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NEW FROGS FROM MISIONES AND URUGUAY

BY KARL P. SCHMIDT

CHIEF CURATOR, DEPARTMENT OF ZOOLOGY

After working in Brazil with the Marshall Field Expedition of 1926, Mr. Colin C. Sanborn and I collected in Misiones Territory for two weeks before going on to Uruguay. In Misiones we were aided by Mr. Carlos H. Benson of Caraguatay, and spent the period from September 16 to September 22 encamped on the Rio Paranay, a small, swift-flowing affluent of the Paraná. The locality was rich in zoological interest. It is evident that the Territory will repay much more intensive zoological exploration. In Uruguay we were in the field together from October 18 to 23, after which Mr. Sanborn continued alone until December, when he was called away by other work. An account of our collecting stations in Uruguay is given by Mr. Sanborn (1929).

In the course of other studies at the British Museum (Natural History) in 1932, made possible by my tenure of a John Simon Guggenheim Memorial fellowship, I took the opportunity to compare several species of frogs, which I had been unable to identify, with Rio Grande do Sul and other Brazilian material, and reached the conclusion that our collection included a new *Limnomedusa* and three new species of *Hyla*. I am indebted to Mr. H. W. Parker, of the British Museum, for friendly aid with these studies.

The drawings are the work of John J. Janecek, Staff Illustrator of Field Museum.

***Limnomedusa misionis* sp. nov.**

Type from Rio Paranay, Misiones Territory, Argentina. No. 9407 Field Museum of Natural History. Adult male. Collected September 16, 1926, by Karl P. Schmidt and Colin C. Sanborn.

Diagnosis.—Very closely allied to *Limnomedusa macroglossa* of southeastern Brazil and Uruguay, from which it is distinguished by smaller size, smaller glandular warts, and smaller inner and outer metatarsal tubercles; the nuptial pads are less strongly developed and the enlargement of the forearm of the breeding males, which is well marked in *macroglossa*, is scarcely distinguishable.

Description of type.—Body stocky, with long limbs; head as wide as the body, snout blunt, nostril a little closer to its tip than to the eye; heels strongly overlapping when placed at right angles to the body; tibiotarsal articulation extending beyond the end of the snout; canthus distinct, loreal region slightly concave; tympanum very distinct, two-thirds the diameter of the eye; fingers and toes slender, without disks; first finger longer than second; inner metatarsal tubercle small, outer minute; dorsal skin with rounded glandular warts extending on the sides; smooth beneath; a granular area on the outer face of the thighs; vomerine teeth in conspicuous straight groups, distinctly separated, in line with the choanae; tongue flat, round, very slightly emarginate behind.

Gray above, with a bold pattern of darker brown spots; a conspicuous pair of canthal stripes extending forward on the snout; labial border spotted; a large spot between the eyes and an inverted V above the shoulders; limbs strongly barred.

A large black nuptial pad on the base of the thumb, with an isolated one on the lateral face of the inner metacarpal tubercle; a similar pad on the inner face of the second finger.

Measurements.—Length from snout to anus 45; snout to posterior border of tympanum 17.5; width of head 19; arm 31; leg 85; tibia 30.

Notes on paratypes.—Twenty-eight specimens, Nos. 9401–6, 9408–21, 9429, 9458–61, and 10867–69, in addition to the type, were collected at the same locality, from September 16 to 21. These form an extremely uniform series, tending to be somewhat smoother and with even smaller dorsal warts than the type. There are nineteen males and nine females. A typical female measures 49 mm. from snout to anus; snout to posterior border of tympanum 18; width of head 20; arm 32; leg 98; tibia 33. Of these paratypes, Nos. 9429 and 9459 are now Museum of Comparative Zoology Nos. 17429–30.

Remarks.—Without an ample series of specimens of this form it would be impossible to distinguish it from the larger *Limnomedusa macroglossa* of Rio Grande do Sul. Mr. Sanborn collected a series

of the latter species at various stations in Uruguay, and direct comparison leaves no doubt that two species are recognizable.

***Hyla sanborni* sp. nov.**

Type from Hacienda Alvarez, 15 km. northeast of San Carlos, Uruguay. No. 9581 Field Museum of Natural History. Adult male. Collected October 21, 1926, by Karl P. Schmidt.

Diagnosis.—Allied to *Hyla parvula* Boulenger of eastern Brazil, with which it agrees in the absence of vomerine teeth, small tympanum,



FIG. 20. *Hyla sanborni*, paratype, F.M.N.H. No. 9569. $\times 2$.

num, and rounded canthus. It differs from *H. parvula* in having much shorter legs, and no white spots on the back, and from *H. uranoscopa* Müller in smaller size and shorter limbs.

Description of type.—A minute *Hyla* of compact body form; head short and blunt, canthus rostralis rounded, snout projecting, nostrils very close to the tip of the snout as viewed from the side; skin smooth above, very coarsely granulate beneath; disks of fingers and toes distinct, but little broader than the distal phalanx; fingers with a trace of web at base, first a little shorter than second; toes three-fourths webbed; a small inner and no outer metatarsal tubercle; a strong fold across the chest extends to the base of the arm and forms the posterior border of the very large median subgular vocal sac; no modification of the thumb; tympanum small, about one-third the diameter of the eye.

Brown above, paler on the sides, with a fine punctulation of black dots; belly yellow; limbs also punctate with black under the lens.

Measurements.—Length 16.5; head width 5.5; arm 9; leg 25; tibia 8.

Notes on paratypes.—The females are somewhat different in body form, the abdomen swollen with eggs and a little larger. No. 9572 measures 20 mm. from snout to anus; head width 5.5; arm 10; leg 29; tibia 10. In the large series available, the dorsal coloration frequently tends to obscure longitudinal striation like the pattern of *Hyla nana*. The paratypes taken by myself at the type locality are Nos. 9568–79, 9581–84, and 9587–89. Mr. Sanborn subsequently collected this form 15 km. north of San Vicente de Castillos, Department of Rocha, Nos. 10341 and 10345–49; at Paso de Averias, Rio Cebollati, Department of Minas, Nos. 10363–69, 10371–76, 10379–80; at a camp 8 km. east of Treinta y Tres, Department of Treinta y Tres, Nos. 10448, 10450–51, 10453, 10455–62, and 10466.

Remarks.—I follow Noble and other authors in dropping the genus *Hylella*, although it may be revived for the species of eastern South America when an adequate revision of the genera of the Hylidae is undertaken. The species is named for Colin Campbell Sanborn, my companion on various South American travels, whose active collecting of amphibians and reptiles has greatly enriched Field Museum's collections.

***Hyla evelynae* sp. nov.**

Type from Hacienda Alvarez, 15 km. northeast of San Carlos, Uruguay. No. 9561 Field Museum of Natural History. Adult male. Collected October 26, 1926, by Karl P. Schmidt.

Diagnosis.—A slender-bodied and long-snouted hyla allied to *Hyla linderi* Müller and Hellmich, characterized by sharply defined dorso-lateral light lines from eyelid to groin, granulate belly, smooth upper surfaces, fingers free, and toes webbed at base; no rudiment of prepollex. Distinguished from *linderi* by larger size, smaller and less distinct tympanum, and absence of markings on the snout.

Description of type.—Habitus slender, body parallel-sided, head not wider than body; head pointed, snout long, the nostril much closer to the tip of the snout than to the eye; length of head greater than its width; limbs slender but relatively short; heels strongly overlapping when the legs are placed at right angles to the body, heel reaching just beyond eye when the leg is drawn forward along

the sides; tympanum small, two-fifths the diameter of the eye; inter-orbital space more than twice as wide as the upper eyelid, snout strongly projecting.

Vomerine teeth in small round groups (the teeth actually in a transverse row) their anterior border in line with the middle of the choanae; tongue very large, slightly nicked behind, its surface pustu-



FIG. 21. *Hyla evelynae*, type, F.M.N.H. No. 9561. $\times 2$.

lar; skin of back smooth, belly and posterior surface of thighs coarsely granular; outer metatarsal tubercle indistinct, smaller than the inner; fingers and toes with well-developed disks, those of the fingers slightly larger; fingers not at all webbed; toes with webs to the base of the second phalanx; vocal sac large, with longitudinal folds, smooth.

General color of upper surfaces light brown; a nearly white stripe extending from the posterior border of the upper eyelid to the groin, outlined above and below by a darker brownish stripe of about the same width; a narrow dark vertebral line; under surfaces light, without markings; no markings or flesh color on concealed surfaces of limbs; no dark line on thigh or tibia.

Measurements.—Snout to vent 24 mm.; snout to posterior border of tympanum 9; width of head 7.5; tympanum 1; eye 2.5; leg 37; tibia 13; arm 13.

Notes on paratypes.—Ten paratypes, eight adult males (Nos. 9562–64, 9566–67, and 9585–87) from the type locality and two (Nos. 10572–73) from Quebrada de los Cuevas, Department of Treinta y Tres. The latter are juvenile specimens just transformed, with slight remnants of tail. They measure 14.5 mm. The adult specimens agree closely with the type.

Remarks.—There is little doubt that *Hyla evelynae* represents the *H. linderi*, of the Chaco, in Uruguay; I have not used the trinomial since so much remains to be learned regarding the ranges of Brazilian hylas. It is quite possible that the present species is equally allied to *Hyla albofrenata* from Rio de Janeiro, still known only from the preliminary description. The Uruguayan form is named for Mrs. Diego Suarez, who, as Evelyn Marshall Field, was patroness of the Brazilian Expedition of 1926 and our companion of many memorable camps in Matto Grosso.

***Hyla uruguayana* sp. nov.**

Type from Quebrada de los Cuervos, Department of Treinta y Tres, Uruguay (45 km. north of the town of Treinta y Tres). No. 10567 Field Museum of Natural History. Adult male. Collected December 8, 1926, by Colin C. Sanborn.

Diagnosis.—A small, blunt-nosed hyla with granular skin on both back and belly; back and tibiae with irregular dark spots; toes with short webs and a dermal fringe; tongue small; no rudiment of prepollex; apparently not closely allied to any of the south Brazilian hylas.

Description of type.—Habitus stocky, the trunk with rounded sides, head broader than long, and snout little projecting; tympanum small, distinct less than half the diameter of the eye, its distance from the eye less than its diameter; interorbital space wider than the upper eyelid; heels just meeting when the legs are placed at right angles to the body, the heel reaching the eye when the leg is drawn forward along the side.

Vomerine teeth in very small rounded groups between the choanae; tongue very small, its posterior border rounded; fingers entirely free; toes webbed to base of second phalanx; a distinct, round, inner metatarsal tubercle, outer metatarsal tubercle barely

distinguishable; disks of fingers and toes smaller than the tympanum; toes beyond the web with a dermal fringe to their disks; vocal sac very large, irregularly folded, but with a strong transverse fold from side to side at the rear.

Pale brown above and below, the back and sides and the upper surface of the tibia with irregular darker brown spots; a distinct



FIG. 22. *Hyla uruguayana*, type, F.M.N.H. No. 10567. $\times 2$.

brown transverse interorbital spot; vocal sac slightly pigmented anteriorly.

Measurements.—Snout to vent 26 mm.; snout to posterior border of tympanum 7.5; width of head 8; tympanum 1.2; eye 3; leg 43; tibia 13; arm 15.

Notes on paratypes.—Four paratypes, Nos. 10497 and 10564–66, all from the type locality, are all males and agree closely with the type.

Remarks.—This small form appears to be remarkably distinct from other South American species of *Hyla* in its small and narrow tongue. Our specimens were obtained from a breeding chorus.

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