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Notes on the natural history of the Crescent-faced Antpitta.—The Neotropical antpittas (Formicariidae) are renowned for being secretive and poorly known, and the Crescent-faced Antpitta (*Grallaricula lineifrons*) remains the most enigmatic of its genus. Prior to our recent Ecuadorian avifaunal investigations, this boldly marked antpitta was known from only the type locality, Oyacachi, Prov. Napo, on the east slope of the Andes in Ecuador (Chapman 1924), and from two records from Puracé National Park, Depto. Cauca, on the west slope of the Central Andes in Colombia (Lehmann V. et al. 1977). Our observations substantially add to the knowledge of this species' natural history and dramatically increase its known range.

Distribution and status.—On 19 August 1991, Ridgely and Sornoza encountered a female (ANSP 184002) north of Taday, Prov. Cañar, in humid temperate forest at ca 3000 m elevation (02°34′S, 78°43′W; Fig. 1). In 1992, *G. lineifrons* was found at two additional localities along the eastern slope of the Ecuadorian Andes (Fig. 1). From 14–24 March, it was fairly common between 3225 and 3400 m in humid, temperate forest along the western slope of Cerro Mongus in extreme eastern Carchi (00°27′N, 77°52′W; Robbins et al., in press). During a brief period of fieldwork, 28 March–1 April, in the Cordillera de Cordoncillo, Prov. Loja (03°41′S, 79°13′W; Fig. 1), Robbins, Rosenberg, and Sornoza located three birds at 3100 m in disturbed montane forest connected to primary forest. At this latter locality, Krabbe heard birds singing on 2 September and 6 November 1992.

The fact that only four of eighteen individuals have been located without the aid of voice or the use of mist-nets attests to why this fairly common antpitta has been overlooked. It is now apparent that *G. lineifrons* is distributed widely between 3000 and 3400 m along much of the eastern Ecuadorian Andes from near the Colombian border (undoubtedly it occurs along the adjacent eastern slope in Colombia) south at least to northern Loja. Historically, the upper Río Zamora may have been a barrier to this species' dispersing farther south, as Parker et al. (1985) failed to find it in northern Peru. Despite "trolling" with prerecorded tapes Robbins, Ridgely, and Sornoza did not encounter it in the Cordillera Lagunillas (04°47′S, 79°24′W) in extreme southern Ecuador in 1992 (ANSP/MECN, unpubl. data). The Río Zamora appears to be a barrier to the dispersal of other montane avian taxa, e.g., *Oreotrochilus* complex, *Metallura odomae/M. baroni,* and *Anairetes agilis.*

At the Cerro Mongus locality, nine individuals (6 specimens; 5 study skins, 1 skeleton; ANSP, MECN) were recorded along ca 3 km of forest trails. Three birds (presumed pair,

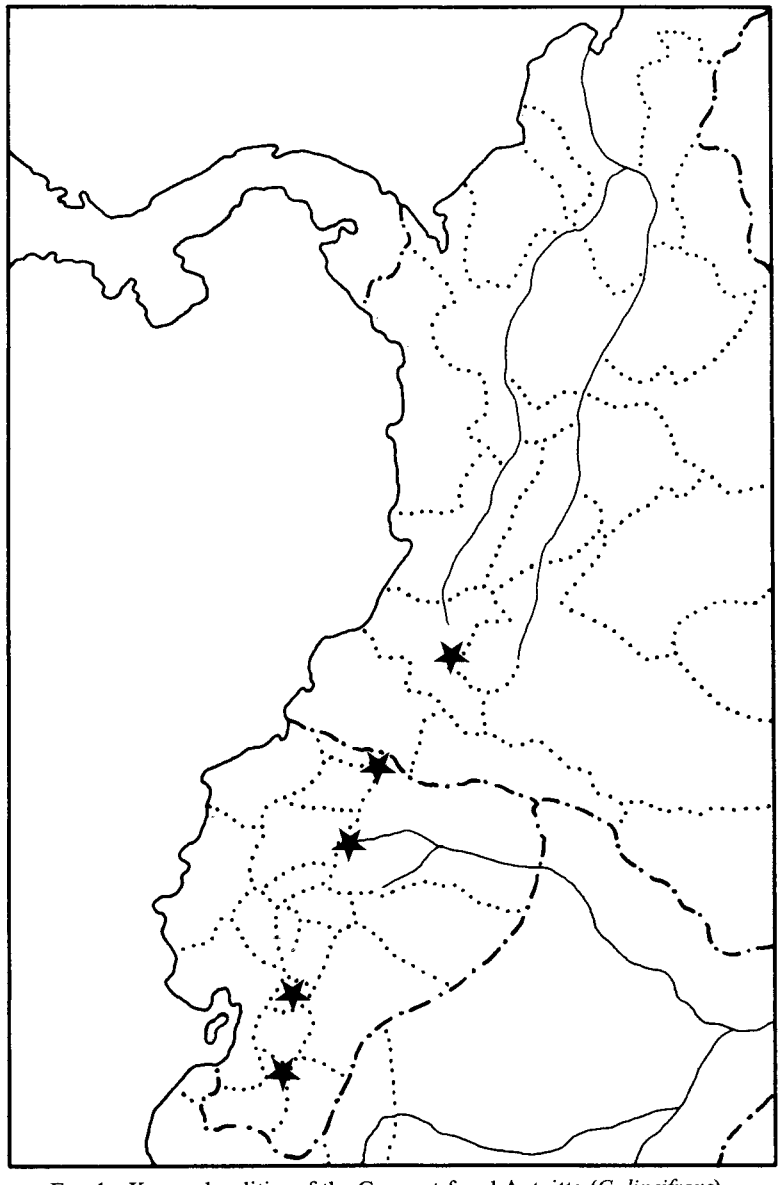

FIG. 1 Known localities of the Crescent-faced Antpitta (*G. lineifrons*).

ANSP 184707-8, and another singing individual) were located along ca 2 km of disturbed forest trail at the Cord. Cordoncillo site. We believe that the above antpitta numbers are underestimates because we worked these areas outside the peak of the breeding season (see below), when we presume this antpitta vocalizes more frequently.

This species was encountered principally in dense understory in ravines of taller, undisturbed forest, although two individuals were encountered in secondary forest connected to primary forest. Birds invariably were seen perched on moss-laden tree limbs and bamboo vines 1–4 m above the ground. Wing-flicking individuals responding to tape playback were seen making short flights, usually less than 1 m, between perches. Birds rarely perched on any limb for more than a few seconds, occasionally clinging sideways to mossy limbs and vines as is typical of the species' congeners. After tape playback, birds occasionally perched for up to 20 seconds on horizontal limbs. Although bamboo (*Chusquea* sp.) was conspicuous in most birds' territories, there were no dense stands of it, and in a couple of territories it was scare.

Morphology.—Based on our series of six adult specimens (4 males, 2 females; none with bursa; skull ossification >90%) there is no obvious sexual dimorphism. In addition, an immature male (ANSP 184706) and female (ANSP 184002) that had skull ossifications of 75%, 70%, respectively, and bursa (4 × 3, 3 × 2 mm, respectively) are indistinguishable in plumage from the five adult birds. Only the subtropical Ochre-fronted Antpitta (*G. ochraceifrons*) and Peruvian Antpitta (*G. peruviana*) are sexually dimorphic in this genus (Graves et al. 1983; Parker et al. 1985). However, a juvenile male specimen (ANSP 184703; bursa 4 × 4 mm; sk. oss. 20%) differs from the adults in the following characters: its hindcrown and nape feathers are a fluffy, dull reddish-brown, quite similar to juveniles of other *Grallariculas* (e.g., ANSP specimens of Ochre-breasted Antpitta [*G. flavirostris*]). The olive-green back and the streaked underparts also are mixed with a few of the dull reddish-brown feathers. The abdomen is lightly washed with buff.

From our relatively small sample size (N = 9), males do not differ significantly from females in culmen, wing and tail length, nor in mass (2-tailed, *t*-test; $P < 0.05$). Pooled sexes gave the following means (± SD) in mm: bill (culmen from base), 16.2 (± 0.5); wing (chord), 77.1 (± 1.7); tail (central rectrix), 37.7 (± 1.3); tarsus, 27.8 (± 0.4); and mass (g), 21.1 (± 0.7).

Soft-part colors of the eight adult plumaged specimens were described by the preparators as: irides brown or dark brown; bill black or with extreme base of mandible pallid yellow; tarsi and feet gray, bluish-gray, purplish-gray, or vinaceous gray.

Vocalizations and breeding condition.—Adult males were recorded giving a slightly ascending series of closely spaced notes (Fig. 2A). One male recorded under natural conditions consistently gave 21 notes per song bout, whereas males responding to playback gave 13 to 15 notes per bout. The duration of the male's song under natural conditions was ca 3.5 seconds, with a frequency range of 2.6 to 3.9 kHz. An adult female (ANSP 184707) gave the primary song after her presumed mate was collected. Both sexes gave a single-noted, slightly down-slurred whistle (Fig. 2C); this call note is similar to that given by *G. flavirostris* (Robbins and Ridgely 1990). On 22 March 1992, at the Cerro Mongus site, Krabbe and Sornoza observed and recorded a juvenile male (ANSP 184703) give a song that is similar to the adult's song, except that the notes were more raspy and much lower in frequency (Fig. 2B)

Unsolicitated singing was very sporadic and primarily restricted to brief periods (1–2 songs) in the early morning and at dusk at the Cerro Mongus and the Cord. Cordoncillo sites. Birds responding to tape playback silently approached and sang only occasionally. The relatively low level of song delivery, the gonad information (lg. testis was 4 × 2 mm; lg. ovum 1 mm), molt stage (adults were either molting or in fresh plumage), and the presence of a juvenile and two immatures indicate that the primary breeding season occurred prior to our March work at Cerro Mongus and the Cord. Cordoncillo. Using a prerecorded tape Ridgely, Sornoza, P. Greenfield, and T. Davis were able to stimulate two individuals to sing on 13 June 1992 at the Cerro Mongus site. Bret Whitney failed to hear this species, without

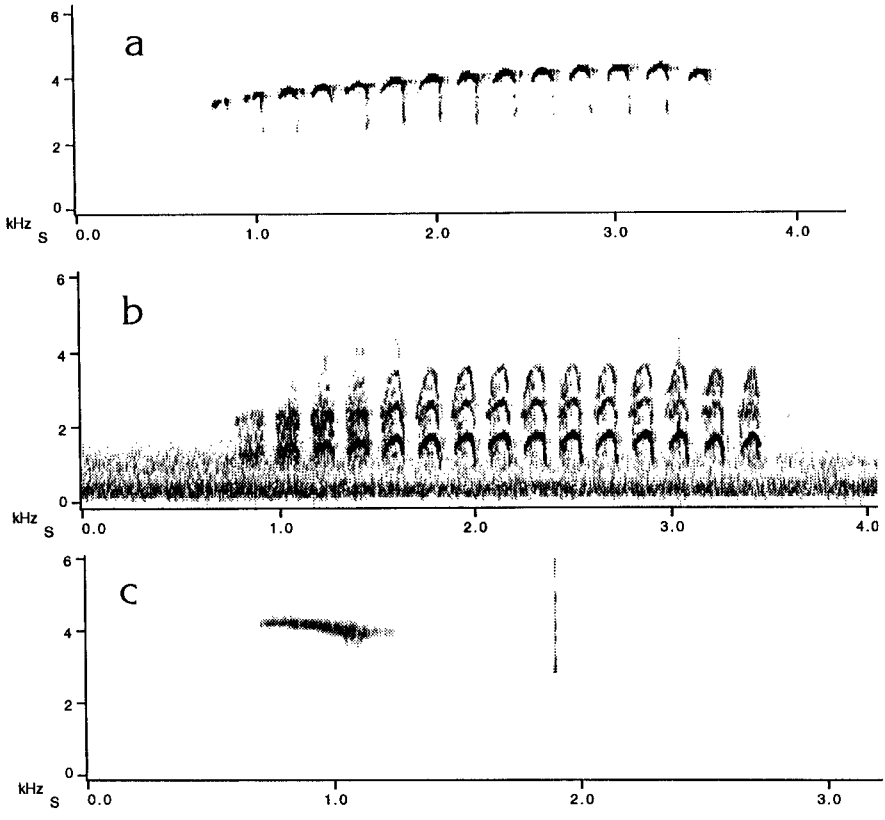

FIG. 2. Spectrograms of *Grallaricula lineifrons*' vocalizations. A) adult male song, 14 March 1992, recorded by M. B. Robbins; B) juvenile male song, 22 March 1992, recorded by N. Krabbe and F. Sornoza, the top two series of dark figures are harmonics; C) call note, 30 July 1992, recorded by B. M. Whitney. All recordings were made after playback at Cerro Mongus, Prov. Carchi, Ecuador.

the use of a prerecorded tape, during a visit to Cerro Mongus on 30 July 1992. The area was very dry during his visit, and the local people related that they badly needed rain.

Based on the August Cañar bird's skull ossification (70%) and the presence of a bursa (3 × 2 mm), as compared to a March bird from Cerro Mongus (ANSP 184002) with similar ageing characteristics, it appears that the Cañar bird fledged a few months after the Cerro Mongus individual. As with many temperate zone inhabiting species, *G. lineifrons*' breeding season appears to be correlated positively with the season of greatest rainfall, i.e., from Oct./Nov. to Jan./Feb.

Diet.—The stomach contents of all nine specimens contained insect fragments. Identified stomach contents of three adults were as follows. Cerro Mongus male (ANSP 184705): beetle fragments (Coleoptera), including at least two adult weevils (Curculionidae) and a large beetle larva (not Curculionidae); Cerro Mongus male (ANSP 184704): one Homoptera

(probably Membracidae), one Coleoptera larva (probably Elateridae), one adult Curculionidae, two adult rove beetles (Staphylinidae), one probable leaf beetle (Chrysomelidae, Orsodacninae), and a spider; Cord. Cordoncillo female (ANSP 184707): arthropod fragments including at least two species of Hymenoptera (probably Ichnemonidae), several true weevils (Curculionidae), two fungus weevils (Anthribidae), one small beetle larva, two spiders, and a true bug (Hemiptera).

Relationships.—We are reluctant to suggest systematic relationships of *G. lineifrons* with other *Grallariculas,* because *lineifrons'* plumage and elevational distribution are unique, and the song is not known for *G. peruviana* and *G. ochraceifrons.* Now that tissue samples are available for almost all the taxa, applying biochemical techniques might resolve the relationships in this enigmatic group.

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