

from 13°C to 26°C; wind velocities from 1 to 5 m/s. I watched Starlings foraging in short grass (<6 cm) and tall grass (≥6 cm). These two habitats were all within a 1.5-ha area of the park. Measurements of vegetation height were taken at four randomly selected points within each foraging area and the average was used to determine habitat type. Behavior of individual starlings that moved from one habitat type to another during a single foraging bout has been omitted.

Foraging techniques were measured with a modification of the method used by Cody (Competition and the structure of bird communities, Princeton Univ. Press, 1974). The duration of each foraging bout and the time a bird remained stationary were measured on separate stopwatches. The total number of stops and an estimate of the total distance travelled were also recorded. In all cases the total observation period was 100 s. Uniformity of observation times allowed comparisons between habitats with Wilcoxon matched-pair signed rank tests (Siegel, Nonparametric statistics for the behavioral sciences, McGraw-Hill Book Co., New York, 1956).

Starlings foraging in tall grass moved more slowly ($P = .0174$), were stationary longer ($P = .0401$), and had stops of a greater average duration ($P < .00003$) than did Starlings in short grass (Table 1). These foraging measures were transformed into easily visualized saw-tooth foraging profiles (Fig. 1; Cody 1968, 1974). Each saw-tooth connotes an average move-stop unit. In tall grass, the Starlings moved 0.1 m/s and stopped for 1.7 s; in short grass, they moved 0.2 m/s and stopped for 1.2 s. As a result, the curves are quite disparate.

These results extend Williamson and Gray's (1975) statement that Starlings modify foraging patterns as a function of season and flock composition. Habitat may now be added as another variable worthy of consideration. The same findings conflict with Cody's (1968:114) assertion that "the [saw-tooth foraging] curve plotted is characteristic for each species and serves as a valid basis for comparing species." This may have been accurate for the grassland birds that he studied; but, in the case of Starlings, a distinctive curve for each of the two grassland habitats is evident.

REDISCOVERY OF THE CRESCENT-FACED ANTPITTA IN COLOMBIA

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As a Peace Corps Volunteer assigned to the Colombian agency Inderena, Silliman surveyed the avifauna of the Parque Nacional de Puracé, located in the Central Andes of southwestern Colombia, 30 km southeast of Popayán, Department of Cauca. At an altitude of 3050 m on the west slope of the Andes in 1972, he collected a small antpitta not reported from Colombia (Meyer de Schauensee 1964, 1966, 1970), which proved new to the avifauna of that country. Silliman took the specimen to Lehmann, who concurred that it most closely matched the rare Crescent-faced Antpitta (*Grallaricula lineifrons*; Chapman 1924), known

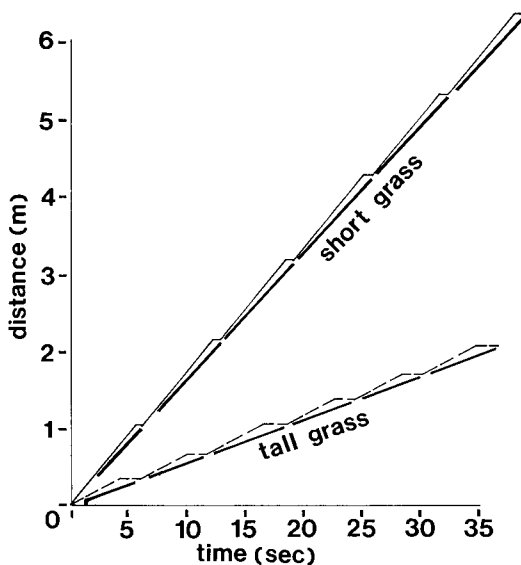


FIGURE 1. Foraging rates of Starlings in two grassland habitats.

Foraging behavior as a species specific characteristic without regard for environmental differences must be considered cautiously.

Possible explanations for the foraging differences I noted include: (1) tall grass physically impeded movement, and (2) tall grass presented a greater surface of vegetation to be searched for prey, thus slowing down rates of movement.

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only from the unique type (a female) collected at Oyacachi in the Andes of Ecuador, some 300 km south. Chapman (1924:5-6) had described the new species in a new genus, *Apocryptornis*, and had included a color illustration by Louis Agassiz Fuyertes in a later work (Chapman, 1926: pl. 27, Fig. 2, where the misspelling "*Aptocryptornis*" appears). Peters (1951:260) merged *Apocryptornis* in *Grallaricula*; this treatment was followed by Meyer de Schauensee (1966, 1970).

Lehmann noted differences in the coloration of the Colombian bird as compared to the Fuyertes color plate, and suggested that these might justify the description of a new subspecies. He deposited the specimen in the American Museum of Natural History and asked Eisenmann to compare it with the Ecuadorian type. The differences noted by Lehmann, although slight, proved real; but the two specimens were of different sexes, and as there was no series adequate to indicate the range of individual or age variation, the description of a new form appeared unwarranted. We here indicate the differences in color and provide new data on soft-parts, weight, habitat, and behavior.



FIGURE 1. Crescent-faced Antpitta (*Grallaricula lineifrons*) from Parque Nacional de Puracé, Cauca, Colombia. Second known specimen, and the first from Colombia.

G. lineifrons (Fig. 1) is an exceptionally handsome little antpitta, characterized by a blackish slate head, with a broad white crescent facial stripe, golden olive mantle, and striped underparts. The Colombian male was collected on 18 April 1972 near the northwestern edge of Puracé National Park, about 7 km E of the village of Puracé and about 1 km N of the Popayán-Neiva road. The point of collection was alongside a trail descending the south slope of the canyon of Quebrada Tierra Adentro, a stream flowing west into the Río San Francisco, itself a tributary of the Río Cauca; 2°40'N, 76°50'W. (Original no. JRS 118; AMNH no. 819382).

The male from Colombia resembles the female from Ecuador, but is somewhat larger, with slightly richer coloration: crown more blackish slate, mantle greener olive (less brown), wings and tail more black, buff stripes (interspaces) on breast deeper, primaries and rectrices with slightly wider, though still narrow, olive edging (possibly less worn).

Soft parts: iris light brown; bill black; legs grey in life, blackish in dry skin. Skull completely ossified. Weight 20 g. Testes 3 × 1 mm, dark and undeveloped. Stomach contents well-ground insect chitin. Measurements in mm; those of type in brackets (slightly differing from Chapman's): wing (chord) 81.5 [75.5], (flat) 83 [77.5]; tail 42 [37.5]; culmen (to base) 16 [16.5], (exposed) 13.5 [14]; tarsus 29.5 [28.5].

Chapman (1926) did not know the exact habitat of the type. He stated that Oyacachi (alt. 2494 m) was on the upper Río Papallacta (northwest of Quito), in the Humid Temperate Zone, but expressed uncertainty whether the bird came from that zone or an upward-reaching arm of the Subtropical Zone. The steep, forested canyon slope where the Puracé male was taken corresponds to an upward extension of "Lower Montane Wet Forest," following the terminology of L. R. Holdridge; (see Espinal and Montenegro 1962–1963:150–160; map sect. 3). Dominant trees on the slope reach heights of about 20 m, and are heavily covered with bromeliads and other epiphytes. Openings in the canopy caused by the steepness of the slope permit growth of thick underbrush. Daily temperatures in the canyon average 8–16°C. While no rainfall data are available from the site, rainfall probably is within the 2,000–4,000 mm per year range typical of Lower Montane Wet Forest.

Since the collecting locale is well above 9,000 ft, it belongs altitudinally to Chapman's Humid Temperate

Zone. Chapman (1917) considered certain species of birds to be indicators of the temperate zone. These include several species found in the Puracé canyon forest, i.e. *Penelope montagnii*, *Andigena hypoglauca*, *Grallaria rufula*, *Scytalopus unicolor*, and *Buthraupis montana*.

The specimen was taken when attracted to "spish" sounds made by Silliman. It was perched about one m above the ground in dense undergrowth surrounding a seepage area. The bird scolded the collector with several hard notes: "klip klip klip."

Investigation revealed that the same species had been seen nearby. On 9 December 1971, Raymond E. Belding observed and sketched a bird he was unable to identify, which proved to be this species. He found it in dense wet undergrowth on a west-facing hillside (alt. ca. 3220 m) covered with low forest, about 2 km SW of Lake San Rafael, also on the west slope of the Central Andes within Puracé National Park and about 3 km SE of the site where the specimen was taken. The forest here approximates that described by Espinal and Montenegro (1962–1963, see p. 174 for photo) as "bosque muy húmedo montano" ("Montane Wet Forest"). The trees are thick and bushy, reaching about 4–5 m height. Temperatures are somewhat cooler (6–14°C). Other birds typical of the area include: *Schizoeaca fuliginosa*, *Uromyias agilis*, *Mecocerculus leucophrys*, *Basileuterus nigrocristatus*, *Conirostrum sitticolor*, *Anisognathus igniventris*, *Iridosornis rufivertex*, and *Atlapetes palidinucha*.

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