



## FIRST RECORD OF *HYPSTOMUS PECKOLTOIDES* (SILURIFORMES: LORICARIIDAE) IN PARAGUAY WITH COMMENTS ON VARIATIONS

DIEGO BUENO VILLAFAÑE<sup>1\*</sup>& KARINA NÚÑEZ<sup>1</sup>

<sup>1</sup>Universidad Nacional de Asunción, Facultad de Ciencias Exactas y Naturales, Departamento de Biología. Agencia Postal Campus/UNA (San Lorenzo) C.C. 1039 – 1804. San Lorenzo, Paraguay. \*Corresponding author. E-mail: diegobuenov@gmail.com

**Resumen.-** El presente trabajo extiende a Paraguay la distribución geográfica de *Hypostomus peckoltoides*, especie originalmente descrita del Río Cuiabá, mayor tributario del Río Paraguay. El espécimen examinado fue colectado en el año 1995 en el Río Tebicuary, Villa Florida, Misiones, Paraguay. Además reportamos variaciones en el número de bandas transversales presentes en el cuerpo y aletas, y variaciones en el número de dientes del ejemplar examinado en comparación con los ejemplares-tipo. Sugerimos que esta especie está asociada al Río Paraguay y tributarios, y que los esfuerzos en descubrir la distribución de la especie en el país deben focalizar estas áreas geográficas.

**Palabras clave:** Hypostomus, cuenca del río Paraguay, distribución.

**Abstract.-** The present work extends into Paraguay the distribution of *Hypostomus peckoltoides*, originally described from the Cuiaba River in Brazil, a tributary of the Paraguay River. The Paraguayan specimen examined was collected in the year 1995 from the Tebicuary River, Villa Florida, Misiones, Paraguay. We also report variation in the number of transversal bands in the body coloration and fins, and variations in the number of teeth of the examined specimen in comparison with the type specimens. We suggest that this species is associated with the Paraguay River basin and its tributaries, and efforts to discover the geographical distribution pattern in Paraguay should focus on this geographic area.

**Key words:** Hypostomus, Paraguay river basin, distribution.

*Hypostomus* Lacépède is the most speciose genus in the family Loricariidae, it comprises around 140 species recognized as valid and is one of the largest genera in the Neotropical Region (Zawadzki, 2013; Martins, 2013). This genus represents a group of bottom dwelling fishes distributed from Colombia to the Salado River basin in Buenos Aires, Argentina (Lopez & Miquelarena, 1991; Cardozo et al., 2011).

The genus *Hypostomus* has a complex taxonomic history (Britski et al., 2007), with many nominal species with unclear status due the high intraspecific variation in its morphology (Weber, 2003; Birindelli et al., 2007; Martins et al., 2012). *Hypostomus peckoltoides* Zawadzki, Weber & Pavaneli, 2010 was described as a contribution to this problematic genus. The distribution of this species comprehends the Río Cuiabá, which is the major tributary of the Río Paraguay basin in Brazil.

According to Zawadzki et al. (2010), this species is distinguished from all congeners, with the exception of young specimens of *Hypostomus latifrons* Weber, 1986, by the presence of wide dark transverse bars on the body and bands on the fins (vs. body entirely dark or with pale or dark spots) and by the conspicuous dark vermiculations on the abdominal region (vs. abdominal region entirely dark or with pale or dark spots). Adult specimens of *H. peckoltoides* are distinguished from young specimens of *H. latifrons* by having just one predorsal plate bordering the supraoccipital (vs. three plates) and by having a smaller orbital diameter. This last characteristic was expressed as “orbital diameter to interorbital width ratio (17.9-20.6% vs. 22.7-31.2%)”, but the correct measure is just “orbital diameter”, this is probably an error in the original work.

Upon examining the specimens of the genus *Hypostomus* represented in the Museo Nacional de Historia Natural del Paraguay (MN-HNP) we found one unidentified specimen (MNHNP 2070 – previously identified as *Hypostomus* sp2) that matches with the description of *Hypostomus peckoltoides*. The speci-

**Table 1.** Meristic and Morphometric data of *Hypostomus peckoltoides*.

	MNHNP 2070 (n=1)	From Zawadzki et al., 2010. Range (n=11)
Standard length	74.59	76.1-110.7
Percents of SL		
Pre-dorsal distance	40.8	40.0-44.4
Head length	33.6	33.4-36.7
Cleithral width	35.2	31.1-34.8
Head depth	22.1	21.0-23.1
Interdorsal length	16.9	13.1-15.5
Caudal-peduncle length	29.0	28.1-33.8
Caudal-peduncle depth	11.4	10.9-11.5
Dorsal-spine length	30.9	26.2-35.0
Thoracic length	23.6	21.8-26.0
Percents of head length		
Cleithral width	104.8	89.95-100.6
Head depth	65.7	58.0-63.4
Snout length	55.9	59.7-65.8
Orbital diameter	17.2	17.9-20.6
Interorbital width	41.9	36.6-41.2
Mandibular width	13.0	13.0-15.6
Other percents		
Snout length/orbital diameter	30.8	28.0-33.6
Interorbital width/orbital diameter	41.1	43.8-54.7
Interorbital width/mandibular width	31.0	33.6-41.2
Pre-dorsal length/first dorsal-fin length	75.6	63.8-84.9
Pre-dorsal length/first pectoral-fin length	79.2	68.4-82.4
Pre-dorsal length/lower caudal-fin length	80.3	59.1-93.6
Caudal-peduncle depth/adipose-fin length	65.2	82.0-98.0
Caudal-peduncle length/caudal-peduncle depth	39.4	32.7-39.6
Cleithral width/mandibular width	12.4	13.6-17.1
Dorsal-fin base length/interdorsal length	64.9	43.9-59.3
Lower lip length/lower lip width	DAMAGED	31.0-36.2
Counts		
Median plates series	25	23-25
Pre-dorsal plates	3	3-3
Plates bordering supraoccipital	1	1-1
Dorsal plates below dorsal-fin base	8	7-8
Plates between dorsal and adipose fin	5	4-6
Plates between adipose and caudal fin	4	4-6
Plates between end of anal-fin base and caudal fin	11	11-13
premaxillary teeth	33	16
Left dentary teeth	29	13

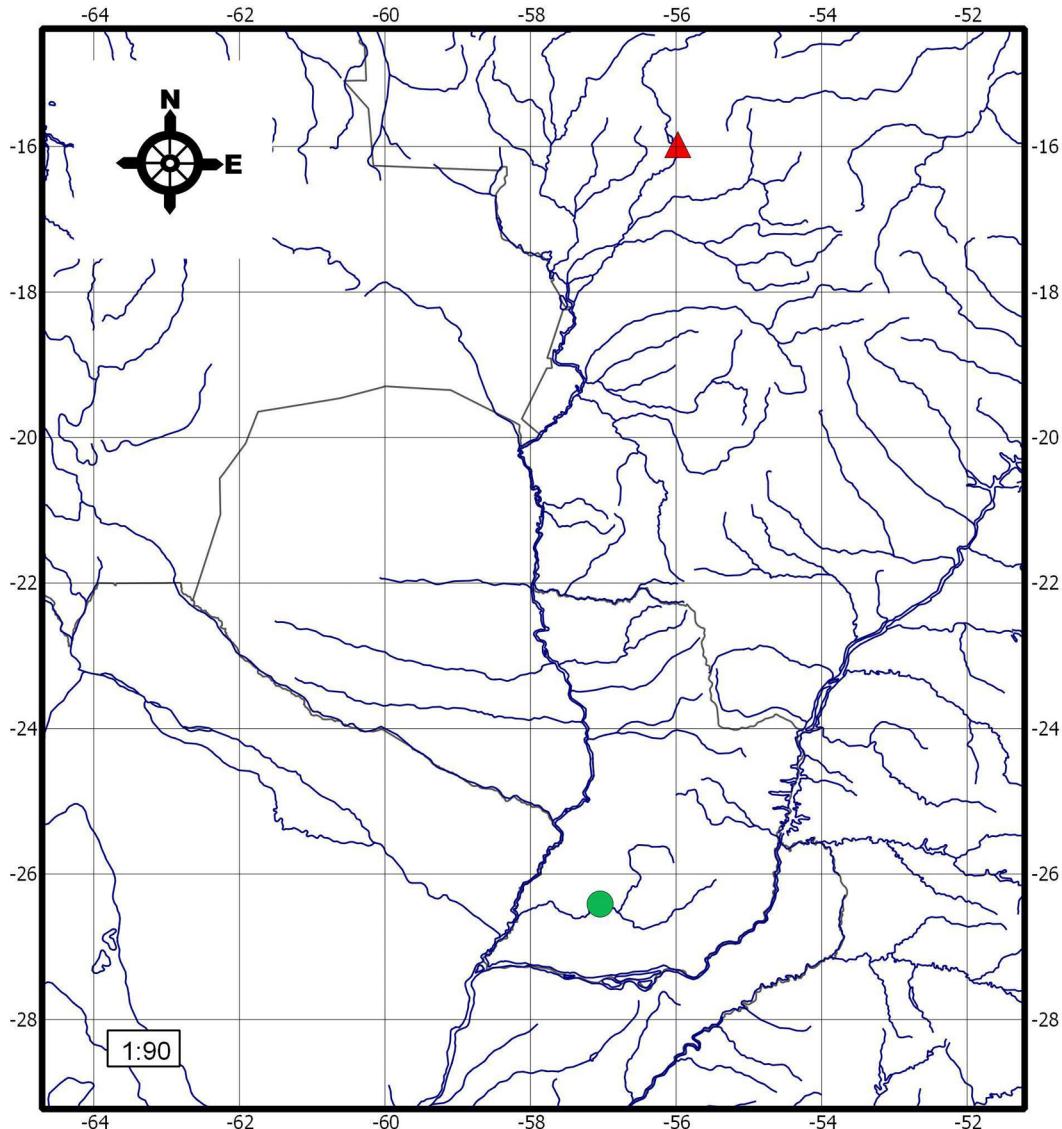


**Figure 1.** Dorsal, lateral, and ventral view of the specimen of *Hypostomus peckoltoides*, MNHNP 2905, 120.4 mm SL. Photo by Nicolás Martínez.

men was collected in October 1995 during the Proyect Vertebrates of Paraguay (PROVEPA), in Centu cue, near the shore of Río Tebicuary, Villa Florida, Misiones, Paraguay and stored in

the same lot with one specimen of *Hypostomus boulengeri* (Eigenmann & Kennedy, 1903).

The counts and measurements were made on the left side of the body. Measurements fo-



**Figure 2.** Map showing the geographic distribution of *Hypostomus peckoltoides*: River Cuiabá at Cuiabá, Mato Grosso do Sul, Brazil (triangle), and Centu cue, near the shore of Río Tebicuary, Villa Florida, Misiones, Paraguay (dot).

llow Boseman (1968) with modifications of Weber (1986), taken point to point with a digital caliper to the nearest 0.1 mm. It was not possible to include the measurements of the lip width and longitude as in Zawadzki *et al.* (2010) because the specimen analyzed from Rio Tebicuary has the lip, barbells and tissue almost totally damaged. Counts and nomenclature of plates follow Schaefer (1997).

The unique specimen revised has a number

of peculiarities, but considering that the number of samples used by Zawadzki *et al.* (2010) to characterize the species was based on eleven specimens, all from the same stream, new morphological ranges among other populations can be expected. Teeth present in premaxilla and dentary are more numerous than all ranges present in samples from the rio Cuiabá (33 premaxillary teeth and 29 dentary teeth vs. maximum of 18 premaxillary teeth and 19 dentary

teeth in the Brazilian specimens), and also the number of bands on dorsal, pectoral, and pelvic fins are less than those reported in the original description (three pectoral- and pelvic-fin bands, four dorsal- and caudal-fin bands vs. four to five transversal bands). Besides these differences, the general morphometric, meristic data (Table 1), and morphology of the specimen analyzed match with the original description. Also, this specimen is quite distinct from all other specimens examined in the collection of the MNHNP.

In this regard, it is important to cite the presence of this species as a new record for the ichthyofauna of Paraguay, but showing that is clearly necessary to make more studies and field work in order to contribute to the knowledge of the distribution and morphological ranges of *Hypostomus peckoltoides*. Finally, we suggest that this species is associated with the Río Paraguay basin and its tributaries, and that efforts to discover the its distribution pattern should be undertaken in this geographic area.

### ACKNOWLEDGMENTS

We thank Andrea Caballero from FaCEN for corrections. Nicolas Martínez for taking and processing the pictures.

### LITERATURE CITED

- Birindelli, J.L.O., A.M. Zanata, & F.C.T. Lima. 2007. *Hypostomus chrysostiktos*, a new species of armored catfish (Siluriformes, Loricariidae) from Rio Paraguacu, Bahia State, Brasil. Neotropical Ichthyology, 5(3): 271-278.
- Boeseman, M. 1968. The genus *Hypostomus* Lacepede, 1803, and it's Surinam representatives (Siluriformes: Loricariidae). Zoologische Verhandelingen. Rijksmuseum van Natuurlijke Historie te Leiden, 99: 1-89.
- Britski, H. A., K. Z. de S. de Silimon & B. S. Lopes. 2007. Peixes do Pantanal: Manual de identificação. Brasília, Embrapa.
- Cardozo, P.Y., F. Brancolini, L. Protogino & L. Lizarralde. 2011. Actinopterigii, Siluriformes, Loricariidae, *Hypostomus aspilogaster* (Cope, 1894). Distribution extension and first record for Argentina. Check List, 7(5): 596-598.
- López, H.L. & A.L. Miquelarena. 1991. Los Hypostominae (Pisces: Loricariidae) de Argentina. Revista Fauna de Agua dulce de la Republica de la Argentina, 40(2): 13-36.
- Martins, F.O., M.M.F. Marinho, F. Langeani & J.P. Serra. 2012. A New Species of *Hypostomus* (Siluriformes: Loricariidae) from the Upper Rio Paraguay Basin, Brazil. Copeia, 3: 494-500.
- Schaefer, S.A. 1997. The Neotropical cascudinhos: systematics and biogeography of the *Otocinclus* catfishes (Siluriformes, Loricariidae). Proceedings of the Academy of Natural Sciences of Philadelphia, 148: 1-120.
- Weber, C. 1986. Revision de *Hypostomus boulegeri* (Eigenmann & Kennedy) et deux espèces nouvelles de poissons chats du Paraguay (Pisces, Siluriformes, Loricariidae). Revue Suisse De Zoologie, 93: 979-1007.
- Weber C. 2003. The Hypostominae. Pp, 351-360, in Reis, R.E., S.O. Kullander & C.J. Ferraris Jr. (editores). Checklist of the Freshwater Fishes of South and Central America. EDIPUCRS, Porto Alegre.
- Zawadzki C.H., C. Weber & C.S. Pavanelli. 2010. A new dark-saddled species of *Hypostomus* (Siluriformes: Loricariidae) from upper rio Paraguay basin. Neotropical Ichthyology, 8(4): 719-725.
- Zawadzki C. H., R. R. de Oliveira & T. Debona. 2013. A new species of *Hypostomus* Lacepede, 1803 (Siluriformes: Loricariidae) from the rio Tocantis-Araguaia basin, Brazil. Neotropical Ichthyology, 11(1): 73-80.