

The juvenile plumage of Quebracho Crested-Tinamou *Eudromia formosa* (Aves: Tinamidae)

Paul Smith^{1,2,4} and Kimball L. Garrett³

¹ FAUNA Paraguay, Carmen de Lara Castro, Barrio San Roque, Encarnación, Paraguay.

² Para La Tierra, Reserva Natural Laguna Blanca, Santa Rosa del Aguaray, San Pedro, Paraguay.

³ Natural History Museum of Los Angeles County, Los Angeles, California 90007, USA.

⁴ Corresponding author: faunaparaguay@gmail.com

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ABSTRACT: The first description and images of the chick of the range restricted Chaco endemic Quebracho Crested-Tinamou *Eudromia formosa* are provided. They are essentially similar to adults, but possess a pale mid-dorsal stripe along the body. When crouching in a cryptic defensive posture, this stripe combines with the paler lateral stripes on the head and neck to effectively break up the outline of the bird. The identity of a *Eudromia* chick in the Los Angeles County museum is also confirmed as *E. formosa*.

KEY-WORDS: Chaco, chick, Paraguay, Tinamiformes.

The Chaco endemic Quebracho Crested-Tinamou *Eudromia formosa* occurs in semi-open areas adjacent to dense, xerophytic, thorny forest with open or dense undergrowth (Smith *et al.* 2013) in northwest Argentina, western Paraguay and extreme southeastern Bolivia (Davies 2002, Fernández *et al.* 2009, Capllonch & Allende 2013). Though currently treated as monotypic (Blake 1977, Navas & Bó 1981, Davies 2002, Capllonch & Allende 2013, Smith 2014a), the Paraguayan population has previously been separated as *E. f. mira* (Brodkorb 1938, Short 1975, Banks 1977) on account of its supposedly browner plumage and broader, but less well-defined shaft-streaks on the upperparts.

The natural history of the species is poorly documented. Smith *et al.* (2013) provided data on global distribution, habitat preference, a single egg and vocalizations from Paraguay and Argentina, as well as summarizing the limited available data on breeding throughout the range, and Smith (2014b) provided additional natural history observations on predation, feeding and distraction display. The latest comprehensive monograph of the Tinamidae (Davies 2002) makes no reference to the downy chick of this species and it is apparently undescribed. In this note we provide a description and photographs of a downy chick captured in the Paraguayan Chaco during September 2014 and a discussion of a Bolivian specimen in the Los Angeles County Museum tentatively referred to as *Eudromia elegans intermedia*, but within the known range of *E. formosa* (Banks 1977).

Banks (1977) mentions a downy chick a few days old of a *Eudromia* species that was taken “15 km NE of Capirenda, Tarija state, SE Bolivia; Bolivian Chaco” on 4 August 1957 by Kenneth E. Stager and Stephen C. Bromley (field number 16635) and housed in the Los Angeles County Museum. He tentatively attributed this specimen to *Eudromia elegans intermedia*, but noted that it was conceivable that it may represent an “extreme westward range of *Eudromia formosa mira* of the Paraguayan Chaco or a northwestward extension of *E. f. formosa* of the Argentine Chaco”. Remsen & Traylor (1983) also suspected this chick might be *E. formosa*, and the presence of that species in this area of Bolivia was later confirmed by Fernández *et al.* (2009). However, none of these publications provided any description of the chick. The specimen in question is LACM 35339 (Figure 1A, B), is a male and is indeed referable to *Eudromia formosa*.

LACM 35339 has the following measurements, in mm: exposed culmen (feathering to tip) = 13.3; bill from anterior nares to tip = 6.7; bill depth at anterior nares = 4.0; bill width at anterior nares = 4.1; head length (back of skull, which is intact on the skin, to bill tip) = 34.9; tarsus (heel joint to last undivided scale) = 18.4; wing chord (to tips of flight feather sheaths) = 31.5; maximum length of flight feather sheaths on right wing (no remex has broken the sheath) = 11.7 from skin at tip of “hand”; total length of bird (skin) = 130.

The specimen closely resembles those of *E. elegans* of similar age (*e.g.*, LACM 56997, an avicultural specimen; Figure 1A, B), but is strongly suffused with pale Cinnamon

(Color No. 39 in Smithe 1975) on the breast, belly and flanks and with Mikado Brown (No. 121C; Smithe 1975) on the dorsum and crest. Thin creamy-white feathers along the center of the back are loosely organized into a pale mid-dorsal stripe. Comparative specimens of chicks of *elegans* are colder, near Light Drab (No. 119C; Smithe 1975) above and very pale gray-buff below; no mid-dorsal stripe is present, although some thin whitish feathers are scattered along that region. The chest and sides of the neck are paler (less strongly patterned with dusky) in the *formosa* chick. Additionally, there is a strong white lateral crown stripe (above but parallel to the white supercilium) at the lateral edges of the crest, and extending back to the sides of the hindneck in the *formosa* specimen; examined chicks of *elegans* showed just a few thin white streaks in this area.

An adult (presumably male) with three downy chicks was observed on the southeastern border road of *Parque Nacional Teniente Enciso, Departamento Boquerón* (21°08'57.6"S; 61°31'18.9"W) on 21 September 2014. One chick was captured by hand and is described below (Figure 1C). The chick was subsequently released due to the lack of relevant collection permits.

The banded head pattern recalls that of the adult,

but additional stripes are present (Figure 1D). Crown and forehead are rich chestnut-brown with black flecking, some thin blackish filoplumes on the forehead are longer than the other feathers. A thin lateral crown stripe runs from the base of the bill on the forehead to the base of the crest and fades out on the hind crown without uniting; this stripe is absent in adults. A broad white stripe runs from above the eye and ear coverts to the hind neck and dorsally to the mantle and a third white stripe begins at the gape and runs under the eye and ear coverts, broadening behind the ear and running down the side of the neck. Though both of these stripes are present in the adult bird, they are more conspicuous in the chick than in adults, where they fade out more rapidly on the neck (particularly so in the case of the lower stripe which becomes less obvious shortly after the ear coverts). A rhomboid shaped white loreal spot in front of the eye is not continuous with the stripe above the eye, but forms a pattern with it that helps to break up the form of the head. This is present as a barely visible paler area on the lores in adult birds. The throat is conspicuously white, with scattered elongated plumes giving a slightly bearded impression. The foreneck lacks the bold sagittate markings

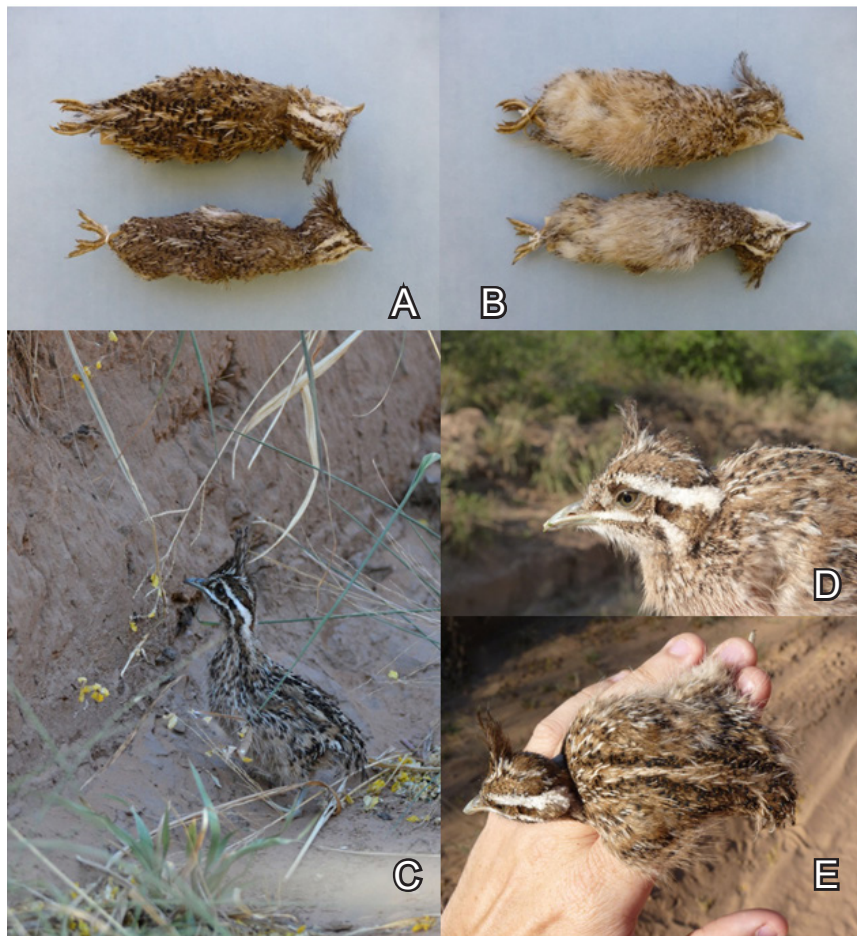


FIGURE 1. *Eudromia formosa* Specimen LACM 35339 “15 km NE of Capirenda, Tarija state, SE Bolivia; Bolivian Chaco” collected on 4 August 1957 (A, above) in direct comparison with a specimen (LACM 56997) of a chick of similar age of *E. elegans* of captive origin (aviary of Harold Schmidt, collected 29 November 1960) (A, below), in dorsal and ventral views. Photo: K. Garrett. Chick of *Eudromia formosa*, Parque Nacional Teniente Enciso, Departamento Boquerón (21°08'57.6"S; 61°31'18.9"W) on 21 September 2014 (C). Photo: J. Lehmborg. Head detail of the same chick (D). Photo: P. Smith. Dorsal pattern of same chick (E). Photo: P. Smith.

of adults and instead shows a more diffuse pattern of pale buffy-white bases, indistinct scattered black spotting and thin white streaking. Dorsally the chick is pale brownish with irregular but heavy black flecking typically associated with broader white streaking that combine to give a poorly defined, but highly cryptic dorsal pattern. The exception to this is a notably paler mid-dorsal stripe which can look almost pure white at certain angles, and is bordered on either side by an irregular dark stripe formed by dense black tips to the down. This pattern is absent in adult birds, which show a more consistent pattern of greyish-brown base color, more or less heavily mottled and vermiculated black and with irregular ochraceous spotting and freckling (Smith 2014a). Laterally the dorsal pattern fades out rapidly, and the underparts are predominately whitish with buffy bases to the feathers, being especially whitish on the belly and more infiltrated by the dorsal pattern on the breast and foreneck. Legs are pale grey-white. The iris is pale brown. The bill is pale greyish-white on the ramphotheca; greyer towards the base and around the nares. Nares are laterally located. With the exception of the paler bill color, bare parts are not notably different from those of the adult (Smith 2014a).

Short (1976) described a “half-sized” immature of *E. formosa* as closely resembling adults but “a bit duller, with a darker neck, and the inner vanes of its outer primaries are barred basally, showing a tendency toward the barred feathers of *E. elegans*”. The downy chicks documented here are in fact as brightly-colored as typical adults, at least on the head neck, and more boldly patterned in general on the upperparts. This may indicate that age-related plumage changes are more complex than is currently understood in this species, or perhaps that individual variation in plumage characters is great.

As is typical of many tinamous when threatened (Sick 1993), downy Quebracho Crested-Tinamou chicks were observed to crouch amongst vegetation with the head resting against the ground and remain motionless. Once in this posture the lateral white head stripes merged with the paler mid-dorsal stripe to effectively break up the outline of the bird (Figure 1E). This cryptic coloration made location of the chicks difficult unless the bird was observed whilst in the process of adopting this posture. Chicks could easily be captured by hand, but made no vocalizations when they were handled. No vocalizations were given by the accompanying adult, which had disappeared into nearby forest with the other chicks during the handling process.

Given the vast geographical distribution of *E. elegans*, its numerous subspecies, and the small number of available specimens of *E. formosa* from a restricted geographical area, we refrain from providing a detailed comparison between the chicks of the two species of the genus. However, in direct comparison with chicks of

E. elegans with a captive origin in LACM, both known specimens of *E. formosa* were noticeably more reddish-brown overall, especially on the head, neck and crest (Figure 1A, B), a plumage difference that is consistent with the differences observed between adult birds of these two species.

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REFERENCES

- Banks, R. C. 1977.** A review of the Crested Tinamous (Aves: Tinamidae). *Proceedings of the Biological Society of Washington*, 89: 529–544.
- Blake, E. R. 1977.** *Manual of Neotropical birds, v. 1. Spheniscidae (Penguins) to Laridae (Gulls and allies)*. Chicago: University of Chicago Press.
- Brodkorb, P. 1938.** A new species of Crested Tinamou from Paraguay. *Occasional Papers of the Museum of Zoology, University of Michigan*, 382: 1–4.
- Capllonch, P. & Allende, R. L. 2013.** Distribución de la Martineta Chaqueña (*Eudromia formosa formosa*) en la región chaqueña de la Argentina. *Nótulas Faunísticas, Segunda Serie*, 113: 1–13.
- Davies, S. J. J. F. 2002.** *Ratites and tinamous*. Oxford: Oxford University Press.
- Fernández, L. C.; Vidoz, J. Q. & Ayuso, J. G. 2009.** Acerca de la presencia de *Eudromia formosa* en Bolivia. *Kempffiana*, 5: 78–80.
- Navas, J. R. & Bó, N. A. 1981.** New contributions to the taxonomy of the geographical races of *Eudromia elegans* and *Eudromia formosa*. *Revista del Museo Argentino de Ciencias Naturales*, 11: 33–59.
- Remsen, J. V. & Traylor, M. A. 1983.** Additions to the avifauna of Bolivia, part 2. *Condor*, 85: 95–98.
- Short, L. L. 1975.** A zoogeographical analysis of the South American Chaco avifauna. *Bulletin of the American Museum of Natural History*, 154: 163–352.
- Short, L. L. 1976.** Notes on a collection of birds from the Paraguayan Chaco. *American Museum Novitates*, 2597: 1–16.
- Sick, H. 1993.** *Birds in Brazil: a natural history*. New Jersey: Princeton University Press.
- Smith, P. 2014a.** Quebracho Crested-Tinamou (*Eudromia formosa*). In: Schulenberg, T. S. (ed.). *Neotropical birds online* Ithaca, Cornell Lab of Ornithology. http://neotropical.birds.cornell.edu/portal/species/overview?p_p_spp=63316 (access on 8 January 2015).
- Smith, P. 2014b.** Natural history observations on the poorly-studied Quebracho Crested Tinamou *Eudromia formosa* (Aves: Tinamiformes: Tinamidae). *Historia Natural, Tercera Serie*, 4: 39–44.
- Smith, P.; Pearman, M. & Betuel, A. 2013.** An unusual record of Quebracho Crested-Tinamou *Eudromia formosa* from the dry Chaco of Paraguay, with comments on distribution, breeding and vocalisations of the species. *Bulletin of the British Ornithologists' Club*, 133: 19–23.
- Smithe, F. B. 1975.** *Naturalist's color guide*. New York: American Museum of Natural History.

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