

A new species of the *Hypostomus cochliodon* group (Siluriformes: Loricariidae) from the rio Aripuanã basin in Brazil

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A new species of *Hypostomus*, *H. dardanelos*, is described from the rio Aripuanã basin, a southern tributary to the rio Madeira, in northern Mato Grosso State, Brazil. The new species is assigned to the *Hypostomus cochliodon* group by the possession of few teeth, spoon-shaped teeth, angle between dentaries usually less than 80°, and by the absence of a notch between hyomandibular and the metapterygoid. The new species can be diagnosed from its congeners by its unique color pattern of yellowish-brown ground color covered by well-defined dark spots of relatively equal size, evenly spaced and moderately set along the dorsal region of the body and fins, except on the ventrolateral region of the caudal peduncle and proximal region of anal and caudal fins, which are devoid of spots. The new species is further diagnosed by having teeth with very small lateral cusp, fused to the mesial one and almost imperceptible; by the absence of medial buccal papillae, and by nuptial odontodes all along the body (odontodes more pronounced in some few larger specimens).

Uma espécie nova de *Hypostomus*, *H. dardanelos*, é descrita da bacia do rio Aripuanã, um tributário ao sul do rio Madeira, no norte do estado do Mato Grosso, Brasil. A espécie nova é atribuída ao grupo *Hypostomus cochliodon* por apresentar poucos dentes, dentes em forma de colher, ângulo entre os dentários usualmente menor que 80° e pela ausência de uma chanfradura entre o hiomandibular e o metapterigoide. A espécie nova pode ser diagnosticada de suas congêneres por seu padrão de cor único marrom-amarelado com pintas escuras bem definidas de tamanho homogêneo, moderadamente distanciadas e igualmente distribuídas ao longo da região dorsal do corpo e nadadeiras, exceto na região ventrolateral do pedúnculo caudal e na região proximal da nadadeira caudal, que são desprovidas de pintas. A espécie nova é adicionalmente diagnosticada por possuir dentes com a cúspide lateral muito reduzida, fundida à cúspide mesial e quase imperceptível; pela ausência da papila bucal medial e por odontódeos nupciais presentes em todo o corpo (odontódeos mais evidentes em alguns poucos exemplares maiores).

Key words: Amazon basin, Catfish, Hypostominae, Neotropical fishes, Taxonomy.

Introduction

The *Hypostomus cochliodon* group is a monophyletic lineage (Armbruster & Souza, 2005), which is widely distributed along most of the main Neotropical river basins. This group encompasses 20 valid nominal species and displays its greatest species richness in the Amazon basin with 15 species (Armbruster, 2003; Hollanda Carvalho & Weber, 2004; Armbruster & de Souza, 2005; Hollanda Carvalho *et al.*, 2010). The five remaining non-amazonian species apparently have allopatric distributions. *Hypostomus hondae* (Regan) is restricted to lake Maracaibo basin and Magdalena, Sinú, and Atrato rivers; *H. pagei* Armbruster is

found in rivers that drain into the Caribbean sea in Venezuela; *H. plecostomoides* (Eigenmann) is in the Orinoco and Tuy rivers and in the lake Valencia drainage; *H. taphorni* (Lilyestrom) is only found in the Cuyuni drainage; and finally, *H. cochliodon* Kner is in rios Paraguay and Paraná basins (Armbruster, 2003).

The rio Aripuanã is a white water tributary to the rio Madeira in the Western Amazon (Goulding *et al.*, 2003). As a southern tributary to the rio Madeira the rio Aripuanã extends more than 1,100 km from its mouth to its headwaters near the município de Juína in Mato Grosso State. An important and still poorly known component of the Amazonian fish fauna can be found in this system.

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Ichthyological surveys in the rio Aripuanã and some of its tributaries have recently been carried out. The present work is based on fishes collected from Serra do Expedito, an upland region drained by three right-bank tributaries of the rio Aripuanã. These are the igarapés Rio Claro, Praia Grande and Guaribal, all of which reach the rio Aripuanã downstream the cachoeira Dardanelos. Additional material comes from surveys performed in the region of the rio Aripuanã and its tributaries downstream cachoeira Dardanelos. This paper aims to describe a new species of the *Hypostomus cochliodon* group found in this region based on its coloration and external morphology.

Material and Methods

Measurements were taken using a digital caliper to the nearest 0.1 mm. Methodology and terminology of measurements follow Boeseman (1968), modified by Weber (1985) and Zawadzki *et al.* (2008). Osteological observations were based on the skeleton of one specimen, which was dehydrated in ethanol and cleaned in a dermestarium. Plate counts and nomenclature follow Schaefer (1997), modified by Oyakawa *et al.* (2005). Standard length (SL) is expressed in millimeters and all other measurements are expressed as percents of standard length or head length (HL), unless otherwise noted. Non-type specimens are conserved in absolute ethanol for further molecular purposes. Considering that low water content ethanol may significantly change body proportion by dehydration we chose not to include these specimens on the type series.

Institutional abbreviations are: AMNH, American Museum of Natural History, New York; ANSP, Academy of Natural Sciences of Drexel University, Philadelphia; AUM, Auburn University Natural History Museum, Auburn; BMNH, Natural History Museum, London; CAS, California Academy of Sciences, San Francisco; FMNH, Field Museum of Natural History, Chicago; INPA, Instituto Nacional de Pesquisas da Amazônia, Manaus; MHNG, Muséum d'histoire naturelle, Geneva; MNRJ, Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro; MUSM, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima; MZUSP, Museu de Zoologia, Universidade de São Paulo, São Paulo; NMW, Naturhistorisches Museum, Vienna; NUP, Coleção Ictiológica do Núcleo de Pesquisas em Limnologia, Ictiologia e Aquicultura, Universidade Estadual de Maringá, Maringá; UMSS, Universidad Mayor de San Simón, Cochabamba; ZMA, Zoologisches Museum, Universiteit van Amsterdam, now in RMNH, Naturalis - National Natuurhistorisch Museum, Leiden; ZSM, Zoologische Staatssammlung München, Munich.

Results

Hypostomus dardanelos, new species

Figs. 1-3

Hypostomus gr. *cochliodon* Fernandes *et al.*, 2013: 843 [list of species and ecology].

Holotype. INPA 37342, 172.2 mm SL, Brazil, Mato Grosso State, município de Aripuanã, rio Madeira basin, rio Praia Grande (at its mouth to rio Aripuanã downstream cachoeira Dardanelos and Andorinhas), 10°02'51"S 59°23'21"W, 8 Aug 2008, I. M. Fernandes.

Paratypes. All from Brazil, Mato Grosso State, município de Aripuanã, rio Aripuanã basin: MNRJ 36319, 1, 145.5 mm SL, rio Aripuanã, at rapids downstream cachoeira Dardanelos, 10°09'41.7"S 59°27'41.9"W, 12 Mar 2008, F. Pupo & I. Veríssimo. MNRJ 38652, 1, 119.8 mm SL, rio Aripuanã, left margin, 1500 m downstream Dardanelos waterfalls, 10°09'30"S 59°26'19"W, 11 Dec 2008, F. Pupo. MNRJ 38871, 1, 143.0 mm SL, rio Aripuanã, 500 m downstream Dardanelos waterfalls, 10°09'47"S 59°26'56"W, 28 Jul 2010, F. Pupo. MZUSP 37595, 2, 172.0-183.9 mm SL (larger specimen skeletonized after measuring), rio Aripuanã, Humboldt, 3 km downstream Cachoeira Grande falls, no coordinates available, 8 Nov 1976, Expedition MZUSP and INPA. MZUSP 37795, 1, 168.3 mm SL, rio Aripuanã, 8 Nov 1976, Expedition MZUSP and INPA. MZUSP 110798, 2, 135.5-163.7 mm SL, rio Aripuanã, 7 Jan 2004, F. A. Machado, C. M. C. Leite & F. Rosa. NUP 6758, 8, 118.8-160.5 mm SL, collected with holotype. NUP 6759, 2, 115.5-141.2 mm SL, stream with unknown name, tributary to igarapé Guaribal, 10°06'35"S 59°26'12"W, 8 Aug 2008, I. M. Fernandes. NUP 6760, 1, 143.5 mm SL, igarapé Guaribal, tributary to rio Aripuanã, 10°06'35"S 59°26'12"W, 18-19 May 2008, I. M. Fernandes. NUP 6765, 1, 55.0 mm SL, stream with unknown name, tributary to rio Guaribal, 10°06'35"S 59°26'12"W, 18-19 May 2008, I. M. Fernandes. NUP 6775, 1, 151.8 mm SL, stream with unknown name, tributary to rio Praia Grande, 10°02'51"S 59°23'21"W, 19 May 2008, I. M. Fernandes. NUP 7098, 1, 46.0 mm SL, stream with unknown name, tributary to igarapé Praia Grande, 10°02'45"S 59°27'24"W, 5 Aug 2008, I. M. Fernandes. NUP 7130, 2, 40.0-42.7 mm SL, stream with unknown name, tributary to igarapé Praia Grande, 10°02'59"S 59°27'40"W, 5 Aug 2008, I. M. Fernandes. NUP 7192, 1, 42.0 mm SL, stream with unknown name, tributary to igarapé Rio Claro, 10°03'09"S 59°33'20"W, 6 Aug 2008, I. M. Fernandes. NUP 7474, 4, 123.0-181.0 mm SL, collected with holotype. NUP 7637, 2, 12.3-40.1 mm SL, stream with unknown name, tributary to igarapé Guaribal, 10°04'37"S 59°31'04"W, 15 May 2008, I. M. Fernandes. NUP 7694, 1, 42.0 mm SL, stream with unknown name, tributary to igarapé Guaribal, 10°06'35"S 59°26'12"W, 5 Aug 2008, I. M. Fernandes. NUP 9452, 1, 40.6 mm SL, stream with unknown name, tributary to igarapé Rio Praia Grande, 10°02'51"S 59°23'21"W, 17 May 2008, I. M. Fernandes.



Fig. 1. *Hypostomus dardanelos*, INPA 37342, 172.2 mm SL, holotype, Brazil, Mato Grosso State, rio Praia Grande, tributary to rio Aripuanã, rio Madeira basin. Picture horizontally reversed.

Non-type specimens. NUP 14655, 1, 103.7 mm SL, Igarapé Arraia, tributary to rio Aripuanã, 10°07'15"S 59°31'42"W, 19 Jan 2013, H. P. Silva & C. H. Zawadzki. NUP 14656, 1, 66.8 mm SL, Igarapé Guaribal, tributary to rio Aripuanã, 10°08'51"S 59°29'56"W, 19 Jan 2013, C. H. Zawadzki & H. P. Silva.

Diagnosis. *Hypostomus dardanelos* is distinguished from its congeners by its unique color pattern of yellowish-brown ground color covered by well-defined dark spots of relatively equal size, evenly spaced and moderately set along the dorsal region of the body and fins, except on the ventrolateral region

of the caudal peduncle, and proximal region of anal and caudal fins, which are devoid of spots (vs. without spots, with pale spots, or with moderately- or sparsely-set dark spots that are usually larger, more faded, and more remotely spaced towards posterior region of body, and with ventrolateral caudal peduncle usually bearing spots). Additionally, *H. dardanelos* is further distinguished from all species of *Hypostomus*, except those belonging to the *Hypostomus cochliodon* group, by

having few spoon-shaped teeth, 10 to 13 (vs. more than 16 villiform teeth), dentaries angled less than 80° (vs. dentaries angled more than 80°) and by the presence of a notch between hyomandibular and the metapterygoid (vs. notch absent). The new species is further diagnosed from *H. hemicochliodon* Armbruster, *H. kopeyaka* Carvalho, Lima & Zawadzki, *H. sculpodon* Armbruster, *H. soniae* Hollanda Carvalho & Weber, and *H. weberi* Hollanda Carvalho, Lima & Zawadzki by

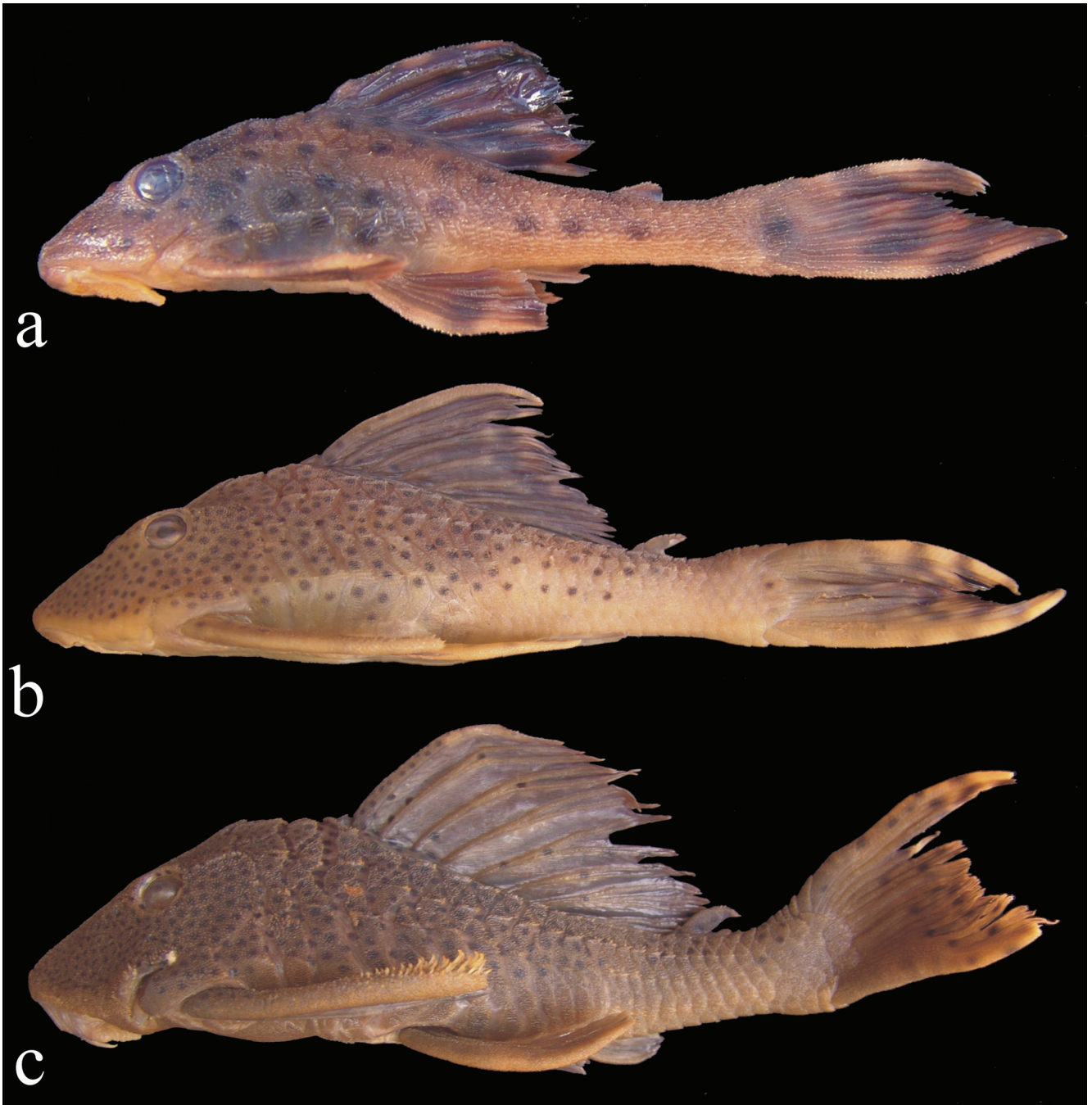


Fig. 2. Specimens of *Hypostomus dardanelos* showing ontogenetic variation on the color pattern and on the development of the nuptial body odontodes in c. (a) NUP 7098, paratype, 46.0 mm SL; (b) NUP 6759, paratype, 115.5 mm SL; and (c) NUP 7474, paratype, 181.0 mm SL.

possessing massive round teeth, with mesial cusp large and distinctly spoon shaped and outer cusp, if present, fused to the mesial one and scarcely noticeable (*vs.* clearly bicuspid teeth, although the lateral cusp is considerably smaller than mesial cusp); from *H. hemicochliodon*, *H. kopeyaka*, *H. paucimaculatus* Boeseman, *H. sculpodon*, *H. waiampi* Hollanda Carvalho & Weber, *H. weberi* by lacking a medial buccal papilla (*vs.* medial buccal papilla present); from *H. ericae* Hollanda Carvalho & Weber, *H. plecostomoides*, and *H. pyrineusi* (Miranda Ribeiro) by having strong keels in dorsal, mid-dorsal and median series of plates (*vs.* keels absent in *H. pyrineusi* and moderately-developed keels in *H. ericae* and *H. plecostomoides*); from *H. ericius* Armbruster by having caudal fin usually with dark spots distally (*vs.* caudal fin dark blurred distally); from *H. hondae* by having the exposed portion of opercle inconspicuous (*vs.* exposed portion of opercle easily visualized); from *H. macushi* Armbruster & Souza by having small dark spots (*vs.* medium to large dark spots); from *H. oculus* (Fowler) by lacking strong keel on mid-ventral series of plates (*vs.* having strong keels on all lateral series plates, including the mid-ventral one, see Armbruster, 2003, fig. 16); from *H. pagei* by having uniformly conspicuous small dark spots (*vs.* spots becoming faded or absent); and from *H. taphorni* by having both caudal-fin lobes evenly colored (*vs.* bicolored caudal fin with lower lobe darker).

Description. Meristic and morphometric data in Table 1. Holotype and additional specimens in Figs. 1-3. Dorsal profile slightly convex to straight from snout tip to interorbital area, strongly convex from interorbital area to dorsal-fin origin, and gently descending from dorsal-fin origin to first procurrent plate of caudal fin. Ventral profile almost straight from snout tip to caudal fin. Caudal peduncle slightly compressed laterally, ellipsoid in cross section. Body width at cleithral region greater than head depth. Head broad and deep, dorsally covered with dermal bones, except for small naked area on snout tip (snout tip plated in one specimen, NUP 7474, 181.0 mm SL). Median elongated bulge associated with mesethmoid terminating coequally with transversal through nares. Conspicuous ridge originating lateral to nares, passing through supraorbital, and extending to posterior portion of pterotic-supracleithrum. Supraoccipital bone with moderate to highly developed median ridge, and with relatively well-developed posterior process bordered by single wide plate. Exposed region of opercle small, not easily seen and usually with less than ten odontodes. Oral disk round, moderate in size. Lower lip not reaching transversal through gill openings, ventral surface covered with numerous small papillae decreasing in size posteriorly. Maxillary barbel moderately developed, almost equal in length to orbital diameter. Odontodes present over anterior surface of upper lip, just below snout. Medial buccal papillae absent. Maxilla straight. Jaws acutely angled, averaging less than



Fig. 3. Live specimen of *Hypostomus dardanelos*, MNRJ 36319, paratype, 145.5 mm SL, from the rio Aripuanã at the rapids downstream cachoeira Dardanelos, município de Aripuanã, Mato Grosso State, Brazil. Photographed immediately after capture by F. Pupo.

80° between left and right dentary rami. Teeth spoon shaped, apparently unicuspid; mesial cusp massive and round; lateral cusp extremely reduced and usually fused to mesial cusp (similar to the condition found in *Hypostomus ericae*; Hollanda Carvalho & Weber, 2004: 640, fig. 4a).

Body covered with five rows of moderately spinulose dermal plates, except for region surrounding dorsal-fin base and very small areas around pectoral- and pelvic-fin insertions and at urogenital opening. Specimen NUP 7474, 181.0 mm SL with well-developed nuptial odontodes along dorsal surface of body and fin rays (Fig. 2c). Predorsal region with two conspicuous keels; area between keels flat. Dorsal, mid-dorsal, and median series of plates with keels supporting sharp odontodes. Mid-ventral series lacking sharp odontodes or having moderate odontodes. Dorsal series of lateral plates with keel from first plate to area just anterior to origin of adipose fin. Mid-dorsal series of lateral plates with keels from first plate to area just posterior to adipose fin; third plate with keel oriented upward. Median series of plates with moderately-developed keels to area just below posterior dorsal-fin base. Mid-ventral series of plates with moderate keels from first to fifth or sixth plate, then slightly arched to area below adipose fin. Ventral series of plates devoid of keels; posterior two plates deflected laterally. Ventral surface of head totally covered with platelets, except for region beneath lower lip. Abdomen completely covered with minute platelets in specimens larger than 120 mm SL. Preanal plate present.

Dorsal fin II,7, its origin at vertical through midpoint between origins of pectoral and pelvic fin, or slightly posterior to that point. Dorsal-fin margin straight to slightly convex. Adipose-fin spine compressed and curved toward its base. Pectoral fin I,6, its posterior border straight. Pectoral-fin spine slightly curved posteriorly, covered with moderately

developed odontodes; odontodes enlarged towards distal portion of spine and particularly in larger specimens. Specimen NUP 7474, 181.0 mm SL with strong hypertrophied odontodes on posterodorsal region of pectoral fin. Tip of adpressed pectoral fin reaching to anterior one-third of pelvic-fin spine length. Pelvic fin i,5, its posterior border slightly roundish. Adpressed pelvic-fin spine just reaching to or just surpassing anal-fin origin. Anal fin i,4, its tip reaching the fifth to sixth plate after its origin. Rays of anal fin progressively increasing in size, third branched ray usually the longest. Caudal fin i,14,i. Caudal-fin margin falcate; ventral lobe slightly longer than dorsal one.

Color in alcohol. Overall ground color of dorsal and ventral regions of body and fins yellowish-brown. Dorsal surface of head and body covered by well-defined and moderately-set dark spots except on ventrolateral region of caudal peduncle. Spots on ventral surface uncommon, observed only in two specimens as scarce and sparsely arranged. Dorsal and pectoral fins with dark spots, mainly on proximal region and along

spines and first branched rays. Pelvic fin with dark spots usually grouped on median region of branched rays. Anal fin usually lacking spots. Caudal fin with few distally, but usually lacking spots proximally; distal caudal-fin spots occasionally vertically aligned in two to three bands.

Spot pattern with pronounced ontogenetic variation (Fig. 2). Marks typically larger, scarce and ill-defined on smaller specimens. Patches of pigmentation gradually forming well-defined spots during ontogenetic growth. Dark spots generally large, few in number and widely spaced on specimens up to 45 mm SL; spots on fins sometimes fused forming transverse bands. Spots smaller, mores numerous and set closer on specimens up to 115 mm SL. Spots better outlined at this stage, especially on head and trunk. Spots progressively more numerous on head and trunk, and better outlined, including fins, up to specimens around 180 mm SL.

Color in life. Live specimens with coloration similar to preserved ones, except for more brownish yellow coloration on body and fins (Fig. 3).

Table 1. Morphometric data and counts of *Hypostomus dardanelos*.

	22 specimens		
	Holotype	Range	Mean/SD
Standard length	172,2	114.8–183.9	151.1 ± 18.51
	Percents of standard length		
Predorsal length	42.0	38.2–42.0	40.1 ± 1.03
Head length	33.1	31.3–34.2	32.6 ± 0.68
Cleithral width	32.0	29.7–32.5	31.2 ± 0.76
Head depth	25.2	22.2–25.2	23.8 ± 0.77
Interdorsal length	17.7	15.1–19.2	17.6 ± 1.34
Caudal-peduncle length	32.0	29.7–35.9	32.2 ± 1.73
Caudal-peduncle depth	10.6	9.5–12.0	10.6 ± 0.61
Dorsal-fin spine length	27.4	27.2–34.4	31.0 ± 2.24
Thoracic length	24.8	22.6–25.5	24.1 ± 0.86
	Percents of head length		
Cleithral width	96.7	92.2–100.2	95.7 ± 2.13
Head depth	76.2	69.2–76.2	72.8 ± 2.02
Snout length	66.0	62.2–69.2	66.2 ± 2.05
Orbital diameter	17.3	16.5–19.3	17.8 ± 0.85
Interorbital width	49.5	46.4–53.7	51.1 ± 1.79
Mandibullary width	13.0	12.7–15.4	13.7 ± 0.65
	Other percents		
Orbital diameter in snout length	26.3	24.0–29.4	26.9 ± 1.51
Orbital diameter in interorbital width	35.0	33.2–37.8	34.9 ± 1.54
Mandibular width in interorbital width	26.3	24.8–29.4	26.8 ± 1.23
First dorsal fin ray length in predorsal length	65.3	65.3–86.4	76.9 ± 6.23
First pectoral ray length in predorsal length	79.5	75.1–85.6	82.0 ± 2.90
Lower caudal ray length in predorsal length	-	62.6–98.6	82.9 ± 9.38
Adipose ray length in caudal peduncle depth	69.3	57.8–75.8	65.9 ± 6.10
Caudal peduncle depth in Caudal peduncle length	33.1	27.0–38.0	33.1 ± 2.84
Mandibular width in cleithral width	13.4	13.3–15.8	14.3 ± 0.67
Interdorsal length in dorsal base length	63.2	50.4–69.1	60.6 ± 6.11
Lower lip length in lower lip width	31.2	26.8–38.3	33.8 ± 3.51
Counts	Holotype	Range	Mode
Median plate series	25	25–27	27
Predorsal plates	3	3–3	3
Dorsal plates below dorsal-fin base	9	8–9	8
Plates between dorsal and adipose fin	7	6–8	7
Plates between adipose and caudal fin	4	4–8	6
Ventral plates between end of anal-fin base and caudal fin	12	12–14	13
Premaxillary teeth	11	8–14	11
Dentary teeth	10	9–15	13

Distribution. *Hypostomus dardanelos* is currently known from the rio Aripuanã drainage, downstream cachoeira Dardanelos (Fig. 4).

Etymology. The specific epithet, *dardanelos*, is a noun in reference to the cachoeira Dardanelos. A noun in apposition.

Discussion

The unique pattern of spots exhibited by *Hypostomus dardanelos* allows a prompt identification of this species. The most typical pattern among *Hypostomus* and other species of Hypostominae is characterized by dark spots covering the whole dorsal surface of the body, and these spots become fainter and more widely spaced as approach the caudal fin. The color pattern displayed by *H. dardanelos* differs from the pattern detailed above due to be distinctly outlined, unvarying in size and having evenly spaced spots present throughout the whole dorsal surface of the body. Also the spots on the caudal peduncle are clearly restricted to its dorsolateral region. The unspotted area on the caudal peduncle is the most striking trait of this particular pattern. The species most similar to *H. dardanelos* are *H. ericae* (Fig. 5a), which inhabits the rio Tocantins-Araguaia basin in Tocantins State, Brazil and *H. ericius* (Fig. 5b), from the upper Amazon basin in Peru. However, *H. ericae* lacks strong keels supporting odontodes along lateral series of plates (*vs.* keels present on both *H. dardanelos* and *H. ericius*). The caudal fin is usually devoid of spots on its proximal region in *H. dardanelos*, in *H. ericae*, and in *H. ericius*. However, the caudal fin is usually spotted on the distal region in *H. dardanelos* and in *H. ericae*, while in *H.*



Fig. 4. The cachoeira Dardanelos at the município de Aripuanã, Mato Grosso State, Brazil. This fall is part of a series of close waterfalls descending about 150 m from its upper to the lower levels. This natural feature is known to be a biogeographic boundary for certain groups of fishes.

ericius the caudal fin color pattern is commonly dark blurred on the distal region (Fig. 5b). In addition to the characters already described, another diagnostic feature is recognized. The presence of dark spots on the ventral surface is the common condition in *H. ericius* (see Armbruster, 2003) and in *H. ericae* (see Hollanda Carvalho & Weber, 2004), while it is uncommon in *H. dardanelos*.

Among the Amazonian species of the *Hypostomus cochliodon* group, two of them are from the rio Madeira basin. *Hypostomus levis* (Pearson) was described from Cochabamba and Popoi rivers, upper rio Madeira basin, in Bolivia, and *H. pyrinesei* is uncertainly assigned to the rio Jamari (Weber, 2003) in Brazil. *Hypostomus dardanelos* is distinguished from both species by the unspotted ventrolateral region of caudal peduncle, by having conspicuous keels supporting odontodes along the lateral series of plates and by a ridge on the pterotic supracleithrum (*vs.* absent in *H. levis* and *H. pyrinesei*). The presence of an adipose fin also differs *H. dardanelos* from *H. levis*.

According to Kullander (1995), some fishes appear to be endemic to the rio Aripuanã drainage, and recent publications have assigned new species to this basin. Rocha *et al.* (2008a, 2008b) described two siluriforms from the middle portion of the rio Aripuanã, *Gladioglanis anacanthus* and *Scoloplax baskini*, respectively. Zanata & Ohara (2009) described a new characin, *Jubiaba citrina* from the middle portion of the river, and cited that this species is probably endemic to the rio Aripuanã basin.

Most specimens of *Hypostomus dardanelos* were found in the rivers draining from the Serra do Expedito in the middle portion of the rio Aripuanã basin. The igarapés Guaribal, Praia Grande and rio Claro drain the Serra do Expedito into the right bank of the upper rio Aripuanã. One striking feature upstream of the confluence of these three tributaries is the cachoeira Dardanelos, a series of close waterfalls descending a total of 150 m (Fig. 4). This remarkable geographic feature is a clear divide for certain groups of fishes inhabiting the rio Aripuanã basin. There are some species of fish (*e.g.*, the cichlids, *Aequidens gerciliae* Kullander, *Crenicichla hemera* Kullander, *C. isbrueckeri* Ploeg, and *C. pellegrini* Ploeg, and the anostomid *Leporinus trimaculatus* Garavello & Santos) that are considered endemic to the upper rio Aripuanã basin above the cachoeira Dardanelos (Kullander, 1995). On the other hand, several other fish species seem to be restricted to downstream cachoeira Dardanelos, as the loricariid *Parotocinclus aripuanensis* Garavello described from the rio Canumã, which joins rio Aripuanã just downstream of those falls. Despite recent collection efforts, *H. dardanelos* has not been recorded above the cachoeira Dardanelos.

Comparative material. *Hypostomus cochliodon*. **Brazil.** NMW 44101, 1, 176.2 mm SL, syntype, rio Cuiabá. NUP9822, 6, 26.8-143.0

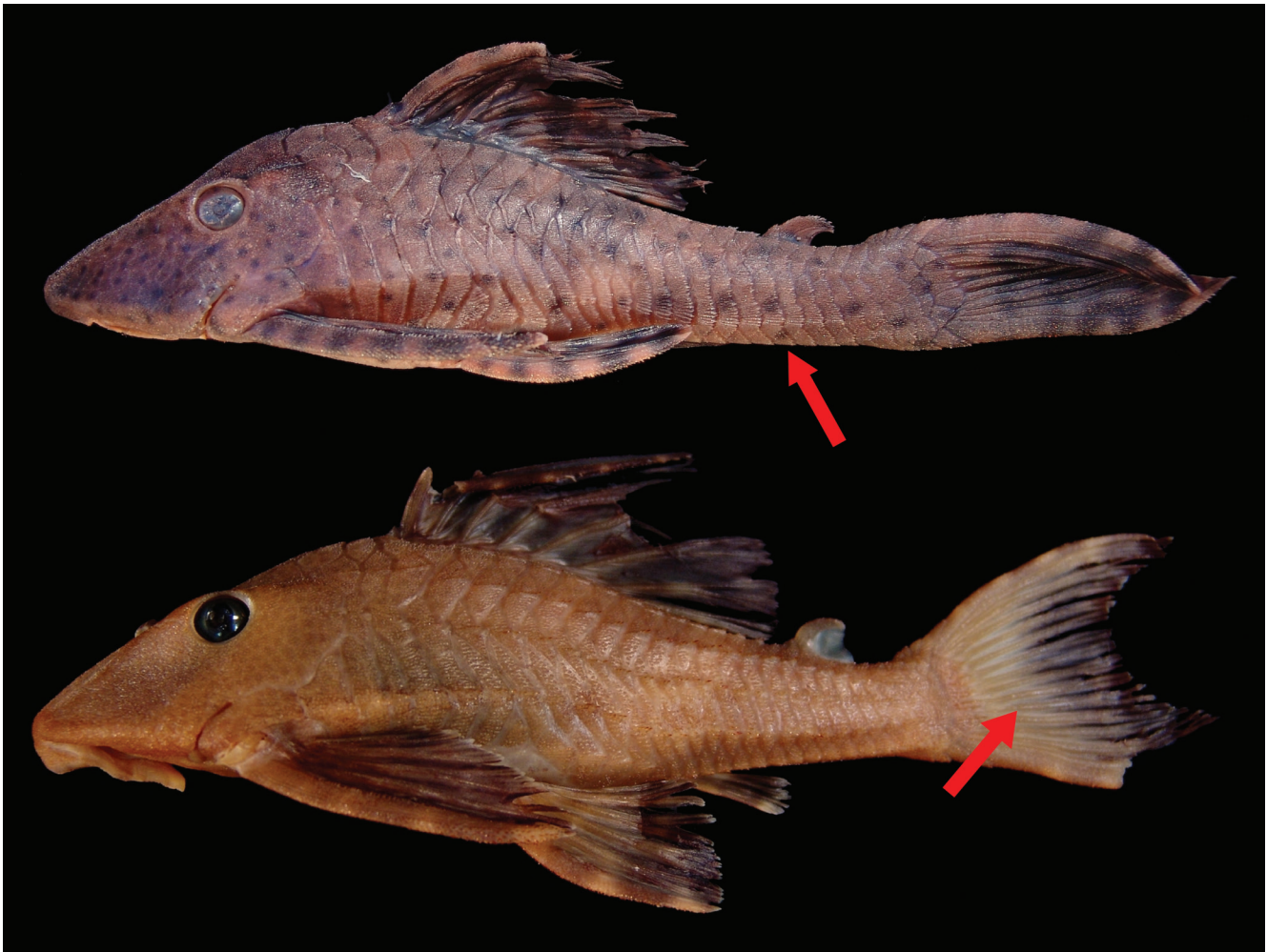


Fig. 5. *Hypostomus ericae* NUP 6436, 155.6 mm SL; Brazil, Mato Grosso State, Barra do Garça, rio Araguaia basin, córrego Fundo (a); *Hypostomus ericius* MUSM 27553, 118.9 mm SL: Peru, Ucayali Department, rio Breu basin, rio Yrua (b). Red arrows highlight the spotted ventrolateral region of caudal peduncle in *H. ericae* and the caudal fin dark blurred distally in *H. ericius*.

mm SL, córrego da Onça. NUP 10807, 208.0 mm SL, rio Manso. NUP 11956, 5, 38.6-92.8 mm SL, córrego Palmeira. NUP 12000, 2, 155.8-174.1 mm SL, rio Cuiabá. NUP 12001, 1, 202.8 mm SL, rio Manso. *Hypostomus ericae*. **Brazil.** MHNG 2650.026, 1, 130.5 mm SL, paratype, rio Maranhão. MNRJ 27861, 1, 164.3 mm SL, holotype, rio Tocantins. NUP 6436, 1, 155.4 mm SL, córrego Fundo. NUP 8298, 1, 53.0 mm SL, stream with unknown name. *Hypostomus ericius*. **Peru.** AMNH 218035, 1, 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 fonchii*. **Peru.** MHNG 2613.066, 1, 141.0 mm SL, holotype, rio Cushabatay basin. *Hypostomus hemicochliodon*. **Ecuador.** FMNH 106021, 2, 31.0-106.0 mm SL, rio Payamino. FMNH 106024, 1, 159.0 mm SL, rio Payamino. **Venezuela.** ANSP 185320, 228.0 mm SL, Crano Grula, tributary to rio Orinoco. *Hypostomus hondae*. **Colombia.** AMNH 12599, 1, 124.0 mm SL, rio Macauá. BMNH 1909.7.23.44, 1, 59.1 mm SL, paratype. SU 50373, 1, 106.0 mm SL, rio Samana,

rio Magdalena basin. SU 56863. **Venezuela.** CAS 136504, 2, 50.0-59.7 mm SL, rio Monay. *Hypostomus kopeyaka*. **Brazil.** MZUSP 98764, 1, 226.1 mm SL, holotype, rio Tiquié. NUP 8019, 1, 140.4 mm SL, igarapé Castanha, tributary of rio Tiquié. *Hypostomus levis*. **Bolivia.** UMSS 1721, 187.9 mm SL, rio Paraguá. *Hypostomus macushi*. **Venezuela.** AUM 35510, 1, 148.1 mm SL. AUM 45064, 1, 170.0 mm SL. *Hypostomus oculus*. **Colombia.** FMNH 106015, 1, 130.0 mm SL, rio Aguarico. FMNH 106016, 3, 52.0-183.0 mm SL, rio Payamino. *Hypostomus pagei*. **Suriname.** ZMA 109.982, 1, 189.2 mm SL, Wilhelmina mountains. *Hypostomus paucipunctatus*. **Brazil.** MHNG 2652.017, 2, 135.6-155.0 mm SL, paratypes, rio Itacaiúnas. MZUSP 82271, 1, 177.1 mm SL, holotype, rio Itacaiúnas. *Hypostomus plecostomoides*. **Venezuela.** ANSP 166889, 1, 215.0 mm SL, rio Orinoco. ANSP 180718, 2, 38.6-175.0 mm SL, rio Inambari. CAS 12694, 1, 214.0 mm SL, rio Bue. *Hypostomus pyrineusi*. **Bolivia.** ZSM 22025, 2, 241.6-241.7 mm SL, rio Chipiriri. **Brazil.** MNRJ 863, 1, 204.0 mm SL, holotype, probably rio Jamari. MNRJ 31899,

1, 176.7 mm SL, rio Urupá, rio Machado basin. NUP 10047, 1, 150.3 mm SL, rio Jaciparaná, rio Madeira basin. NUP 10984, 2, 168.9-169.9 mm SL, ribeirão Xambioazinho, rio Tocantins-Araguaia basin. **Peru.** FMNH 97017, 3, 76.0-132.0 mm SL, rio Marañon. FMNH 113911, 1, 126.0 mm SL, Loreto. *Hypostomus simios*. **Brazil.** MHNG 2652.018, 1, 112.0 mm SL, paratype, rio Cupixi. MZUSP 82268, 1, 157.9 mm SL, holotype, rio Cupixi. *Hypostomus sculpodon*. **Venezuela.** AUM 39476, 1 of 2, 220.0 mm SL. AUM 40220, 1, 229.0 mm SL. AUM 42188, 4 of 7, 219.0-264.0 mm SL. *Hypostomus soniae*. **Brazil.** MHNG 2547.012, 13, 35.4-143.0 mm SL, paratypes, rio Tapajós. MNRJ 35619, 10 of 38, 97.4-163.7 mm SL, rio Cristalino, rio Tapajós basin. NUP 13394, 1, 143.3 mm SL, córrego do Valdir, tributary to rio Teles Pires. *Hypostomus taphorni*. **Venezuela.** AMNH 13664, 1, 189.0 mm SL, Essequibo River. *Hypostomus waiampi*. **Brazil.** MHNG 2652.016, 1, 174.4 mm SL, paratype, rio Cupixi. *Hypostomus weberi*. **Brazil.** MZUSP 98767, 1, 149.3 mm SL, holotype, rio Negro. NUP 6344, 1, 156.6 mm SL, paratype, rio Marauí.

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