

First confirmed records of the guppy, *Poecilia reticulata*, from Paraguay.

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Abstract

So far the guppy, *Poecilia reticulata*, has been merely listed for the country of Paraguay only without any reference to voucher specimens. The objective of this note is to confirm the occurrence of *P. reticulata* in Paraguay based on the examination of specimens deposited in fish collections.

Results and Discussion

Poecilia reticulata Peters, 1859 (fig. 1), worldwide known as the guppy, is one of the world's most known fish being often employed as a model of evolutionary biology studies as well as of ecology, behavior, embryology, and many other branches of biology. It is a small species of livebearing killifish native to Northern South America and some Caribbean islands (Lucinda, 2003). It is difficult to accurately estimate the original range of this species as it has been widely introduced (mainly for the control of mosquito larvae and release of aquarium fish) and established elsewhere in South America and in all remaining continents apart from Antarctica. Nonetheless, it is likely that native range of *P. reticulata* includes coastal drainages of Venezuela, Guyana, Suriname, and the Brazilian states of Amapá and Pará, as well as the Islands of Trinidad and Tobago.

The objective of this note is firstly reporting the occurrence of *Poecilia reticulata* in the Republic of Paraguay grounded on the study of specimens deposited in fish collections. Specimens examined belongs to the following fish collections: The Academy of Natural Sciences, Philadelphia (ANSP), Museo Nacional de Historia Natural del Paraguay, San Lorenzo (MNHNP), Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro (MNRJ), and Naturhistoriska Riksmuseet, Stockholm (NRM). Specimens were identified in accordance with Eigenmann (1907), Regan (1913), Hubbs (1924, 1926), and Rosen & Bailey (1963). These specimens are listed below under "Examined Specimens".

Paraguayan specimens of *Poecilia reticulata* (figs. 2-3) are herein reported from a total of 552 specimens pertaining to ten holdings from seven localities within the Río Paraguay drainage. These records embrace the following Departamentos: Caaguazú, Central, and Cordillera (fig. 4).



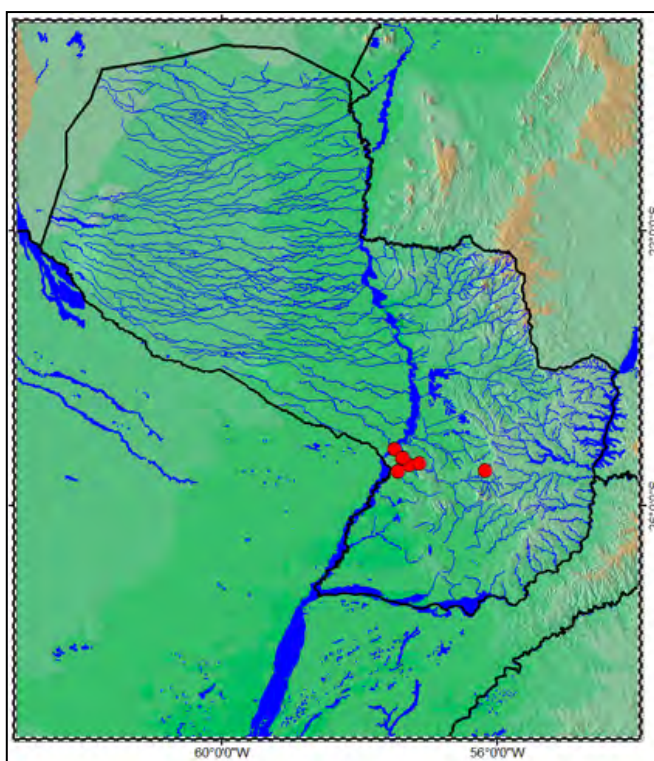
fig. 1. Example of the variable overall coloration pattern and the fin shape of a male *Poecilia reticulata* from a non-autochthonous population. Specimen from México, one of the many countries where this species was introduced.



fig. 2. *Poecilia reticulata*, male, NRM 35767, 18.9 mm SL (top)

fig. 3. *Poecilia reticulata*, female, NRM 35767, 31.0 mm SL (above)

fig. 4. Map of Paraguay showing the known distribution of *Poecilia reticulata* as recorded from museum specimens.



Three papers reported on *Poecilia reticulata* from Paraguay (Ramlow, 1989; Mandelburger et al., 1996; and Deacon et al., 2011); however, these reports were not explicitly supported by voucher specimens. Ramlow (1989) reported “*Lebistes cf. reticulatus* Regan, 1913” from “Areguá, en un arroyo” and *Poecilia reticulata* from Arroyo San Lorenzo at San Lorenzo. Ramlow (1989) did not mention any voucher specimens, though she mentioned that her list of species was based on specimens housed in the fish collection of at MNHNP and resultant from inventory activities from 1980 to 1988. Indeed, I was able to locate two holdings (MNHNP 1084 and 1094), which are probably the voucher specimens of Ramlow (1989) from Areguá. However, I was unable to locate any MNHNP holding corresponding to the report from San Lorenzo. These voucher specimens may be either lost or yet uncatalogued (H. Vera-Alcaraz, pers. comm.). Mandelburger et al. (1996) reported *Poecilia* sp. from “Río Acaray at Alto Paraná”, and *Poecilia*

reticulata from “Parque Nacional Cerro Corá at Amambay”, and from “Guarambaré at Central”. These authors as well did not list any specimen, however, mentioned in their summary section that their list was based on MNHNP specimens and resulted from the inventory activities from 1980 to 1995. Based on the examination of MNHNP specimens, I herein confirm the records from Guarambaré (MNHNP 132 and MNHNP 133). However, records from the Río Acaray and the Parque Nacional Cerro Corá are incorrect. The specimen from the Río Acaray (MNHNP 1100) actually is a female specimen of *Phallotorynus victoriae*. The specimens from the Parque Nacional Cerro Corá were wrongly assigned to that locality, being now corrected to Guarambaré (MNHNP 132 and MNHNP 133) by the staff of the MNHNP (H. Vera-Alcaraz, pers. comm.).

Deacon *et al.* (2011) reported *Poecilia reticulata* populations outside the native range from many countries all over the world, including Paraguay. These authors did not base such report on voucher specimens, otherwise, on records from on-line databases coupled with responses to an e-mail questionnaire sent worldwide.

The records of *Poecilia reticulata* presented herein are the first based on the examination of specimens housed in fish collections, and hence constitute the first reliable records for this species from the country of Paraguay.

Examined Specimens (all from Paraguay)

Phallotorynus victoriae: Alto Paraná: MNHNP 1100, 1, Río Acaray, downstream dam.

Poecilia reticulata: Caaguazú: ANSP 175162, 1, stream (largest) running through Parque Nacional Guayaki, 25°28'33"S 56°10'37"W. Central: MNHNP 132, 36, and MNHNP 133, 181, Guarambaré, a small stream flowing behind the church, 25°29'41"S 57°26'52"W. MNHNP 1084, 243, and MNHNP 1094, 14, 9.6–27.8 mm SL, Areguá, creek 1 km from Lago Ypacaraí, 25°18'34"S 57°22'44"W. MNHNP 1489, 18, and NRM 35767, 20, Ypacaraí, stream ca. 200 m from road to Ciudad del Este, 25°24'11"S 57°17'00"W. MNRJ 24165, 12, Limpio, small creek, near bridge Urbanización Costa Azul between Limpio and Balneario Costa Azul, NW of ruta Asunción, 25°10'14"S 57°29'54"W. NRM 42943, 1, small creek W of Lago Ypacaraí, about 1 km from Areguá, 25°17'50"S 57°22'47"W. Cordillera: MNHNP 3706, 26, Caacupé, Arroyo Ortega, 25°22'49"S 57°8'12"W.

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