

First record of *Crenicichla jupiaensis* Britski & Luengo, 1968 (Perciformes: Cichlidae) in freshwaters of Argentina.

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Abstract

Crenicichla jupiaensis is registered for the first time from the río Paraná in the northeast of Argentina. The specimens were captured at the left bank of the río Paraná close to Yahapé city (27°22'12.1"S-57°39'14.6"W), about 1,250 km southwest of the type locality. *Crenicichla jupiaensis* is sympatric with *C. lepidota*, *C. semifasciata* and *C. vittata*.

Resumen

Crenicichla jupiaensis es registrada por primera vez para el río Paraná en el noreste de Argentina. Los especímenes fueron colectados en la margen izquierda del cauce principal del río Paraná en Yahapé (27°22'12.1"S-57°39'14.6"W), unos 1.250 km hacia el sudoeste de su localidad tipo. *Crenicichla jupiaensis* vive en simpatria con *C. lepidota*, *C. semifasciata* y *C. vittata*.

Introduction

The genus *Crenicichla* is distributed from the north of South America to río Negro, in Patagonia, Argentina (Casciotta, 1987). It comprises about 78 species and represents the most speciose genus of cichlid fishes (Kullander and Lucena, 2006). Eleven species of *Crenicichla* inhabit the río Paraná basin: *C. britskii* Kullander, 1982; *C. haroldoi* Luengo & Britski, 1974; *C. iguassuensis* Haseman, 1911; *C. jaguarensis* Haseman, 1911; *C. jupiaensis* Britski & Luengo, 1968; *C. lepidota* Heckel, 1840; *C. niederleini* (Holmberg, 1891); *C. scottii* (Eigenmann, 1907); *C. semifasciata* (Heckel, 1840); *C. vittata* Heckel, 1840; and *C. yaha* Casciotta et al., 2006.

The río Paraná/Cuenca del Plata basin flows mostly from the north to the south over a distance of 4,000 km covering 3,100,000 km², being the second largest basin of South America and the fifth in the world. During the last 40 years, the río Paraná and several of its main tributaries were interrupted and modified by about 30 large (> 100 km²) reservoirs for hydropower generation (Agostinho & Gomes, 2002). This cumulative effect of dams generates habitat fragmentation which may threaten biodiversity (Agostinho et al., 2004). One of largest reservoirs is the Yacyretá Dam, located in the río Paraná between Paraguay and Argentina, being the last one downriver. As part of intensive studies to assess the effects of Yacyretá Dam on lotic ecosystems and the new reservoir, a continuous monitoring of the fish fauna is carried out close to the dam since 1993 (Bechara, 1999).

Three specimens of *Crenicichla jupiaensis* were found during these collecting trips. These specimens were collected in the río Paraná at Yahapé town (27°22'12.1"S-57°39'14.6"W) in the north-east of



Fig.1. Lateral view of *Crenicichla jupiaensis*, 93.0 mm standard length (AI 226).

Argentina. The samples were taken seasonally (February, May, August and November) with gill nets placed during 48 hours and emptied every 8 hours. To describe the main habitat traits of the species, analyses of some physical and water quality parameters in the netting area were performed, including temperature, pH, conductivity (Hanna Instruments, USA) and dissolved oxygen (Yellow Spring Instruments, USA). Mean water velocity was registered using a digital flowmeter (Global Water Inc., USA). Transparency was registered using a Secchi disk. Alkalinity and hardness were measured *in-situ* by titration and colorimetric methods (Hach kit Model FF-2, USA).

***Crenicichla jupiaensis* Britski & Luengo, 1968**

Material examined

Crenicichla jupiaensis: AI 226 2 ex., 87.7-93.0 mm SL, Argentina, Corrientes province, río Paraná at Yahapé 27°22'12.1"S-57°39'14.6"W. coll: A. Gonzalez et al., February, 2005. AI 227 1 ex., 60.7 mm SL, Argentina, Corrientes province, río Paraná at Yahapé 27°22'12.1"S-57°39'14.6"W. coll: A. Gonzalez et al., February, 2006.

Description

Morphometry of three specimens of *Crenicichla jupiaensis* are provided in table 1. Body elongate, depth four times in SL. Head deeper than wider. Dorsal profile in straight line. Snout short, bluntly pointed in lateral view. Jaws isognathous or lower jaw slightly prognathous. Maxilla reaching anterior margin of orbit. Lower lip folds widely separated anteriorly. Nostrils lateral, nearer anterior margin of orbit than snout tip. Posterior margin of preopercle smooth. Scales on flank strongly ctenoid. Cheek naked. Scales in E1 row 55, 56, and 57. Scale rows between lateral lines 3. Upper lateral line scales 23 (2 spms.), 25. Lower lateral line scales 10, 11, and 12. Dorsal, anal, pectoral and pelvic fins naked. Dorsal fin XVIII,10; XIX,9; and XX,9. Anal fin III,6 (2 spms.) and III,7 (1 spms.). Pectoral fin 16 (2 spms.), 17 (1 spms). Caudal fin squamation extending two thirds of fin. Soft-dorsal fin rounded or pointed tip, reaching or scarcely surpassing the caudal-fin base. Soft-anal fin not reaching the caudal-fin base. Caudal fin slightly rounded. Pectoral fin rounded, reaching the distal of pelvic-fin. Seven gill rakers on first arch.

Colour in alcohol

Ground colour pale brown. Snout and preorbital stripe grey. Postorbital stripe between posterior margin of orbit to opercular distal margin, wide and grey. Two specimens with suborbital stripe, the remaining without it. Suborbital stripe black, formed by 6 to 8 small dots directed towards preopercular-distal margin; dot close to ventral margin of orbit larger than the others. Preopercular-distal margin bordered by a narrow black line. Dark nape stripe placed at posterior edge of preopercle. Flank with 11 dark vertical stripes, the first one placed at dorsal-fin origin. Most vertical stripes doubled, leaving a light area in the middle; those placed on caudal peduncle sometimes singles. Pectoral and ventral fins hyaline or smoky. Dorsal fin smoky with 7 or 8 oblique dark stripes; the first three are projections of vertical stripes of flank. Anal fin smoky, with 4 or 5 dark oblique stripes. Caudal fin bearing a subcircular or vertically elongate dot and 5 dark vertical stripes.



Fig. 2. Map showing the collecting site (number 1) of *Crenicichla jupiaensis*.



Fig. 3. Río Paraná at Yahapé, Corrientes province, Argentina, where *Crenicichla jupiaensis* was collected.

Habitat

The specimens of *Crenicichla jupiaensis* were collected in February 2005 and 2006 in coastal areas of a narrowed reach of the Río Paraná main channel, downstream a prominent sandstone outcrop (Figs. 2, 3). The main environmental variables of the habitat are presented in table 2. Depth varied between 1.5-2.5 m and the bottom was composed mostly by large boulders of sandstone with patches of sand and pebbles.

The species was found in well oxygenated waters having moderate current speed. Transparency was within the most frequent range registered in the river. Conductivity was generally low and typical for the river. The pH was slightly acidic to neutral. Water was very soft, with low levels of alkalinity and hardness.

Remarks

Crenicichla jupiaensis was recorded on the left margin of the río Paraná below the Yacyretá Dam about 1,250 km south-west from the type locality. This species seems not to be very abundant; only three specimens were collected in two years of collecting trips. *Crenicichla jupiaensis* is sympatric with *C. lepidota*, *C. semifasciata*, and *C. vittata*. *Crenicichla jupiaensis* is easily distinguished from those species in several characters of the colour pattern. For example *C. jupiaensis* bears 11 vertical stripes on flanks doubled, absent in the remaining species and lacks a circular caudal spot surrounded by a light (orange or silvery) ring, present in the remaining species.

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Table 1.

Morphometry of three specimens of *Crenicichla jupiaensis* expressed as percentage of SL. SD: standard deviation.

	Range	Mean	SD
Head length	32.2-35.2	33.7	1.51
Snout length	12.1-14.2	13.0	0.55
Body depth	24.5-24.8	24.6	0.18
Orbital diameter	6.8-7.2	7.0	0.21
Interorbital width	5.6-7.0	6.5	0.72
Pectoral fin length	19.9-22.1	21.1	1.15
Caudal peduncle depth	11.8-12.9	12.4	0.57
Caudal peduncle length	15.5-18.0	17.0	1.34

Table 2.

Description of some environmental variables of the habitat on the two sampling dates when *Crenicichla jupiaensis* was captured.

	February 2005	February 2006
Water Temp. (°C)	28.3	29.2
Conductivity ($\mu\text{S cm}^{-1}$)	55.8	55.7
pH	6.45	7.17
Dissolved Oxygen (mg l ⁻¹)	7.24	7.67
D.O. (% saturation)	93.3	100.0
Alkalinity (mg l ⁻¹)	12.0	14.0
Hardness (mg l ⁻¹)	16.00	16.00
Secchi disk transparency (m)	1.46	2.35 [*]
Depth (m)	2.26	1.7
Water velocity (m s ⁻¹)	0.57	0.60

* registered in deeper zones of the sampling area.

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