TELMATOBIUS SOLITARIUS N. SP.: A NEW RARE TELMATOBIID FROG FROM THE HIGHLAND PATAGONIAN TERRITORIES (RIO NEGRO, ARGENTINA)

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ABSTRACT: *Telmatobius solitarius*, a new rare species from the ancient volcanic tableland of Southern Pilcaniyeu (Rio Negro, Argentina), is described. Its general relationships with the recently discovered *Telmatobius praebasalticus* and *T. reverberii* are discussed. The general features of such a chain of semiterrestrial telmatobiid frogs from the highland Patagonian territories are pointed out.

THE Patagonian territories between 37° and 44° S Lat. have a number of unspecialized, localized, and probably relict telmatobiid frogs (Cei and Roig, 1968; Cei, 1969a, b, c). Taxonomic and morphological features of this ancient leptodactylid stock have been recently revised and discussed by Lynch (1969, pers. comm.). Almost all the so-called Telmatobiini in Lynch's arrangement live in the Austral biocenotic community. *Batrachophrynus* and *Telmatobius* occur through the Andean and extra-Andean environments; *Calyptocephalella* lives in the ponds and streams of central Chile, but its fossil remains occur in Late Tertiary deposits of Patagonia (Rio Negro, Chubut); *Telmatobufo* is only known from the Nahuelbuta mountains near the Pacific coast of Chile. The Oligocenic fossil *Neoprocoela* from Chubut (Schaeffer, 1949) is considered to be an edentolous telmatobiid form (Lynch, 1969).

The occurrence of telmatobiids in the arid and widely stepparian Patagonian biota appears to be correlated with the distribution of isolated basaltic uplands. These eroded extra-Andean embossments of the Late Tertiary volcanic activity have special hydrological conditions, because of the permeability of the basaltic rocks and frequent endorheic drainage. Thermal springs, creeks, and closed systems of shallow lagoons contrast with the surrounding dry landscapes and represent, in many cases, the habitat for the known Patagonian species of the genus *Telmatobius*, such as *Telmatobius montanus* from Lonco-Luan (Neuquen), *Telmatobius patagonicus*

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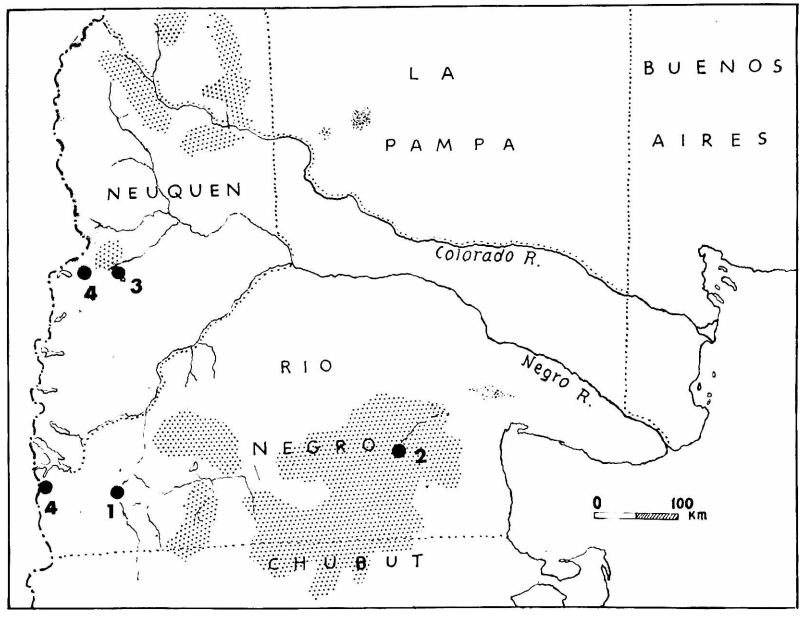

FIG. 1.—Geographic distribution of Patagonian telmatobiid frogs. Black circles: (1) *Telmatobius solitarius* n. sp.; (2) *Telmatobius reverberii* and *T. somuncurensis*; (3) *Telmatobius patagonicus* and *T. praebasalticus*; (4) *Telmatobius montanus*. (Dark area indicates the Neogene basaltic formations; dotted area the Tertiary and Quaternary basalts.)

and *Telmatobius praebasalticus* from the Meseta of Zapala (Neuquen), and *Telmatobius reverberii* and *Telmatobius somuncurensis* from the Somuncura Plateau (Rio Negro). A new species and a new locality can be added to this interesting distribution of Telmatobiini, i.e., the volcanic tableland of Southern Pilcaniyeu, Rio Negro (1200–1400 m), which is crossed by a number of small thermal springs and creeks, such as the Las Bayas Creek, Chacay Huarruca Creek, and Chenqueniyeu Creek (Fig. 1).

A new species of *Telmatobius* was discovered on 6 January 1969 under calcareous stones near Las Bayas Creek, together with *Pleurodema bufonina* and lizards of the genera *Liolaemus* and *Diplolaemus*. Unfortunately only a mature adult male was obtained, because of the elusive behavior of this rare and almost terrestrial form. A careful comparative screening of its morphological characters dispels any doubt about its taxonomic validity as a good species. Its name refers to the loneliness of its volcanic landscape.

Telmatobius solitarius new species

Holotype.—IBC-UNC-N° 2045. A male adult specimen from Las Bayas Creek, 48 km south Pilcaniyeu, Rio Negro, Patagonia,

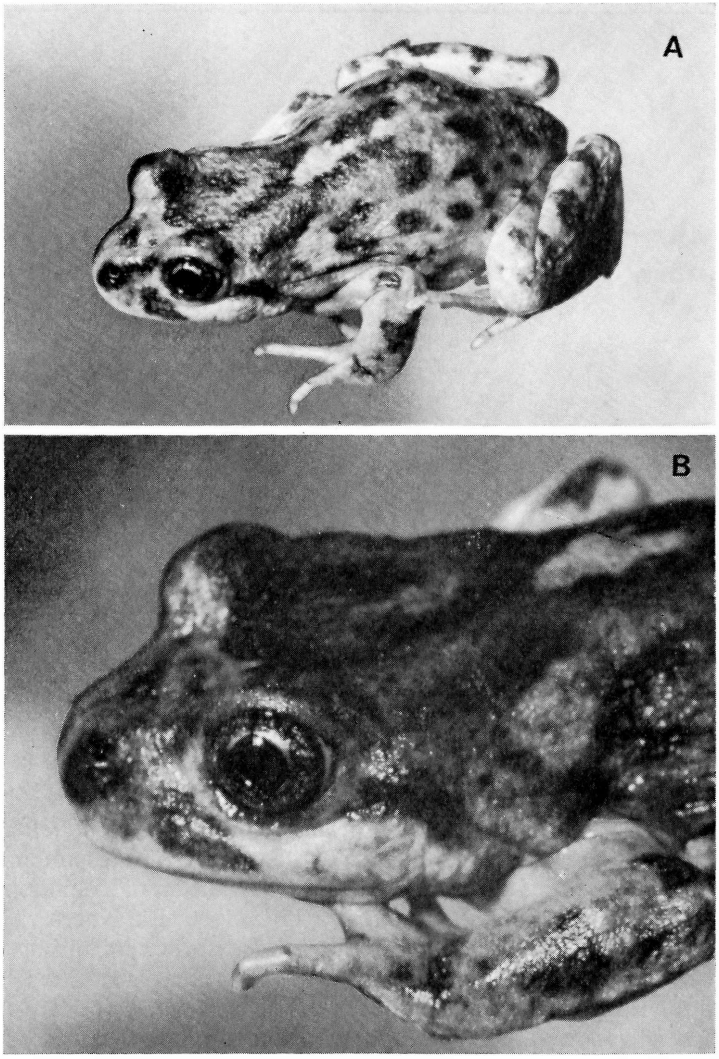

FIG. 2.—*Telmatobius solitarius* n. sp., holotype, dorsal view. (A = 2 ×; B = 5 ×.)

Argentina, 1200 m; collected 6 January 1969 by J. M. Cei (Fig. 2A, B; Fig. 3).

Diagnosis.—A medium-sized stout frog, of *Pleurodema*-like aspect and terrestrial habits, belonging to the extra-Andean *Telmatobius* group and related to the *praebasalticus-reverberii* complex, but differing by relative length of leg and foot, less webbed toes,

shape of the head, nostril not protruding, rhomboidal pupil and color pattern of the skin.

Description of the holotype.—Adult male having snout–vent length of 30.5 mm; head length 10.5 mm; head length/snout–vent length 34.4%; head width 11.0 mm; head width/snout–vent length 36.0%; thigh 14.0 mm; tibia 13.5 mm; tibia length/snout–vent length 44.2%; foot length (from inner metatarsal tubercle to tip of longest toe) 16.0 mm; arm (from axilla to tip of longest finger) 17.5 mm; eye diameter 4.2 mm; eye diameter/snout–vent length 13.7%. Snout in lateral profile almost declivous, rounded in dorsal profile without protruding nose; canthus not defined; loreal region gently concave; top of head declivous; lips rounded; nostril not protuberant; distance from nostril to tip of snout 2.1 mm; distance from nostril to anterior corner of eye 2.8 mm; internarial distance 2.6 mm; interorbital distance 2.8 mm, equal to width of the eyelid. A dermal fold evident from the posterior corner of the eye to the forelimb, covering tympanum; forearm slender; symmetrical, small, pigmented warts on chest and arm; pollex with small unpigmented glandular patches; fourth finger slightly longer than second; low cutaneous border between the fingers; subarticular tubercles weak; inner and outer metacarpal tubercles rounded, scarcely evident. Heels do not overlap when hind limbs are flexed; tibiotarsal articulation reaches the posterior corner of the eye; tarsal fold present; inner metatarsal tubercle of moderate size, paddle-shaped and somewhat pronounced; outer metatarsal tubercle small and conical; subarticular tubercles small, conical; length of digits from shortest to longest, 1-2-5-3-4; toes briefly webbed; fourth toe half-webbed but with a broad cutaneous border to the tip; a row of low rounded tubercles on the outer lower tarsal surface. Skin of dorsum, upper surface of forearms, and legs, sharply granular with scanty, flat, rounded warts, in some cases encircled by diffuse dark pigmented areas; skin of throat and belly smooth; ventral posterior surfaces of thighs granular (Fig. 3); a discoidal fold present. Tongue subcordiform, free posteriorly; premaxillary-maxillary teeth present; vomerine teeth in two small prominent patches between and on the median line of the narrow circular choanae.

Color in alcohol.—Brownish-gray on dorsal surfaces of the head, body and legs; an enlarged interocular and postocular W-shaped dark spot, diffusing posteriorly on the dorsum and surrounded by darker marginal borders; a light creamish interscapular spot; dark circular spots on the posterior surface of the back; dorsal surfaces of thighs, shanks, and tarsi with dark brown transverse bars; belly whitish, with minute, almost invisible blotches on the throat.

Color in life.—Bright creamish-red above, with faint purplish or reddish flat warts surrounded by diffuse dark spots; a very light interscapular wash (Fig. 2A, B); interocular and postocular dark spot somewhat diffuse; irregular round posterior dark spots; dark black bands on the upper surface of the legs; venter whitish; the lower granular posterior surface of the thighs rose colored. The iris is gold, with irregular black reticulation.

Remarks

The mature condition of the male holotype was determined by histological sections of its testes, which showed spermatozoids and spermatogenetic activity. The small gonads are lobulated and pig-

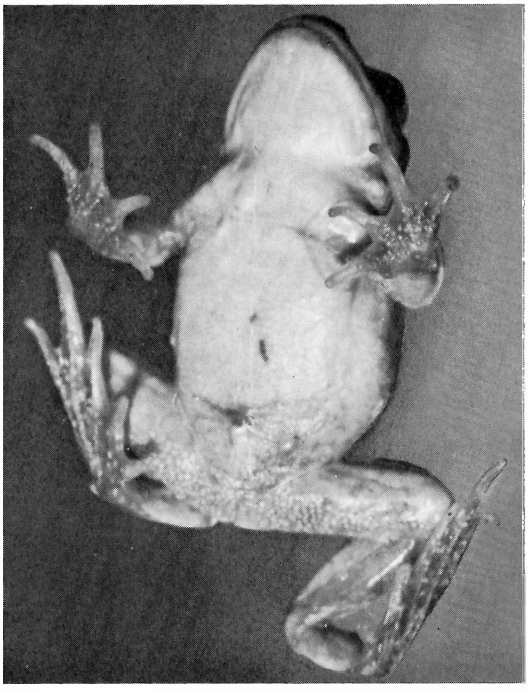

FIG. 3.—*Telmatobius solitarius* n. sp., holotype, ventral view. (2.5 ×).

mented (mean 1–2 mm). A very faint warning vibration (very low frequency) was also detectable. The specimen was parasitized by *Leptus* (Hydracaridae) in its dorsal and ventral skin.

Telmatobius solitarius is a delicate frog, very sensitive in captivity and to other environmental stresses. Its habitat seems to be the rocky ravines along the creeks in the wasted volcanic landscape of the stepparian Pilcaniyeu tableland. The habitat of this species is different from that of the biocenotic conditions reported for *T. praebasalticus* from Zapala, and *T. reverberii* from Somuncura Plateau.

The relationships of *Telmatobius solitarius* appear to be with *T. praebasalticus* and *T. reverberii*. It differs from *T. praebasalticus* in having a more rounded head, without protruding nostrils, shorter leg and foot, less webbed toes, thicker ventral skin, a stronger supratympanic fold, and a different dorsal color pattern. It differs from *T. reverberii* by its smaller size (30.5 mm of the holotype versus an average of 37.5 mm for 6 male *T. reverberii* [range 35 to 39 mm]), by the snout not being truncate and without protruding nostril, by a larger eye, with a rhomboidal pupil (circular in *reverberii*), by the 2nd toe being longer than the 4th, by the larger foot (foot length/snout–vent length 52.9% in *T. solitarius*, 55.2% in *T. praebasalticus*,

but 44.2% in *T. reverberii*); and by a very different dorsal color pattern.

It is evident that a chain of semiterrestrial or terrestrial forms of *Telmatobius* occurs in the rough extra-Andean Argentine territories of Neuquen and Rio Negro. They are often associated with the more isolated embossments, or topographically wasted remains of the Late Tertiary volcanic uplift. The discovery of *Telmatobius solitarius* in an intermediate area between the previously reported distributions of *T. praebasalticus* and *T. reverberii*, fills a gap in the general geographical range of the complex and suggests an extended and probably independent evolutionary history of this group of *Telmatobius*.

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