On the presence of the poorly documented *Hypostomus isbrueckeri* Reis, Weber & Malabarba, 1990 (Siluriformes: Loricariidae) in Argentina and extension of its distribution range.

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Abstract

In this note we present the first evidence based record for *Hypostomus isbrueckeri* from Argentina and extend its known geographical distribution 500 km to the SW of the previous mentions.

Introduction

Hypostomus Lacépède is the most speciose loricariid genus, including about 150 valid species (Fricke et al. 2022). It has a wide distribution in the Neotropical basins, occurring from Central America to the Salado River, South of the La Plata River in the Province of Buenos Aires, Argentina (Ringuelet 1975; López 1992; Fricke et al. 2022). In Argentina the genus was recorded for the first time in 1876 (Weyenbergh 1876; Koerber & Weber 2014), and there are currently 26 species considered as present or probably present in the country (Cardoso et al. 2011, 2012, 2016, 2019; Koerber & Weber 2014; Terán et al. 2020). Some of these species are poorly documented in the literature since the records lack traceable voucher specimens, detailed descriptions and photographs, necessary conditions to make reliable and falsifiable faunal records. (Serra et al. 2021). In recent collection campaigns in the Uruguay river basin in the province of Corrientes (Argentina), we collected specimens of *Hypostomus* that were identified by comparison with collection specimens and literature information.

Materials and methods

Morphometric measurements were taken following Weber (1985) and Reis et al. (1990). Measurements represent straight lines between two points, taken with caliper to the nearest 0.1 mm and expressed as percent of standard length (SL) or head length (HL) for the respective subunits. The specimens reported here were collected during field work in two campaigns to the Miriñay River, Uruguay River basin, with hand nets, castnets and electro-fishing. Specimens were euthanized by an overdose in benzocaine solution, fixed in 10% formalin solution for seven days and preserved in 70% ethanol. Institutional abbreviations: **CI-FML**: Colección Ictiológica, Fundación Miguel Lillo, Tucumán, Argentina. **MHNM**: Museo Nacional de Historia Natural, Montevideo, Uruguay. The mapped distribution of previous records was based on the following references: Reis et al. (1990), Serra et al. (2014), Flores et al. (2015) and De Fries et al. (2018).

***Hypostomus isbrueckeri* Reis, Weber & Malabarba, 1990** (fig. 1-3)

Argentina, Corrientes: **CI-FML 7798**. 1 ex, 199.3 mm SL. Miriñay River, Uruguay River basin, 29°33'42.19"S 57°30'36.85"W, coll. Terán, Aguilera, Ruiz Diaz & Mirande, Sep.2019 (figs. 3, 4). **CI-FML 7799**. 1 ex, 247.0 mm SL. Miriñay River, Uruguay River basin, 29°33'42.19"S 57°30'36.85"W, coll. Bugeau, Ruiz Díaz, Terán, Aguilera & Mirande, Dec.2021.

fig. 2 (above)
Same specimen as in fig. 1, alive immediately after capture.

fig. 1 (left)
Preserved specimen of *Hypostomus isbrueckeri* from Miriñay River, Argentina, in lateral, dorsal and ventral views (CI-FML 7798, 199.3 mm SL).

The morphometric and meristic measurements of the analyzed specimens are presented in table 1. The collected specimens have characteristics that allow their identification as *Hypostomus isbrueckeri*, in particular, the presence of rounded dark spots on a pale background on the body and paired fins, smaller and closer together on the head, absent on the caudal fin and fused to form vertical stripes on the dorsal fin (figures 1-3). This last characteristic seems to be distinctive compared to other species of the genus. However, the vertical white band on the margin of the caudal fin, considered diagnostic for this species, was not observed.
The analyzed specimens come from the province of Corrientes (northeast of Argentina), from the middle basin of the Uruguay River (figure 4). Previously known records for Argentina corresponded to the province of Misiones, associated with the upper part of the Uruguay River (Araya et al. 2012; Flores et al. 2015). The collection site in the Miriñay River (figure 5) has a rocky bottom without submerged vegetation and shallower sectors with running water.

Discussion

According to Mirande & Koerber (2020) and Terán et al. (2020) there are 26 species of *Hypostomus* recorded in Argentina, but of these Koerber & Weber (2014) considered *H. alatus*, *H. itacua* and *H. paulinus* as doubtful or with uncertain presence. *Hypostomus isbrueckeri* has been described from Brazil (Reis et al. 1990), and later recorded from Uruguay (Serra et al. 2014). Its presence in Argentina was mentioned for the first time by Liotta (2005) for the Iguazú River basin in the province of Misiones, based on Bertoletti et al. (1990), who actually records it in Foz do Rio Ijuí in Rio Grande do Sul, Brazil, and not in Misiones (Argentina). Later, Araya et al. (2012) and Flores et al. (2015) mention the presence of this species in the Yabotí Biosphere Reserve in the province of Misiones, but they do not provide data on voucher specimens or photographs. Therefore, this species was not listed as present in Argentina by Mirande & Koerber (2015, 2020) in their country lists of freshwater fishes. The specimens analyzed here are the first recorded from Argentina for which voucher specimens and photographs exist. Also, this record implies an extension in the known geographic distribution of this species by about 500 km SW of the previous mentions for Misiones.

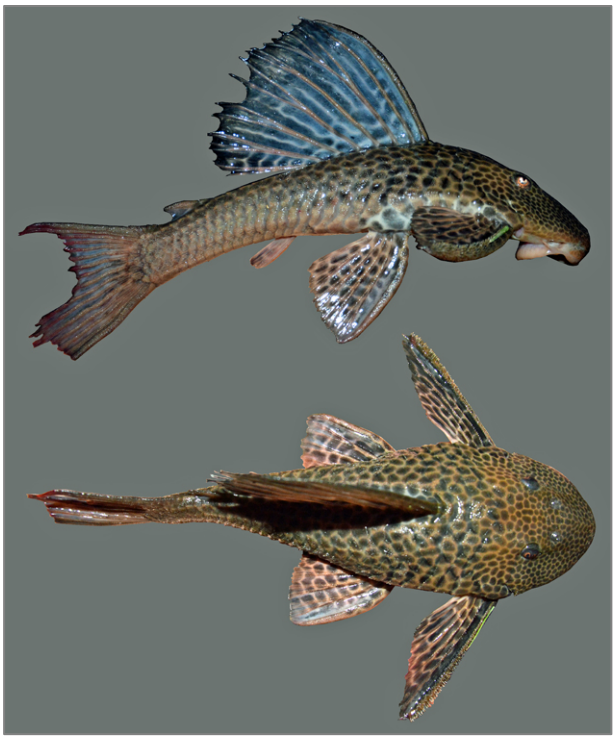

fig. 3
Live specimen immediately after capture of *Hypostomus isbrueckeri* from Miriñay River, Argentina in lateral and dorsal views (CI-FML 7799, 247 mm SL).

	7799	7798
standard length (mm)	247.0	199.3
% of SL		
predorsal distance D	38.9	38.9
head Length E	31.8	32.7
cleitral width F	31.6	32.5
length of dorsal spine K	38.3	38.0
length of dorsal fin-base L	29.1	32.0
dorsal base adipose fin M	21.2	16.7
trunk length N	22.4	22.3
pectoral spine length O	34.8	36.6
abdominal length P	24.7	25.3
pelvic fin length Q	27.9	28.4
caudal peduncle length R	33.4	34.3
caudal peduncle depth S	12.7	10.7
adipose fin spine T	8.4	9.4
upper caudal ray length U	-	-
lower caudal ray length V	-	-
% of head length		
head depth G	58.5	56.8
snout length H	63.4	63.4
horizontal eye diameter I	16.2	16.3
least interorbital width J	33.0	33.6
rictal barbel	16.0	17.1
right mandibular ramus	22.3	24.5
pore opercle distance	73.0	82.3
counts		
series of lateral scutes	27	27
predorsal scutes	3	3
scutes at dorsal fin base	9	9
dorsal adipose scutes	7	7
adipose to caudal scutes	10	10
scutes at anal fin base	3	3
anal to caudal scutes	13	13
teeth on left premaxilla	43	53
teeth on right premaxilla	51	53
teeth on righ dentary	53	49
teeth on left dentary	63	49
plates bordering supraoccipital	3	3

table 1
Morphometry and counts of the examined specimens of *Hypostomus isbrueckeri* (CI-FML 7798 and 7799).

Biological species inventory and distribution data are essential for many human activities and are part of the requirements of the Convention on Biological Diversity (CBD) which proposes that each country should have accurate and up-to-date lists of its fauna and flora (Reis et al. 2003). For verifiable faunal records, and not only for taxonomic works, records must be supported by traceable and reproducible evidence, such as voucher specimens (Serra et al. 2021), especially in diverse and taxonomically complex groups such as *Hypostomus* or other loricariid genera.

Comparative material

Hypostomus aspilogaster: Uruguay, Canelones: **MHNM 2733,** 1 ex., 225.9 mm SL, Arroyo Aparicio, col. L.H. Amato & Gloria García, 17-18/IV/1987. Cerro Largo: **MHNM 3732**, 1 ex., 50.0 mm SL, Arachania, Río Tacuarí y Ruta 8, 32°31'50.25"S 54°20'14.35"W, col. W.S. Serra & C. Clavijo, 15-16/XI/2014. Florida: **MHNM 3657**, 4 ex., 48.9-107.1 mm SL, Parque Robaina, Río Santa Lucía Chico, Ciudad de Florida, 34°5'58.59"S 56°12'7.60"W, col. W.S. Serra, 2/II/2011.

Hypostomus commersoni: Uruguay, Canelones: **MHNM 148**, 1 ex., 253.3 mm SL, Arroyo Pando, 22/XII/1917. Colonia: **MHNM 2062,** 1 ex., 356.5 mm SL, Arroyo Limetas, Est. San Jorge, Conchillas, J. Luengo & R. Carrera, 18/V/1973; **MHNM 2742**, 1 ex., 297.9 mm SL, Arroyo Limetas, Est. San Jorge, Conchillas, J. Luengo & R. Carrera, 18/V/1973. Maldonado: **MHNM 5415**, 1 ex., 254.5 mm SL, Laguna del Sauce, 1978. Montevideo: **MHNM 10**, 1 ex., 376.9 mm SL, Arroyo Miguelete, VII/1890; Soriano: **MHNM 2714**, 1 ex., 266.4 mm SL, desembocadura del Río San Salvador, col. L.H. Amato & J.A.

Mernies, 26/III to 5/IV/1987; **MHNM 3530**, 2 ex., 290.6-305.3 mm SL, desembocadura del Río San Salvador, campaña CARU “Programa de Conservación de la Fauna Íctica y los Recursos Pesqueros del Río Uruguay”, 24/X/2014.

Hypostomus isbrueckeri: Uruguay, Paysandú: **MHNM 4994**, 3 ex., 118.3-144.8 mm SL, Río Queguay y ex. Ruta 3, 32°8'10.39"S 57°56'31.52"W, col. W.S. Serra, G. Sanguinetti & G. Núñez, 5-6/III/2021.

Hypostomus laplatae: Uruguay, Colonia: **MHNM 2075**, 1 ex., 398.9 mm SL, Río de la Plata Frente a la desembocadura del Arroyo Limetas, aprox. 34°10'S 58°06'W, Conchillas, col. Barboza, 15-21/IV/1973.

Hypostomus luteomaculatus: Uruguay, Paysandú: **MHNM 359**, 1 ex., HOLOTYPE, 249.6 mm SL., Río Uruguay, col. G. W. Teague, 1941; **MHNM 3568**, 1 ex., 279.0 mm SL, boca del Arroyo Guaviyú, Río Uruguay, col. , col. W.S. Serra, R. Foti & J. Chocca, campaña CARU “Programa de Conservación de la Fauna Íctica y los Recursos Pesqueros del Río Uruguay”, 20/X/2014. Salto: **MHNM 3533**, 2 ex., 243.3-247.2 mm SL, Río Arapey y ex. Ruta 3, 30°57'14.42"S 57°45'0.54"W, campaña CARU “Programa de Conservación de la Fauna Íctica y los Recursos Pesqueros del Río Uruguay”, 23/V/2014.

Hypostomus roseopunctatus: Argentina, Corrientes: **CI-FML 7797**. 1 ex, 57.2 mm SL. Miriñay River, Uruguay River basin, 29°33'42.19"S, 57°30'36.85"W. Uruguay, Salto: **MHNM 5234**, 1 ex., 188.0 mm SL, Río Arapey y ex. Ruta 3, 30°57'14.42"S 57°45'0.54"W, campaña CARU “Programa de Conservación de la Fauna Íctica y los Recursos Pesqueros del Río Uruguay”, 17/X/2014.

Hypostomus uruguayensis: Uruguay, Artigas: **MHNM 3549**, 1 ex., 162.2 mm SL, Río Cuareim, Rincón de Franquia, 30°11'26.96"S 57°36'6.77"W, col. W.S. Serra, R. Foti & J. Chocca, campaña CARU “Programa de Conservación de la Fauna Íctica y los Recursos Pesqueros del Río Uruguay”, 18/X/2014. Salto: **MHNM 5235**, 1 ex., 191.0 mm SL, Río Arapey y ex. Ruta 3, 30°57'14.42"S 57°45'0.54"W, campaña CARU “Programa de Conservación de la Fauna Íctica y los Recursos Pesqueros del Río Uruguay”, 17/X/2014.

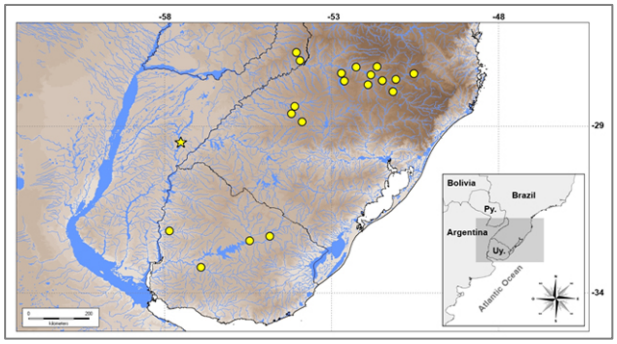

fig. 4 Geographical distribution of *Hypostomus isbrueckeri*. New record at Miriñay river in the province of Corrientes (star) and previous records based on literature and comparative material (dots).

fig. 5 Collection site of *Hypostomus isbrueckeri* at the Miriñay river, Uruguay river basin, Corrientes, Argentina, Dec.2021

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