

Short Communication

Considerations on the ichthyofauna of the Uruguay River basin: *Hemiancistrus fuliginosus* Cardoso & Malabarba, 1999 (Loricariidae: Ancistrinae)

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The genus *Hemiancistrus* was proposed by Bleeker (1862) with *Ancistrus medians* Kner (1854) from Surinam as type species.

According to Schaefer (1986), the systematic status of this genus is controversial and lacks a clear diagnosis. Isbrücker (1992) stated that its specific composition is in need of revision. The species cited by Isbrücker (1980) occur in basins in northern South America, with the exception of *Hypostomus itacua* Valenciennes, 1840, with type locality 'des affluents de La Plata', which was included in genus *Hemiancistrus* by Eigenmann and Eigenmann (1889). Miquelarena et al. (1994) considered this reference for Argentina, making a series of observations and commenting that 'Taking into account the confusion existing among the type material, we consider *H. itacua* as a questionable species.'

With respect to *Lasiancistrus* Regan, 1904, after re-examination of some type specimens and revision of the original species descriptions by Armbruster and Provenzano (2000), this genus (*sensu* Isbrücker, 1980 and Heitmans et al., 1983) appears to be polyphyletic. Armbruster and Provenzano (2000) comment that 'At present, there are no published studies that diagnose *Lasiancistrus*; however, another study (J. W. Armbruster, unpubl. data) suggests that *Lasiancistrus* be restricted to those species that can be superficially recognized by the presence of long, narrow odontodes on the evertible cheek plates that look like whiskers.'

Based on one specimen, Miquelarena et al. (1994) include an unnamed species from the locality of Garavi, province of Corrientes (Fig. 1), in the Argentinian sector of the Uruguay River, within this genus; they provided an accurate description and commented that 'The material studied is probably a new species of genus *Lasiancistrus*.'

The subsequent addition of material from Yaboti-Mini Creek, a tributary of the Uruguay River in Misiones province (Fig. 1), and the comparison with the type material included in Cardoso and Malabarba (1999) allow us to conclude that the *Lasiancistrus* sp. specimen mentioned in Miquelarena et al. (1994) belongs to the species *Hemiancistrus fuliginosus* Cardoso and Malabarba, 1999. This species has been described from tributaries of the upper and middle Uruguay River in Brazil, and is apparently restricted to the Uruguay River basin. In Argentina, it occurs within the area included in the Misioneran and lower Uruguay River ichthyological ecoregions proposed by López et al. (2002), establishing the southernmost distributional limit for the genus.

The species can be distinguished from most other species of *Hemiancistrus* mainly by its coloration pattern, which lacks any distinct markings on the plates and fins. The morphometric and meristic data of four specimens from Yaboti-Mini Creek, Misiones province, Argentina, are provided in Table 1.

Ichthyofaunistic remarks

The course of the Uruguay River measures approximately 2200 km. Its basin extends over 365 000 km² and features varied geomorphological aspects including numerous valleys and a braided fluvial system formed by short steep-sloped watercourses, as well as a series of white waters and waterfalls on the main stem of the river. Among the latter, the most remarkable are the Moconá Falls (Misiones province) and Salto Grande Falls (Entre Ríos province), site of the homonymous dam. Downstream from the town of Santo Tomé, the main course begins to widen from 1200 to a width of 7500 m at the mouth of the Gualeguaychú River.

According to Bonetto (1994), this fluvial system might have been connected with the upper Paraná course in the geologic past by means of lakes and rivers such as Miriñay Creek (Corrientes province). This continuity was interrupted when geological shifts caused the Paraná River to join the course of the Paraguayan River.

Previous contributions to the ichthyofauna of Uruguay River basin appear in Lucena and Kullander (1992); Sverlij et al. (1998); Aquino et al. (2001); López et al. (2002) and Giraudo et al. (2003). These works illustrate the fact that research on this watercourse and its area of influence was promoted mostly by diverse hydroelectric projects. The increase in collecting and research, especially at the headwaters of the Uruguay River and its tributaries, has led to the description of 29 endemic species within the past 15 years (Table 2). Analysis of these data indicates the following characteristics:

- The upper course shows clear superiority in the number of species (23 spp.), with a remarkable preponderance of new species in the families Loricariidae (8 spp.) and Cichlidae (8 spp.), while the remaining seven new species belong to the families Characidae (2 spp.), Crenuchidae (2 spp.), Pimelodidae (2 spp.), and Rivulidae (1 sp.).

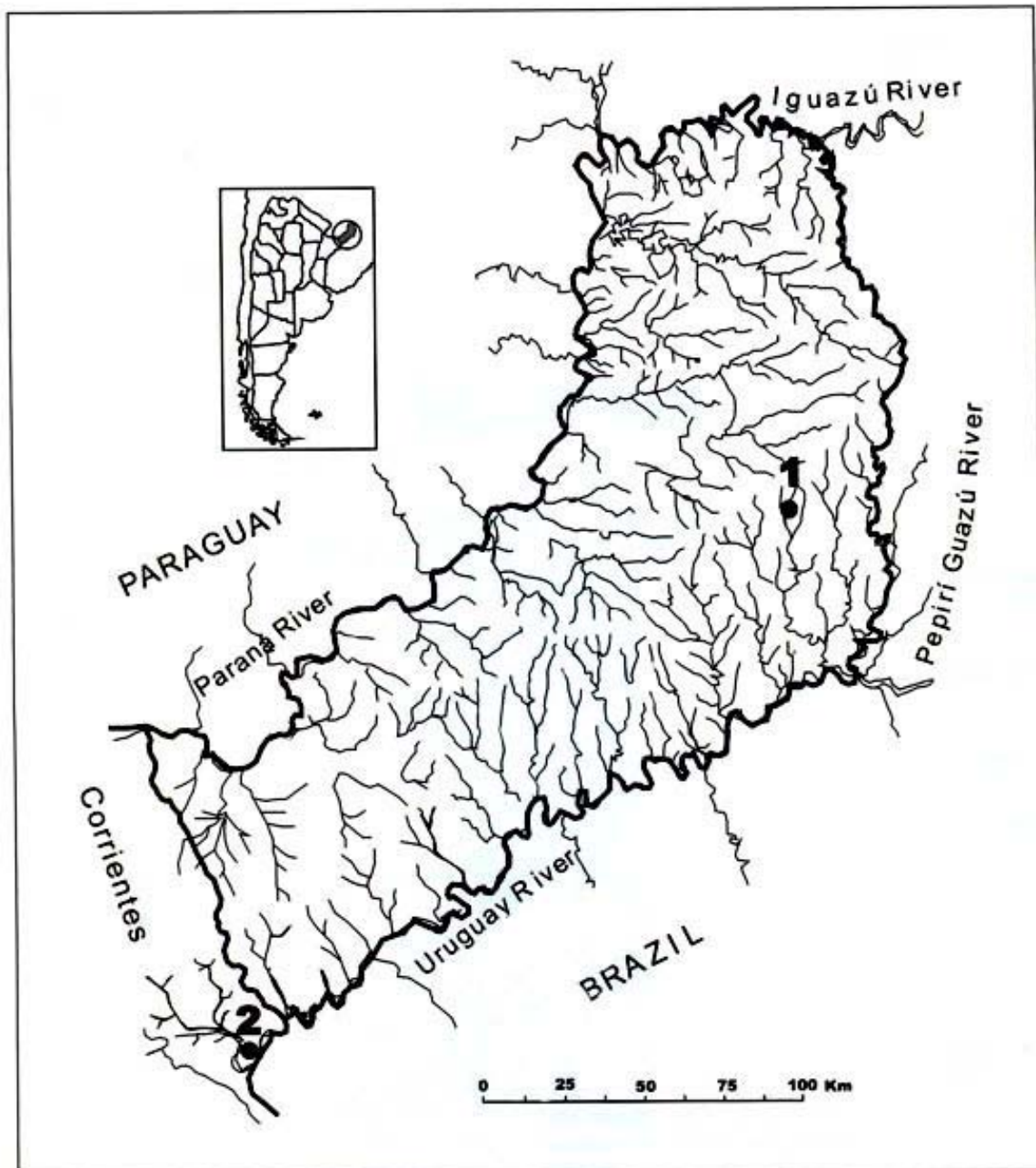


Fig. 1. Localities for *Hemiancistrus fuliginosus* in Argentina. 1 = Yaboti-Mini, Misiones; 2 = Garavi, Corrientes

- In the middle course, 11 new species belong to the families Characidae (3), Crenuchidae (2), Loricariidae (1), and Cichlidae (5); seven of these families also appear in the upper course: families Crenuchidae (1), Loricariidae (1), and Cichlidae (5).
- In the lower course, only two species are exclusive to the sector: Characidae and Loricariidae.

The analysis of this distribution indicates that cichlids are very well represented in the upper and middle courses; with respect to the other groups, the Loricariidae predominate the upper course.

In conclusion, we may observe that the Uruguay River basin appears as a particularly significant area of endemism within the Paraná-Plata River basin (Table 2). This circumstance

might be related to different causes, among which we may mention:

- The statements of Lucena and Kullander (1992) about 'flock' species and the probable isolation of the basin in the geological past (see Aquino et al., 2001).
- The features characteristic of the tributaries of the Uruguay River (especially in the upper and middle courses), i.e. their short courses and the presence of waterfalls and steep slopes, could function as isolating barriers, similar to certain other areas of the paranoplatsense basin (see Miquelarena et al., 1997).

This situation points at the necessity of establishing earnest and consistent policies for the conservation and management

Table 1
Morphometric and meristic data for *Hemiancistrus fuliginosus* from Yaboti-Mini Creek, Misiones, Argentina

n = 4 SL (mm)	Mean		
	118.0	97.5	140.6
Percent of standard length			
Head length	35.0	32.8	35.6
Pre-dorsal length	43.5	42.2	44.5
Post-dorsal length	33.4	31.4	44.5
Dorsal spine length	27.2	25.2	28.7
Anal spine length	9.6	8.1	10.7
Ventral spine length	25.5	24.0	27.8
Upper caudal spine length	26.3	24.7	27.3
Lower caudal spine length	28.9	27.5	30.1
Cleithral width	32.7	31.7	34.5
Body depth at dorsal fin origin	20.3	18.6	21.3
Body width at dorsal fin origin	30.0	27.6	31.6
Body width at anal fin origin	18.5	17.3	21.2
Caudal peduncle length	32.2	29.9	36.3
Caudal peduncle depth	12.3	11.6	12.9
Caudal peduncle width	4.7	4.0	5.7
Percent of head length			
Snout length	47.0	43.2	51.0
Orbital diameter	18.5	14.2	20.8
Inter-orbital width	35.5	33.7	36.1
Head depth	56.0	53.7	58.8
Left pre-maxillary branch	22.2	19.1	24.0
Counts			
Left lateral plates	24	23	25
Left pre-maxillary teeth	46.3	42	55
Left dentary teeth	49	44	55
Plates on dorsal fin base	7.2	7	8
Plates between dorsal and adipose fins	5	5	5
Plates between adipose and caudal fins	1.5	1	2
Plates on anal fin base	2	2	2
Plates between anal and caudal fins	11	11	11

of an ichthyological area that encompasses areas with high endemism levels within the paranoplatensean basin.

Material examined

Hemiancistrus fuliginosus: ILPLA 1128-1130, three specimens (97.5–140.6 mm SL), Yaboti Mini Creek, Departamento San Pedro, above the obraje Durañona and Esmeralda, collected by J. Mackoviak, 29 January 1995; ILPLA 1138, one specimen (125 mm SL), Yaboti Creek, 10 km before the confluence with the Pepiri River, Departamento San Pedro, Misiones, collected on 19 January 1995 by J. Mackoviak; ILPLA 272, one specimen (112.5 mm SL), Rio Uruguay, Garavi, Corrientes, collected by O. Garcia; MCP 18419 paratypes, five specimens (118.7–144.8 mm SL), 27°27'S 51°54' W, Rio do Peixe, Volta Grande, Santa Catarina, Concórdia, Brazil, collected on 16 September 1995 by E. Filho, V. Schulz, S. Meurer, and P. Taczinski.

Additional material

Hemiancistrus chlorostictus: MCP 19939 paratypes, three specimens (87.2–117.3 mm SL), 27°40'9" S 52°45'25" W, Ronda Alta, Rio Grande do Sul, Brazil, collected on 5 September 1997 by A. Cardoso, E. Pereira, V. Bertaco, L. Hahn and L. Cámara.

Hemiancistrus punctulatus: MCP 20159 paratypes, three specimens (110.6–115.4 mm SL), 29°35' S 51°8' W, Feitoria

Table 2
Endemic species in the Uruguay River basin. (A) Argentina; (B) Brazil; (U) Uruguay

Species	Uruguay River		
	Upper	Middle	Lower
Order Characiformes			
Family Characidae			
<i>Astyanax brachyterygium</i>	X		
Araujo Bertaco & Malabarba, 2001			
<i>A. ofiara</i> Azpelicueta & Garcia, 2000		X (A)	
<i>Bryconamericus uporas</i>		X (A)	
Casciotta, Azpelicueta & Almirón, 2002			
<i>Heterochetodon yatai</i>			X (A)
Casciotta, Miquelarena & Protogino, 1992			
<i>Hypobrycon maromba</i>	X		
Malabarba & Malabarba, 1994			
<i>H. poi</i> Almirón, Casciotta, Azpelicueta & Cione, 2001		X (A)	
Family Crenuchidae			
<i>Characidium occidentale</i>		X (B)	
Buckup & Reis, 1997			
<i>Ch. serrano</i>	X		
Buckup & Reis, 1997			
<i>Ch. vestigipinna</i>	X	X (B)	
Buckup & Hahn, 2000			
Order Siluriformes			
Family Pimelodidae			
<i>Microglanis eurystoma</i>	X		
Malabarba & Mahler, 1998			
<i>Pimelodus atrobrunneus</i>	X		
Vidal & Lucena, 1999			
Family Loricariidae			
<i>Eurycheilichthys pantherinus</i>	X		
Reis & Schaefer, 1992			
<i>Hemiancistrus chlorostictus</i>	X		
Cardoso & Malabarba, 1999			
<i>H. fuliginosus</i>	X	X (A)	
Cardoso & Malabarba, 1999			
<i>Hemipsilichthys vestigipinnis</i>	X		
Pereira & Reis, 1992			
<i>Hisonotus ringueleti</i>	X		
Aquino, Schaefer & Miquelarena, 2001			
<i>Hypostomus roseopunctatus</i>	X		
Reis, Weber & Malabarba, 1990			
<i>H. isbrueckeri</i> Reis, Weber & Malabarba, 1990	X		
<i>Loricariichthys edentatus</i>			X (B)
Reis & Pereira, 2000			
<i>Pogonopoma obscurum</i>	X		
Quevedo & Reis, 2002			
Order Cyprinodontiformes			
Family Rivulidae			
<i>Cynolebias periodicus</i> Costa, 1999	X		
Order Perciformes			
Family Cichlidae			
<i>Crenicichla celidochilus</i> Casciotta, 1987	X	X (A, U)	
<i>C. gaucho</i>	X	X (A)	
Lucena & Kullander, 1992			
<i>C. igara</i>	X		
Lucena & Kullander, 1992			
<i>C. jurubi</i>	X		
Lucena & Kullander, 1992			
<i>C. minuano</i>	X	X (A, B)	
Lucena & Kullander, 1992			
<i>C. missioneira</i>	X	X (A, B)	
Lucena & Kullander, 1992			
<i>C. prenda</i>	X		
Lucena & Kullander, 1992			
<i>C. tendybaguassu</i>	X	X (A, B)	
Lucena & Kullander, 1992			

Creek, Ivoti, Rio Grande do Sul, Brazil, collected on 11 May 1996 by D. Jacobus, G. von Mühlen and L. Moreira.

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