

First record and supplementary description of *Leporinus amae* Godoy, 1980 (Characiformes: Anostomidae) from freshwaters in Argentina

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ABSTRACT: *Leporinus amae* is known from the Rio Apuaê (type locality), Rio Canoas and Rio Caveiras tributaries of the Uruguay River basin, in Brazil. The original description of this species was mainly based on a single specimen lacking intraspecific variation in meristic and morphometric of most characters. We expand the range of distribution and report the first occurrence of *Leporinus amae* in Misiones Province, Argentina. Additionally, we provide a supplementary description of the species.

The genus *Leporinus* Agassiz, 1829 includes about ninety species occurring in cis- and trans-Andean rivers in South America from Trinidad to Argentina (Garavello and Britski 2003; Birindelli and Britski 2009; Garavello and Santos 2009). The highest diversity of this genus is present in the Amazon basin with approximately 45 species (Feitosa *et al.* 2011). Four species of *Leporinus* are known from the Uruguay River basin: *L. amae* Godoy, 1980; *L. lacustris* Amaral Campos, 1945; *L. obtusidens* Valenciennes, 1837; and *L. striatus* Kner, 1858 (Braga, 1993; Godoy, 1987; Zarucki *et al.*, 2010).

Leporinus amae was described from the Rio Apuaê, a tributary of the Rio Pelotas, in the Uruguay River basin in Brazil (Godoy 1980). The original description of *L. amae* is based on eight specimens but most of the characters were taken from a single female (holotype) of 128 mm of standard length (SL). The description of *L. amae* therefore lacks intraspecific variation in meristic and morphometric characters (except for scale counts of the lateral line provided by Godoy 1980).

During several field trips in the Uruguay River basin in Misiones Province, Argentina, several specimens of *L. amae* were collected. Thus, the aim of this paper is to record this species for the first time in the freshwaters of Argentina and provide a supplementary description of this species.

Leporinus amae Godoy, 1980
(Figures 1-5).

Morphometric data of 10 specimens are presented in Table 1. Medium-sized species, largest specimen 120.8 mm SL. Body elongate, moderately compressed, greatest body depth at dorsal-fin origin. Dorsal profile strongly convex at tip of snout; nearly straight along predorsal region, then gently convex to dorsal-fin origin; straight from dorsal-fin origin to adipose-fin origin, and distinctly concave from this point to base of anteriormost procurrent ray of caudal

fin. Ventral profile of body distinctly convex from lower jaw to anal fin base, and concave at caudal peduncle. Mouth subterminal; mouth gap slightly below lower margin of the orbit. Snout distinctly rounded. Premaxilla with three incisiform teeth gently diminishing in size from symphysis in 2 cleared and counterstained (C&S) (Figure 1). Dentary with four incisiform teeth gradually decreasing in size laterally (2 C&S, Figure 2). Total Vertebrae (not including Weberian apparatus) 33 or 34. Gill rakers on first gill arch 6+1+8 (2 C&S).

Dorsal-fin rays ii,9 (2) or ii,10 (8); its origin anterior to vertical through pelvic-fin origin; distal margin slightly convex. Pectoral-fin rays with i,14 (5) or i,15 (5); its distal tip extending at midway between pectoral and pelvic-fin origins; distal margin of pectoral-fin, convex. Pelvic-fin rays i,8 (10), with distal margin convex. Anal-fin rays ii,8 (10). Distal margin of anal fin, straight or slightly concave. Caudal-fin rays i,9+8,i (6), or i,9+9,i (3). Caudal-fin forked with upper lobe slightly longer than lower one. Lateral line on flanks with 36 (3), 37 (4), or 38 (3) perforated scales. Longitudinal scale rows between dorsal fin origin and lateral line 4 (1), 4½ (7), 5 (2). Longitudinal scales rows between lateral line and pelvic-fin origin 3 (1), 3½ (7) or 4 (2). Predorsal scales 10 (5), 11 (4) or 12 (1). Twelve horizontal scale rows around caudal peduncle (10).

Colour in alcohol. Background of flanks yellow, black on back (Figure 3). Head with black stripe from tip of snout to posterior margin of opercle (Figure 4). Flank with a wide dark brown midlateral stripe from snout tip to caudal-fin base. Midlateral stripe of one scale deep, running on lateral line scale series; slightly deeper on caudal-fin base. A thin pale yellow lateral stripe just above midlateral stripe from distal margin of opercle to caudal-fin-base. Dorsal and caudal fins pale gray with scattered chromatophores on rays. Anal, pectorals, and pelvic fins yellowish with scattered chromatophores on rays. Adipose fin yellowish with gray submarginal spot.

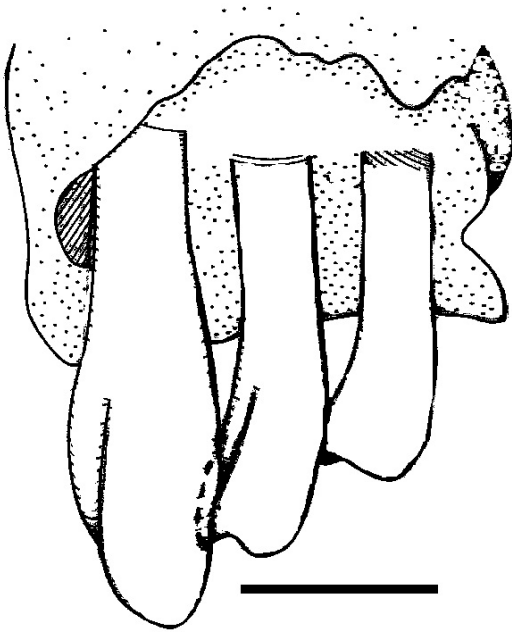


FIGURE 1. *Leporinus amae*, upper jaw, internal view. Scale bar 1 mm.

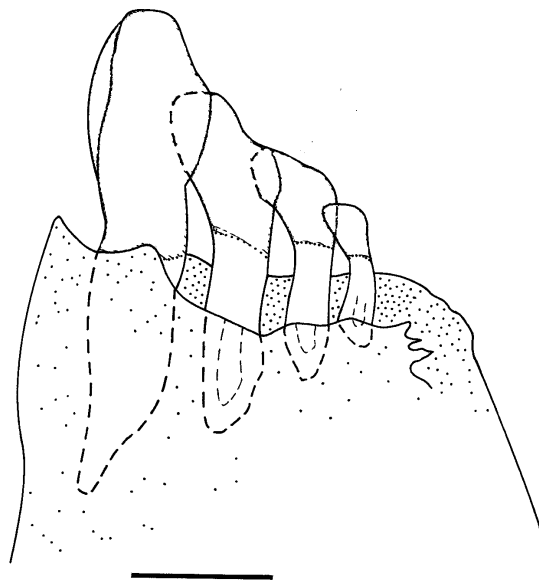


FIGURE 2. *Leporinus amae*, lower jaw, internal view. Scale bar 1 mm.

Coloration in life: Background of flanks yellow, black on back; cream ventrally (Figures 3 and 5). Upper lip and part of the lower lip, ventral region of opercle, subopercle, and interopercle red (Figure 4). Red scattered chromatophores on cheek and red ring around the pupil. Red chromatophores on branchiostegal membranes (Figure 5). A yellow and narrow lateral band just above midlateral band. Scattered red or iridescent violet scales above (especially on a yellow band) and below black midlateral band. All fins yellow with scattered dark chromatophores.

Distribution. *Leporinus amae* was registered from the type locality Rio Apuaê (Godoy, 1980), and Rio Canoas and Rio Caveiras (Godoy, 1987), all from Uruguay River basin, in Brazil. In Argentina, this species is currently known from the contact zone between the upper and lower Uruguay River basin, which are divided by the Moconá Falls. It was recorded from the arroyo Toro, affluent of río Pepirí Guazú above the Moconá Falls, and from arroyo Fortaleza (Figures 6 and 7), and arroyo Yabotí-Mini bellow the Moconá Falls, all in Misiones Province, Argentina.

Remarks. *Leporinus amae* is a very distinctive species due to the colour pattern thus identifying the studied material in this work is unequivocal. Most of the characters provided by Godoy (1980) in the original description agree with those from the material examined herein. However, some differences in the following proportional characters were found (original description vs. material examined herein): eye diameter/head length (5.5 vs. 4.2-4.8), head depth/head length (1.25 vs. 1.50-1.66), dentary teeth 3/3 vs. 4/4, perforated scales of lateral line (38-39 vs. 36-38), transverse scales (5/5.5 vs. 4-5/3-4).

Material examined: *Leporinus amae*: All from Misiones Province, Río Uruguay Basin, MACN-ict 9843, 5 ex., 105.9-117.8 mm SL, arroyo Fortaleza, below the fall (26°45'57.1"S, 54°10'51.7"W). Coll.: Rican *et al.*, December, 2007. MACN-ict 9844, 5 ex., 102.9-120.8 mm SL, arroyo Yabotí-Mini (26°43'19.9"S, 53°50'36.2"W), Coll.: Casciotta *et al.*, February, 2012. MACN-ict 9845, 7 ex., 49.0-137.2 mm SL, arroyo Toro (26°36'32.8"S, 53°44'13.9"W), Paso Rosales, camping del Ing. Pauni, Coll.: Casciotta *et al.*, February, 2012. AI 313, 2 ex (C&S) 100.2-102.7 mm SL, arroyo Fortaleza (26°45'57.1"S, 54°10'51.7"W), Coll.: Casciotta *et al.*, February, 2012



FIGURE 3. *Leporinus amae*, upon capture, arroyo Fortaleza, not preserved.



FIGURE 4. *Leporinus amae*, upon capture, arroyo Fortaleza, not preserved, close shot of the head in lateral view.



FIGURE 5. *Leporinus amae*, upon capture, arroyo Fortaleza, not preserved, close shot of the head in ventral view.



FIGURE 6. Arroyo Fortaleza, río Uruguay basin, Misiones Province, Argentina.

TABLE 1. Morphometric data for 10 specimens of *Leporinus amae* from the Uruguay Basin in Argentina, SD = Standard deviation. Measurements follow Feitosa et al. (2011).

	RANGE	MEAN	SD
Standard length (mm)	102.9 - 120.8		
Percentages of SL			
Body depth	23.51 - 25.87	24.6	0.69
Body width	15.45 - 18.13	16.76	0.95
Head length	23.86 - 27.19	25.30	0.96
Head width	12.70 - 13.88	13.27	0.41
Predorsal distance	46.35 - 49.95	48.00	0.99
Prepelvic distance	48.97 - 52.91	50.88	1.28
Preanal distance	76.74 - 80.65	78.13	1.45
Caudal peduncle length	13.27 - 16.64	14.96	1.32
Caudal peduncle depth	10.15 - 11.34	10.90	0.35
Percentages of HL			
Snout length	38.43 - 41.98	40.20	1.43
Eye diameter	21.02 - 23.75	22.94	0.98
Bony interorbital	33.21 - 37.55	34.91	1.59

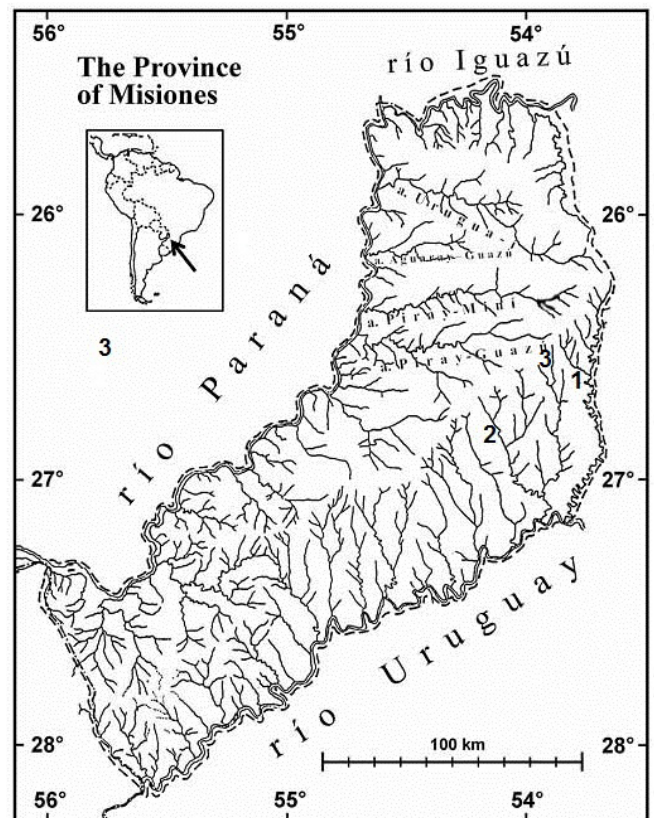


FIGURE 7. Map showing the collecting sites of *Leporinus amae* in río Uruguay basin, Misiones Province, Argentina: 1, arroyo Toro; 2, arroyo Fortaleza; and 3, arroyo Yabotí-Mini.

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