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PHYSALAEMUS CARRIZORUM (ANURA, LEPTODACTYLIDAE): FIRST RECORD FROM PARAGUAY

PHYSALAEMUS CARRIZORUM (ANURA, LEPTODACTYLIDAE): PRIMER REGISTRO PARA PARAGUAY

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Paraguay: Itapúa Department: Alto Verá District: reserve for National Park San Rafael, Urutaú trail (26.631117° S, 55.664883° W, Datum WGS 84, elevation 268 m a.s.l.). Two males collected on 5 September 2008 and 9 December 2008. Both specimens were collected in pitfall traps located on a secondary forest next to rocky bed stream. Collection was authorized by the Ministry of Environment and Sustainable Development of Paraguay (MADES, #57038/2008). Specimens were anesthetized with lidocaine, fixed in 10% formalin followed by long-term storage in 70% ethyl alcohol. Voucher specimens are deposited in the Herpetological collection of the Instituto de Investigación Biológica del Paraguay (IIBP-H), Asunción, Paraguay under the numbers IIBP-H1347 and IIBP-H1373, both collected by Flavia Netto. This is the first record of *Physalaemus carrizorum* from Paraguay. We extend the distribution of the species in 91 km from nearest records in Argentina, Province of Misiones, Departament of Cainguás, 2 de Mayo locality (Cardozo & Pereyra, 2018; Fig. 1).

Physalaemus comprises 50 recognized species (Frost, 2021) widely distributed in South America east of the Andes. *Physalaemus gracilis* species group was proposed by Lynch (1970)

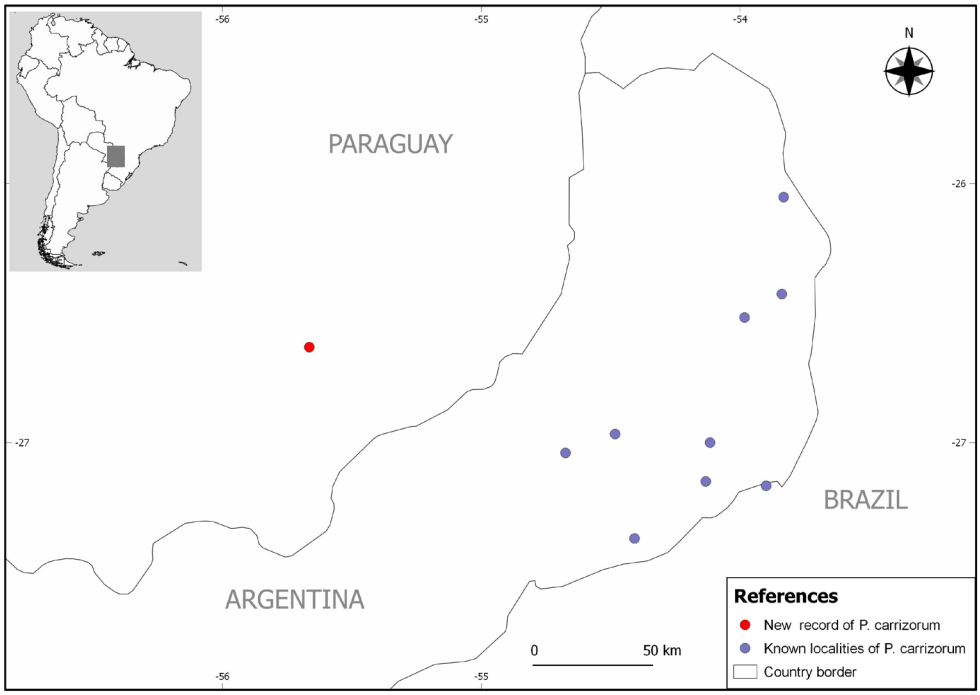

Figura 1. Mapa que muestra el nuevo registro de *Physalaemus carrizorum* de Paraguay y localidades previamente conocidas de Argentina.

Figure 1. Map showing the new record of *Physalaemus carrizorum* from Paraguay and previously known localities from Argentina.

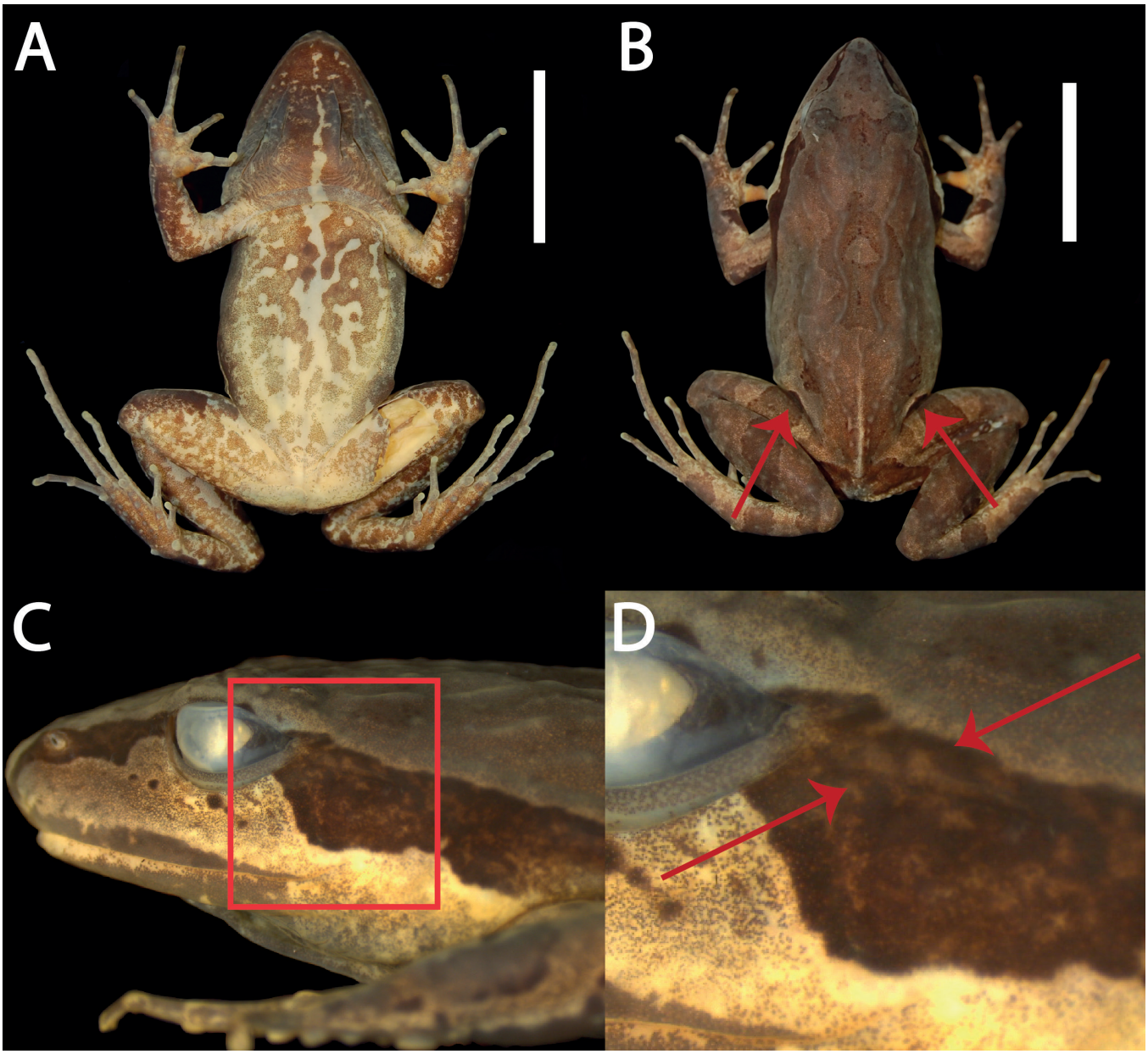

Figura 2. Detalle de los principales caracteres diagnósticos de *Physalaemus carrizorum*, espécimen IIBP-H1347. (A) vista ventral, la barra blanca corresponde a 10 mm; (B) vista dorsal, las flechas rojas resaltan las glándulas inguinales, la barra blanca corresponde a 10 mm; (C) vista lateral, pliegue supratimpánico resaltado en cuadrado rojo; (D) detalles de la vista lateral, las flechas rojas resaltan el pliegue supratimpánico.

Figure 2. Details of main diagnostic characters of *Physalaemus carrizorum*, specimen IIBP-H1347. (A) ventral view, white bar corresponds to 10 mm; (B) dorsal view, red arrows highlight inguinal glands, white bar correspond to 10 mm; (C) lateral view, red square highlight supratympanic fold; (D) details of lateral view, red arrows highlight supratympanic fold.

and supported in Nascimento et al. (2005) and Lourenço et al. (2015). Currently, six species are included in this group: *P. carrizorum* Cardozo and Pereyra, 2018, *P. barrioi* Bokermann, 1967, *P. evangelistai* Bokermann, 1967, *P. gracilis* (Boulenger, 1883), *P. jordanensis* Bokermann, 1967 and *P. lisei* Braun and Braun, 1977. *Physalaemus carrizorum*, historically misidentified as *P. gracilis*, was described based on external morphology, advertisement call, and 16S genetic distance. Cardozo and Pereyra (2018) mentioned that the species only occurs in Argentina, Misiones Province, located in the Atlantic Forest domain, and that it is likely to occur in neighboring Brazil.

Several authors (Boettger, 1885; Boulenger, 1894; Peracca, 1895; Bertoni, 1914; 1939) have mentioned the presence of *P. gracilis* in Paraguay, which could be referring to *P. carrizorum*, however until now there were no voucher specimens to support its occurrence in the country. The presence of *P. carrizorum* (as *P. gracilis*) in Paraguay was considered probable by Brusquetti and Lavilla (2006) due to geographic proximity localities of Argentinians records (Misiones) and southeastern Brazil (Rio Grande do Sul, Paraná and Santa Catarina), and because of habitat similarity.

Identification of the specimens from Paraguay was confirmed based on Cardozo and Pereyra (2018). Both specimens present the character states that diagnose *P. carrizorum* from all the species of *Physalaemus* not belonging to the *P. gracilis* group (except *P. riograndensis*, from *P. biligonigerus* group): a median stripe defined by the absence of melanocytes on throat, chest, and/or abdomen (Fig. 2A); from *P. riograndensis*: presence of inguinal glands (absent in *P. riograndensis*) (Fig. 2B), larger body size (snout-vent length of IIBP-H1347 is 28.57 mm, of IIBP-H1373 is 28.52 mm; smaller than 20.5 mm in *P. riograndensis*, Cardoso & Pereyra, 2018) and dorsal skin texture near smooth (tuberculate in *P. riograndensis*) (Fig. 2B); from the remaining species of the *P. gracilis* group: supratympanic fold developed (poorly developed in *P. barrioi*, Provete et al., 2012; not evident in the rest of the species) (Figs. 2C and D).

Although the mentioned specimens were collected in an area proposed as reserve for a national park, currently is divided between more than 60 private owners with a great and increasingly serious risk of deforestation. Taking into account that this is the only known population of *P. carrizorum* on the right bank of the Paraná River, and that is a small and isolated population, studies on genetic diversity and its protection should be a priority.

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