

A New Narrow-Toed Frog from Andean Ecuador  
(Leptodactylidae: *Eleutherodactylus*)

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*Eleutherodactylus elassodiscus* sp. nov. is found at intermediate elevations (1700–2600 m) on the northern Amazonian slopes of the Ecuadorian Andes. The species is distinctive in having non-dilated digital pads, the thumb longer than the second finger, and smooth skin on the venter. Its closest ally is probably *E. nigrovittatus*. *E. elassodiscus* is structurally intermediate between the predominantly tropical lowland *E. binotatus* group and some elements of the Andean genus *Niceforonia* (e.g. *N. flavomaculata*).

MOST South American species of *Eleutherodactylus* have broad digital pads, presumably as an adaptation for a partially or wholly arboreal existence. The exceptions include the frogs of the *biporcatus* group (Rivero, 1961; group IV of Cochran and Goin, 1970), the *parvus* group (Bokermann, 1967; Lynch, 1968a), and many of the terrestrial species of the Andean *unistrigatus* group (Lynch, 1968b; group II of Cochran and Goin, 1970).

Included in collections from the upper Chingual and Papallacta valleys in Napo Province, Ecuador, are specimens of an undescribed *Eleutherodactylus* with weak apical digital expansions and the first finger longer than the second (Fig. 1). Cranial crests are not developed in this species and the prevomerine tooth patches are well developed. In reference to the narrow digital pads this frog is named

*Eleutherodactylus elassodiscus* sp. nov.

*Holotype*.—United States National Museum (USNM) 167668, an adult female, collected at Cuyuja, Napo Province, Ecuador, 2380 m, by R. Mullen, 8 July 1962.

*Topoparatype*.—USNM 167669.

*Diagnosis*.—A species of the *E. binotatus* group (first finger longer than second, skin of venter smooth) distinguished from all others by having a sloping snout, weak apical dilation of digital tips (pad 1.0–1.2 times width of digit), pads longer than wide, fold of skin above pad not notched, prevomerine dentigerous processes prominent, wider than long, no cranial crests.

Other distinguishing features are: skin of

dorsum feebly pustulate, lacking ridges or folds; discoidal folds present; tympanum visible externally, not sexually dimorphic in size, its length  $\frac{2}{5}$  to  $\frac{1}{2}$  eye length; snout subacuminate in dorsal view; upper eyelid width 73.9–106.0 ( $\bar{x}$  85.4) percent interorbital distance; males lacking vocal sac and vocal slits; fingers lacking lateral fringes; three palmar tubercles; no ulner tubercles; no tarsal folds or tubercles; metatarsal tubercles equal in size; no supernumerary plantar tubercles; toes lacking lateral fringes and webbing; dorsum gray to brown, with or without brown markings; limbs barred; venter cream with some brown mottling on throat; posterior surface of thigh unicolor; males 22.0–29.2, females 29.7–36.9 mm SVL (Snout-vent length).

*Measurements of holotype* (in mm).—SVL 35.0; shank 20.0; head width 13.8; head length 12.8; eyelid width 2.1; interorbital distance 2.8; tympanum length 1.5; eye length 3.6; eye-nostril distance 3.6. The holotype contains large ovarian eggs (2.5–3.0 mm in diameter) and has extensively convoluted oviducts.

*Description and variation*.—Head not as wide as body, slightly longer than wide; head width 34.2–42.8 ( $\bar{x}$  37.2) % of SVL; snout subacuminate in dorsal view, sloping in lateral profile; canthus rostralis concave, moderately well defined in males, poorly defined in females; loreal region concave, sloping abruptly to lip; lips not flared; nostrils lateral, much closer to tip of snout than to eye (Fig. 2); length of snout less than length of eye; width of upper eyelid 73.9–106.0 ( $\bar{x}$  85.4) % of interorbital distance; no cranial crests; tympanum exposed, its diameter 38.2–

53.7 ( $\bar{x}$  44.8) % length of eye; tympanum round to slightly higher than long; supratympanic fold heavy, concealing upper edge of tympanum; upper eyelid bearing small pustules; series of postrictal tubercles form a postrictal ridge; tongue moderately large compared to floor of mouth, round, posterior one-fourth free, not or feebly notched; choanae round, smaller than a dentigerous process, contained within mesial borders of jaw; prevomerine dentigerous processes wider than long, transverse, posterior to choanae, bearing 5–8 teeth in a transverse series; male lacking vocal slits and vocal sac.

Skin of dorsum smooth (probably due to preservative) to weakly pustular, lacking ridges or folds; skin of venter smooth; discoidal folds present; anal opening not modified; shank 53.0–60.5 ( $\bar{x}$  56.7) % of SVL; ulnar tubercles lacking; three palmar tubercles, median largest; subarticular tubercles low, round, simple; thenar surface bearing a few indistinct supernumerary tubercles; fingers lacking lateral fringes and webbing; apical dilation of digital tips very slight, digital pads scarcely wider than digits, pads longer than wide, pointed distally; each pad bears a circumferential groove; first finger longer than second.

Tarsus and heel lacking tubercles or folds; inner metatarsal tubercle longer than wide, approximately same size as rounded outer metatarsal tubercle (Fig. 1), neither elevated nor compressed; plantar surface devoid of supernumerary tubercles; subarticular tubercles of toes like those of fingers except somewhat conical; toes lacking lateral fringes and webbing; apical tips of digits slightly expanded, pads longer than wide, pointed, bearing circumferential grooves.

*Color in preservative.*—Dorsum light brown to nearly black, with or without small dark brown blotches; flanks paler than dorsum or cream, if the latter, the cream is sharply demarcated from brown dorsum (Fig. 2); limbs barred, cross bars as wide as interspaces; posterior surface of thigh unicolor, creamy brown to medium brown; anal patch dark brown to black; labial bars present although sometimes absent behind eye; cream to white postrictal stripe present; no flash colors in groin or concealed surfaces; venter and undersides of limbs cream; throat and anterior edge of chest mottled with brown in most males and a few females. Two of 34

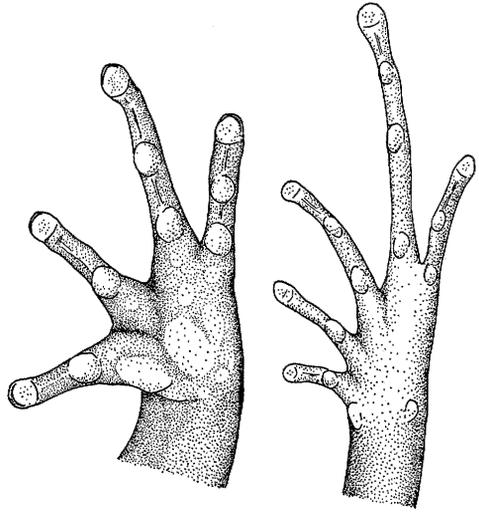


Fig. 1. Ventral views of manus (JAP 5671,  $\times 6$ ) and pes (WCAB 37915,  $\times 3$ ) of *Eleutherodactylus elassodiscus*.

specimens exhibit the pale-sided color morph (Fig. 2).

Sexual dimorphism is slight. Males are smaller than females, tend to have the throat darkened, and tend to have the dorsal blotching better developed. No secondary sex characters are evident.

*Etymology.*—Greek, *elasson* (smaller, less) and *diskos* (flat, circular plates), in reference to the small digital pads.

*Distribution and natural history.*—*E. elassodiscus* is known from intermediate elevations on the Amazonian slopes of the Andes in Ecuador. All specimens examined were collected in the headwater regions of the Río Chingual and Río Papallacta between 1700 and 2610 meters. In addition to the types, the following specimens were examined: ECUADOR, *Napo Province*: Borja, 1720 m, JAP 5671–72; Cuyuja, 2380 m, JAP 5206, 5210–13, 5228, 5294, 5299–300, 5315, 5472–74, 5701–02, KU 130271–72; 1 km E Cuyuja, 2300 m, JAP 5236, 5238–42, USNM 167670 (cleared-stained skeleton); 3 km E Cuyuja, 2300 m, JAP 5252–55; Papallacta, ca. 3200 m, WCAB 37915; Santa Barbara, 2610 m, USNM 192907–08; 1 km NW Santa Barbara, 2610 m, USNM 192906. The locality data for WCAB 37915, purportedly from Papallacta are suspect. It was purchased from a professional collector and the collection containing the specimen includes other species

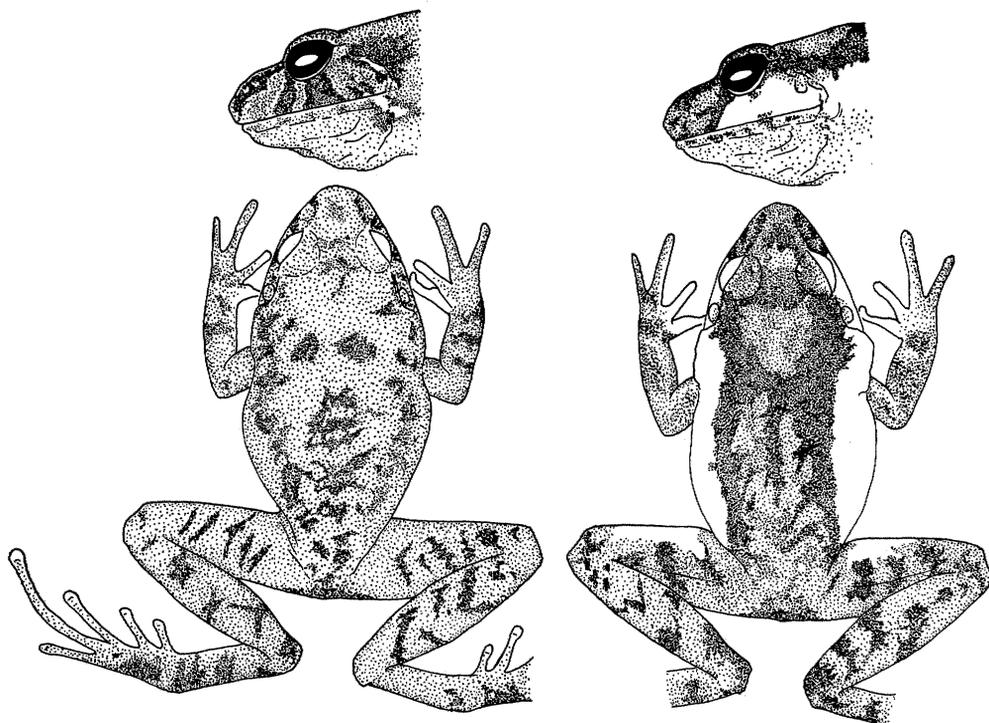


Fig. 2. *Eleutherodactylus elassodiscus*: dorsal and lateral views of head of two color morphs. Left (JAP 5253, ♂ 27.4 mm SVL), right (JAP 5472, ♀ 34.8 mm SVL).

not otherwise known from Papallacta but from lower elevations in the valley of the Río Papallacta.

The majority of specimens were collected by James A. Peters and his field associates beneath rocks and logs in moist grassy pastures by day. All but three of the females have large, unpigmented eggs (2–3 mm in diameter). Three females which lack large eggs are as large as others with large eggs and are either non-reproductives or perhaps had recently oviposited.

*Comparisons.*—Several nominate species of the *binotatus* group have narrow digital pads (pad width less than 1.5 times width of digit below pad). The narrow-toed species in Brazil (*E. binotatus*, *E. guentheri*, *E. nasutus* and *E. octavioi*) differ in having the skin fold above the pad notched. *E. cruralis*, *E. discoidalis* and *E. granulatus* (southern Peru, Bolivia and northern Argentina) have narrow pads without the notch above the pad but differ from *elassodiscus* in having rounded or truncate (not sloping) snouts, tuberculate skin and narrower prevomerine dentigerous processes (about as wide as

long). *E. nigrovittatus* (Amazonian Ecuador) agrees with *elassodiscus* in snout shape, digital pad structure, relatively broad prevomerine dentigerous processes and feebly pustulate skin, but differs in having the inner metatarsal tubercle twice as large as the outer, shorter, more “stubby” digits, and smaller size (*E. nigrovittatus* ♂♂ 21.1–22.5, ♀♀ 24.0–28.3 mm SVL).

The frogs of the genus *Niceforonia* differ from *Eleutherodactylus* in lacking digital pads and in having knobbed terminal phalanges (Lynch, 1968b, 1969, 1971). Some species of *Niceforonia* have sloping snouts, smooth skin on the venter and the first finger longer than the second. *Niceforonia flavomaculata* (southern Ecuador) and an undescribed species of that genus (northern Peru) agree with *E. elassodiscus* in finger lengths, relative sizes of the metatarsal tubercles, smooth skin on the venter, sloping snout and long transversely oriented prevomerine dentigerous processes. These three species differ from one another in color pattern, size, proportions, details of thenar tubercles, distinctness of the tympana and in

structure of the digital tips (basis for generic separation of *Niceforonia*). *E. elassodiscus* and *E. nigrovittatus* are structurally intermediate between the two species of *Niceforonia* and the widespread, lowland *E. binotatus* complex in the characteristics of digital morphology. All of these species share the following character states: 1) first finger longer than second, 2) skin of venter smooth, 3) nasal bones in median contact and 4) frontoparietals complete with no frontoparietal fontanelle. The structural intermediacy of *E. elassodiscus* and *E. nigrovittatus* suggests evolutionary intermediacy as well.

*Comment.*—Most specimens of *E. elassodiscus* were lost in the mail in the fall of 1970. All specimens listed above with their JAP (James A. Peters) field numbers were lost. The description and illustrations were completed while all specimens were in my hands, but the only specimens now available are those catalogued in the collections of the United States National Museum (USNM), the University of Kansas Museum of Natural History (KU), and the private collection of Werner C. A. Bokermann (WCAB).

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## Systematics of *Poecilia mexicana* (Pisces: Poeciliidae) in Northern Mexico

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Two distinct subspecies of *Poecilia mexicana* occur in the northeastern and east-central Gulf coastal drainages of México. *P. m. limantouri*, the northern subspecies, ranges from the Río Grande drainage in Nuevo León south to the lower Río Tamesí near Tampico. It is a slender, terete form with a short dorsal fin and narrow caudal fin. *P. m. mexicana* occurs along the Gulf coast from the Río Cazonés drainage at least to the greater Río Jamapa system south of Veracruz City. It is a deep, somewhat compressed form with a long dorsal fin and broad caudal fin. A zone of intergradation extends coastwise from the lower Río Soto la Marina of Tamaulipas to the Río Tuxpan of northern Veracruz and inland along the southern drainage basin of the Río Pánuco.

*POECILIA mexicana* Steindachner is a widely distributed Middle American poeciliid fish which, as presently defined, ranges along the Atlantic slope from the Río San

Juan (Río Grande drainage) of Nuevo León, México, southward to Colombia and to the Netherlands and Colombian West Indies (Miller, 1966). Throughout this range it dis-