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Notes on the nesting of six species of birds in eastern Ecuador

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Summary.—I present new information on the breeding biology of six bird species found in the Ecuadorian Amazon. I describe, for the first time, the nests of Oleaginous Hemispingus *Sphenopsis frontalis* and Black-eared Hemispingus *S. melanotis*, as well as providing the first descriptions of the eggs of Black-eared Hemispingus, Streak-headed Antbird *Drymophila striaticeps*, Mottle-backed Elaenia *Elaenia gigas* and Casqued Cacique *Cacicus oseryi*. I also provide the first detailed nest description for Black-banded Crake *Anurolimnas fasciatus*, and correct previous descriptions of its eggs.

Numerous authors have pointed out the dearth of published information on the reproductive biology of Neotropical birds (Marini *et al*. 2010, Heming *et al*. 2013, Xiao *et al*. 2017, Matta-Pereira *et al*. 2021). As pointed out by Kirwan (2011), valuable contributions can be made by anyone willing to gather and report information on even the most basic aspects of breeding biology, such as the description of nests and eggs. Here I present observations on the breeding of six species of poorly studied birds in Napo province, eastern Ecuador.

I recorded the following information at three locations in north-east Ecuador, at the extreme western edge of Amazonia. The lowest-elevation site was in the vicinity of Gareno Lodge, at *c*.350 m on the right (south) bank of the Napo River (01°01′49.8″S, 77°23′29.3″W; hereafter Gareno). The forest there is largely intact *terra firme*, typical of the Ecuadorian portion of western Amazonia (Valencia *et al*. 2004). Upstream from there, also on the right bank of the Napo, I found several nests in a large floodplain adjacent to the river, near the town of Ahuano, at *c*.375 m (01°01′57.4″S, 77°35′11.7″W; Ahuano). This area is generally flat and rocky, with patches of regenerating vegetation dominated by *Gynerium* cane, *Cecropia* trees and *Calliandra* shrubs. West of these locations I studied nests at Yanayacu Biological Station (00°35′55.30″S, 77°53′25.27″W; Yanayacu), just outside the town of Cosanga, at *c*.2,050 m. Habitat is humid montane cloud forest mixed with patches of second-growth colonising *Chusquea* bamboo, as is typical of this region on the east slope of the Andes (Gelis & Greeney 2006, Greeney *et al*. 2006).

BLACK-BANDED CRAKE *Anurolimnas fasciatus*

I found three active nests (Fig. 1a) at Ahuano, all in dense stands of *Gynerium* cane. The first contained a single cold egg at 07.30 h on 27 February 2011, and the following day at 12.45 h held two eggs, at which time I measured and weighed both. I found another nest, empty, on 5 February 2013, but when I returned on 18 February it contained two eggs that were just beginning to show signs of a developing embryo when held up to the light. Two additional nests, found on 26 February 2011 and 19 February 2013, were already well formed but empty and small amounts of material were added over the course of several days of observation. All nests were globular, enclosed structures, with a lateral side entrance in the bottom half of one side, and a platform-like lip that extended outward from these entrances (hereafter termed ‘runway’). Nests comprised dead vegetative materials, mostly long pale,

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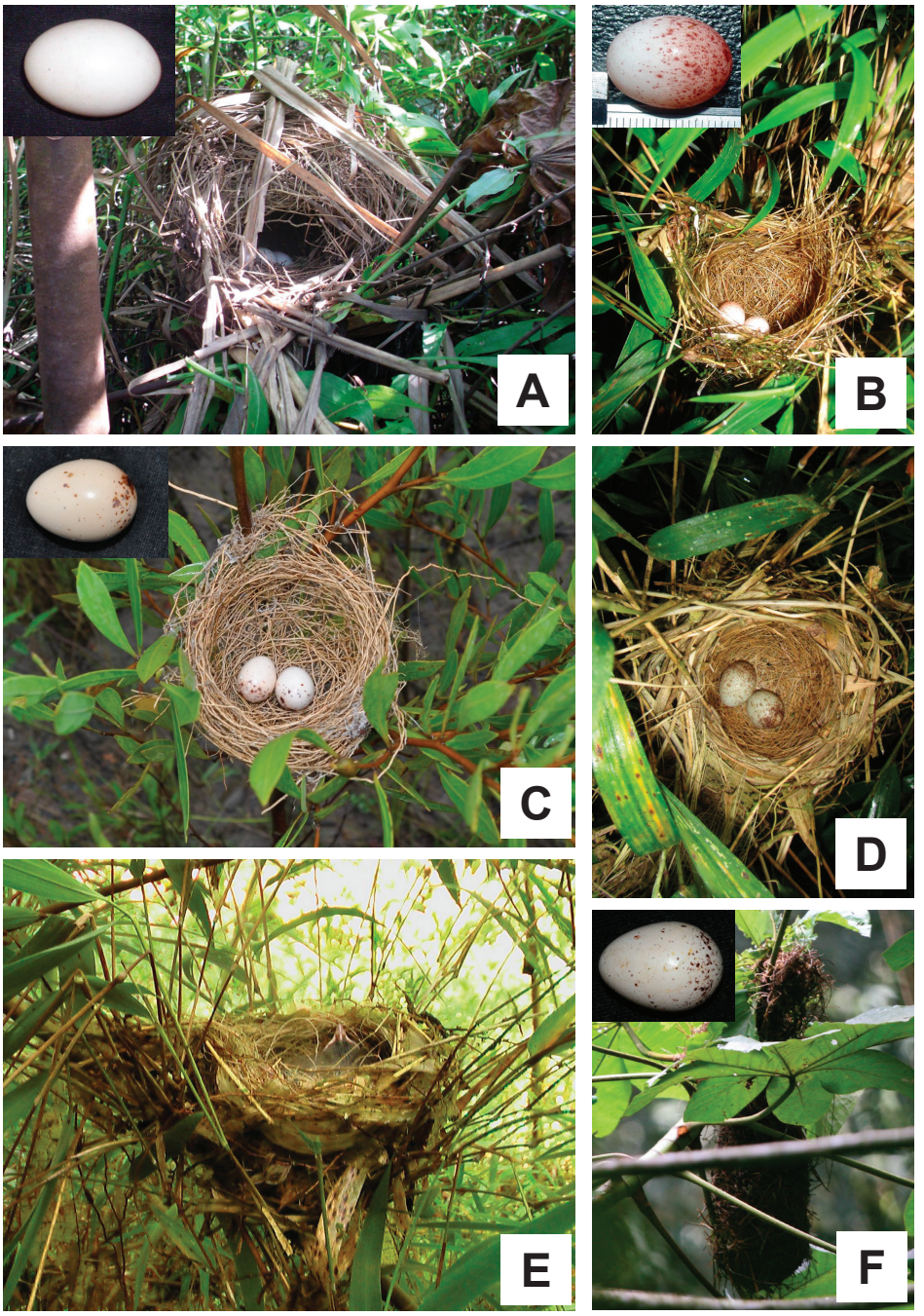

Figure 1. (A) Black-banded Crake *Anurolimnas fasciatus* nest with two eggs, Ahuano, Napo province, Ecuador, February 2013, with inset of one egg in upper left (Harold F. Greeney). (B) Streak-headed Antbird *Drymophila striaticeps* nest with two eggs, Yanayacu, Napo province, Ecuador, June 2006, inset of one egg in upper left (Harold F. Greeney). (C) Mottle-backed Elaenia *Elaenia gigas* nest with two eggs, Ahuano, Napo province, Ecuador, November 2012, with inset of one egg in upper left (Harold F. Greeney). (D) Black-eared Hemispingus *Sphenopsis melanotis* nest with two eggs, Yanayacu, Napo province, Ecuador, February 2014 (Harold F. Greeney). (E) Oleaginous Hemispingus *Sphenopsis frontalis* nest with two nestlings, Yanayacu, Napo province, Ecuador, July 2009 (Jose Simbaña). (F) Casqued Cacique *Cacicus oseryi* nest with one egg (inset upper left), Gareno, Napo province, Ecuador, February 2013 (Harold F. Greeney)

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straw-like grass stems, interwoven with long pieces of *Gynerium* leaves and some flexible rootlets. Internally, there was little differentiable lining to the egg cup, although this portion entirely composed thinner, more flexible materials that created a soft lining. The runway tended to comprise coarser materials, but it was not always possible to distinguish between materials brought by the adult(s) and those accumulated naturally. Measurements (cm) of the four nests were: external width perpendicular to entrance, 20.0, 22.0, 20.5, 20.0; external width front to back, 19, 20, 19, 19; external height, 20, 21, 23, 18; entrance width, 8.0, 4.5, 5.0, 10.0; entrance height, 5.0, 5.0, 5.5, 5.5; runway width, 19, 12, 14, 13; runway length, 10, 40, 35, 11. I measured the internal dimensions of only two nests (cm): width perpendicular to entrance, 14, 12; width front to back, 12, 11; chamber height 9.5, 11.0. Nests were built 0.5 m, 0.9 m, 1.4 m and 2.0 m above ground, respectively. The bulk of all four nests was supported by crisscrossing stems of partially fallen *Gynerium* canes. In two cases these supports appeared to have already accumulated some leaf litter prior to construction of the nests. Two nests had the entrance runways supported by accumulated litter and two had runways supported by small branches of *Calliandra* shrubs. All eggs were elongate subelliptical and immaculate white. Those of the first clutch, measured on the day of clutch completion, were 38.5 × 25.4 mm and 37.8 × 25.9 mm, mass 13.4 g and 13.7 g, respectively. The slightly developed eggs of the second clutch measured 36.0 × 25.5 mm and 37.0 × 25.3 mm, mass 12.5 g and 12.7 g, respectively. Adults were extremely wary around their nests, and when flushed they dropped immediately to the ground and disappeared from view. I was able confirm their identify only by placing a tripod-mounted video camera near the nests to capture their return to incubate.

The only previously available description of the nest of this species was of a single 'bulky, grassy, domed nest with side entrance [placed] 1.7 m up on vine-covered fallen limb' (Hilty & Brown 1986). This agrees with the more detailed descriptions provided here. Previous descriptions of the eggs (Nehrkorn 1899, Schönwetter & Meise 1962), however, are notably divergent and, as I confirmed the species involved with video, have been almost certainly erroneously associated with Black-banded Crake. These authors described eggs as cream or beige-coloured, with lavender and dark brown markings, and Schönwetter & Meise (1962) gave their measurements (mm) as: 31.2 × 23.0; 31.2 × 22.0; 29.8 × 23.0; 31.6 × 22.9. Unfortunately, these descriptions are not accompanied by details that might provide concrete clues as to the species involved. Of the three species currently included in *Anurolimnas* (Clements *et al*. 2021), the nest and eggs of *A. fasciatus* are very similar to those of Russet-crowned Crake *A. viridis*, but markedly different from those of Chestnut-headed Crake *A. castaneiceps* (Buitrón-Jurado *et al*. 2011). Such differences suggest that, despite recent advances in knowledge of phylogenetic relationships within the Rallidae (Garcia-R. *et al*. 2020), further reorganisation may be called for.

STREAK-HEADED ANTBIRD *Drymophila striaticeps occidentalis*

I found a nest (Fig. 1b) at Yanayacu on 6 June 2006, built 1.1 m above ground *c*.1.5 m from the edge of a trail through a large patch of *Chusquea* cf. *scandens* bamboo. At 14:30 h the nest contained a single, cold, undeveloped egg. I checked the nest again at 17:45 h the next day and at 05:45 h on 8 June, when again the egg was cold to the touch. On the latter date the egg was covered with small droplets of dew, suggesting that no adult had spent the night on the nest. The second egg was laid prior to my next visit, at 09:30 h the same day, indicating that at least one day is skipped between egg laying. I measured and weighed the eggs at 17.00 h on 8 June. They were white but had a very pale salmon cast probably due to the incompletely calcified state of their shells. They were flecked and speckled cinnamon, with increasingly dense markings toward the large pole, where they created a nearly uniform cinnamon cap.

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The eggs measured 18.8 × 14.9 mm and 18.6 × 13.8 mm, and weighed 1.98 g and 1.95 g, respectively. The nest was a rim-suspended open cup, typical of the genus (Zimmer & Isler 2003). It was attached at multiple points around the rim to many leaf petioles, from two separate rosettes of leaves arising from two parallel bamboo stems. The bulk of the nest comprised pale, thin interwoven bamboo leaf petioles. Internally, the nest was neatly lined with fine, pale, flexible fibres. A few dead, damp leaves (dicot and bamboo), along with a small amount of green, stringy moss were intermixed with the walls of the nest and sparsely decorated their outside. These materials, particularly the moss, appeared to be those used to attach the nest to the supporting bamboo petioles. Additionally, the thin layer of moss, which also dangled below the structure, provided the nest with the overall appearance of a clump of naturally accumulated detritus. The nest's dimensions were: outer height, 8 cm (not including the 6–7 cm 'tail' of moss below); outer diameter 7.5 cm; inner depth, 5.5 cm; inner diameter, 5 cm. This appears to be only the second described nest of this species (Gelis & Greeney 2006) and the first description of its eggs.

MOTTLE-BACKED ELAENIA *Elaenia gigas*

At Ahuano, I found a nest (Fig. 1c) containing two partially incubated eggs on 12 November 2012. The nest was in an area of the river floodplain dominated by *Gynerium* cane and small shrubs, mostly smaller than 4 m tall, but with scattered trees reaching 6–8 m. It was sited 1.4 m above ground in a three-branched forking of the stem of a 1.7 m-tall *Tessaria* sapling. The simple, open-cup nest was attached to the supporting arms of the fork, which were 3, 5 and 6 mm in diameter. The supporting stem, just below the fork, was 8 mm in diameter. The nest was composed almost entirely of pale rootlets interwoven and wrapped circularly, such that some of them passed around the supporting branches. The nest was additionally bound to the supports with small amounts of arthropod silk. There was no differentiable lining and no external decoration (i.e., lichen, moss, etc.). The nest's measurements were: outer height, 6 cm, with a few loose rootlets hanging up to 5 cm below the nest; outer diameter, 8.5 cm; cup depth, 4 cm; inner diameter, 6 cm; inner cup depth, 4 cm. The eggs were pale buff, with scattered pale lavender and dark cinnamon blotches and small spots forming a loose ring around the larger pole. They measured 22.0 × 16.9 mm and 21.9 × 16.4 mm, and weighed 3.05 g and 2.82 g, respectively. Although the nest of Mottle-backed Elaenia had been described previously (Stawarczyk *et al*. 2009), this is the first available information on its eggs.

OLEAGINOUS HEMISPINGUS *Sphenopsis frontalis frontalis*

I found two nests (Fig. 1d) at Yanayacu, the first on 9 September 2001 containing a single well-feathered nestling, the second on 6 July 2009 with two young nestlings. They were built 1.6 m and 2.0 m above ground, respectively, both within large (≥0.5 ha) dense patches of *Chusquea* cf. *scandens* bamboo. The nests were open cups constructed of bamboo leaves, bamboo petioles and fine flexible fibres, woven loosely together with rootlets and small vines. They both rested atop angled bamboo stems, at the point where a cluster of leaves sprouted. Only a few of the supporting leaf petioles were woven into the nests, making them poorly attached to the substrate. Their inner cups were lined with very fine, pale, flexible plant fibres. One nest measured 12.5 cm wide by 8.5 cm tall externally, and the inner cup 4.0 cm wide by 4.5 cm deep. The two nestlings in the second nest had pinkish-orange skin, their eyes closed, and a sparse covering of long, wispy grey natal down. Their bills were coloured similarly to their skin, slightly dusky at the tip of the maxilla, around the base of a bright white egg tooth. The inflated rictal flanges and tomia were bright white, the

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mouth lining mostly dark red, but graded to yellow-orange centrally. This appears to be the first published description of this species' nest and nestlings.

BLACK-EARED HEMISPINGUS *Sphenopsis melanotis melanotis*

I found two nests at Yanayacu, the first on 6 April 2009 containing two young nestlings, the second on 21 February 2014 with two eggs. They were sited 1.6 m and 2.6 m above ground and were extremely similar to the nests of Oleaginous Hemispingus in habitat, form, placement, size and composition. One measured 14 cm wide by 9 cm tall externally, with an inner cup 4.5 cm wide by 5.0 cm deep. The two nestlings were perhaps only a day or two older than those of *S. frontalis* described above. They were just starting to show dark grey flecks of subcutaneous contour feather development on the wings and dorsal feather tracts, but were otherwise indistinguishable from the nestlings of *S. frontalis*. The two eggs were very pale blue, with light brown and dark cinnamon spotting and flecking concentrated near the larger pole. They measured 19 × 16 mm, 2.4 g and 20 × 16 mm, 2.6 g. This appears to be the first published description of the nest, eggs and nestlings of this species.

CASQUED CACIQUE *Cacicus oseryi*

I discovered an active colony near Gareno on 12 February 2013. It was sited in six *Cecropia* trees, ranging in height from 10 to 20 m, growing within a small light gap in mature forest. The nests themselves, 13 in all, ranged in height from 6–15 m above ground. When I visited the colony on 24 and 25 February, the birds were silent as I approached, but on both visits I flushed adults from eight of the 13 nests. I was able to access one of the nests, in which I found a single, well-incubated egg that measured 29.4 × 21.3 mm and weighed 6.5 g. It was white, with sparse pale lavender and dark cinnamon blotches and small speckles, concentrated at the larger pole. Although the nest and breeding system of Casqued Cacique have been studied previously (Koepcke 1972, Leak & Robinson 1989), this appears to be the first description of this species' egg.

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