

Short Communication

Distributional range extension of *Hypostomus nigropunctatus* Garavello, Britski & Zawadzki, 2012 (Siluriformes: Loricariidae): New record for Argentina

Pablo Agustín Burchardt^{*1}, Adriana Almirón², Jorge Casciotta², James A. Vanegas-Ríos³

¹Division of Vertebrate Zoology, Faculty of Natural Sciences and Museum, Research Units Annex Museum, Office 104, UNLP, La Plata, Buenos Aires, Argentina.

²Division of Vertebrate Zoology, Faculty of Natural Sciences and Museum, Research Units Annex Museum, Office 104, CONICET, UNLP, La Plata, Buenos Aires, Argentina.

³Division of Vertebrate Zoology, Museo de La Plata, Faculty of Natural Sciences and Museum, UNLP, Paseo del Bosque S/N, B1900FWA, La Plata, Buenos Aires, Argentina.

Abstract: *Hypostomus nigropunctatus* is a loricarid species distributed in the Río Iguazú basin in Brazil. We revised some specimens from the Arroyo Uruguay-í basin, Misiones, Argentina, which, based on a morphological comparison, are corroborated to be *H. nigropunctatus*. These specimens expand the species' known distribution from the Iguazú basin to the Uruguay-í basin. Furthermore, this finding is the first record of this species in Argentina.

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Introduction

The Neotropical family Loricariidae is the most speciose group within Siluriformes, with c. 1061 valid species (Fricke et al., 2024). Within Hypostominae, the largest subfamily of Loricariidae (508 spp.), *Hypostomus* Lacépède, 1803 is recognized to be the richest genus with 155 valid species (Queiroz et al., 2020; Zawaski and Penido, 2020; Fricke et al., 2024). In Argentina, 22 valid *Hypostomus* species have been proposed (Koerber et al., 2023; Bogan et al., 2024).

In a taxonomic review of the *Hypostomus* distributed along the Río Iguazú basin, Garavello et al. (2012) recognized five valid species: *H. albopunctatus* Regan, 1908, *H. derbyi* Haseman, 1911, *H. commersoni* Valenciennes, 1836, *H. myersi* Gosline 1947, and *H. nigropunctatus* Garavello, 2012. The latter was diagnosed by the sharing the following combined characteristics (Garavello et al., 2012): Bifid non-spoon-shaped teeth, with lateral cups not fused to mesial one; dark spots over body and fins; absence of keels on pterotic-supracleithrum, predorsal plates and lateral series of plates; deeper body and a pair of parallel moderate keels on predorsal plates;

abdomen completely plated; small-sized and close-settled dark spots (equal to smaller than eye pupil) on the dorsal region of head, trunk, and fins; and three predorsal plates bordering supraoccipital. We examined some fish lots deposited in the ichthyological collection at the Museo de La Plata (MLP-Ict, Argentina) from the Arroyo Uruguay-í basin and, as a result, we found that these specimens have the diagnostic characteristics of *H. nigropunctatus*. Therefore, given that *H. nigropunctatus* is not recorded for Argentina nor in the Arroyo Uruguay-í basin in Misiones, this contribution aims to confirm the occurrence of this species in that basin, expanding its known geographic distribution.

Materials and Methods

Morphometric and meristic data were obtained following Boeseman (1968) and Weber (1985). Measurements were taken point to point with digital calipers (0.01 mm) and are expressed as percentages of standard length (SL) or head length (HL) for units of the head. The specimens examined are deposited in the fish collections of the Museo de La Plata, La Plata,

*Correspondence: Pablo Agustín Burchardt
E-mail: pablo.burchardt@gmail.com



Figure 1. Lateral view of *Hypostomus nigropunctatus*, 191.9 mm SL, MLP-Ict 10780, Arroyo Uruzú, Río Urugua-í basin, Misiones. Argentina. Scale: 10 mm.



Figure 2. Dorsal view of *Hypostomus nigropunctatus*, 191.9 mm SL, MLP-Ict 10780, Arroyo Uruzú, Arroyo Urugua-í basin, Misiones. Argentina. Scale: 10 mm.

Buenos Aires, Argentina (MLP-Ict) and Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul- PUCRS, Porto Alegre (MCP). The morphological comparisons were carried out using comparative material and taxonomic descriptions and keys. (Baumgartner et al., 2012; Garavello et al., 2012; Lopez et al., 1991; Cardoso et

al., 2012; Cardoso et al., 2016).

Results and Discussions

Hypostomus nigropunctatus (Figs. 1-5)

Material examined: All from Río Paraná basin, Misiones, Argentina: MLP-Ict 9546, 229.0 mm SL, Arroyo Urugua-í at “Isla Palacio”, S. Gómez et al.

Table 1. Morphometric and meristic data of the studied specimens of *Hypostomus nigropunctatus* from the Arroyo Uruguay-í basin, Misiones, Argentina. SD: standard deviation.

	n	Range	Mean	SD
Standard length (SL) mm	10	113.2–229.0	172.3	36.2
Percents of SL				
Pre-dorsal length	10	35.8–59.7	41.9	6.7
Head length (HL)	10	27.9–46.9	31.7	5.5
Cleithral width	10	24.9–43.5	28.7	5.3
Head depth	10	15.8–27.3	18.0	3.3
Interdorsal length	10	20.2–32.9	23.8	3.6
Caudal-peduncle length	10	27.6–52.5	34.7	6.6
Caudal-peduncle depth	10	8.6–14.0	9.5	1.6
Dorsal-spine length	10	23.0–43.9	28.6	5.9
First dorsal fin base fin length	10	20.8–34.7	24.7	3.9
Pectoral-fin spine length	10	22.1–41.5	28.5	4.9
Pelvic-fin spine length	10	22.1–35.6	25.0	3.9
Adipose-fin length	10	6.5–13.9	8.4	2.2
Thoracic length	10	17.8–36.9	23.8	5.1
Abdominal length	10	39.6–70.6	46.0	9.0
Superior caudal fin length	10	24.9–47.9	31.4	6.5
Lower caudal fin length	8	28.3–51.5	35.6	6.9
Percents of HL				
Cleithral width	10	43.5–92.2	85.3	14.7
Head depth	10	27.3–59.7	53.5	9.6
Snout length	10	27.4–62.0	55.5	10.3
Orbital diameter	10	5.5–12.7	10.7	2.0
Interorbital width	10	17.7–38.5	35.1	6.2
Mandibular width	10	12.7–27.7	21.9	4.4
Counts				
		Range	Mode	SD
Median plates series	10	28–30	29	0.7
Pre-dorsal plates	10	3–3	3	0.0
Plates bordering supraoccipital	10	1–3	3	0.9
Dorsal plates below dorsal-fin base	10	7–8	8	0.5
Plates between dorsal and adipose fin	10	8–8	8	0.0
Plates between adipose and caudal fin	10	6–6	6	0.0
Plates between end of anal-fin base and caudal fin	10	13–15	14	0.6
Premaxillary teeth	10	23–31	27	2.6
Dentary teeth	10	24–31	30	2.5

Feb. 1986; MLP-Ict 9547, 2, 129.3–156.0 mm SL, Arroyo Uruguay-í and provincial route 19 “Parque provincial Islas Malvinas” (PPIM), N. Toresani et al., Sep. 1986; MLP-Ict 9548, 2, 181.4–208.3 mm SL, Arroyo Uruzú and provincial route 19 (PPIM), tributary of Arroyo Uruguay-í basin, N. Toresani et al. Sep. 1986; MLP-Ict 9549, 2, 113.2–155.88 mm SL, Río Uruguay-í in borders of “Cia. Intercontinental”, N. Toresani et al. Nov. 1986; MLP-Ict 10780, 191.9 mm SL, Arroyo Uruzú, Arroyo Uruguay-í basin, 2006, no more data; MLP-Ict 11358, 2, 158.5–199.9 mm SL, Arroyo Uruzú, Arroyo Uruguay-í basin. A. Almirón and J. Cassiotta, 2010.

The meristic and morphometric data of the

specimens examined are presented in Table 1. These specimens from the Arroyo Uruguay-í basin are characterized by the following characteristics: Bifid teeth (not spoon-shaped); dark-colored body with dark spots over body and fins; absence of keels on the pterotico-supracleithrum, predorsal plates and lateral series of plates; deeper body with a pair of weak keels on predorsal plates; abdomen completely plated, dark spots of equal or smaller size than iris of eye on dorsal region of head, body and fins; and 1–3 pre-dorsal plates (1 counted in 3 specimens from MLP-Ict 9547 and MLP-Ict 11358) bordering supraoccipital (Fig. 4).

These aforementioned characteristics correspond to the diagnosis of *H. nigropunctatus*, according to



Figure 3. Ventral view of *Hypostomus nigropunctatus*, 191.9 SL, MLP-Ict 10780, Arroyo Uruzú, Arroyo Uruguay basin, Misiones. Argentina. Scale: 10 mm.



Figure 4. (A) Dorsal view of head of *Hypostomus nigropunctatus*, 191.9 SL, MLP-Ict 10780). Arroyo Uruzú, Arroyo Uruguay basin, Misiones. Argentina, and (B) Dorsal view of head of *Hypostomus derbyi*, 177.3 mm SL, MPL-Ict 11405, Arroyo Deseado, Río Iguazú basin, Misiones. Argentina. Scale: 10 mm.

Garavello et al. (2012). It is worth mentioning that *H. derbyi* and *H. nigropunctatus* are similar species that can be differentiated by the presence of middle-sized and moderate-set dark spots (nearly equal to the

eye diameter) on the dorsal region of the head, trunk, and fins (vs. small-sized and close-set dark spots, being equal to smaller than eye pupil on these body parts, respectively); and by the usual presence of one



Figure 5. Coloration in the life of *Hypostomus nigropunctatus* (specimen not preserved), from Arroyo Uruguay-í, in front of “Fundacion Vida Silvestre” Reserve, Misiones, Argentina. Dorsal view. Photograph provided by N. Tizio.

predorsal plate bordering the supraoccipital bone (vs. three plates, respectively) (Garavello et al., 2012). Based on these two characteristics, the specimens examined from the Uruguay-í basin match much better with *H. nigropunctatus* than with *H. derbyi*. Therefore, these specimens are confirmed to be *H. nigropunctatus* based on these morphological evidences. Some of the specimens studied here (collected by S. Gómez et al. or N. Toresani et al.) were treated as *H. derbyi* in previous literature (Gómez et al., 1990; López and Miquelarena, 1991; Miquelarena et al., 1997) and are here reidentified as *H. nigropunctatus*.

In some specimens (MLP-Ict 9549 and MLP-Ict 9547), particularly those measuring between 143.2–165.0 mm SL (Fig. 5), we observed five dark transverse bands on the region dorsolateral of the head and body, being located on the occipital region, dorsal-fin origin, dorsal-fin termination, adipose-fin origin, and caudal peduncle. These transverse bands were not reported in the description by Garavello et al. (2012), which was based on slightly larger specimens ranging between 171 and 273 mm SL. Gómez et al. (1997) examined these same lots and also observed the presence of these transverse bands for a group of specimens with 119 and 121 mm SL. Since the presence of this color pattern is not observed in specimens of larger sizes (greater than 170 mm), we

consider that this could be an intraspecific variation associated with size, with larger specimens lacking externally discernible transverse bands (given the intense dark color that characterizes them). We counted one to three plates bordering the supraoccipital without subdivisions, which coincides with the diagnosis of *H. nigropunctatus*. Although the count of plates bordering the supraoccipital is one in *H. derbyi* and three in *H. nigropunctatus*, we observed that this count is variable in the specimens examined from the Uruguay-í basin and this variation appears not to be associated with size, nor with the presence or absence of transverse bands.

So far, *H. nigropunctatus* has not been reported outside the Río Iguazú basin. Therefore, the present record expands its distributional range to the Arroyo Uruguay-í basin, which also constitutes the first species record for Argentina (Fig. 6).

Comparative material examined: *Hypostomus albopunctatus*: MLP-Ict 11376, 1, 140.9 mm SL, Río San Antonio, Misiones, Argentina. *Hypostomus arecuta*: MLP-Ict 11066, 2, 163.1–175.4 mm SL, Río Iguazú, Playa Isla San Martín, Misiones, Argentina. *Hypostomus boulengeri*: MCP 15825, 2, 143.9–164.5 mm SL, Río Paraguai at Cáceres, and surroundings, Paraguay. *Hypostomus commersoni*: MLP-Ict 11232, 1, 167.2 mm SL, Entre Ríos, Argentina. *Hypostomus cordovae*: MLP-Ict 9510, 1, 273.1 mm SL, Córdoba,

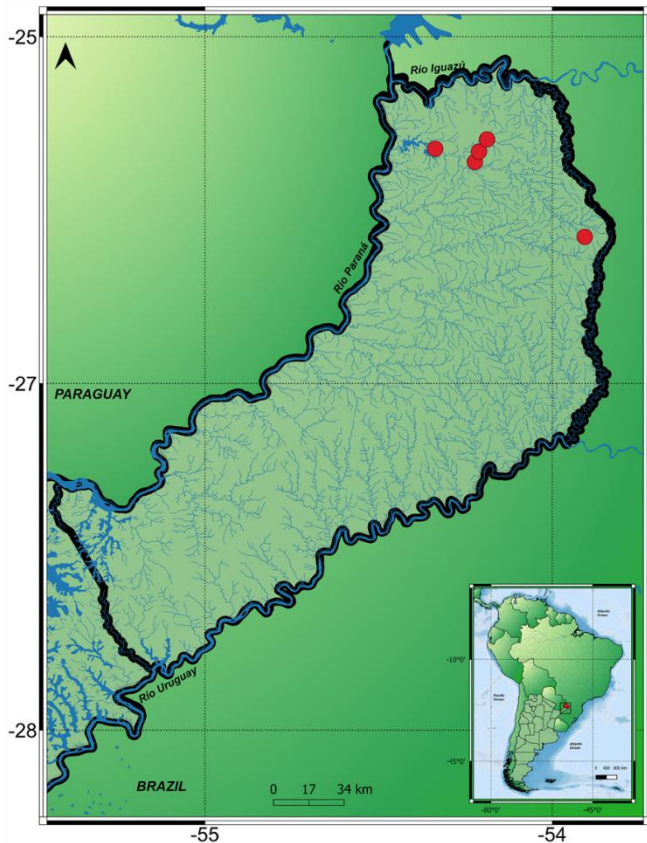


Figure 5. Distributional occurrence of *Hypostomus nigropunctatus* in the Arroyo Urugua-í basin, Misiones, Argentina, based on the specimens studied.

Argentina. *Hypostomus derbyi*: MLP-Ict 11064, 1, 200.4 mm SL, Arroyo dos hermanas, Misiones, Argentina. *Hypostomus derbyi*: MLP-Ict 11405, 1, 177.3 mm SL, Río Iguazú, Misiones, Argentina. *Hypostomus formosae*: MLP-Ict 11301, 1, 153.1 mm SL, Río Apa, Concepción, Paraguay. *Hypostomus laplatae*: MLP-Ict 6820, 1, 166.2 mm SL, Río Paraná, Rosario, Santa Fe, Argentina. *Hypostomus myersi*: MLP-Ict 11092, 1, 150.2 mm SL, Pozón Salto dos hermanas, Iguazú, Misiones, Argentina.

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