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DESIGNATION OF A NEOTYPE FOR *LEPTODACTYLUS GRACILIS* (DUMÉRIL AND BIBRON, 1840) (AMPHIBIA: LEPTODACTYLIDAE).

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ABSTRACT. The examination of the preserved specimens in the herpetological collection of the Muséum National d'Histoire Naturelle, along with a review of the original literature, indicates that no extant specimen can be undoubtedly identified as the holotype of *Leptodactylus gracilis* (Duméril and Bibron, 1840). Furthermore, it revealed that the type locality recently assigned to this taxon is in error.

KEYWORDS: Neotype, *Cystignathus*, *Leptodactylus gracilis*, type locality.

The description of the frog taxon currently known as *Leptodactylus gracilis* is based on three figures, showing a single specimen, published in Duméril and Bibron (1840: fig. 5-7) bearing the name *Cystignathus gracilis*. These illustrations, painted by P. Oudart, were published in 1840 (Lescure *et al.*, 2002, following Sherbon and Griffin, 1934). Based on these figures and following the *International Code of Zoological Nomenclature* (ICZN 1999), the species name is nomenclaturally available, with a holotype by monotypy (the single specimen shown in the plate), and should be credited to Duméril and Bibron (1840). However, no particular individual was identified as the source of the figures. Furthermore, concerning the origin of the illustrated specimen, no locality was included in the original illustration. Subsequently, Duméril and Bibron (1841:406-407) provided a brief description of this taxon in which they stated that the description was based on several specimens (number not given) found by d'Orbigny in Montevideo, "Patrie. Ce Cystignathe, dont nous possédons plusieurs exemplaires, a été trouvé à Montévidéo par M. d'Orbigny" (p. 407). This reference is the first published evidence for a type locality for the species. Duméril and Bibron (1841) did not state which of these specimens was the illustrated holotype.

Subsequently, d'Orbigny and Bibron (1847) referred to figures 5-7 of Duméril and Bibron (1840) and indicated that *Cystignathus gracilis* was a species found on the edges of small ponds and frequently found on sandy terrains habitats of Caacaty, Corrientes Province, Argentina: "Cette espèce habite le bord des petits lacs si frequens dans les terrains sablonneux des environs de Caacaty, province de Corrientes..." (d'Orbigny and Bibron, 1847:p. 10). D'Orbigny and

Bibron (1847) did not mention any other precise locality for this species. They based their description of *C. gracilis* on the figures in Duméril and Bibron (1840) and stated that the species was common in "Caacaty". However, they did not identify (and neither did Duméril and Bibron, 1841) the specimen illustrated as one from Caacaty.

Guibé (1950:30) considered Duméril and Bibron (1841) as authors of the specific name, and stated that the individual with catalogue number 4490 in the National Museum of Natural History in Paris (MNHN) was the holotype of *Leptodactylus gracilis*, without further explanation. In the MNHN catalogue, specimen 4490 has Montevideo as the locality and d'Orbigny as the collector. However, the identification of this specimen as the holotype illustrated in Duméril and Bibron (1840) is not supported by direct evidence in the original catalogue, nor by Duméril and Bibron's (1841) text, which clearly indicated that they were working with more than one specimen.

More recently, Lescure *et al.* (2002) accepted Guibé's (1950) designation of MNHN 4490 as the holotype. Based on d'Orbigny and Bibron's (1847) comment that the species was common in Caacaty, they considered the latter as the type locality for the species. Such a decision seems incorrect in: (1) accepting Guibé's designation of a holotype when there is no evidence that MNHN 4490 is the specimen illustrated by Duméril and Bibron (1840); and (2) assuming that the locality data associated in the original MNHN catalogue with MNHN 4490 were incorrect. As noted above, d'Orbigny and Bibron (1847) did not make an explicit correlation between the specimens from Caacaty and Duméril and Bibron's (1840) original illustration.

Examination of the original hand-written catalogue of recorded entries of specimens in the MNHN between 1832 and 1838 showed (p. 32) that d'Orbigny deposited 14 specimens of anurans from "l'Amérique Méridionale" on March 18, 1834. Six specimens were originally determined as *Bufo*, 6 as *Hyla*, and 2 as *Rana*; if nothing else, the first six were "toad-like" and the second set of six were "treefrogs", so only the two *Rana* could potentially correspond to *Leptodactylus*. However, these 2 specimens have no original catalogue numbers and can no longer be traced.

Nowadays, there are 6 extant specimens of *Leptodactylus gracilis* in the collection of the MNHN. Four of them (MNHN 4490-4493) are likely to have been collected before 1860 and were recorded in the catalogue written between 1861-1862. Two of them are from Brazil (MNHN 4491 and 4493, Claussen collec-

tor), 1 is from Buenos Aires (MNHN 6306, Duhamel collector) and 3 are from Montevideo (MNHN 1447, Biraben collector; MNHN 4490, d'Orbigny collector; MNHN 4492, Lasseaux collector). Given that the first ever published locality for this species was Montevideo (Duméril and Bibron, 1841), we think and following Recommendation 75A of the ICZN (1999) that a neotype should be designated from this locality, rather than from the later one mentioned by d'Orbigny and Bibron (1847).

Considering that it is impossible to determine with certainty, which, if any, of the extant specimens from Montevideo in MNHN corresponds to the illustrated holotype, the holotype is as good as lost and a neotype should be designated. Although impossible to affirm, it is probable that the specimens from Montevideo at the MNHN (at least two of them) are part of the type series examined and used by Duméril and Bibron, 1840, in the description of the species given that those specimens were at the MNHN since March 18, 1834 as indicated above. Recommendation 75A of the ICZN (1999) suggests designation of a topotypic specimen from the type series as a neotype. Furthermore, it is important to have this species name associated with a type specimen and type locality to avoid further confusion in this group (Article 75.3.1, ICZN, 1999). The species has a wide distribution, occupying different habitats, and it is not unlikely that *L. gracilis* represents a complex of cryptic species as recent molecular work has suggested for other species of *Leptodactylus* (Camargo *et al.*, 2005).

The 3 extant specimens from Montevideo in the MNHN collection are all in more or less equal preservation condition. Specimen MNHN 1447 is not likely to be the illustrated holotype, given its curved body as a result of preservation, whereas the colour

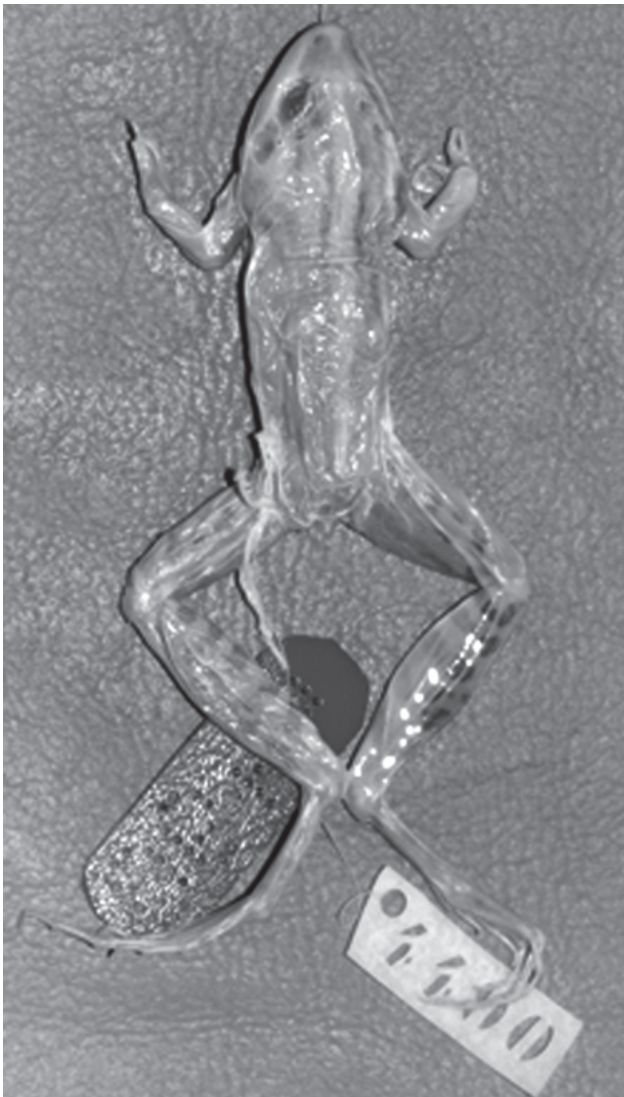


FIGURE 1. Neotype of *Leptodactylus gracilis* (Duméril and Bibron, 1840). MNHN 4490, adult male.

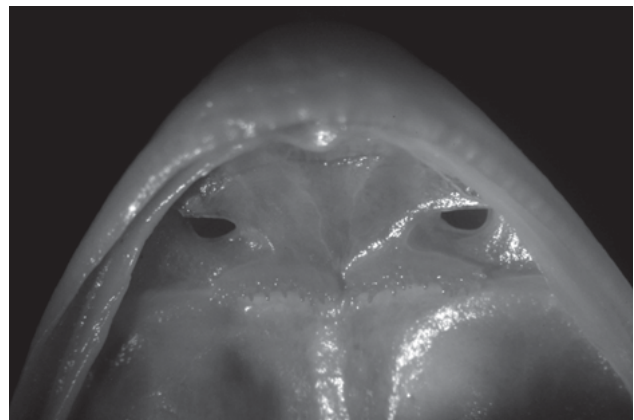


FIGURE 2. Vomerine teeth of *Leptodactylus gracilis*, MNHN 4490.

pattern of MNHN 4492 does not resemble the illustrated holotype. Only MNHN 4490, from Montevideo, is recorded with A. d'Orbigny as the collector as originally reported by Duméril and Bibron, 1840. This specimen seems to have been part of the original Museum public exhibit and it is discoloured; however, what still can be seen of it is not incompatible with the possibility that it might be the illustrated holotype, particularly given the 6 darker bands on the dorsal surface of the right shank as seen in the original illustration. In addition, this specimen has been previously referred, although unsupported, as the holotype for the species (Guibe, 1950; Lescure *et al.*, 2002). Considering its locality, collector, and following ICZN (1999) Recommendation 75A and Articles 75.3.6-7, we hereby choose specimen identified as MNHN 4490 as the neotype of *Cystignathus gracilis* Duméril and Bibron, 1840.

Description of MNHN 4490 (Fig. 1), collected in Montevideo by d'Orbigny in the first half of 19th century, neotype of *Cystignathus gracilis* Duméril and Bibron, 1840.

A medium size adult male with internal vocal sac and slit-like openings, SVL 46.5 mm; snout subovoid in dorsal view, rounded in lateral view, canthus rostralis rounded; loreal region concave, upper jaw slightly protruding over the lower jaw; head longer (15.5 mm) than wide (14.8 mm), nostrils positioned dorsolaterally, closer to tip of snout (1.5 mm) than to the eye (3.1 mm), internarial distance 1.9 mm; interocular distance 5.0 mm. Tympanum large (2.8 mm) and round. Eye diameter 3.6 mm. Fingers and toes without webbing. Inner and outer metacarpal tubercles large and round, subequal in size, proximal subarticular tubercles distinct and rounded; distal subarticular tubercles indistinct or absent. Thigh length 22.0 mm, shank 27.0 mm, tarsus 14.7 mm, and foot 25.7 mm. Inner metatarsal tubercle large and ovoid; outer one indistinct, tarsal fold almost indistinct. Vomerine teeth in two rows, slightly concave, and almost abutting at the midline (Fig. 2), their outer edge extending to about half of the diameter of the choanae.

It is impossible to provide an accurate description of coloration and presence or absence of ridges and folds (e.g., dorsal ridges, dorsolateral folds, supratympanic fold, etc). However, and as required by ICZN Articles 75.3.2-72.3.5, the remaining coloration pattern visible in this specimen and the following characters unequivocally identifies this specimen as *L. gracilis* (CeI, 1990; Langone, 1994) and differentiates it from all other *Leptodactylus* species (*L. latinasus*, *L. mystacinus*, and *L. ocellatus*)

ever reported from Montevideo, Uruguay (Nuñez *et al.*, 2004). Characters of MNHN 4490: Adult male SVL = 45.6 mm (maximum adult SVL = 37 mm in *L. latinasus*), body slender (stout in *L. mystacinus* and *L. ocellatus*), snout pointed (snout rounded in *L. mystacinus* and *L. ocellatus*), two brownish stripes extending posteriorly from the area between the eyes to the cloaca are present and they flank a distinct whitish and broad middorsal stripe (Fig. 1) (middorsal stripe absent in *L. mystacinus* and *L. latinasus*), lack of interocular spot (present in *L. ocellatus*), and hindlimbs long (short and broad in *L. mystacinus*).

RESÚMEN

El examen de los ejemplares depositados en la colección herpetológica del Muséum National d'Histoire Naturelle, junto con el examen de la literature original, indica que ningun ejemplar existente puede ser considerado como el holotipo de *Leptodactylus gracilis* (Duméril and Bibron, 1840). Además, dicho examen reveló que la localidad tipo asignada recientemente a esta especie esta equivocada.

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