

NOTES ON THE OCCURRENCE OF *ELEUTHERODACTYLUS APPENDICULATUS* IN ECUADOR

Eleutherodactylus appendiculatus is one of the most distinctive members of this very large genus of neotropical leptodactylid frogs; it is easily recognizable by its fleshy proboscis. Described by Werner (1894) from a unique type from "Ecuador," the name appeared in subsequent checklists (Gorham 1963, 1966, Nieden 1923, Peters 1955) but no additional specimens were reported and its distribution remained unknown. Lynch (1971) provided a modern redescription and a figure of this poorly known frog based on a specimen in the United States National Museum of Natural History (USNM) from the Río Blanco in Provincia Pichincha, Ecuador. On the basis of this locality he regarded the species as a member of the frog fauna of the lowland rain forests of northwestern Ecuador.

My field work in Ecuador in July and August of 1976, January of 1978, and March of 1979 resulted in the collection of twelve specimens of this rare frog, now deposited in the Museum of Comparative Zoology (MCZ) and the Museu de Zoologia of the Universidade de São Paulo (MZUSP). Other recently collected material is in the Museum of Natural History of the University of Kansas and the USNM. These newly collected specimens are all from cloud forest localities on the west slope of the Ecuadorian Andes in Provincia Pichincha between 1750 and 2010 m (Fig. 1). The

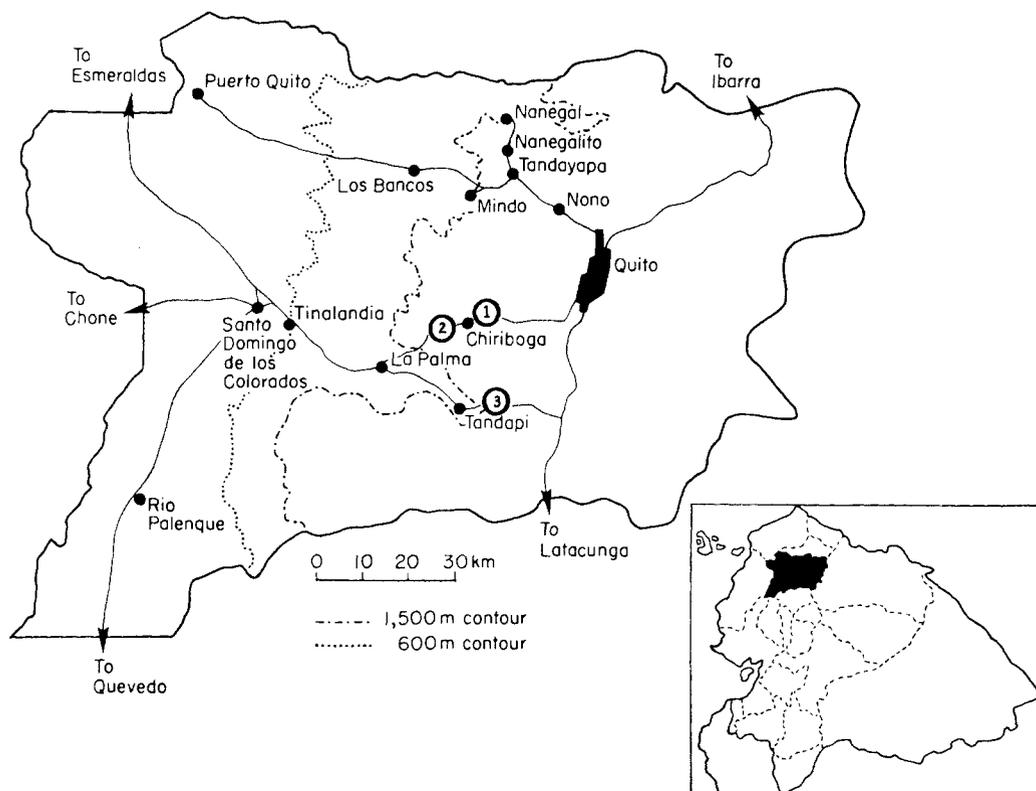


FIGURE 1. Distribution of *Eleutherodactylus appendiculatus* in Provincia Pichincha, Ecuador. Inset shows position of province in country. Localities mentioned in text, with specimens examined in parentheses: 1.) Quebrada Zapadores, 1980–2010 m (KU 165133–41, 177634–37, MCZ 98030); 2.) 25.7 km NE La Palma on road to Chiriboga 1820 m (MCZ 91884–85, 94817–20, MZUSP [4]), 14 km W Chiriboga 1960 m (KU 165142); 3.) Río Corazon, 6.2 km E Tandapi, 1750 m (MCZ 91886). Also examined were specimens from Tandayapa (USNM 204712) and the Río Blanco (USNM 204713).

species is not known from the well-collected region around the village of Tandapi in the same general area at an elevation of 1460 m (Lynch 1976), and it seems likely that its lower distributional limit is between 1500 and 1700 m.

The locality of the USNM specimen discussed by Lynch (1971) is not necessarily incorrect. There are several Ríos Blanco in western Ecuador, but there is little doubt that the one referred to is the one formed by the confluence of several small rivers about 6 km W of the village of Mindo. This region has long been visited by collectors of natural history specimens, who based their operations in villages along a trade route there (Chapman 1926). Although the elevation of the Río Blanco itself is below 1200 m, the main route into the region runs along a ridgetop which is about 1700 to 1900 m near the confluence of the tributaries. It seems quite possible that the specimen was collected somewhere along this ridge rather than in the immediate vicinity of the river.

Ten of the MCZ and MZUSP specimens were taken from disturbed situations along the side of the road between Chiriboga and La Palma. Much of the forest in this area has been destroyed although scattered remnants are left on the steeper slopes. The frogs were collected at night in the immediate vicinity of a small creek running through a narrow, brush-filled gully. They were perched on moss-covered stems in this tangled vegetation or on exposed fern fronds at the edge of the road, all within 2 m of the ground. Although it was not possible to penetrate very far into the gully there appeared to be a concentration of individuals very near the edge. Light misting rains were falling on all of the three occasions frogs were found and three visits to the same locality on rainless nights did not produce any further specimens. The single KU specimen from this area was taken on a night with a light rain as well.

The single MCZ specimen from the Río Corazon was on a fern frond 1 m off the ground along a ridgetop trail in closed canopy cloud forest at night. There was a moderately heavy rain falling when it was collected.

The MCZ specimen from the Quebrada Zapadores was on an aroid leaf 1.5 m above the ground on a steep slope not too far from the river. It was raining heavily when collected. Other specimens from this locality in the KU collection were found on vegetation within 1 m of the ground. A series of five was collected on a rainy night and a single specimen was collected on a rainless night immediately adjacent to the river.

All of the MCZ and MZUSP specimens were collected between 1930 and 2330 hrs. *Eleutherodactylus appendiculatus* has been collected in January, March, April, May, July, and August, with most of the specimens having been collected in January and April. No calls could be ascribed to this species.

Adult females (those with convoluted oviducts) range in snout-vent length (SVL) from 29.1 to 34.0 mm (\bar{x} = 31.1 mm, n = 5). The largest subadult female is 29.8 mm SVL. The only adult male is 20.8 mm SVL. None of the adult females in the sample (collected in April and July) had enlarged ovarian eggs.

There appears to be a considerable amount of color and pattern variation in *Eleutherodactylus appendiculatus* on the basis of the sample. The specimens from the Chiriboga road ranged from light green to dark brown in dorsal ground color, with a pale coppery brown with a greenish wash the most common. The dorsal pattern consisted of dark brown mottling in most specimens. The specimens from Quebrada Zapadores showed a similar range in dorsal coloration and pattern, although many specimens also exhibited a green or buff dorsolateral stripe as well. One specimen from the Chiriboga road (MCZ 94819) has a broad buff vertebral stripe on a dark brown ground color and lacks any trace of mottling. A juvenile (MCZ 94820) was uniform light green dorsally with brown dorsolateral stripes. The venter ranges from cream to light gray with some degree of dark brown speckling or black mottling. The toes and toepads range from greenish olive to white, with some individuals showing some black on the pads. The iris is yellowish with a coppery band in the middle.

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PREDATION BY RACCOONS ON DIAMONDBACK TERRAPINS, *MALACLEMYS TERRAPIN TEQUESTA*

Observations of predation on adult turtles are rare. Such predation has been reported for only a few species, including *Chrysemys picta* (Ernst, 1974; Wilbur, 1975), *Chrysemys scripta* (Minickly, 1966), *Clemmys guttata* (Ernst, 1976), *Graptemys pulchra* (Shealy, 1976), *Terrapene ornata* (Metcalf and Metcalf, 1979), *Gopherus polyphemus* (Causey and Cude, 1978), and *Malaclemys terrapin rhizophorarum* (Godley, 1978). No data are currently available concerning predation on adult Florida east coast terrapins, *M. t. tequesta*. This report documents the first known case of predation on adults of that species.

On 19 June, 1977, I observed a raccoon (*Procyon lotor*) attacking an adult female *M. t. tequesta* along a dike road at the Merritt Island National Wildlife Refuge, located in Brevard County, Florida. The raccoon had already broken the turtle's neck, and severed the left hind limb before I approached the area. Upon dissection I found that the raccoon had "gutted" the turtle, by opening a small hole where the hind leg had been severed, and reaching in to pull out all internal organs. Metcalf and Metcalf (1979) have reported that predators mutilated a *T. ornata* in a similar manner.

The discovery of numerous freshly-killed *Malaclemys* (N = 24) along a .5 km section of dike in 1977-1978 indicates that such predation is not uncommon at Merritt Island. Although the actual predation on these individuals was not observed, the following evidence strongly suggests that raccoons were responsible for their deaths. First, all the dead individuals found were surrounded by raccoon tracks, and showed body damage similar to that noted above. Second, despite the fact that the dikes the turtles were found on were surveyed daily during the course of a study on the nesting habits of *Malaclemys* (Seigel, MS), I found no evidence that the turtles died of natural causes (e.g. overheating or dessication), nor that other predators were involved. The only other likely predators