

A NEW SPECIES OF FROG, GENUS *ELEUTHERODACTYLUS* (LEPTODACTYLIDAE), FROM THE SABANA DE BOGOTÁ

por

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Resumen

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Se describe una nueva especie de *Eleutherodactylus* pequeña, aparentemente relacionada con *E. bogotensis* y *E. lynchi*, del borde occidental de la Sabana de Bogotá. Se reconoce más fácilmente por aspectos de su patrón de coloración.

Palabras clave: Colombia, *Eleutherodactylus*, Taxonomía

Abstract

A small *Eleutherodactylus*, apparently allied to *E. bogotensis* and *E. lynchi*, is named from the western edge of the Sabana de Bogotá. The new species is most easily recognized by features of its color pattern.

Key words: Colombia, *Eleutherodactylus*, Taxonomy

Introduction

One might imagine that all vertebrate species found in the Sabana de Bogotá would have been described long ago but in point of fact, only the frog fauna of the páramos is well known. The ecological association that is poorly known is the Andean forest. Unfortunately, the Andean forests are among the most threatened environments and now consist of fragments in a sea of anthropogenically modified habitats. The frog genus *Eleutherodactylus* is represented by five species known

from the immediate vicinity of Bogotá: *E. affinis*, a species very rarely collected but apparently a species of bosques andinos (2800-3200 m), *E. bogotensis*, a species rare in the Sabana but abundant in the páramos east and south of Bogotá (2600-3600 m), *E. elegans*, having the same ecological distribution as *E. bogotensis* (2800-3600 m), *E. nervicus*, a páramo species (3000-3850 m), and *E. w-nigrum* (2000-2800 m) from cloud forests. Two of these (*E. bogotensis* and *E. elegans*) were named by **Peters** (1863 a,b) and *E. affinis* was described a century ago by **Werner** (1899). **Lynch** (1994) named *E. nervicus*.

For the past 15 years, I have been aware of additional species of *Eleutherodactylus* from the Bogotá area but

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my major research interests were focused on *Eleutherodactylus* of the Cordillera Occidental and on centrolenid frogs.

Materials & Methods

Terminology follows Lynch & Duellman (1997). The following abbreviations are used: E-N, eye to nostril distance, HW, greatest width of head, IOD, interorbital distance, and SVL, snout to vent length. Measurements were taken with a dial caliper using a stereomicroscope.

Eleutherodactylus renjiformum sp. nov.

Holotype: ICN 13757, adult female obtained 21-28 August 1985.

Type-locality: Colombia, CUNDINAMARCA, municipio Cabrera, vereda Núñez, 16 km S Cabrera, 2400-2800 m.s.n.m.

Topoparatype: ICN 13758, adult male.

Paratypes: ICN 5005 (adult male), 5006-07, 5010, 5014 (adult females), CUNDINAMARCA, municipio Sibaté, Alto San Miguel, finca La Primavera, ca. 2800 m.s.n.m., collected 24 July 1979 by V. Corredor and M. Herrán; MLS 1019, Alto San Miguel, 2000 m.s.n.m., obtained 12 May 1995 by Hermano Roque Calles et al.

Referred specimens (juveniles): ICN 5008-09 from Alto San Miguel and 13759-60, topotypes.

Diagnosis: (1) Skin of dorsum smooth, that of flanks granular and venter areolate; no dorsolateral folds; (2) tympanum present, prominent, round; (3) snout round in dorsal view, sloping in lateral profile; canthus rostralis poorly defined, straight; (4) IOD broader than upper eyelid; no cranial crests; no enlarged tubercles on upper eyelid; (5) vomerine odontophores prominent, widely separated; (6) males with vocal slits, lacking nuptial pads; (7) first finger shorter than second, disks of fingers expanded, round, slightly broader than digits; (8) fingers bearing lateral keels; (9) ulnar tubercles absent; (10) no tubercles on heel or outer edge of tarsus; short inner tarsal fold; (11) two metatarsal tubercles, both oval, inner 4-5 times size of outer; supernumerary plantar tubercles low, numerous; (12) toes with lateral fringes, no webbing; fifth toe very long; (13) pale brown above with little indication of pattern; cream labial stripe; flanks and concealed surfaces of limbs cream (orange in life) spotted with dark brown; venter cream with some brown flecking; (14) adults

small, two males 21.9 and 23.8 mm SVL, six females 25.0-31.3 mm SVL.

Eleutherodactylus renjiformum is most readily distinguished from other species using its color pattern (pale labial stripe, pattern restricted to concealed surfaces of limbs, Fig. 1). Phenetically, it seems most similar to *E. bogotensis* and *E. lynchi*, two species also endemic to the Cordillera Oriental. Males of each of these have obvious nuptial pads and small tubercles and/or short folds on the dorsum (skin not smooth).

Etymology: The name is given to honor my very dear friends, Camila, Juan, and Patricia Renjifo.

Description: Head broader than body in males and juveniles, narrower than or as broad as body in adult females; head wider than long, HW 39.7-41.6 % SVL; snout round in dorsal view, gently sloping in lateral profile, short, E-N 68.8-88.9 % eye length; nostrils oriented dorsolateral, not protuberant; canthus rostralis evident but with rounded edge, straight or gently sinuous; loreal region nearly flat, sloping gradually to lip; lips not flared; upper eyelid lacking pungent tubercles, narrower than IOD, upper eyelid width 66.7-87.9 % IOD; no cranial crests; supratympanic fold prominent above tympanum, ill-defined posterior to tympanum; tympanum round, its length 27.8-34.4 % eye length, its anterior and ventral edges elevated, separated from eye by distance slightly greater than tympanum diameter; postrectal tubercles scarcely evident; choanae large, round, not concealed by palatal shelf of maxillary arch; vomerine odontophores oval, median and posterior to choanae, smaller than a choana, separated medially by width of an odontophore, bearing a slanted row of 3-5 teeth; tongue longer than broad, its posterior edge bearing shallow notch, posterior ½ not adherent to floor of mouth; vocal slits long, posterolateral to tongue.

Skin of top of head and back smooth as is skin of upper surfaces of limbs, becoming feebly granular laterally on head and body as well as on lowermost back; no dorsolateral folds; skin of throat smooth, that of venter and posteroventral surfaces of thighs areolate; discoidal folds present, well anterior of groin; no ulnar tubercles; palmar tubercle bifid, much larger than oval thenar; supernumerary palmar tubercles low, numerous; subarticular tubercles subconical, round; fingers bearing lateral fringes or keels; disks round, about 1 ½ times width of digit below disk (narrower on thumb), bearing complete ventral pads; males lack nuptial pads.



Figure 1. The *Eleutherodactylus* found in the vicinity of Bogotá. (Top left) *E. affinis*, juvenile female 34.3 mm SVL, JDL 17287; (Top right) *E. bogotensis*, male 24.2 mm SVL, MK 093; (Middle left) *E. elegans*, female 39.8 mm SVL, ICN 33226; (Middle right) *E. nervicus*, young female 22.0 mm SVL, JDL 21426; (Bottom left) *E. renjiform*, holotype female 25.5 mm SVL; (Bottom right) *E. renjiform*, topoparatype male 21.9 mm SVL.

No tubercles on heel or outer edge of tarsus; short fold on distal ¼ of inner surface of tarsus; inner metatarsal tubercle 2 ½ times as long as wide; outer metatarsal tubercle elongate, its length 1 ¼ times its width; numerous low supernumerary plantar tubercles; subarticular tubercles subconical, round; toes bearing obvious lateral fringes, no webbing; tip of fifth toe reaches to distal edge of distal subarticular tubercle of Toe IV, tip of Toe III reaches just distal to distal edge of penultimate subarticular tubercle of Toe IV; hindlimbs short, shank 45.3-52.0 % SVL, heels touching when flexed hindlimbs held perpendicular to sagittal plane.

Coloration in alcohol: Upper surfaces pale brown with scattered flecks of dark brown; some dark flecks concentrated on upper lip at junction between brown ground color and cream labial stripe; flanks, especially posteriorly with dense spotting of dark brown on cream background; anterior and posterior surfaces of thighs and underside of shank cream with dark brown blotches or spots; no anal triangle; ventral surfaces cream except for small brown spots on chin and undersides of thighs and tenuous brown reticulum over lower abdomen.

Color in life: Dorsal surfaces pale bronze-tan; creamy white labial stripe; black spots along upper edge of groin and on concealed thigh (a few as well in axilla and under shank); concealed surfaces of hindlegs, axilla, and groin, orange; throat and venter white; iris pale yellow with black reticulations and a reddish horizontal streak (JDL fieldnotes, September 1985).

Measurements of holotype in mm.: SVL 25.5, shank 12.9, HW 10.5, head length 9.4, chord of head length 10.8, upper eyelid width 2.5, IOD 3.2, tympanum 1.1, eye length 3.2, E-N 2.6.

Natural history: Little data are available. Corredor & Herrán found their series under trunks and moss. No ecological data are available for the topotypes.

Remarks: As is often the case for species found in one's backyard, the *Eleutherodactylus* from the immediate vicinity of Bogotá are largely unstudied although **Bernal & Guzman** recently (2000) described the calls of *E. bogotensis*, *E. elegans*, and *E. nervicus*. One species, *E. w-nigrum*, once known from the Sabana de Bogotá, seems to have disappeared during the past 50 years. **Dunn** (1944) found it at several sites on the western slopes below Bogotá whereas during my searches for the species in the 1980s none was found at these localities. **Werner's** (1899) record from the Alto de Sibaté is the highest (2800 m) but that site has not been revisited. *Eleutherodactylus*

w-nigrum is a large species, normally very abundant along streams, my failure to find it suggests local extinctions for unknown reasons (but probably pollution descending onto the slopes from Bogotá).

Lynch (1994) considered *E. nervicus* allied to *E. nicefori*, a páramo species from Cocuy and the páramos of Almorzadero and Pisba in Boyacá, Norte de Santander, and Santander but, subsequently (**Lynch**, 1998), decided that it was most closely related to *E. mnionaetes*, known from a subpáramo south of Lago Tota, and published a map of its distribution. *Eleutherodactylus nervicus* is a small frog with a pointed snout, warty skin, and narrow disks (Fig. 1).

In contrast, *E. affinis*, *E. bogotensis*, and *E. elegans* remain known largely from taxonomic descriptions. The descriptions of single specimens of each by **Cochran & Goin** (1970) are acceptable but their account of variation is confusing. Older descriptions are available in **Peracca** (1914), **Peters** (1863 a,b), and **Werner** (1899) and **Hoyos** (1991) discussed variation in *E. bogotensis* and provided some descriptive notes for *E. elegans* and *E. nervicus*.

Eleutherodactylus affinis (Fig. 1) and *E. elegans* (Fig. 1) are probably closely related. These two species share a large bulky head in contrast to the other species of *Eleutherodactylus* found on the Cordillera Occidental and have pointed snouts. Each is a relatively large organism (adult females 32.8-46.0 mm SVL) in contrast to the other species. The former remains known from only five specific localities whereas the latter is abundant in some páramos (Chingaza and Chisacá) but otherwise rare. **Dunn's** (1944) report of *E. elegans* from Aguadita (2000 m) requires confirmation.

Eleutherodactylus bogotensis (Fig. 1) is abundant in the wet páramos east La Calera, Chingaza, Cruz Verde) and south (Chisacá) of Bogotá but less common elsewhere in Cundinamarca. It is distributed into southern Boyacá and is generally replaced geographically by *E. lynchi*. The two can be distinguished in that the vomerine teeth are concealed in the tissue of the palate in *E. lynchi* and that species has a curved inner tarsal fold and *E. lynchi* has a subacuminate snout whereas the snout of *E. bogotensis* is rounded. Each of these frogs has some sort of dorsal pattern and each has the posterior surfaces of the thighs uniformly brown (in preservative). Flash marks of *E. bogotensis* are red. Collections from critical places are very limited but *E. bogotensis* appears to be sympatric with *E. renjiformum*, pending more complete study of the samples available now assigned to *E. bogotensis*.

Eleutherodactylus renjiformis has only been collected three times to my knowledge. The data available are too meager to conclude that it is therefore rare. The 2400-2800 m band on the western slopes of the Cordillera Oriental has been subjected to very little herpetological exploration and even less in relatively undisturbed forests (which seem to be the habitat of this small frog).

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