jersey.
- ISLER, M. L., P. R. ISLER, AND B. M. WHITNEY. 1997. Biogeography and systematics of the *Thamnophilus punctatus* (Thamnophilidae) complex. *Ornithol. Monogr.* 48:355–381.
- ISLER, M. L., P. R. ISLER, AND B. M. WHITNEY. 1998. Use of vocalizations to establish species limits in antbirds (Passeriformes:Thamnophilidae). *Auk* 115:577–590.
- ISLER, M. L., P. R. ISLER, AND B. M. WHITNEY. 1999. Species limits in antbirds (Passeriformes: Thamnophilidae): the *Myrmotherula surinamensis* complex. *Auk* 116:83–96.
- ONIKI, Y. AND E. O. WILLIS. 1982. Breeding records of birds from Manaus, Brazil: Formicariidae to Pipridae. *Rev. Brasil Biol.* 42:563–569.
- PINTO, O. 1953. Sobre a coleção Carlos Estevão de peles, ninhos e ovos das aves de Belém (Pará). *Pap. Avulsos Depto. Zool. (São Paulo)* 11:111–222.
- SHELDON, F. H. AND D. W. WINKLER. 1999. Nest architecture and avian systematics. *Auk* 116:875–877.
- SNETHLAGE, E. 1935. Beiträge zur Fortpflanzungsbiologie brasilianischer Vögel. *J. Ornithol.* 83:532–562.
- STEVENSON, P. R., M. C. CASTELLANOS, AND A. P. MEDINA. 1999. Elementos arbóreos de los bosques de un plano inundable en el Parque Nacional Natural Tinigua, Colombia. *Caldasia* 21:38–49.
- STEVENSON, P. R., M. J. QUIÑONES, AND J. AHUMADA. 1994. Ecological strategies of woolly monkeys (*Lagothrix lagotricha*) at Tinigua National Park, Colombia. *Am. J. Primatol.* 32:123–140.
- STONE, W. 1918. Birds of the Panama Canal Zone, with special reference to a collection made by Mr. Lindsey L. Jewel. *Proc. Acad. Nat. Sci. Philadelphia* 70:239–280.
- TOSTAIN, O., J.-L. DUJARDIN, C. ÉRARD, AND J.-M. THIOLLAY. 1992. Oiseaux de Guyane. Société d'Etudes Ornithologiques, Brunoy, France.
- WETMORE, A. 1972. The birds of the Republic of Panamá. Part 3. Smithsonian Institution Press, Washington, D.C.
- WILLIS, E. O. 1979. Comportamento e ecologia da mãe-de-taoca, *Phlegopsis nigromaculata* (d'Orbigny & Lafresnaye) (Aves, Formicariidae). *Rev. Brasil Biol.* 39:117–159.
- ZYSKOWSKI, K. AND R. O. PRUM. 1999. Phylogenetic analysis of the nest architecture of Neotropical ovenbirds (Furnariidae). *Auk* 116:891–911.