The chilean Frogs of the genus Telmatobius

BY

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The Captain Marshall Field Expedition to Chile, 1922-1924, secured extensive collections of Chilean land vertebrates for Field Museum of Natural History. It is proposed that the results of studies on these collections will be embodied in separate reports on the mammals, birds, and on the reptiles and anphibiams of Chile. In the course of preparatory studies for the latter of these reports, for which I shall be responsible, I find a well-defined topic of inmmediate interest which I wish to present to the herpetological public as a preliminary paper.

Barbour and Noble (1920, p. 407) have revised the South Americam frogs of the genus *Telmatobius* eliminating from consideration the species of *Cyclorhamphus* and thus restricting *Telmatobius* to the Andean area. As no material of the Chilean species was available to them, their treatment of these forms was a provisional one. I am now able to supplement their account of the genus with notes on the Chilean species.

Thanks to the kindness of Dr. Eduardo Moore, Director of the Museo Nacional de Chile, in arranging an exchange of specimens, Field Museum is fortunate in possessing co-types of Philippi's *Telmatobius montanus* and *laevis*. I am able to confirm the validity of these species, which was suspected by Barbour and Noble. We are, perhaps, still more fortunate in having at hand a series of specimens of *Telmatobius peruvianus* Wiegmann, the type of the genus, collected by Colin C. Sanborn during his field work in Chile in 1922-1924. In spite of several appearances in the literature, these are the first specimens of this species to be reported since the type was secured by Meyen nearly a hundred years ago.

Telmatobius peruvianus WIEGMANN

Telmatobius peruvianus. — Wiegmann, Nova Acta Leop. Carol. Akad, Naturf., **17**, p. 263, pl. 22, fig. 2, 1835. Günther, Cat. Batr. Sal. Brit. Mus., p. 42, 1838. Peters, Monatsber. Akad. Wiss. Berlin **1873**, p. 413, pl. 2, fig. 3, pl. 3 fig. 2, 1873. Boulenger, Cat. Batr. Sal. Brit. Mus., 2nd. ed., p. 191, 1882. Barbour and Noble, Bull. Mus. Comp. Zool., **63**, p. 410, 1920. Nieden, Das Tierreich, Lfg. **46**, p. 374, 1923.

Type locality.—Cordillera de Guatilla, near the town of Palca, two days journey east of Tacna, Prov. of Tacna, Chile.

(The exact type locality is so determined by Barbour and Noble from examination of Meyen's narrative),

Material.—11 specimens, ♂ ♂, collected at Putre, Prov. Tacna, Chile, July 1924, by Colin C. Sanborn. 2 tadpoles from the same locality, date and collector.

Description of specimen.—F. M. N. H. No. 6394, ♂, has the tongue oval, entire, $\frac{1}{2}$ the width of the mouth at rictus; vomerine teeth absent; snout short, somewhat pointed, almost without canthus rostralis; nostril midway between eye and tip of snout; interorbital width about equal to the upper eyelid; eyes set obliquely, at an angle of 45° with the mid-line; no tympanum; 1*st* finger a little longer than second; toes webbed to the tips, but strongly emarginate, i, e, about $\frac{1}{2}$ webbed, subarticular tubercles small; sole of foot and tarsus with scattered small tubercles; an oval inner and a smaller outer metatarsal tubercles; a prominent tarsal fold extended along the outer edge of the inner toe; tibio-tarsal joint extending slightly beyond eye. Dorsum uniformly covered with low rounded warts; a patch of similar warts conspicuous on the posterior faces of the thighs; anterior face of thighs, tibias, and outer face of arms nearly smooth.

Very dark gray above, marbled with darker gray; a little paler beneath, with small obscure yellowish spots on the lower side of thighs and tibias; chin a little paler than belly.

Base of thumb strongly swollen, covered with horny black asperities; similar aspirities thickly set on the bre-

ast and extending more sparsely along the inward side of the arms; arm somewhat thickened.

MEASUREMENTS

Length of body.....	44 mm.
Arm.....	34
Leg.....	71
Tibia.....	22
Width of head (at rectal angles)...	16

Description of tadpole.—Two small tadpoles from Putre must be referred tentatively to this species. No other frogs were secured at this locality, and this tadpoles are not those of *Bufo spinosus*.

Tadpole without trace of hind limbs; body depressed; nostrils midway between the eyes han tip of snout; distance between eyes somewhat greater tham that between nostrils; distance between nostrils greater than their distance from the eyes, about twice the diameter of the eye; spiraculum low on left side, directed backward and upward, its opening a little nearer the anus than to the tip of the snout; anus a short medium tube; upper crest of tail slightly higher than the lower, begining about 3mm. anterior to the base of the tail; crests extranding. 3mm. beyond tipe of muscular part of tail, broadly rounded.

Mouth ventral, sorrounded behind and on sides with a papillate fold which extends inward about one fourth the width of the mouth on each side in front; row of papillas singles except at sides, where there is a secondary inner row widely separated from the outer. Rows of teeth $\frac{2}{3}$, the uppermost and two lowermost complete, the two adjacent to the horny serrated beak with a median gap. Length 32 mm., body 12 mm., width of body 7 mm., depth of body 5.5 mm.; depth of tail 6.5 mm,

Frogs of this genus, from Lake Titicaca, Peru, have been referred to *T. peruvianus* by Anderson (1908, p. 305), and by Lampe (1911, p. 217). These records evidently refer to *Tetmatobius aemaricus* Cope.

Putre lies southeast of Tacna, while Palca, the type

locality, is to the northeast and in a different drainage system, about 65 kms. from Putre, in the same range of mountains (the Sierra de Guatilla).

Some important differences between the type and our specimens exist, principal of which is the complete absence of spines on the body, while Wiegmann, in referring to the warty skin, specifically mentions the «dunkler gefärbte, hornartig verhärtete Spitze». The type was of the same sex as our series, but it is possible that its spinosity was an individual abberration or that it is a seasonal character of the species. At any rate, I do not feel justified in any other course than identification as *peruvianus*.

Peters, in 1873, figured the palate and pectoral girdle of the type. Our specimens are essentially in agreement with his figures. The tongue is somewhat smaller than shown in his plate 2, fig. 3. Two specimens have a pair of very small patches of vomerine teeth between the choanae, another has two or thee teeth on one side only; the others have ne distinguishable teeth. The vomerine teeth, even when present, are only to be discovered by means of the scalpel. Two specimens lack the horny asperities on the breast which are feebly developed in another specimen, well developed in the remaining.

The pectoral girdle agrees with Peter's figure, and affords no basis for Cope's attempt to distinguish this species from those known to Boulenger. He contrasts his *Cophaeus* as having the sternum not distinguishable into style and disk, broad, emarginate, cartilaginous, while *Telmatobius* Wiegmann is supposed to have the sternum with a distinctly defined slender ossified style, with distal cartilaginous disk. In the specimen examined, the sternal disk is well ossified, emarginate on the mid-line, without trace of a style.

The specimens from Putre differ from the type in having a more elongate body, and shorter webs, and the coloration is a dark gray with obscure darker marbling, only visible under liquid, with no trace in any specimen of the darker cross bands and vertebral band metioned by Wiegmann; this color pattern, however, is scarcely indicated in his figure, and was evidently obscure.

It is not impossible that the specimens under consideration actually represent a species distinct from *peruvianus*. Even direct comparison with the single type would not, however, solve this question, which can only be cleared up by comparison with a series from the actual type locality, or at least from the basin of the Rio Caplina.

Telmatobius montanus PHILIPPI

Telmatobius aematicus Werner, Zool. Jahrb., Supl., 4, p. 263, 1897 (note of Cope).

Telmatobius montanus PHILIPPI, Supl. Batr. Chil., p. 47, 1902. Barbour and Noble, Bull. Mus. Comp. Zool., **63** p. 422, 1920. Nieden, Das Tierreich, Lfg. **46**, p. 378, 1923.

Type locatity.—Lake in the high Andes of Santiago Province Chile.

Description of co-type—F. M. N. H. No. 9979, ♀ Vomerine teeth well developed in two small patches directly between the choanae; tongue oval, free behind one-half as vide as the width of the mouth at rictus; snout extremely short, eyes oblique, canthus ill-defined; nostrils midway between eyes and tip of snout; interorbital space perhaps wider than upper eyelid; no trace of tympanum; first finger a little shorter than second; toes webbed to the tips, the webs somewhat emarginate. i. e. toes three-fourths webbed; subarticular tubercles small; no spinose tuberculation on foot; an elongate inner and small round outer metatarsal tubercle; tarsal fold present, weak; tibiotarsal joint reaching to tip of snout; skin of back apparently completely smooth; eyelids and posterior face of thighs obscurely granulate; uniform pale yellowish gray, faded throught the action of light; an infestation of subdermal parasites, sternum destroyed.

MEASUREMENTS

Length from snout to anus.....	48 mm.
Length of arm.....	27
Length of leg..	79
Tibia.....	26
Width of head.....	16

Remarks.—The distinguishing characters of this species are the smooth skin, very short blunt snout, long legs and well-developed webs, together with the presence of vomerine teeth.

The two species of *Telmatobius* described by Philippi are exceptional among the new forms described by him in representing valid species. Both are unquestionably frogs of the genus *Telmatobius* and they are unquestionably distinct from each other and from the peruvian forms. Uniformately, Philippi states that there are no vomerine teeth, whereas they are well developed in both specie. This curious mistake is explicable enough when the state of Philippi's eyesight, in 1902, is taken into consideration (of Fürstenberg, Verh. Deutschen Wiss. Vèr. Santiago, **5**, p.).

Werner (1897, p. 263) records a specimen of *Telmatobius aemaricus* from the Andes of Santiago, and I have included this in the synonymy above largely on account of the approximation in locality to the type locality of *montanus*, which is unifortunately vague.

Telmatobius laevis PHILIPPI

Telmatobius marmoratus Boulanger, Cat. Batr. Sal. Brit. Mus., 2nd. ed., p. 192 (part), 1882. Werner, Zool. Jaharb. Suppl., **4**, p. 263, 1897.

Telmatobius laevis Philippi, Supl. Batr. Chil., p. 43, 1902. Barbour and Noble, Bull. Mus. Comp. Zool., **63**, p. 422, 1920. Nieden, Das Tierrreich, Lfg. **46** p. 378, 1923.

Type locality.—«Potrero», Chile. Philippi and Barbour and Noble comment on the unfortunate vagueness of «Potrero» as a type locality.

Description of co-type.—F. M. N. H. No. 9978, ♂. Snout very broad and shovel-shaped, much like Wiegmann's figure of **peruvianus**, body short; tongue ova free behind, one-half the width of the mouth at rictus; vomerine teeth present, in small patches between the choanae; nostrils about midway between eyes and tip of snout; eyes set obliquely, interobital space about equal to the width of the eyelid; no trace of tympanum; first

finger as long as the second; toes webbed, a narrow fringe extending to their tips, the webs deeply emarginate, i. e. about one-third webbed; subarticular tubercles very obscure, outer metatarsal tubercle very small, inner small, oval; tarsal fold well-developed, extendig along edge of first toe; tibiotarsal joint reaching the eye; skin very smooth, without trace of warts; a somewhat stained brownish gray above, with traces of yellow markings on under side of thighs.

Base of first finger swollen, covered with nuptial asperities, without a horny black layer; probably no such asperities on breast.

MEASUREMENTS

Length from snout to anus.....	48 mm.
Length of arm.....	30
Length of leg	68
Tibia.....	21
Width of head.....	18

To judge from Koslowsky's figures, *Telmatobius hauthali* from Catamarca is closely related to *T. laevis*. Philippi's species cannot be identical with *peruvianus* Wiegmann on account of its short webs, smooth body, and the presence of vomerine teeth, and this conclusion is not affected by the uncertainty of my identification of our Chilean specimens as true *peruvianus*. Boulenger's record of *T. marmoratus* is placed here with some hesitation.

In conclusion, I may point out that our knowledge of the Chilean frogs of the genus *Telmatobius* is very defective and that it can be improved only by the collection of specimens carefully labeled as to locality and habitat.

References

ANDERSON, LARS GABRIEL.
1908.—«A remarkable new Gecko from South Africa and a Stenocercus species from South America in the Natural Museum in Wiesbaden». Jahrb. Ver. Naturk. Wiesbaden, 61, p. 299-306, 1. pl.

BARBOUR, THOMAS, AND NOBLE, G. K.
1920.—«Some Amphibians from Northwestern Peru, with a Revision of the Genera Phyllobates and Telmatobius». Bull. Mus. Comp. Zool., **63**, p. 393-427, pl. 1-3, text. fig. 1-8

BOULENGER, GEORGE ALBERT.
1882.— «Catalogue of the Batrachia Salientia S. Ecaudata in the Collection of the British Museum». Second Edition. London. Printed by order of the Trustees. 8.o, pp. xvi, 495, pl. 1-30, text. figs.

LAMPE, E.
1911.—«Erster Nachtrag zum Katalog der Reptilien- und Amphibien-sammlung des Naturhistorischen Museums der Stadt Wiesbaden». Jahrb. Ver. Naturk. Wiesbaden, **64**, p. 137-236.

NIEDEN, FRITZ.
1923.—«Anura I. Subordo Aglossa und Phaneroglossa, Sectio 1 Arcifera». Das Tierreich, Lfg. **46** pp. XXXII, 584, 380 text. figs.

PETERS, W.
1873.—«Uber neue oder weniger bekannte Gattungen und Arten von Batrachiern». Monatsber. Akad. Wiss. Berlin, **1873**, p. 411-418, pl. 1-4.

PHILIPPI, R. A.
1902.—«Suplemento a los Batrachios Chilenos descritos en la Historia Física y Política de Chile de don Claudio Gay». Santiago de Chile, Librería Alemana de José Ivens, pp. XI, 161.

WERNER, FRANZ.
1897.—«Die Reptilien und Batrachier der Sammlung Plate». Zool. Jahrb., Suppl., 4, p. 244-278, pl. 13-14.

WIEGMANN, A. F. A.
1835.—Beiträge zur Zoologie, gesammelt auf einer Reise um die Erde, von Dr. F. J. F. Meyen. Siebente Abhandlung. Amphibien». Nova Acta Leop. Carol. Akad. Naturf., **17**, p. 183-268 a-d., pl. 13-22.