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HERPETOLOGICAL NOVELTIES.

BY T. BARBOUR AND E. R. DUNN.

Most of the new forms described in this paper were collected by the junior author during a journey to Costa Rica in the summer of 1920. A few other new forms are recognized which have been for some time awaiting description.

The journey to Costa Rica was made far more pleasant and profitable than it would otherwise have been by the excellent hospitality and helpfulness shown by the resident officials of the United Fruit Company and by Dr. Anastasio Alfaro of the Museo Nacional in San José. The Doctor kindly allowed us to study and retain some most interesting specimens which had been brought from many parts of the republic. The following localities were chosen for collecting stations:

Zent—about twenty miles inland from Port Limon, 100 feet elevation. Banana and cocoa farms, small pastures and some rain forest.

Monteverde—200 feet. Same general conditions as Zent.

Guapiles—1,000 feet. Second growth forest and large pastures. End of railroad, north of Mt. Turrialba and Mt. Irazú.

Navarro—3,368 feet. Orange farm of United Fruit Company south of Cartago. Mountainous country. Collections were made in the forests up to 6,000 feet.

Volcán Irazú—Collected in the oak forest belt on this mountain at elevation of 8,000-9,000 feet.

Volcán Poas—Collected in the mixed forest at 7,600 feet and in the clearing around the "Hotel de Poas" at about the same elevation.

Orotino—Station of the railroad about 10 miles from the Pacific Ocean. Inner edge of coastal plain 900 feet. Dry woods and farms.

Sta. Cecilia—Banana farm in the Bananito River district, south along the coast below Port Limon. Same general conditions as Zent.

This permitted a short visit to the following environmental complexes: Tropical rain forest of the Atlantic coastal plain—Zent, Monteverde, Guapiles, Sta. Cecilia; subtropical zone on the mountains—Navarro; Temperate zone on the high volcanoes—Irazú, Poas; tropical, no rain forest, Pacific Coastal Plain—Orotino.

***Sibynomorphus ruthveni*, sp. nov.**

Type M. C. Z. No. 15,549 from the Aguacate Mts., Costa Rica.

Body strongly compressed anteriorly, less compressed along the mid body region, strongly compressed again posteriorly; tail diminishing suddenly in diameter just posteriorly to the vent; eye large with vertical pupil; rostral pentagonal, slightly wider than high, almost invisible from above; internasals small, their suture about one third of that between the prefrontals, which extend deeply over the canthal region and enter the orbit extensively; frontal longer than wide, about equal to distance from tip of snout, nearly one third shorter than the length of the suture between the parietals; nasal partially divided with a nostril slightly longer than high; loreal twice as long as high, entering eye; no preocular; two postoculars, the lower slightly the larger; temporals 1+2; seven or eight upper labials, fourth and fifth only entering orbit, sixth greatly enlarged; mental region can not be described owing to injury; but evidently no median genial; first lower labials in contact behind symphysial and a pair of large longitudinal genials, scales in 15 rows without apical pits, median row not sensibly enlarged or 13 rows with rows on each side of median row slightly enlarged, ventrals 165; anal entire; subcaudals 79.

Color in alcohol; banded dark brown and whitish; the brown bands anteriorly thrice as wide as the light bands posteriorly equal and of solid color while the whitish bands are clouded by groups of small streaks and flecks of darker; the dark rings cross the body in a slanting direction so that they tend to alternate on the belly. The head is dark anteriorly and counting this there are twenty-five dark bands about the body and thirteen about the tail.

Total length, 425 mm.; tail, 110 mm.

The following species of *Sibynomorphus* are known from Costa Rica: *S. bicolor* (Günther); *S. annulata* (Günther); *S. articulata* (Cope); *S. argus* (Cope) and *S. pictiventris* (Cope).

This form is about equally allied with *annulata* and *articulata*.

***Syrrhophus lutosus*, sp. nov.**

Type M. C. Z. 8023, from Navarro, Costa Rica; E. R. Dunn collector 1920.

Size small, body depressed; head as broad or slightly broader than the body; as broad as long; snout blunt with very ill defined canthus rostralis;

orbital diameter about equal of distance from eye to nostril; nostril very near tip of snout; interorbital space about equal to width of upper eyelid; vomerine teeth absent; tympanum hidden; fingers 2, 3 & 4, with slight but well defined dilatations; first without disc and shorter than second; toes long, second and fourth equal; no trace of web; with discs more triangular and slightly larger than those of fingers; subarticular tubercles, long, rather well developed; a very indistinct outer, and a long, rather well developed, inner metatarsal tubercle; tibiotarsal articulation reaching to half way from eye to tip of snout; skin roughly plicate on head, sides and back; belly strongly granular.

Color in alcohol (fresh, well preserved specimen not shrunken): Dirty black, a faintly defined middorsal light thread like mid-line; thighs narrowly cross barred black on dark brown. Belly dirty dark brown.

***Phyllobates beatriciae*, sp. nov.**

Type M. C. Z. 8022, taken July 30, 1921, on the wooded hill back of Victoria farm near Zent not far from Puerto Limon, Costa Rica. E. R. Dunn collector.

Snout prominent, longer than the diameter of the orbit; loreal region slightly concave; nostril situated at a point about one third the distance from tip of snout to eye; interorbital space not much broader than upper eyelid; tympanum not covered by a fold, large, over half the diameter of the eye but very indistinct; digital discs feebly developed; two very small and indistinct metatarsal tubercles; a short oblique ridge on the inner aspect of the tarsus; tibiotarsal articulation reaching to beyond eye, almost to nostril; skin of sides smooth, of back feebly granulate, of belly, over central area, with feeble granules and short glandular ridges.

Color in alcohol uniform black above. Lower sides, belly and thighs with fine yellowish marbling.

Distance from snout to vent 20 mm.; greatest width of head, 7 mm.; distance from axilla to tip of longest digit, 14.5; distance from groin to tip of longest toe, 30.5.

This species is named for Miss Beatrice Johnson of Ipswich, Mass., who has aided the development of the M. C. Z. collection of reptiles and amphibians in many ways.

***Phyllobates talamancae* (Cope).**

Dendrobates talamancae Cope, Jour. Acad. Nat. Sci. Phila., Ser. 2, vol. 8, 1875, p. 102, Pl. 23, fig. 6.

Type locality, Old Harbour, eastern coast of Costa Rica; Gabb, collector. (About 20 miles south of Port Limon.)

Redescribed from two specimens taken at Santa Cecilia, Costa Rica, by E. R. Dunn, Sept. 7, 1920.

(*Dendrobates lugubris* Schmidt, Denksch. Acad. Wien, 14, 1858, p. 250, pl. 2, fig. 14, type loc. From leaves and flowers of the evergreen (immergrün) forest, 5000–7000 ft., on the road from Bocas del Toro to the Volcan Chiriquí, v. Warszewicz coll. Types in Mus. Cracow. This is a different species which is fairly well figured and described and is beyond doubt another *Phyllobates*.)

(*Dendrobates truncatus* Cope, of Bull. U. S. Nat. Mus. No 32 is *Phyllobates truncatus* Cope, Proc. Acad. Nat. Sci. Phila., 1860, p. 372. Type loc., Panama. This is apparently neither our sp. nov. nor *talamancae*; beyond this it is hard to say).

Snout rather prominent and truncate; longer than the diameter of the orbit; loreal region very slightly concave; nostril situated at a point slightly less than half the distance of the tip of snout from eye; interorbital space much broader than upper eyelid; tympanum not covered by a fold, very indistinct, large, fully one half the diameter of the eye; digital dilations small; a distinct outer and less distinct inner metatarsal tubercle; a short oblique ridge on the inner aspect of the tarsus; tibiotarsal articulation reaching tympanum, skin of sides and back vermiculate with fine anastomosing glandular folds, (which are not conspicuous until the skin is freed from liquid); skin of belly smooth or with feeble folds.

Color, in alcohol, but fresh and well preserved: Male, dark maroon above, almost velvety black, a yellow line along each side which becomes white above the forelimb and which continues as a white line about the upper lips. A dark band below the yellow band on the sides. Belly and under sides of thighs white. Throat black and under side of thighs smoky with lighter marbling and a conspicuous black anvil-shaped marking. Tibia with a black crossband on hazel ground.

Female: Dorsum rich brown; sides much darker, the lateral band white and not continued entirely along the side; upper lip white; belly and lower sides of thighs white; upper aspect of thighs grayish, with a dusky longitudinal marking and some short bars at right angles to this band; tibia dusky with many darker spots and narrow bars.

Both specimens were taken in the bed of a small brook. This brook was nearly dry and only little pools of water remained along its course; near or in these the specimens were taken. The male had 8 or 10 tadpoles adhering to his back when captured.

***Paludicola imitator*, sp. nov.**

Type M. C. Z. 345, collected by the Thayer Expedition at Lake Cudajaz, (situated north of the main stream of the Amazon between Manaos and Teffé) Brazil.

Vomerine teeth in two small oval groups directly between the choanae; snout rounded, upper lip not prominent, slightly longer than orbital diameter; nostril a very little nearer tip of snout than eye; interorbital space markedly broader than upper eyelid; tympanum, small, oval, upright, about one-third the diameter of the eye; toes moderate, nearly half webbed; subarticular tubercles feebly developed; a small outer and a larger inner metatarsal tubercle; the tibio-tarsal articulation reaches a short distance anterior to the eye; skin smooth with very many round scattered warts each about one-third the size of the tympanum; skin of belly strongly granular.

Color: grayish green, uniform except for a narrow dark streak on the canthus and a wide dark band from eye to axilla; belly white. In habit and marking recalling the common European *Hyla*.

Eleutherodactylus altamazonicus, sp. nov.

Type M. C. Z. 2028, from the upper Amazon and *probably* collected by the Thayer Expedition at Nauta.

Vomerine teeth in two elongate groups, directed backward, converging slightly, well separated and extending from opposite the centers of the choanae to well behind the openings; snout rather depressed and oval; the orbital diameter equalling the distance between the eye and the nostril; nostril very near tip of snout; interorbital space but slightly broader than upper eyelid; head wider than body; tympanum small, barely distinguishable, about one-fourth the diameter of the eye; fingers short, first not extending beyond second; toes moderate, with no trace of web; discs of fingers and toes moderately well developed; subarticular tubercles large; a large inner and tiny outer metatarsal tubercle; the length of the foot equals the distance from nostril to axilla; the tibio-tarsal articulation reaches to between eye and nostril; skin rough, more granular on sides than on dorsum, belly plicate with a well marked discoidal fold; inner side of thighs strongly granular.

Color: rich mahogany brown, two light spots between the eyes; lips with vertical bars; thighs clouded with dark brown on light; lower surfaces light brown, almost uniform.

It seems at first thought rash to add other names to this already densely overpopulated genus but no other course seems practicable.

Eleutherodactylus noblei, sp. nov.

A determination of the various *Eleutherodactyli* from Costa Rica has been a task by no means easy of accomplishment. Dunn took the following: *E. bransfordi* (Cope) at Orotino, Guapiles and Zent; *E. ceresinus* (Cope) at Zent; *E. diastemma* (Cope) at Monteverde; *E. fleishmanni* (Boettger) at Sta. Cecilia, Guapiles, La Palma and Cariblanco; *E. lanciformis* (Cope) at Navarro and Guapiles; *E. polyptychus* (Cope) at Monteverde, and Guapiles; *E. rhodopis* (Cope) from Camino del Rio; and *E. rugosus* (Peters) from Monteverde. The types of *lanciformis* have been examined in the U. S. National Museum and they force the conclusion that *E. humeralis* Fowler (Proc. Acad. Nat. Sci. Phila., 1916, p. 395, fig. 2) is a synonym of this form. The new species now described is allied to *lanciformis*. The new type appears also to be represented by two very closely allied variants of the same stock, viz: Dunn's two examples from Guapiles, Costa Rica, and another individual from San Miguel Island in Panama Bay, collected years ago by Mr. W. W. Brown, and which has rested here, a puzzle, ever since. This will probably ultimately prove to represent a distinct race or subspecies, possibly confined to the Pearl Islands in the Bay of Panama. More material is necessary to settle this point.

Type, a large adult M. C. Z. 7827 from Guapiles, Costa Rica. E. R. Dunn. Paratypes, M. C. Z. 7826 from Guapiles and M. C. Z. 8024 from San Miguel Island, Panama Bay.

Vomerine teeth in two triangular groups between and well behind the choanae, but very narrowly separated from them; (in *lanciformis* the groups

are round and more distant from the choanae); snout moderately prominent and acute with rounded canthus rostralis and concave loreal area; orbital diameter slightly less than distance from eye to nostril; nostril near tip of snout; interorbital space much broader than upper eyelid; body wider than head; tympanum large, distinct, vertical diameter equal to two thirds the diameter of the eye; tympanum oval; fingers rather long, first slightly longer than second, third and fourth with large discs; toes rather long with no trace of web, discs less well developed than on third and fourth fingers; subarticular tubercles large and prominent; a very large inner and very small outer metatarsal tubercle; the length of the foot equals the distance from axilla to tip of snout; the tibiotarsal articulation reaches the nostril; (in *lanciformis* to well beyond tip of snout); skin not rough but finely granular; belly smooth with strongly marked discoidal fold; lower surface of thighs granular.

Color: ashy mauve above, with a large)(-shaped dorsal marking; a fine vertebral light line; two dusky stripes situated posteriorly on the sides of the dorsal region, separated by the width of the diapophyses; area from tip of snout to and including the tympanum black; the dark streak exactly limited by the canthus, upper eyelid and fold above the tympanum; limbs very faintly crossbarred; plantar surfaces of feet black. Total length 60 mm. (nose to vent); hind limb 105 mm.

The half-grown paratype from Guapiles is similar in marking but is lighter in general color, more pinkish. The paratype from San Miguel Island is almost uniform reddish and has a very slightly longer leg.

E. lanciformis differs markedly in color, in that the legs are always sharply, almost brilliantly, cross-barred with narrow markings, sharply defined. Small round black spots with a light center are almost invariably present mediad from the tympanum. The longer leg has been mentioned.



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