Redescription of Ancistrus greeni (Siluriformes: Loricariidae), and description of a new species from the río Madre de Dios basin, Peru

A new species of Ancistrus is described from minor tributaries of the río Madre de Dios basin (Cusco - Madre de Dios - Puno), in Peru. The new species shares with A. greeni an uncommon unicusp dentition; but it is distinguished from A. greeni by a larger orbital diameter, deeper caudal peduncle, and larger adipose-fin spine. The redescription of A. greeni is provided, and its recognition along with the discovery of this new species increases to five the officially number of Ancistrus species from the río Madre de Dios basin. The lectotype and paralectotype of A. greeni are provided.

Keywords: Amazon basin, Ancistrini, Armored catfish, Río Inambari basin, Taxonomy.

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Keywords: Amazon basin, Ancistrini, Armored catfish, Río Inambari basin, Taxonomy.

Uma nova espécie de Ancistrus é descrita de pequenos tributários da bacia do río Madre de Dios (Cusco - Madre de Dios - Puno), no Peru. A nova espécie compartilha com A. greeni uma dentição unicuspídada pouco comum e é diagnosticada de A. greeni pelo maior diâmetro orbital, maior altura do pedúnculo caudal e maior espinho da nadadeira adiposa. A redescrição de A. greeni é fornecida, e seu reconhecimento juntamente com a descoberta dessa nova espécie incrementam para cinco o número oficial de Ancistrus registradas para a bacia do río Madre de Dios. O lectótipo e paralectótipo de A. greeni são fornecidos.

Palavras-chave: Ancistrini, Bacia amazônica, Bacia do rio Inambari, Taxonomia.

1 Coordenação de Biodiversidade, Coleções de Peixes, Instituto Nacional de Pesquisas da Amazônia, Av. André Araújo, 2936, Petrópolis, 69067-375 Manaus, AM, Brazil. agbifi@gmail.com
2 Departamento de Ictiologia, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Av. Arenales 1256, Apartado, 14-0434 Lima, Peru. hortega.musm@gmail.com
INTRODUCTION

Loricariidae is the largest family of the Siluriformes in the Neotropics. Loricariidae is widespread in Central and South America, ranging from Costa Rica in the north to Argentina in the south (Weber, 2003). Ancistrus is one of the most species-rich loricariid genera, and diagnosed by having well-developed cheek spines, snout border naked and ornamented with fleshy tentacles. The general taxonomic knowledge of the genus is limited to incomplete descriptions and type material are often either lacking or poorly preserved.

Currently, three valid species are recognized from the río Madre de Dios basin: Ancistrus marcapatae (Regan, 1904), A. megalostomus Pearson, 1924, and A. montanus (Regan, 1904) (Bifi et al., 2019). Regan (1904) also described Chaetostomus maculatus from Rozmaiu, Upper Peru, but this type locality has never been found under that name. According to Fish-Muller (2003) “Rozmaiu” means Roz River in Quechua idiom, a language spoken by indigenous people living in Peru, Ecuador, Bolivia, Chile, Colombia and Argentina. However, Roz River was also not located. Therefore, Chaetostomus maculatus is only known from syntypes and its geographical distribution remains unknown, solely mentioned as río Roz basin (Fish-Muller, 2003).

Posteriorly, Isbrücker (2001) replaced the name Chaetostomus maculatus by Chaetostoma greeni, because the epithet was preoccupied by Chaetostomus (Ancistrus) cirrhosus var. maculata Steindachner, 1881. In a review of Chaetostoma, Lujan et al. (2015) transferred C. greeni to Ancistrus greeni (Isbrücker, 2001) justified by the presence of seven branched dorsal-fin rays, three plate rows at the thinnest portion of the caudal peduncle, and the unplated snout.

During the expeditions to río Madre de Dios basin in Peru, a new species of Ancistrus was collected and the material deposited in Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos (Lima, Peru), and is described herein. The new species possesses an uncommon tooth shape among congeners, only shared with A. greeni for which we provide a redescription.

MATERIAL AND METHODS

Measurements were taken using digital calipers to the nearest 0.1 mm, and are presented as percents of standard length (SL) or head length (HL). Counts were made under a stereomicroscope. Measurements and plate counts follow Fisch-Muller et al. (2001) and Bifi et al. (2009), with addition of occipital-orbital distance (from tip of occipital process to posterior border of orbit). Body plate nomenclature was based on Schaefer (1997), with modifications of Oyakawa et al. (2005). The map (Fig. 3) was prepared using both Google Earth v.7.3.2 and Quantum GIS v. 3.6.0, available at http://qgis.org. Image of teeth detail using a Leica M205A stereomicroscope coupled with a Leica DMC4500 and a Leica Application Suite V4.10.0 Interactive Measurement, Montage. Institutional acronyms: BMNH, Natural History Museum, London; ZMB, Zoological Museum, Berlin; CAS, California Academy of Sciences, San Francisco; INPA, Instituto Nacional de Pesquisas da Amazônia, Manaus; MCP, Museu de Ciências
RESULTS

**Ancistrus greeni** (Isbrücker, 2001)

(Figs. 1–2, Tab. 1)

*Chaetostomus maculatus* Regan, 1904:246, pl.14 (Fig. 4) [original description; type locality: Rozmaiu, Upper Peru].

*Chaetostoma maculatum*. —Isbrücker, 1980:62 [check list]. —Ortega, Vari, 1986:17 [check list]. —Burgess, 1989:436 [check list]. —Isbrücker, 2001:26 [check list].

*Chaetostoma greeni* Isbrücker in Isbrücker *et al.*, 2001:24 [replacement name for *Chaetostomus maculatus* Regan 1904, preoccupied by *Chaetostomus* (*Ancistrus*) cirrhosus var. *maculata* Steindachner 1881]. —Isbrücker 2001:26 [check list]. —Fish-Muller, 2003:380 [check list]. —Ferraris, 2007:228 [check list].

*Ancistrus greeni*. —Lujan *et al.*, 2015:673 [comments; new combination].

**Diagnosis.** *Ancistrus greeni* is diagnosed from all congeners, except *A. maldonadoi*, by having unicuspid teeth (*vs.* bicuspid). *Ancistrus greeni* is diagnosed from *A. maldonadoi* by smaller eye (orbital diameter 8.8–13.0% of HL, *vs.* 13.8–20.6%); a slender caudal peduncle (depth of caudal peduncle 8.4–10.6% of SL, *vs.* 12.2–14.0%); smaller adipose-fin spine (adipose spine length 3.7–6.3% of SL, *vs.* 7.2–9.5%). Furthermore, *A. greeni* can be distinguished from the species described from río Madre de Dios basin by having 4–8 pre adipose plates (*vs.* 2–3 in *A. montanus*); and smaller orbital diameter (8.8–13.0% of HL *vs.* 14.0–16.7% in *A. marcapatae*; and 16.9–20.1% in *A. megalostomus*).

**Description.** Morphometric data and counts in Tab. 1. Head and trunk moderately depressed with greatest body depth at supraoccipital. Dorsal profile of body convexly raising from tip of snout to dorsal-fin origin, then straight or slightly convex to adipose fin, and concave from that point to caudal fin. Ventral profile of body straight, slightly convex on caudal peduncle. Caudal peduncle compressed; slightly flattened ventrally.

Head moderately large and wide; snout large and rounded in dorsal view, with large naked margin bordered by dermal platelets on lateral portion in males. Adult males with middle- to large-sized tentacles, sometimes branched on dorsal region of snout. Females usually with two small tentacles on each side of snout border. Evertible cheek plates supporting (8–19) hypertrophied odontodes (cheek spines).

Eye small-sized, 8.6–11.9% of HL, dorsal orbit not raised; dorsolaterally positioned. Interorbital region slightly concave. Exposed portion of opercle roughly triangular,
A new Ancistrus from río Madre de Dios basin

FIGURE 1 | Dorsal, lateral and ventral views (left to right) of Ancistrus greeni: BNHM 1903.10.12.3, female, 51.4 mm SL, lectotype; BNHM 1903.10.12.4, female, 44.8 mm SL, paralectotype.

supporting odontodes; supra-opercular region with few platelets near compound pterotic.

Oral disk circular covered with small papillae; lower lip large almost reaching pectoral girdle, with papillae reducing in size toward its margin; maxillary barbel short, attached to lip by membrane and with reduced free tip. Branchial opening small. Premaxillary and dentary tooth rows from moderate to large width; teeth short, thin, numerous, unicuspid (Fig. 3A), curved inward. Only one small central buccal papilla positioned between premaxillae.

Head covered by dermal bones; dorsum covered by dermal plates, except at dorsal-fin base. Supraoccipital process limited posteriorly by first pair of predorsal plates and posterolaterally by the first plate of the mid-dorsal series. Trunk with five series of lateral plates, three lateral series on the narrowest portion of caudal peduncle. Mid-dorsal and
mid-ventral series not surpassing adipose fin. Median series supporting lateral line. Short odontodes on fin rays and body plates. Ventral surface devoid of plates from snout tip to anal-fin insertion. Base of first anal-fin pterygiophore covered by skin.

Dorsal-fin origin situated slightly anterior to vertical through pelvic-fin origin; dorsal fin usually reaching preadipose plate when adpressed; dorsal-fin spine flexible, shorter than head length. Adipose-fin spine short, with small membrane. Pectoral-fin spine inflexible and slightly curved inward, with hypertrophied odontodes and tentacles on distal portion; pectoral fin reaching or slightly surpassing pelvic-fin origin when adpressed. Pelvic fin flexible and curved inward, depressed pelvic-fin unbranched ray surpassing origin of anal fin. Anal fin short. Caudal-fin margin obliquely truncate with ventral unbranched ray longer than dorsal one. Fin-ray formula: dorsal II,7; pectoral I,6; pelvic i,5; anal i,3–4; caudal i,14,i.

**Color in alcohol.** Body background color yellowish-brown to dark brown. Dorsal surface of head and trunk with rounded light small spots. Ventral surface of head and abdomen yellowish to light brown, brown on ventral surface of caudal peduncle. All fins with alternating dark and light spots on the rays, sometimes organized into transverse bands.

**Sexual dimorphism.** Largest male and female with 85.2 mm and 74.5 mm SL,
FIGURE 3 | Details of the teeth showing lack of lateral cusp in A. Ancistrus greeni and B. Ancistrus maldonadoi. Bars = 0.1mm.

respectively. Mature males have small- to middle-sized tentacles on dorsal region and border of snout. Females sometimes with fewer and shorter tentacles than males limited to one series on lateral border of snout, usually two to four on each side of snout. Males have smaller dentary length 21.8–27.1% of HL (mean = 25.0%) than females 26.1–31.4% of HL (mean= 27.9%).

Geographical distribution. Ancistrus greeni is only known from the río Madre de Dios and río Inambari basins (Fig. 5).

Conservation status. Ancistrus greeni occurs along a well-conserved region, with good water quality and little or no human pressure. Thus, considering the good environmental conditions of the known area of occurrence for the species, we suggest that A. greeni be classified as LC (Least Concern) in the International Union for Conservation of Nature (IUCN) categories and criteria (IUCN, 2019) of extinction risk.

Material examined. All from Peru: Lectotype [designated here]: BMNH 1903.10.12.3, female, 51.4 mm SL, syntype of Chaetostomus maculatus Regan, 1904, "Rozmaiú, Upper Peru", Kalinowski. Paralectotype [designated here]: BMNH 1903.10.12.4, female, 44.8 mm SL, syntype of Chaetostomus maculatus Regan, 1904, "Rozmaiú, Upper Peru", Kalinowski. Non-type specimens: río Madre de Dios basin: INPA 58909, 8, 30.1–61.9 mm SL (4, 55.1–61.9 mm SL), Cuzco, río Inambari basin, tributary of río Araza, main road crossing vicinity of Quincemil, 13°18’52”S
TABLE 1 | Morphometric and meristic data of Ancistrus greeni. SD= standard deviation, N= number (including types)

| Characters                          | Lectotype | Paralectotype | N  | Range      | Mean | SD  |
|------------------------------------|-----------|---------------|----|------------|------|-----|
| Standard length (mm)               | 51.4      | 44.8          | 25 | 44.8–85.2  | 62.0 |     |
| Percents of standard length        |           |               |    |            |      |     |
| Predorsal length                   | 44.5      | 44.9          | 25 | 44.5–49.3  | 46.8 | 1.4 |
| Head length                        | 34.4      | 36.0          | 25 | 34.3–39.6  | 36.8 | 1.7 |
| Occipital depth                    | 15.4      | 14.6          | 25 | 14.6–17.7  | 16.4 | 0.8 |
| Cleithral width                    | 32.6      | 33.5          | 25 | 30.9–35.9  | 33.5 | 1.3 |
| Dorsal-fin base length             | 17.8      | 18.7          | 25 | 17.8–22.4  | 20.4 | 1.2 |
| Interdorsal length                 | 20.6      | 19.1          | 24 | 17.6–22.9  | 20.2 | 1.3 |
| Prepectoral length                 | 27.2      | 28.3          | 25 | 27.2–32.5  | 30.1 | 1.5 |
| Prepelvic length                   | 52.0      | 54.4          | 25 | 49.9–54.4  | 52.2 | 1.3 |
| Dorsal-fin spine length            | 23.0      | -             | 24 | 19.3–25.4  | 22.5 | 1.5 |
| Pectoral-fin spine length          | 23.4      | 23.5          | 25 | 21.5–26.6  | 23.9 | 1.3 |
| First pelvic-fin ray length        | 25.9      | 28.5          | 25 | 22.8–28.5  | 25.6 | 1.4 |
| Adipose-fin spine length           | 5.6       | -             | 22 | 3.7–6.3    | 5.1  | 0.7 |
| First anal-fin ray length          | 5.7       | 8.4           | 25 | 5.5–8.7    | 7.1  | 0.9 |
| Thoracic length                    | 26.0      | 29.2          | 25 | 23.7–29.2  | 25.8 | 1.4 |
| Abdominal length                   | 18.9      | 18.4          | 25 | 16.6–21.3  | 18.5 | 1.2 |
| Upper caudal-fin ray length        | 25.3      | -             | 20 | 20.7–26.7  | 23.8 | 1.6 |
| Lower caudal-fin ray length        | 31.2      | -             | 22 | 27.8–33.7  | 30.2 | 1.7 |
| Caudal peduncle length             | -         | -             | 23 | 26.8–33.2  | 29.1 | 1.3 |
| Caudal peduncle depth              | 8.7       | 9.0           | 25 | 8.4–10.6   | 9.5  | 0.6 |
| Adipose-fin to caudal-fin length   | 14.6      | 14.9          | 24 | 10.2–14.9  | 11.9 | 1.3 |
| Anal-fin to caudal-fin length      | 32.2      | 31.8          | 25 | 30.8–36.8  | 33.0 | 1.5 |
| Percents of head length            |           |               |    |            |      |     |
| Supracleithral width               | 80.6      | 78.9          | 25 | 73.2–82.1  | 78.0 | 2.5 |
| Snout length                       | 63.4      | 60.7          | 25 | 55.1–63.4  | 58.1 | 3.0 |
| Interorbital distance              | 36.4      | 34.9          | 25 | 32.3–40.3  | 36.0 | 1.9 |
| Orbital diameter                   | 11.2      | 11.7          | 25 | 8.8–13.0   | 11.0 | 0.9 |
| Occipital-orbital distance         | 38.4      | 37.9          | 25 | 37.9–48.6  | 41.3 | 2.6 |
| Dentary width                      | 28.5      | 31.4          | 25 | 21.8–31.4  | 26.4 | 2.1 |
| Counts                             |           |               |    |            |      |     |
| Lateral median series              | 24        | 24            | 25 | 24–25      | 24.5 | 0.5 |
| Dorsal-fin base                    | 6         | 6             | 25 | 6–7        | 6.8  | 0.4 |
| Between dorsal and adipose         | 7         | 8             | 25 | 7–9        | 7.6  | 0.6 |
| Between adipose and caudal         | 6         | 6             | 25 | 4–6        | 5.2  | 0.6 |
| Between anal and caudal            | 13        | 13            | 25 | 12–14      | 12.8 | 0.7 |
| Preadipose plates                  | 4         | 4             | 25 | 4–8        | 6.2  | 1.2 |
| Premaxillary teeth                 | -         | -             | 23 | 51–96      | 67.4 | 11.2 |
| Dentary teeth                      | 86        | -             | 23 | 55–109     | 78.9 | 15.1 |
| Cheek spines                       | 11        | 8             | 21 | 8–19       | 13.2 | 2.4 |

70°49’13”W, 25 Jul 2004, M. Sabaj, N. Salcedo, B. Rengifo, M. Arce; MUSM 25426, 12, 31.2–55.6 mm SL (1, 55.6 mm SL), Tambopata, río Inambari basin, quebrada Miraflores, 13°21’41”S 70°53’40”W, 25 Jul 2004, M. Hidalgo; MUSM 26312, 2, 31.9–85.2 mm SL (1, 85.2 mm SL); Quispicanchi, Camanti, río Araza basin, quebrada Sirihu, 13°23’46”S 70°53’59”W, 17 Oct 2005, M. Hidalgo; MUSM 56232, 7, 34.0–74.5 mm SL (5, 51.6–74.5 mm SL), Carabaya, Ollachea, San Gaban, río Inambari basin, quebrada San Isidro, 13°37’45”S 70°26’46”W, 12 Out 2006, M. Hidalgo; MUSM 56233, 1, 82.8 mm SL, Carabaya, Ollachea, San Gaban, río Inambari basin, quebrada San Isidro, 13°37’45”S 70°26’46”W, 12 Out 2006, M. Hidalgo; MUSM 57367, 1, 73.6 mm SL, Carabaya, San
A new Ancistrus from río Madre de Dios basin

Neotropical Ichthyology, 18(1): e190070, 2020

Non-measured material: río Madre de Dios basin: MUSM 25428, 36, 24.7–55.6 mm SL, Tambopata, río Inambari basin, tributary of río Araza, 13°18′52″S 70°49′13″W, 25 Jul 2004, M. Hidalgo; MUSM 57372, 24, 24.5–40.0 mm SL, Carabaya, San Gaban, río Inambari basin, quebrada Prodocarpa, 13°25′50″S 70°19′45″W, 17 Oct 2006, M. Hidalgo; MUSM 57750, 1, 37.5 mm SL, Paucartambo, Kosñipata, río San Pedro, 13°03′18″S 71°32′49″W, 10 May 2006, M. Hidalgo; MUSM 57758, 1, 42.4 mm SL, Paucartambo, Kosñipata, río Kosñipata, 13°03′23″S 71°32′40″W, 10 May 2006, M. Hidalgo; MUSM 58517, 11, 30.7–48.4 mm SL, Paucartambo, Kosñipata, quebrada km 160 AMD 16, 13°02′03″S 71°30′55″W, 12 May 2006, M. Hidalgo.

Ancistrus maldonadoi, new species

urn:lsid:zoobank.org:act:ED1397C7-5087-4EB8-94D8-326A42AEEE2D (Fig. 4, Tab. 2)

Holotype. MUSM 57733, 114.7 mm SL, male, Peru, Manu District, Manu Province, río Madre de Dios basin, río Salvación, 12°55′05″S 71°27′36″W, 21 May 2006, M. Hidalgo.

Paratypes. Peru: río Madre de Dios basin: INPA 58921, 10, 40.6–101.9 mm SL (2, 68.6–101.9 mm SL), Manu, Parque Nacional del Manu, quebrada Culli, ca. 12°10′S 71°00′W, 5 Sep 1988, H. Ortega et al.; MPUJ 14358, 2, 68.9–72.7 mm SL, same data from holotype; MUSM 3763, 1, 87.0 mm SL, Manu, Salvación, quebrada Culli, 12°51′S 71°23′W, 5 Sep 1988, H. Ortega; MUSM 11620, 1, 77.5 mm SL, Sandia, Zona Reservada Tambopata Candamo, río Ebehua-baeji basin, río Beshuajali, 13°14′45″S 70°00′02″W, 25 Jul 1997, F. Chang; MUSM 11665, 2, 68.3–81.1 mm SL, Sandia, Zona Reservada Tambopata Candamo, río Ebehua-baeji basin, río Explorada, 13°14′34″S 70°00′01″W, 28 Jul 1997, F. Chang; MUSM 57732, 4, 58.0–64.2 mm SL (2, 61.6–64.2 mm SL), same data from holotype; MUSM 57832, 5, 61.5–147.2 mm SL (4, 74.5–147.2 mm SL), Paucartambo, Pillcopata, Tono, río Huacarya, 12°55′05″S 71°27′36″W, 13 May 2006, M. Hidalgo; MUSM 58079, 2, 47.6–74.4 mm SL (1, 74.4 mm SL), Paucartambo, Pillcopata, río Queros, 12°56′41″S 71°21′22″W, 17 May 2006, M. Hidalgo; MUSM 58521, 6, 49.5–76.3 mm SL (2, 65.6–67.6 mm SL), Paucartambo, Pillcopata, Queros, río Sabaluyoc, 12°56′38″S 71°21′09″W, 17 May 2006, M. Hidalgo; MUSM 58671, 4, 40.9–83.0 mm SL (1, 83.0 mm SL), Quispicanchis, Camanti, río Inambari basin, stream without name, 13°11′29″S 70°33′16″W, 7 Aug 2010, M. Hidalgo; MZUSP 125014, 2, 85.1–85.4 mm
SL, Paucartambo, Pillcopata, Queros, río Sabaluyoc, 12°56’38”S 71°21’09”W, 17 May 2006, M. Hidalgo; NUP 21719, 2, 70.4–75.6 mm SL, Paucartambo, Pillcopata, Queros, río Sabaluyoc, 12°56’38”S 71°21’09”W, 17 May 2006, M. Hidalgo.

**FIGURE 4** | Ancistrus maldonadoi, MUSM 57733, holotype, 114.7 mm SL, male, Peru, Manu, río Madre de Dios basin, río Salvación.
**Diagnosis.** *Ancistrus maldonadoi* is diagnosed from congeners, except *A. greeni*, by having unicuspid teeth (vs. bicuspid). *Ancistrus maldonadoi* is diagnosed from *A. greeni* by larger orbital diameter 13.8–20.6% of HL (vs. 8.8–13.0%); and longer adipose-fin spine (adipose spine length 7.2–9.5% of SL vs. 3.7–6.3%). Furthermore, *A. maldonadoi* is distinguished from the species described from rio Madre de Dios basin by larger dentary width 25.9–31.4 % of HL (vs. 18.0–21.3% in *A. montanus*); deeper caudal peduncle (12.2–14.0% of SL; vs. 9.4–11.2% in *A. marcapatae*, 9.6–10.5% in *A. megalostomus*, and 10.1–10.7% in *A. montanus*).

**Description.** Morphometric data and counts in Tab. 2. Head and trunk moderately depressed with body depth greatest at supraoccipital. Dorsal profile of body convexly raising from tip of snout to dorsal-fin origin, then straight or slightly convex to adipose fin, and concave from that point to caudal fin. Ventral profile of body straight, slightly convex on caudal peduncle. Caudal peduncle compressed; slightly flattened ventrally.

Head moderately large and wide; snout large and rounded in dorsal view, with large naked margin bordered by dermal platelets on lateral portion in males. Adult males with middle- to large-sized tentacles, sometimes branched on dorsal region of snout. Females usually with two small tentacles on each side of snout border. Evertible cheek plates supporting (14–26) hypertrophied odontodes (cheek spines).

Eye mid-sized, 13.8–20.6% of HL, dorsal orbit not raised; dorsolaterally positioned. Interorbital region slightly concave. Exposed portion of opercle roughly triangular, supporting odontodes; supra-opercular region with few platelets near compound pterotic.

Oral disk circular covered with small papillae; lower lip not reaching pectoral girdle, with papillae reducing in size toward margin; maxillary barbel short, attached to lip. Branchial opening small. Premaxillary and dentary tooth rows mid- to large; teeth short, thin, numerous, unicuspid (Fig. 3b), curved inward. Three specimens having tiniest lateral cusp, almost imperceptible (MUSM 11665, 2, 68.3–81.1 mm SL; MUSM 57732, 1, 59.6 mm SL). Only one small buccal papilla positioned between premaxillae.

Head covered by dermal bones; dorsum covered by dermal plates, except at dorsal-fin base. Supraoccipital process limited posteriorly by first pair of predorsal plates and posterolaterally by the first plate of the mid-dorsal series. Trunk with five series of lateral plates, three lateral series on the narrowest portion of caudal peduncle. Mid-dorsal and mid-ventral series not surpassing adipose fin. Median series supporting lateral line. Short odontodes on fin rays and body plates. Ventral surface devoid of plates from snout tip to anal-fin insertion. Base of first anal-fin pterygiophore covered by skin.

Dorsal-fin origin situated slightly anterior to vertical through pelvic-fin origin; dorsal fin usually reaching preadipose plate when adpressed; dorsal-fin spine flexible, shorter than head length. Adipose-fin spine short. Pectoral-fin spine inflexible and slightly curved inward, with hypertrophied odontodes and tentacles on its distal portion; pectoral fin surpassing pelvic-fin origin when adpressed. Pelvic fin flexible and curved inward, depressed pelvic-fin unbranched ray surpassing origin of anal fin. Anal fin short. Caudal-fin margin obliquely truncate with ventral unbranched ray longer than dorsal one. Fin-ray formula: dorsal II,7; pectoral I,6; pelvic i,5; anal i,4; caudal i,14,i.
**Color in alcohol.** Body background color yellowish-brown to greenish. Dorsal surface of head and trunk with rounded mid size spots, diameter similar or larger than pupil. Ventral surface of head and abdomen yellowish to light brown, brown on ventral surface of caudal peduncle. All fins with alternating dark and light spots on the rays, sometimes organized into transverse bands.

**Sexual dimorphism.** Largest male and female with 114.7 mm and 147.2 mm SL, respectively. Mature males have small- to middle-sized tentacles on dorsal region and border of snout. Females sometimes with fewer and shorter tentacles than males limited to one series on lateral border of snout, usually two to four on each side of snout.

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**TABLE 2 | Morphometric and meristic data of *Ancistrus maldonadoi*. SD= standard deviation, N= number (including holotype).**

| Characters                  | Holotype | N  | Range       | Mean  | SD  |
|-----------------------------|----------|----|-------------|-------|-----|
| Standard length (mm)        | 114.7    | 21 | 61.6–147.2  | 80.9  | -   |
| **Percents of standard length** |          |    |             |       |     |
| Predorsal length            | 45.7     | 21 | 42.9–46.3   | 44.5  | 1.0 |
| Head length                 | 35.1     | 21 | 32.2–36.2   | 34.5  | 1.1 |
| Occipital depth             | 19.1     | 21 | 16.4–19.1   | 17.6  | 0.7 |
| Cleithral width             | 33.8     | 21 | 30.4–36.0   | 32.7  | 1.3 |
| Dorsal-fin base length      | 20.3     | 21 | 18.4–21.3   | 19.8  | 0.9 |
| Interdorsal length          | 19.9     | 21 | 17.9–23.8   | 20.4  | 1.6 |
| Prepectoral length          | 29.2     | 21 | 25.8–30.0   | 28.3  | 1.1 |
| Prepelvic length            | 51.5     | 21 | 48.9–53.5   | 50.4  | 1.1 |
| Dorsal-fin spine length     | 25.3     | 21 | 24.1–27.6   | 26.0  | 1.0 |
| Pectoral-fin spine length   | 29.2     | 21 | 25.2–30.5   | 26.6  | 1.4 |
| First pelvic-fin ray length | 25.9     | 21 | 22.6–27.6   | 25.4  | 1.2 |
| Adipose-fin spine length    | 7.2      | 19 | 7.2–9.5     | 8.4   | 0.7 |
| First anal-fin ray length   | 9.2      | 19 | 7.1–10.8    | 8.7   | 0.9 |
| Thoracic length             | 25.0     | 21 | 24.4–27.6   | 25.9  | 0.9 |
| Abdominal length            | 17.9     | 21 | 17.5–20.1   | 18.6  | 0.7 |
| Upper caudal-fin ray length | 26.1     | 13 | 24.1–30.3   | 27.9  | 1.8 |
| Lower caudal-fin ray length | 27.0     | 14 | 26.3–35.4   | 31.2  | 2.7 |
| Caudal peduncle length      | 29.3     | 21 | 28.7–32.2   | 30.1  | 0.9 |
| Caudal peduncle depth       | 13.1     | 21 | 12.2–14.0   | 12.7  | 0.4 |
| Adipose-fin to caudal-fin length | 13.5 | 21 | 13.4–17.7   | 15.3  | 1.3 |
| Anal-fin to caudal-fin length | 33.8 | 21 | 32.0–37.0   | 35.2  | 1.2 |
| **Percents of head length** |          |    |             |       |     |
| Supracleithral width        | 86.3     | 21 | 78.0–92.7   | 85.1  | 3.3 |
| Snout length                | 56.2     | 21 | 54.5–60.7   | 57.2  | 1.7 |
| Interorbital distance       | 41.7     | 21 | 37.3–41.7   | 39.3  | 1.1 |
| Orbital diameter            | 14.8     | 21 | 13.8–20.6   | 17.8  | 1.7 |
| Occipital-orbital distance  | 41.7     | 21 | 39.4–43.2   | 41.4  | 1.2 |
| Dentary width               | 26.7     | 21 | 25.9–31.4   | 27.9  | 1.4 |
| **Counts**                  |          |    |             |       |     |
| Lateral median series       | 24       | 21 | 24–25       | 24.0  | 0.2 |
| Dorsal-fin base             | 6        | 21 | 6–7         | 6.1   | 0.3 |
| Between dorsal and adipose  | 8        | 21 | 6–8         | 7.2   | 0.5 |
| Between adipose and caudal  | 6        | 21 | 5–7         | 5.8   | 0.5 |
| Between anal and caudal     | 13       | 21 | 12–13       | 12.6  | 0.5 |
| Preadipose plates           | 2        | 21 | 2–4         | 3.2   | 0.6 |
| Premaxillary teeth          | 84       | 20 | 71–105      | 83.8  | 9.1 |
| Dentary teeth               | 110      | 20 | 75–115      | 94.3  | 10.7 |
| Cheek spines                | 26       | 21 | 14–26       | 19.0  | 3.3 |
A new *Ancistrus* from río Madre de Dios basin

**Geographical distribution.** *Ancistrus maldonadoi* is only known from the río Madre de Dios and río Inambari basins (Fig. 5).

**Etymology.** The specific name *maldonadoi* is a special dedication *in memoriam* to professor Dr. Javier Maldonado-Ocampo, Pontificia Universidad Javeriana in Bogotá, Colombia for his great contribution to the Neotropical Ichthyology.

**Conservation status.** *Ancistrus maldonadoi* occurs along a well-conserved region, with good water quality and little or no human pressure. Thus, considering the good environmental conditions of the known area of occurrence for the species, we suggest that *A. maldonadoi* be classified as LC (Least Concern) under the International Union for Conservation of Nature (IUCN) categories and criteria (IUCN Standards and Petitions Subcommittee, 2019) of extinction risk.

**DISCUSSION**

Regan (1904) described *Chaetostomus maculatus* (= *A. greeni*) using interorbital width
36.4–37.5% of HL and orbital diameter 11.1% of HL as diagnostic characters. Another character mentioned by Regan was the presence of 3 to 4 pre adipose plates, a state not common in Ancistrus. However, an analysis of the syntypes revealed a presence of unicusp tooth, a rare characteristic in members of the genus. We were not able to determine the type locality, because in the original description of A. greeni it was mentioned as “Upper Peru”, making it difficult to establish the true original sampling site of the types.

Eight valid species of Ancistrus were recorded from the rio Madeira basin (Fish-Muller, 2003; Ferraris, 2007; Bifi et al., 2019): A. dubius Eigenmann, Eigenmann, 1889; A. hoplogenys (Günther, 1864); A. dolichopterus Kner, 1854; A. marcapatae; A. megalostomus; A. miracollis Bifi, de Oliveira, Rapp Py-Daniel, 2019; A. montanus, and A. verecundus Fisch–Muller, Cardoso, Silva, Bertaco, 2005; and three additional species probably new to science: Ancistrus sp. “sideral”; Ancistrus sp.1 “baixinho” and Ancistrus sp.2 “sotério” (Zawadzki, Chamon, 2013). We added other two records to this river basin: A. greeni and A. maldonadoi, which share a unique feature among mentioned congeners: the unicusp teeth.

In addition, Ancistrus greeni shares the presence of a keel formed by four or more pre adipose plates with A. bufonius, A. marcapatae, A. tolima, and A. vericaucanus, but as already mentioned can be diagnosed from them by tooth shape (unicuspid vs. bicuspid). Furthermore, A. greeni can be distinguished from the most similar looking congener, A. maldonadoi, by having a colour pattern of small pale dots on a dark background (vs. large); dorsal-fin spine length 19.3–25.4% of SL, mean= 22.5% (vs. 24.1–27.6%, mean= 26.0%); and pectoral-fin spine length 21.5–26.6% of SL, mean= 23.9% (vs. 25.2–30.5%, mean= 26.6%). The sharing of unicusp teeth suggests a close relationship between A. greeni and A. maldonadoi, as do the presence of three to eight pre adipose plates, which is a state present in many species from the Andes, suggesting a close relationship among the Ancistrus species of the region.

The genus has many unsolved taxonomic problems and a complete study is necessary for fully understand this taxon. Similarly, there are few published studies that advance the taxonomic understanding of the loricariids from Peru. Moreover, we suggest that redescriptions of species poorly known, with improvement of diagnostic characters should be developed for the better comprehension of the taxonomy of Ancistrus, and the phylogenetic relationship within it.

**Comparative material examined.** Ancistrus abilhoaí. Brazil: MZUSP 104116, 99.3 mm SL, holotype of A. abilhoaí Bifi, Pavanelli, Zawadzki, 2009. Ancistrus agostinhoi. Brazil: MZUSP 104118, 96.1 mm SL, holotype of A. agostinhoi Bifi, Pavanelli, Zawadzki, 2009. Ancistrus aguaboensis. Brazil: INPA 377612, 1, 61.9 mm SL. Ancistrus alga. Peru: ANSP 8298, 1, 115.6 mm SL, syntype of Chaetostomus tectirostris Cope, 1872; ANSP 8300, 1, 110.0 mm SL, syntype of Chaetostomus tectirostris Cope, 1872; ANSP 16461–62, 2, 93.0–125.6 mm SL, syntypes of Chaetostomus alga Cope, 1872. Ancistrus amaris. Colombia: MPUJ 9369, 7, 52.2–77.1 mm SL. Ancistrus brevipinnis. Brazil: BMNH 1891.3.16.76, 78.8 mm SL, holotype of Xenocara brevipinnis Regan, 1904. Ancistrus bufonius. Peru: MNHN 2227, 2, 109.9–112.5 mm SL, syntypes of Hypostomus calamita, 1840; MNHN 2228, 2, 103.1–104.3 mm SL, syntypes of Hypostomus bufonius Valenciennes, 1840. Ancistrus centrolepis. Colombia: ANSP 71709, 180.0 mm SL,
A new Ancistrus from río Madre de Dios basin

Neotropical Ichthyology, 18(1): e190070, 2020

holotype of *A. baudensis* Fowler, 1945; ANSP 71710, 179.9 mm SL, holotype of *Pristiancistrus eustictus* Fowler, 1945; BMNH 1910.7.11.122, 150.2 mm SL, syntype of *A. centrolepis* Regan 1913; BMNH 1913.10.1.58, 113.7 mm SL, syntype of *A. centrolepis* Regan, 1913; *Panama*: FMNH 9842, 165.6 mm SL, holotype of *A. spinosus* Meek, Hildebrand, 1916. *Ancistrus cirrhosus*. *Argentina*: MNHN B.0603, 82.6 mm SL, holotype of *Hypostomus cirrhosus* Valenciennes, 1836, subsequent designation by Isbrücker (1980); MNHN A.9565, 2, 66.2–79.5 mm SL, paralectotypes of *H. cirrhosus* Valenciennes, 1836, subsequent designation by Isbrücker (1980); MNHN 4845, 4, 46.2–51.9 mm SL, paralectotypes of *H. cirrhosus* Valenciennes, 1836, subsequent designation by Isbrücker (1980).

*A. claro*. *Brazil*: MCP 28667, 67.8 mm SL, holotype of *A. claro* Knaack, 1999.

*A. cryptophthalmus*. *Brazil*: MCP 10523, 1, 49.2 mm SL, paratype of *A. cryptophthalmus* Reis, 1987.

*A. cuiabae*. *Brazil*: MCP 28671, 112.8 mm SL, holotype of *A. cuiabae* Knaack, 1999; NUP 933, 7 of 74, 64.4–92.2 mm SL, paralectotypes of *H. cirrhosus* Valenciennes, 1836, subsequent designation by Isbrücker (1980); MNHN A.9568, 74.9 mm SL, holotype of *H. erinaceus* Valenciennes, 1840.

*A. damasceni*. *Brazil*: NMW 43489, 4, 29.3–41.4 mm SL, syntypes of *Xenocara damasceni* Steindachner, 1907; NMW 43490, 7, 25.6–35.8 mm SL, syntypes of *Xenocara damasceni* Steindachner, 1907.

*A. dolichopterus*. *Brazil*: NMW 46276, 2, 80.9–41.4 mm SL, syntypes of *A. dolichopterus* Kner, 1854; NMW 47164, 2, 86.2–101.0 mm SL, syntypes of *A. dolichopterus* Kner, 1854.

*A. erinaceus*. *Chile*: MNHN A.9568, 74.9 mm SL, holotype of *H. erinaceus* Valenciennes, 1840.

*A. falconensis*. *Venezuela*: ANSP 189316, 2, 95.5–121.7 mm SL, paratypes of *A. falconensis* Taphorn et al., 2010.

*A. fulvus*. *Brazil*: NMW 57203, 87.5 mm SL, holotype of *Xenocara fulva* Holly, 1929.

*A. gymnorhynchus*. *Venezuela*: BMNH 1904.11.9.27–31, 5, 83.8–134.0 mm SL, syntypes of *Xenocara rothschildi* Regan, 1905; NMW 43495, 111.3 mm SL, holotype of *A. gymnorhynchus* Kner, 1854.

*A. hoplogenys*. *Brazil*: BMNH 1849.11.8.89–91, 3, 74.3–99.7 mm SL, syntypes of *Chaetostomus hoplogenys* Günther, 1864. *Ancistrus jataiensis*. *Brazil*: MCP 35244, 54.0 mm SL, holotype of *A. jataiensis* Fisch-Muller, Cardoso, da Silva, Bertaco, 2005.

*A. karajas*. *Brazil*: INPA 57583, 39.0 mm SL, holotype of *A. karajas* de Oliveira et al., 2016. *Ancistrus krenakarore*. *Brazil*: INPA 34155, 46.7 mm SL, holotype of *A. krenakarore* de Oliveira et al., 2016.

*A. latifrons*. *Peru*: BMNH 1869.5.21.4, 122.6 mm SL, holotype of *Chaetostomus latifrons* Günther, 1869.

*A. leoni*. *Brazil*: INPA 49622, 3, 46.8–105.6 mm SL.

*A. leucostictus*. *Guyana*: BMNH 1864.1.21.85, 49.3 mm SL, holotype of *Chaetostomus leucostictus* Günther. *Ancistrus lithurgicus*. *British Guiana*: BMNH 1911.10.31.107–108, 1, 35.6 mm SL (plus one specimen of *Ancistrus* sp. with 58.3 mm SL), paratype of *A. lithurgicus* Eigenmann, 1912; FMNH, 53091, 69.3 mm SL, holotype of *A. lithurgicus* Eigenmann, 1912; FMNH, 64613, 4, 35.0–63.7 mm SL, paratype of *A. lithurgicus* Eigenmann, 1912. *Ancistrus macrophthalmus*. *Venezuela*: MNHN 1887–0650, 1, 76.7 mm SL, holotype of *Xenocara macrophthalmus* Pellegrin, 1912. *Ancistrus maculatus*. *Brazil*: NMW 47290, 1, 106.1 mm SL, syntype of *Chaetostomus (Ancistrus) cirrhosus* var. *maculatus* Steindachner, 1881. *Ancistrus malacops*. *Colombia*: ANSP 70517, 90.8 mm SL, holotype of *A. lineolatus* Fowler, 1943; *Peru*: ANSP 8299, 2, 72.0 mm SL (one specimen broken), syntype of *Chaetostomus malacops* Cope, 1872; MUSM 38968, 1, 81.2 mm SL; *Ecuador*: BMNH 1880.12.8.69–74, 6, 60.2–85.4 mm SL, syntypes of
Xenocara occidentalis Regan, 1904; **Brazil**: INPA 2393, 2, 55.0–69.1 mm SL; INPA 49272, 7, 29.3–110.8 mm SL. Ancistrus marcapatae. **Peru**: BMNH 1902.5.29.211, 79.1 mm SL, holotype of Chaetostomus marcapatae Regan, 1904; BMNH 1911.12.20.35–36, 2, 45.7–63.2 mm SL, syntypes of Xenocara heterorhynchus Regan, 1912; MUSM 10087, 1, 88.5 mm SL; MUSM 57498, 1, 66.6 mm SL; MUSM 58097, 2, 57.9–59.9 mm SL. **Bolivia**: NMW 43475, 2, 40.8–58.0 mm SL, syntypes of Xenocara boliviana Steindachner, 1915; NMW 43476, 27, 31.2–65.6 mm SL, syntypes of Xenocara boliviana Steindachner, 1915. Ancistrus martini. **Venezuela**: USNM 121064, 82.3 mm SL, holotype of A. triradiatus martini Schultz, 1944; USNM 121065, 1, 51.4 mm SL, paratype of A. triradiatus martini Schultz, 1944; USNM 121066, 61.4 mm SL, holotype Ancistrus brevifilis bodenhameri Schultz, 1944; USNM 121069, 2, 27.3–52.1 mm SL, paratypes A. brevifilis bodenhameri Schultz, 1944. Ancistrus maximus. **Brazil**: INPA 35952, 4, 91.4–147.6 mm SL, paratypes of A. maximus de Oliveira et al., 2015. Ancistrus megalostomus. **Bolivia**: CAS 64614, 2, 81.7–83.5 mm SL, syntypes of A. megalostomus Pearson, 1924; **Peru**: MUSM 10366, 1, 64.9 mm SL; MUSM 11606, 2, 70.5–85.5 mm SL. Ancistrus miracollis. **Brazil**: INPA 57624, 66.7 mm SL, holotype of A. miracollis Bifi, de Oliveira, Rapp Py-Daniel, 2019. Ancistrus multispinis. **Brazil**: BMNH 1910.7.26.31, 74.6 mm SL, lectotype of Xenocara multispinis Regan, 1912, subsequent designation by Muller (1989); BMNH 1910.7.26.32–33, 2, 86.7–98.5 mm SL, paralecotypes of Xenocara multispinis Regan, 1912; MNRJ 1078, 15 of 70, 61.1–89.9 mm SL. Ancistrus nudiceps. **Brazil**: INPA 58328, 1, 141.6 mm SL. Ancistrus occloi. **Peru**: CAS 66847, 89.3 mm SL, holotype of A. occloi Eigenmann, 1928; MUSM 41133, 1, 119.9 mm SL. Ancistrus parecis. **Brazil**: MCP 35570, 59.5 mm SL, holotype of A. parecis Fisch-Muller, Cardoso, da Silva, Bertaco, 2005. Ancistrus parecis. **Paraguay**: NUP 3425, 7 of 14, 72.0–104.9 mm SL. Ancistrus piriformis. **Paraguay**: MCP 13703, 2, 63.4–65.0 mm SL, paratype of A. piriformis Muller, 1989; USNM 307766, 1, 64.9 mm SL, paratype of A. piriformis Muller, 1989. Ancistrus ranunculus. **Brazil**: INPA 9509, 93.5 mm SL, holotype of A. ranunculus Muller, Rapp Py–Daniel, Zuanon, 1994. Ancistrus cf. shuar. **Peru**: MUSM 21930, 8, 41.5–86.6 mm SL. Ancistrus tamboensis. **Peru**: ANSP 71643, 79.2 mm SL, holotype of A. tamboensis Fowler, 1945; MUSM 13602, 7 of 10, 57.1–83.7 mm SL. Ancistrus taunay. **Brazil**: MCP 18783, 11, 56.2–98.0 mm SL. Ancistrus trinitatis. **Trinidad**: ANSP 71723, 81.8 mm SL, holotype of A. maracasae Fowler, 1946, neotype of A. trinitatis by subsequent designation by Souza et al. (2019: 48). Ancistrus triradiatus. **Colombia**: CAS 60164, 88.3 mm SL, holotype of A. triradiatus Eigenmann, 1918. Ancistrus verecundus. **Brazil**: MCP 35572, 53.7 mm SL, holotype of A. verecundus Fisch–Muller, Cardoso, da Silva, Bertaco, 2005. Ancistrus variolus. **Peru**: ANSP 21284–21285, 2, 46.8 mm SL (one specimen broken), syntypes of Chaetostomus variolius Cope, 1872. Ancistrus tombador. **Brazil**: MCP 33001, 10, 24.9–57.6 mm SL, paratypes of A. tombador Fisch–Muller, Cardoso, da Silva, Bertaco, 2005.
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AUTHOR CONTRIBUTIONS

Alessandro Gasparetto Bifi: Conceptualization, Data curation, Writing (original draft).

Hernán Ortega: Conceptualization, Data curation, Writing (original draft).

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Not applicable.

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The authors declare no competing interests.

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