

A new species of *Hypostomus* Lacépède, 1803 (Siluriformes: Loricariidae) from the rio Tocantins-Araguaia basin, Brazil

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Hypostomus delimai is described from the rio Tocantins, Tocantins State, and from the rio Araguaia, Pará, and Tocantins States, Brazil. The new species is distinguished from all other *Hypostomus* species, except from *H. carinatus*, *H. hoplonites*, and *H. watwata*, by the presence of five to eight (mode seven) predorsal plates limiting posterior border of the supraoccipital bone (vs. one to three plates). It can be distinguished from *H. carinatus*, *H. hoplonites*, and *H. watwata* by having pale spots over darker background on body and fins (vs. dark spots over lighter background). The species was only found in the middle stretches of the rio Tocantins-Araguaia basin. The first collection of specimens assigned to the new species was done in the rio Tocantins before the construction of the Tucuruí dam. Recently additional material was collected in the rio Araguaia, in a habitat that soon will be flooded for the construction of the Santa Isabel hydroelectric power station.

Hypostomus delimai é descrita do rio Tocantins no estado do Tocantins e do rio Araguaia, entre os estados do Pará e Tocantins, Brasil. A espécie nova é diagnosticada das demais espécies de *Hypostomus*, com exceção de *H. carinatus*, *H. hoplonites* e *H. watwata* por possuir de cinco a oito (moda sete) placas pré-dorsais margeando a borda posterior do supraoccipital (vs. uma ou até três placas). Difere de *H. carinatus*, *H. hoplonites*, e *H. watwata* por apresentar pintas claras sobre o corpo e nadadeiras (vs. pintas escuras sobre fundo claro). A espécie nova foi encontrada somente no trecho médio da bacia do rio Tocantins-Araguaia. Os primeiros registros da espécie nova foram feitos no rio Tocantins antes da construção da barragem de Tucuruí. Recentemente, material adicional foi coletado no rio Araguaia, em um habitat que será brevemente inundado pela construção da hidrelétrica de Santa Isabel.

Key words: Cantão, Catfish, Hydroelectric, Hypostominae, Neotropical fishes, Taxonomy.

Introduction

The family Loricariidae, with more than 800 valid species (Reis *et al.*, 2003; Froese & Pauly, 2012), represents one of the largest fish families in the world. Seven subfamilies of Loricariidae are currently recognized: Delturinae, Hypoptopomatinae, Hypostominae, Lithogeneinae, Loricariinae, Neoplecostominae, and Otothyriinae (Reis *et al.*, 2006; Chiachio *et al.*, 2008). The subfamily Hypostominae was reviewed by Armbruster (2004), who excluded several genera formerly considered in the subfamily and proposed Ancistrinae to be a tribe (Ancistrini) within Hypostominae. *Hypostomus* Lacépède, 1803, with 128 species (Zawadzki *et al.*, 2010; Martins *et al.*, 2012), is the most species-rich genus

of this group and one of the largest genera in the Neotropical region. Species of *Hypostomus* occur almost everywhere in tropical East Andean and southern temperate regions of South America and they colonize nearly any aquatic habitat, although preferring running waters (Montoya-Burgos, 2003).

Four species of *Hypostomus* were described from the rio Araguaia basin. *Hypostomus asperatus* Castelnau, 1855 has a large and flat head and spiny spotless body, although a drawing representation of the species shows some dark spots on the dorsal fin (Castelnau, 1855; fig. 2 plate 20). *Hypostomus atropinnis* (Eigenmann & Eigenmann, 1880) and *H. goyazensis* (Regan, 1904) are two species that do not have spots nor developed keels along lateral series of plates. Both species are from the rio Vermelho, a tributary to upper stretches of the rio Araguaia

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(Eigenmann & Eigenmann, 1880; Regan, 1904). More recently, *Hypostomus faveolus* Zawadzki, Birindelli & Lima, 2008, a honeycomb-spotted species was described from the rio Araguaia-Tocantins and rio Xingu basins (Zawadzki *et al.*, 2008).

In recent surveys in the middle stretches of the rio Araguaia, four pale-spotted specimens of an undescribed species of *Hypostomus* were collected. Besides, these specimens showed an unusual combination of characters as a complex pattern of platelets limiting posterior border of the supraoccipital, keeled lateral series of plates, and a large interorbital width. Shortly after those collections, several additional specimens from the rio Tocantins collected during the construction of the Tucuruí Reservoir (1980's) were found at the fish collection of the Instituto Nacional de Pesquisas da Amazônia (INPA). The aim of the present work is to describe a new species of the genus *Hypostomus* based on those specimens.

Material and Methods

Measurements and counts of bilaterally symmetrical features were taken from the left side of the body, whenever possible. Nomenclature of body plates follows Schaefer (1997) and measurements follow Boeseman (1968), modified by Weber (1986), with addition of: lower lip widest width (at maxillary barbel insertion) and lower lip length (at midline between the dentaries, just posterior the dentary rami to the distal border of the lip). All measurements were taken point to point with digital caliper to the nearest 0.1 mm. Institutional abbreviations are: AMNH, American Museum of Natural History, New York; ANSP, Academy of Natural Sciences, Philadelphia; BMNH, Natural History Museum, London; FMNH, Field Museum of Natural History, Chicago; INPA, Instituto Nacional de Pesquisas da Amazônia, Manaus; MCZ, Museum of Comparative Zoology, Harvard University, Cambridge; MNHN, Muséum National d'Histoire Naturelle, Paris; MNRJ, Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro; MPEG, Museu Paraense "Emílio Goeldi", Belém; MUSM, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima; MZUSP, Museu de Zoologia, Universidade de São Paulo, São Paulo; NUP, Coleção Ictiológica do Núcleo de Pesquisas em Limnologia, Ictiologia e Aquicultura, Universidade Estadual de Maringá, Maringá; RMNH, Netherlands Centre for Biodiversity Naturalis, Leiden; UFRO-I, Coleção Ictiológica da Universidade Federal de Rondônia, Porto Velho; ZUEC Museu de Zoologia da Universidade Estadual de Campinas "Adão José Cardoso", Campinas.

Hypostomus delimai new species (Figs. 1-3)

Holotype. INPA 6191, 235.2 mm SL, Brazil, Pará, Itupiranga, rio Tocantins, 05°07'29.6"S 49°18'44.4"W, 14 Nov 1980, INPA ichthyological staff.

Paratypes. Brazil: Pará State: ANSP 192612, 1, 202.1 mm SL; INPA 35376, 3, 162.7-230.0 mm SL. ZUEC 7088, 200.7 mm SL,

collected with holotype. INPA 2485, 1, 175.4 mm SL, Tucuruí, rio Tocantins, 03°51'54.1"S 49°39'1.6"W, 31 Oct 1987, F. Martinho. INPA 6153, 1, 247.2 mm SL, Itupiranga, lago Morateiro, rio Tocantins, 05°08'42.1"S 49°18'10.2"W, 4 Jul 1982, INPA ichthyological staff. INPA 6192, 2, 206.0 and 253.1 mm SL, Itupiranga, rio Tocantins, 05°09'59.5"S 49°20'1.0"W, 30 Jun 1980, INPA ichthyological staff. INPA 6193, 4, 103.9-215.0 mm SL. MPEG 24021, 1, 168.8 mm SL, Itupiranga, rio Tocantins, 05°05'26.3"S 49°20'13.9"W, 30 Jun 1980, INPA ichthyological staff. INPA 6195, 1, 147.8 mm SL, Itupiranga, rio Tocantins, 05°05'26.3"S 49°20'13.9"W, 30 Jun 1981, M. Jégu. MZUSP 110815, 1, 207.0 mm SL, São Geraldo do Araguaia, rio Gameleira, at its mouth, tributary to rio Araguaia, 06°08'11"S 48°23'35"W, 4 May 2009, T. Debona & C. H. Zawadzki. **Tocantins State:** INPA 20029, 1, 118.0 mm SL, Caseara, Parque Estadual do Cantão, lago Volta Grande, rio Araguaia, 09°47'16"S 50°09'54.5"W, 18 May 2000, J. Zuanon, E. J. G. Ferreira, S. Amadio & G. M. Santos. INPA 20473, 1, 167.1 mm SL, Caseara, Parque Estadual do Cantão, lago Perdidos, rio Araguaia, 09°42'59.9"S 50°08'14"W, 24 Feb 2000, J. Zuanon, E. J. G. Ferreira, S. Amadio & G. M. Santos. INPA 35376, 3, 162.7-230.0 mm SL; and NUP 11015, 1, 204.3 mm SL, border of Ananás and São Geraldo do Araguaia (in the border of the States of Tocantins and Pará), rio Araguaia, 06°08'14"S 48°19'52"W, 9 Jul 2009, T. Debona. NUP 11016, 1, 176.7 mm SL, Araguaianã, rio Lontra, tributary to rio Araguaia, 06°33'56"S 48°38'11"W, 8 May 2009, T. Debona & C. H. Zawadzki. NUP 11017, 1, 205.5 mm SL, Ananás, border of the States of Tocantins and Pará, rio Araguaia, 06°08'14"S 48°19'52"W, 8 May 2009, T. Debona & C. H. Zawadzki.

Diagnosis. The new species is distinguished from all other *Hypostomus* species, with exception of *H. carinatus* (Steindachner, 1881), *H. hoplonites* Rapp Py-Daniel, 1988, and *H. watwata* Hancock, 1828, by the presence of five to eight (mode seven) predorsal plates limiting the posterior border of the supraoccipital bone (Fig. 3) (*vs.* one to three plates). *Hypostomus delimai* differs from *H. carinatus*, *H. hoplonites*, and *H. watwata* by having pale spots against darker ground color on body and fins (*vs.* dark spots against lighter ground color).

Description. Based on holotype and 21 paratypes. Counts and measurements in Table 1. Head broad and slightly compressed. Body width at cleithral region slightly greater than head depth and approximately equal to head length. Snout and anterior profile of head weakly rounded in dorsal view. Snout in lateral profile rising from horizontal at approximately 45°. Dorsal profile nearly straight rising from snout tip to interorbital area, then rising slightly convex to dorsal-fin origin; sloped downward from dorsal-fin origin to region of dorsal procurrent caudal-fin rays, then elevating again to caudal-fin origin. Caudal peduncle somewhat ellipsoid in cross-section, dorsally and ventrally flattened. Eye moderate in diameter (14.1-17.1% of HL), dorsolaterally positioned. Interorbital area wide and flat in frontal view. Mesethmoid forming inconspicuous median ridge on dorsal region of snout. Weak ridge on dorsal surface of head, from nares to upper margin of eyes, and from here to compound pterotic. Cheek plates with odontodes usually small, but sometimes distinctively larger on posterior border. Cleithral

process deep in lateral view, usually deeper than longer, its upper border convex. Supraoccipital generally with conspicuous median ridge; with narrow and relatively long

posterior process limited by five to eight (mode seven) predorsal plates. Plates limiting supraoccipital as part of complex arrangement of platelets (Fig. 3). Dorsal and lateral



Fig. 1. *Hypostomus delimai* new species, INPA 6191, holotype, 235.2 mm SL, in lateral, dorsal, and ventral views, Pará, Itupiranga, rio Tocantins, Tocantins State, Brazil.

surface of head and body covered with dermal plates, except for small unplated area on tip of snout and dorsal-fin base. Predorsal region flattened, with paired moderate ridges. Trunk covered by five lateral series of dermal plates. Dorsal series of plates keeled from dorsal-fin origin to adipose-fin origin, then weakly keeled until upper procurrent caudal-fin rays. Keeled plates of all series, except ventral, with longitudinal rows of odontodes clustered at middle of plates. Mid-dorsal series with longitudinal rows of odontodes complete. Median series bearing complete lateral line, complete row of hypertrophied odontodes. Mid-ventral series moderately bent, with slightly enlarged longitudinal rows of odontodes. Ventral series strongly flattened on anterior region of caudal peduncle, bent on posterior region, and without conspicuous hypertrophied odontodes.

Mouth moderate in size with enlarged central buccal papilla; buccal papilla with distal portion usually fringed. Lips wide and round. Outer edge of upper lips with odontodes.

Lower lip far from reaching gill opening, its inner surface covered with numerous small papillae, larger proximally. Maxillary barbel moderate in size, slightly shorter than orbital diameter. Teeth slender, with elongated main cusp and smaller lateral cusp. Intermandibular tooth row angle approximately from 100° to 120°.

Lower surface of head totally covered by platelets except area just beneath lower lip. Pectoral bridge and abdomen totally covered by platelets except small area at base of left and right pelvic-fin unbranched rays, respectively.

Dorsal fin II,7; moderate in size; spine flexible; its border almost straight; posteriorly reaching spine of adipose fin. Adipose-fin spine well developed, curved inward, with distal tip usually reaching anteriormost dorsal procurrent ray. Pectoral fin I,6; spine not flexible, slightly curved, with rounded tip, and usually with hypertrophied odontodes, largest on distal portion in largest specimens; when adpressed almost reaching middle of pelvic-fin spine. Pelvic fin i,5; unbranched

Table 1. Morphometric data and counts of *Hypostomus delimai*. SD = Standard Deviation.

	Holotype plus 21 specimens		
	Holotype	Range	Mean/SD
Standard length (mm)	235.2	103.9-253.1	188.3 ± 41.92
Percents of SL			
Predorsal length	39.0	36.0-41.9	39.5 ± 1.45
Head length	32.9	31.0-36.9	33.9 ± 1.71
Cleithral width	29.4	28.9-32.1	30.4 ± 0.97
Head depth	21.5	19.8-24.2	22.1 ± 1.12
Interdorsal length	15.4	11.8-19.0	16.3 ± 1.78
Caudal-peduncle length	29.0	25.9-29.7	28.0 ± 0.95
Caudal-peduncle depth	12.2	10.6-12.7	11.7 ± 0.51
Dorsal-fin spine length	31.7	29.7-35.4	32.8 ± 1.71
Thoracic length	26.5	22.0-29.2	26.4 ± 2.00
Percents of head length			
Cleithral width	89.3	78.5-99.9	89.9 ± 5.37
Head depth	65.2	60.5-72.1	65.2 ± 2.94
Snout length	62.7	60.2-65.9	62.8 ± 1.31
Orbital diameter	14.2	14.1-17.1	15.3 ± 0.84
Interorbital width	48.9	46.4-54.0	51.0 ± 1.53
Mandibullary width	12.4	12.3-15.4	13.5 ± 0.75
Other percents			
Snout length/orbital diameter	22.7	22.3-28.0	24.4 ± 1.65
Interorbital width/orbital diameter	29.1	28.2-33.3	30.0 ± 1.52
Interorbital width/mandibullary width	25.4	24.0-30.2	26.4 ± 1.65
Predorsal length/first dorsal-fin spine length	81.2	73.2-91.8	83.4 ± 4.60
Predorsal length/first pectoral-fin spine length	76.7	72.0-83.1	76.5 ± 2.94
Predorsal length/lower caudal-fin unbranched ray length	78.3	76.1-109.2	87.2 ± 8.55
Caudal-peduncle depth/adipose-fin spine length	60.1	60.1-73.8	67.5 ± 3.28
Caudal-peduncle length/caudal-peduncle depth	41.9	38.9-46.5	41.7 ± 2.19
Cleithral width/mandibullary width	13.9	13.4-17.7	15.0 ± 1.04
Dorsal-fin base length/interdorsal length	46.7	38.6-61.9	49.9 ± 6.16
Lower lip length/lower lip width	34.6	28.4-37.5	32.2 ± 2.69
Counts			
Median plate series	Holotype	Range	Mode
Predorsal plates	28	26-29	28
Plates limiting supraoccipital	3	2-4	3
Dorsal plates below dorsal-fin base	6	5-8	7
Plates between dorsal and adipose fin	10	9-10	10
Plates between adipose and caudal fin	4	6-8	6
Plates between end of anal-fin base and caudal fin	4	4-5	4
Premaxillary teeth	13	11-14	13
Dentary teeth	11	10-21	16
	13	11-20	17

ray curved inward; when adpressed surpassing anal-fin unbranched-ray base; its border slightly rounded. Anal fin i,4; when adpressed, distal tip of posterior rays reaching seventh or eighth plate posterior to anal-fin origin. Caudal fin i,7+7,i; slightly emarginated, with ventral lobe equal to slightly longer than dorsal lobe.

Color in alcohol. Ground color of dorsal surface of head and body grayish-brown. Head, dorsum and flanks covered with many pale spots against darker background. Pale spots dense, small, close to each other and less numerous, larger and more distant to each other from compound pterotic to caudal peduncle (Figs. 2 and 4). On flanks of some individuals pale spots with irregular format usually fused to each other, sometimes forming vermiculations (Fig. 1). Ventral region of head and abdomen slightly lighter than dorsal region in specimens up to 100.0 mm SL, in larger specimens ventral region of body similar to dorsal region. Some larger specimens with upper and lower lip dark. Dorsal, pectoral, pelvic, anal and caudal fins dark brown with pale round spots mainly over rays. Adipose fin dark brown with pale spots sometimes fused along spine (Figs. 1 and 5).

Color in life. Color pattern similar to that observed in preserved specimens, except body and fins exhibiting green-brown background and tan spots with green tinge (Fig. 2).

Distribution and habitat. The species was found only in middle stretches of the rio Tocantins-Araguaia basin (Fig. 4). Records of the new species were done before the construction of Tucuruí dam in the rio Tocantins and in the rio Araguaia, in a habitat that soon will be flooded by the construction of the Santa Isabel dam. The rio Araguaia has about 2,627 km long, and its headwaters are located near the Emas National Park, southeast of the Goiás State, Brazil. The rio Araguaia flows northeast to a junction with the rio Tocantins near the town of São João do Araguaia in the State of Pará. These rivers have turbid water, rocky and sandy substrate, and variable



Fig. 2. Lateral view of *Hypostomus delimai*, NUP 11016, paratype, 176.7 mm SL, from the rio Lontra, rio Araguaia basin, in the border of Pará and Tocantins States, Brazil. Photographed immediately after capture.



Fig. 3. *Hypostomus delimai*, INPA 2473, 167.1 mm SL, highlighting complex of platelets limiting supraoccipital and anterior portion of predorsal region. The skin of predorsal region was removed to evidence plate limits.

remnant riparian vegetation. The new species was found co-occurring, with *Squaliforma* cf. *emarginata* (Valenciennes, 1840), *Hypostomus faveolus*, *Hypostomus* cf. *plecostomus* (Linnaeus, 1758), *H. pyrineusi* (Miranda Ribeiro, 1920), and another putative undescribed species of *Hypostomus*.

Etymology. The specific epithet *delimai* is in honor of Flávio César Thadeo de Lima, Brazilian ichthyologist, due to his numerous contributions to Neotropical ichthyology.

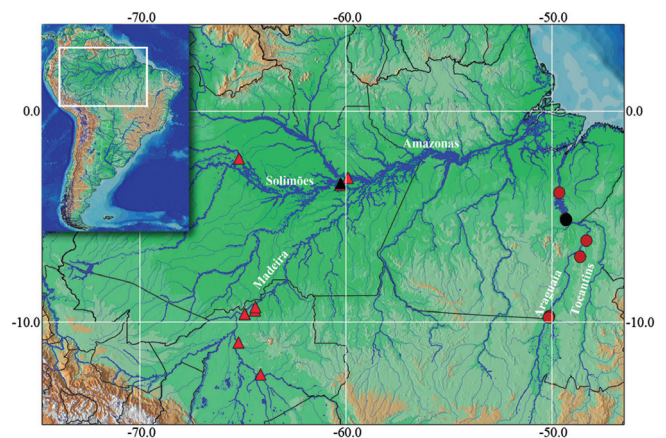


Fig. 4. Distribution of *Hypostomus delimai* new species (circle) and *H. hoplonites* Rapp Py-Daniel, 1988 (triangle). Black symbols represent type localities.

Discussion

Hypostomus delimai is distinguished from its congeners by an unusual combination of characters, namely, five to eight plates limiting supraoccipital, pale spots and vermiculations over body and fins, keeled lateral series of plates, and a large interorbital width. The three nominal species of *Hypostomus* having more than three platelets limiting posterior border of the supraoccipital are *H. carinatus*, *H. hoplonites*, and *H. watwata*. Besides the different color pattern *H. delimai* differs from *H. carinatus* by having the caudal-fin lobes evenly pigmented (vs. ventral lobe darker than dorsal), and by having the caudal fin slightly emarginated (vs. caudal fin strongly emarginated); and from *H. watwata* by having the unbranched caudal-fin rays shorter and similar in length to the head length (vs. unbranched caudal-fin rays longer and similar in length to the predorsal distance), and by having shorter caudal peduncle, 25.9-29.7% of SL (vs. longer caudal peduncle, 31.2-35.7% of SL; data from Boeseman, 1968; table 15).

Hypostomus delimai is morphologically most similar to *H. hoplonites*, although they are differentiated by color pattern. *Hypostomus delimai* has dark brown background with pale spots on head and body, while *H. hoplonites* has pale

background with dark brown spots (Fig. 5). The new species is further distinguished from *H. hoplonites* by a straight dorsal-fin distal border (vs. distal border convex), and by the dorsal and ventral unbranched caudal-fin rays similar in length (vs. ventral unbranched caudal-fin ray remarkably longer than dorsal one). Although not very common, considering the high number of species within the genus, overall morphological similarity between a pair of species but with reversion of the color pattern is sometimes observed as: the pale-spotted *H. albopunctatus* (Regan, 1908) and the dark-spotted *H. heraldoi* Zawadzki, Weber & Pavanelli, 2008, both sharing the exclusive character of unbranched pelvic-fin spines equal to or longer than the pectoral-fin spines; the dark-spotted *H. denticulatus* Zawadzki, Weber & Pavanelli, 2008 and the pale-spotted *H. multidentis* Jerup, Shibatta & Zawadzki, 2007, both sharing the exclusive character of symmetrical bicuspid teeth. The inverse color phenomenon can also be seen in the dark-spotted *H. plecostomus* and the honeycomb-colored *H. faveolus*, both very similar species from the rio Amazon basin.

Considering the developed keels, the Amazonian species of *Hypostomus* with keels along the lateral series of plates are mainly known from the *H. cochliodon* species-group, such as *H. ericius* Armbruster, 2003 and *H. oculus* (Fowler, 1943), or



Fig. 5. Lateral view of preserved specimens of *Hypostomus delimai* NUP 11016, paratype, 176.7 mm SL (top); and *H. hoplonites* INPA 31849, 225.0 mm SL (bottom).

belong to the *H. plecostomus* species-group, such as *H. plecostomus* and *H. faveolus*. The new species can easily be differentiated from *H. ericius* and *H. oculus* by its viliform bicuspid teeth vs. the cochleariform teeth shared among members of the *H. cochliodon* group. The new species can be differentiated from the *Hypostomus* cf. *plecostomus* specimens from the Amazon basin by having pale spots instead of dark ones, hypertrophied rows of odontodes on keels of the lateral series of plates vs. moderate rows of odontodes on keels, and a large interorbital width (46.4-54.0% of HL) vs. moderate (36.3-47.6% of HL; data from Boeseman, 1968; Table 1). Zawadzki *et al.* (2008) described a pale-spotted species, *Hypostomus faveolus*, from the upper stretches of the Tocantins, Araguaia and Xingu rivers. *Hypostomus delimai* is mainly distinguishable from *H. faveolus* by having five to eight (mode seven) plates limiting the posterior region of the supraoccipital vs. one to three large interorbital width (46.4-54.0% of HL) vs. moderate (36.2-46.9% of HL; data from Zawadzki *et al.*, 2008; Table 1), and a roundish to vermiculate pattern of the pale spots vs. a marbled (honey-combed) pattern.

Considering that *Hypostomus delimai* was collected only in two stretches of the rio Tocantins-Araguaia basin before impoundment processes (Tucuruí Reservoir of rio Tocantins and Santa Isabel Reservoir of rio Araguaia), its adaptability to lentic conditions is questionable. To date, there is not any reference of impact of hydroelectric dams on the behavior of fast water dwelling loriciariids, which are now forced to live in these new lentic environments. An effect of dam constructions on the reproductive success and recruitment of species formerly inhabiting lotic environments has been studied in other Neotropical fish in other river systems (Agostinho *et al.*, 2007; Dei Tos *et al.*, 2009). Changes in several biotic factors such as food resources (Hahn *et al.*, 1997; Rodriguez-Ruiz, 1998), reproduction sites (Suzuki & Agostinho, 1997), and presence or abundance of prey and/or predators (Gilliam *et al.*, 1993; Gilliam & Fraser, 2001; Petry *et al.*, 2010), can negatively influence the population dynamics of rheophilic fish inhabiting reservoirs. Those negative impacts could also affect the populations of *H. delimai*; but for effective conservation first a thorough study of the biology of this species is necessary.

Material examined. *Hypostomus albopunctatus*. **Brazil.** São Paulo State. BMNH 1907.7.6.15, 2, 134.1 and 169.0 mm SL syntypes, rio Piracicaba, Rio Tietê basin. MZUSP 87176, 2, 120.5 and 154.8 mm SL, rio Jacaré-Guaçu, rio Tietê basin. *Hypostomus asperatus*. **Brazil.** Goiás State. MNHN A.9442, 232.7 mm SL, holotype, rio Araguaia basin. *Hypostomus atropinnis*. **Brazil.** Goiás State. MCZ 27265, 148.8 mm SL, holotype, rio Vermelho, rio Araguaia basin. *Hypostomus carinatus*. **Brazil.** Amazonas State. INPA 1198, 1, 176.7 mm SL, rio Trombetas, rio Amazonas basin. INPA 2535, 1, 182.6 mm SL, rio Uatumã, rio Amazonas basin. INPA 2541, 1, 191.9 mm SL, rio Uatumã, rio Amazonas basin. INPA 6487, 1, 237.1 mm SL, rio Uatumã, rio Amazonas basin. INPA 32944, 1, 240.0 mm SL, rio Juruá, rio Solimões basin. INPA 32948, 1, 213.8 mm SL, rio Juruá, rio Solimões basin. *Hypostomus* cf. *plecostomus*. **Brazil.** Pará State. NUP 8299, 1, 71.0 mm SL, stream with unknown name, rio Araguaia basin. NUP 8416, 1, 125.0 mm SL, stream with unknown name, rio Araguaia basin.

Hypostomus denticulatus. **Brazil.** Goiás State. MZUSP 98770, 161.9 mm SL, holotype, rio do Peixe, rio Paranaíba basin. NUP 4306, 2, 144.31 and 158.46 mm SL, paratypes, rio Corumbá, Rio Paranaíba basin. NUP 5635, 1, paratype, 156.6 mm SL, rio do Peixe, Rio Paranaíba basin. NUP 5637, 1, paratype, 120.1 mm SL, rio Corumbá, Rio Paranaíba basin. *Hypostomus ericius*. **Peru.** AMNH 218035, 85.3 mm SL, paratype, upper rio Amazon. ANSP 176149, 1, 104.0 mm SL, paratype, rio Nanay. MUSM 27553, 1 of 4, 110.0 mm SL, rio Breu. *Hypostomus faveolus*. **Brazil.** Goiás State. MZUSP 26534, 1, 170.0 mm SL, paratype, rio Resende, rio Araguaia basin. MZUSP 89041, 10, 23.8-39.8 mm SL, paratypes, rio Vermelho, rio Araguaia basin. NUP 8344, 1, 85.0 mm SL, rio Araguaia. *Hypostomus goyazensis*. **Brazil.** Goiás State. BMNH 1889.11.14.49, 214.7 mm SL, holotype, rio Vermelho, rio Araguaia basin. *Hypostomus heraldoi*. **Brazil.** Goiás State. MZUSP 98771, 1, 217.9 mm SL, holotype, rio Pirapitinga, rio Paranaíba basin. NUP 2280, 3, 178.4-194.6 mm SL, paratypes, rio Pirapitinga, rio Paranaíba basin. NUP 2281, 1, 200.8 mm SL, paratype, rio Corumbá, rio Paranaíba basin. *Hypostomus hoplonities*. **Brazil.** Amazonas State. INPA 103, 1, 136.5 mm SL, paratype, lago Janauacá, rio Solimões basin. INPA 109, 1, 271.1 mm SL, holotype, lago Janauacá, rio Solimões basin. INPA 490, 5, 244.0-287.1 mm SL, lago Janauacá, rio Solimões basin. INPA 494, 1, 146.7 mm SL, lago Catalão, rio Amazonas basin. INPA 507, 3, 164.2-284.5 mm SL, paratypes, lago Janauacá, rio Solimões basin. INPA 2372, 1, 168.8 mm SL, rio Japurá, rio Solimões basin. INPA 19505, 1, 94.9 mm SL, ilha do Prego, rio Solimões basin. Rondônia State. INPA 31848, 2, 214.9 and 243.9 mm SL, rio Guaporé, rio Madeira basin. INPA 31849, 4, 224.0-271.0 mm SL, rio Pacaás-Novos, rio Madeira basin. INPA 35309, 2, 103.7 and 174.6 mm SL, rio Guaporé, rio Madeira basin. MPEG 21242, 1, 246.0 mm SL, paratype, lago Janauacá, rio Solimões basin. UFRO-I 738, 1, 244.3 mm SL, rio Mutumparaná, rio Madeira basin. UFRO-I 1190, 2, 204.4 and 210.0 mm SL, rio Mutumparaná, rio Madeira basin. UFRO-I 1195, 1, 213.9 mm SL, rio Mutumparaná, rio Madeira basin. UFRO-I 1744, 1, 210 mm SL, rio Jaciparaná, rio Madeira basin. UFRO-I 6257, 1, 158.7 mm SL, rio Jaciparaná, rio Madeira basin. *Hypostomus multidentis*. **Brazil.** Paraná State. NUP 4821, 2, 160.0 and 169.3 mm SL, paratypes, rio Tibagi, upper rio Paraná basin. NUP 4829, 1, 184.3 mm SL, paratype, rio Paraná, upper rio Paraná basin. São Paulo State. NUP 5340, 157.0 mm SL, rio Paranapanema, rio Paraná basin. *Hypostomus oculus*. **Colombia.** FMNH 106015, 1, 130.0 mm SL, rio Aguarico. FMNH 106016, 2, 31.0 and 106.0 mm SL, rio Payamino. *Hypostomus plecostomus*. **Suriname.** MCZ 8025, 1, 169.0 mm SL, exact locality unknown. RMNH 3102, 1, 221.3 mm SL, lectotype designated by Boeseman, 1968, Suriname river. *Hypostomus pyrineusi*. **Brazil.** Rondônia State. MNRJ 863, 204.0 mm SL, holotype, probably rio Jamari. Tocantins State. NUP 8250, 1, 36.0 mm SL, ribeirão Xambioazinho, rio Araguaia basin. NUP 8376, 1, 60.0 mm SL, stream with unknown name, rio Araguaia basin. NUP 10984, 2, 168.9 and 169.0 mm SL, ribeirão Xambioazinho, rio Araguaia basin. *Hypostomus* sp. **Brazil.** Tocantins State. NUP 9782, 1, 99.8 mm SL, rio Corda, rio Araguaia basin. NUP 9783, 1, 126.6 mm SL, rio Corda, rio Araguaia basin. NUP 9499, 1, 83.8 mm SL, rio Araguaia. NUP 10955, 1, 100.1 mm SL, rio Araguaia. *Hypostomus watwata*. **French Guyana.** MNHN A.8919, 1, 194.5 mm SL, paralectotype of *Hypostomus verres* Valenciennes, 1940, fleuve Cayenne. MNHN A.9570, 1, 93.7 mm SL, paralectotype of *Hypostomus verres*, Valenciennes, 1840. **Guyana.** BMNH 1932.11.10.31, neotype designated by Boeseman (1968), 261.2 mm SL, Berbice river. *Squaliforma emarginata*. **Brazil.** Pará State. NUP 10948, 2, 133.7-148.3 mm SL, rio Araguaia. Tocantins State. NUP 10364, 7, 108.8-169.8 mm SL, rio Araguaia. NUP 13082, 1, 173.0 mm SL, rio Crixás-Açu, Rio Araguaia basin.

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