

A NEW OCELLATED FROG (CENTROLENIDAE) FROM WESTERN COLOMBIA

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Abstract. — A new species of *Centrolenella* (*C. ignota*) is described from cloud forests of the Cordillera Occidental in Colombia. The new species is most closely allied to the Ecuadorian *C. anomala*, the only other brown centrolenid known.

Knowledge about the Neotropical frog family Centrolenidae has increased from a view of a small family of one or two dozen species seemingly centered in Central America in 1950 to a modest-sized family of at least 65 species centered in Colombia. Our current ideas of relationships within the family are much in need of study and largely reflect the perspectives of the Costa Rican fauna (Savage 1967, Savage & Starrett 1967, Starrett & Savage 1973). Lynch & Duellman's (1973) arrangement closely paralleled that from Costa Rica but emphasized the fact that many species from northwestern South America seem to strain the Costa Rican arrangement.

Lynch & Duellman (1973) named one peculiar species from the Amazonian slopes of the Andes in Ecuador as *Centrolenella anomala* because it was tan, not green, in life. They treated the species as the sole member of a species group (op. cit.:58).

While collecting on the western flank of the Farallones de Cali in western Colombia in July 1979, I obtained a series of a small centrolenid that initially I thought to be *C. anomala* because it was tan at night. During the day the animals changed to olive-brown. The Colombian frogs are intermediate, at least in part, between *C. anomala* and the other ocellated *Centrolenella*.

Centrolenella ignota, new species
Fig. 1

Holotype. — ICNMMNH 14748, an adult male, 24.4 mm SVL, from a series collected

at Peñas Blancas, Farallones de Cali, ca 6 km by road SW Pichindé, Depto. Valle de Cauca, Colombia, 1900 m, 4 Jul 1979 by Humberto Carvajal and John D. Lynch.

Paratypes. — ICNMMNH 14749-77, KU 209763-65, taken with the holotype.

Diagnosis. — 1) vomerine teeth and odontophores absent; 2) bones very pale green in life; 3) parietal peritoneum white, visceral peritoneum clear; 4) color in life tan-brown to very pale olive with black ocelli containing orange or yellow centers; in preservative, very pale lavender with black ocelli; 5) outer fingers with basal webbing **III** 3⁺-3⁻ **IV**; 6) webbing on foot **I** 2⁻-2⁺ **II** 1½-2½ **III** 1½-2⅔ **IV** 3⁻-1⅔ **V**; 7) snout truncate in dorsal and lateral profiles; 8) dorsal skin shagreened with elevated warts corresponding to ocelli; 9) arms and legs lacking dermal fringes; 10) humeral spine absent; 11) lower three-fourths of tympanum visible, directed anterolaterally with slight posterior inclination.

Centrolenella ignota is most similar to *C. anomala* but differs in lacking the dark brown flecks that are interspersed among the ocelli and in lacking the spicules on the skin of the dorsum; furthermore, *C. ignota* has subanal tubercles. The two species may differ as well in that *C. ignota* has pale green bones (white in the only specimen of *C. anomala* ever captured) and has traces of green pigmentation (*C. anomala* never exhibited any green cast in its dorsal pattern).

Description. — Adults small, snout-vent length in males 22.3-25.4 mm ($\bar{x}$ = 23.9 [S.E. = 0.12], n = 31), in two females 24.2

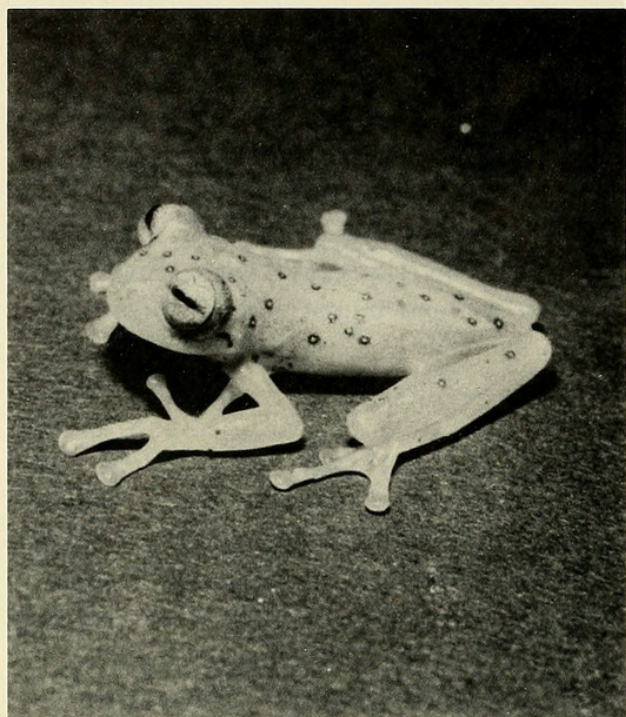


Fig. 1. *Centrolenella ignota*, topotype (ICNMNH 18007, male, 23.8 mm SVL).

and 24.4 mm; head wider than body; width of head 31.5–34.8% ($\bar{x} = 33.4 \pm 0.1$, $n = 35$) of snout–vent length; snout short, high, truncate in dorsal and lateral profiles; canthus rostralis round; loreal region flat; lips not flared; nostrils at tip of snout; internarial region concave, nostrils protuberant, directed anterolaterally; eye to nostril distance 53.1–75.0% ($\bar{x} = 62.5 \pm 1.0$, $n = 35$) eye length; eyes large, directed anterolaterally; width of upper eyelid 76.0–114.3% ($\bar{x} = 96.7 \pm 1.4$, $n = 35$) interorbital distance; supratympanic fold obsolete; tympanic annulus distinct, tympanum round to slightly higher than long, directed dorsolaterally with slight posterior inclination; length of tympanum 18.8–27.6% ($\bar{x} = 22.7 \pm 0.4$, $n = 35$) eye length; choanae large, round, not concealed by palatal shelf of maxillary arch; no vomerine odontophores or teeth; tongue round to ovoid, bearing a shallow notch posteriorly, posterior edge not adherent to floor of mouth; males with vocal slits posterolateral to tongue; males with median subgular vocal sac.

Forelimb moderately slender; no humer-

al spine or hook; no ulnar tubercles or folds; palmar tubercle round to ovoid, larger than oval thenar tubercle; no supernumerary tubercles on palm; subarticular tubercles low, basal tubercles broader than long, more distal ones round; fingers with lateral keels; median edge of fourth and lateral edge of third fingers bearing fleshy ridge (confluent with basal webbing); webbing formula III $3^+-(2\frac{3}{4}-3^-)$ IV; first finger longer than second; all fingers bearing discs, discs rounded apically but broader than long (subtruncate); discs of fingers II–IV largest, but all discs larger than tympanum; males with swollen base of thumb, non-spinous nuptial pad on dorsal surface of thumb (metacarpal section only); hind limbs slender; length of shank 52.1–58.7% ($\bar{x} = 55.0 \pm 0.3$, $n = 35$) snout–vent length; tarsal tubercles and folds absent; inner metatarsal tubercle oval, flat; outer metatarsal tubercle apparently absent; no supernumerary plantar tubercles; subarticular tubercles small, round; toes about one-half webbed; webbing formula I $(2-2^-)-(2^+-2\frac{1}{4})$ II $(1\frac{1}{2}-1\frac{2}{3})-(2\frac{1}{2}-2\frac{2}{3})$ III $(1\frac{1}{4}-1\frac{1}{2})-(2\frac{1}{2}-3^-)$ IV $(2\frac{3}{4}-3^+)-(1\frac{1}{2}-1\frac{3}{4})$ V; discs of toes smaller than those of fingers, round to subtruncate.

Skin of dorsal surfaces smooth to very finely shagreened, lacking spicules; white spots are elevated flat warts; venter and posterior surfaces of thighs bearing flat areolations; anal opening under a short transverse flap at upper level of thighs; pair of enlarged flat warts on posteroventral surface of thighs (subanal warts).

Color in preservative: Cream above with pale violet stippling over head, dorsum, and upper surfaces of limbs (this stippling is very fine and provides a pale lavender wash to the dorsal surfaces); dorsum bearing dense violet stippling around bases of white warts (forming ocelli); ocelli generally on top of head, back, and on shank but, in some individuals, also on side of head, top of thigh, and tarsus near heel; ventral surfaces cream.

Color in life: Pale tan to olive-brown above with black ocelli having orange (or

yellow) centers; tips of digits yellow; parietal peritoneum white; bones very pale green; iris whitish gray with a gold cast and black reticulation.

Remarks.—When the majority of specimens were collected (4 Jul 1979), the area was receiving a light rain. During the rain the frogs were calling actively on vegetation 0.5 to 2 m above a sluggish stream (average width 0.5 m). Females were found sitting on vegetation. Some individuals were found as much as two meters away from the stream in dense vegetation. The call of *C. ignota* is a series of chirps.

The discovery of *C. ignota*, with its non-green coloration, provides evidence that the coloration of *C. anomala* is probably natural (some colleagues have doubted that brown centrolenids exist). The nearest relatives of *C. ignota* appear to be *C. anomala* and *C. cochranae*. These three species have small ocelli on the dorsum bearing reddish centers (orange-tan in *C. anomala*, red in *C. cochranae*, orange or yellow in *C. ignota*) and exhibit virtually the same head shape and degree of webbing; differences among the three species are slight. In addition to coloration differences, they differ in the presence of subanal warts (absent in *C. anomala*), vomerine dentition (usually present in *C. cochranae*), skin texture (spicules in *C. anomala* and *C. cochranae*), and adult size (*C. cochranae* is larger than the other two, *cochranae* males are 23.8–26.7 mm snout–vent length and females are 27.2–30.0 mm snout–vent length).

At present, I consider *C. ignota* and *C. anomala* to be sister species and consider *C. cochranae* the sister species of the pair of tan/brown species. The conjectured synapomorphies are (1) brown pigmentation (shared by *anomala* and *ignota*) and (2) small ocelli on elevated warts. The plesiomorphic conditions are (1) green pigmentation (true for all other centrolenid frogs) and (2) no ocelli (true for nearly all other centrolenids, see below).

There are only two other species of cen-

trolenids having ocelli (*C. ocellata* and *C. ocellifera*). Each has more webbing on the hand than the three previously cited and each has larger ocelli that are not on elevated warts (also cream or pale yellow in life). It is tempting to assert that the ocelli constitute a synapomorphy for these five species but a case could be made for arguing that the ocelli of *C. ocellata* and *C. ocellifera* are not homologous to the ocelli of *C. anomala*, *C. cochranae*, and *C. ignota* but rather are homologous to the open reticulation found in the dorsum of centrolenids of the *fleischmanni* group. The published illustration of *C. grandisonae* in Cochran and Goin (1970) shows ocelli, although in their description it is apparent that they did not find ocelli in that species. *Centrolenella grandisonae* has red (flat and elevated) warts on the dorsum. Upon preservation the red disappears leaving cream spots.

Etymology.—The trivial name is Latin (*ignotus*), for strange, and is used to reflect the annectent coloration of *C. ignota* between that of *C. anomala* and the green coloration seen in most species of the genus.

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