



A new species of *Pseudancistrus* from the Río Caroní, Venezuela (Siluriformes: Loricariidae)

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Abstract

Pseudancistrus reus is a new species from the Río Caroní (Río Orinoco drainage) of Venezuela known from two individuals. It differs from all other *Pseudancistrus* by having a color pattern consisting of alternating dark and light bars. In addition, it differs from all except *P. genisetiger* and *P. papariae* by having an incomplete mid-dorsal plate row and from *P. genisetiger* and *P. papariae* by having 18 contiguous mid-dorsal plates vs. 14 plates, a plateless break and then two more plates at the end of the caudal peduncle. The type locality of *P. reus* was submerged by the construction of the Caruachi dam, and is also the only known locality of the gymnotiform *Sternarchorhynchus gnomus*, making it imperative that the conservation status of these and other potential Caroní endemics be assessed. *Pseudancistrus reus* is the first species of *Pseudancistrus sensu stricto* from the Orinoco. Although the relationship of the species to other *Pseudancistrus* is unknown, *P. reus* may have gained access to the Orinoco either via stream capture between the Caroní and the Rio Uruicoera (Rio Branco – Rio Negro drainage) or via stream capture between the Caroní and either the Cuyuní or Mazaruni Rivers (Essequibo River drainage).

key word: Siluriformes, Loricariidae, taxonomy

Resumen

Se describe como especie nueva *Pseudancistrus reus* del río Caroní (cuenca del río Orinoco) en Venezuela, basada en dos ejemplares. Difiere de todas los demás *Pseudancistrus* en tener un patrón de pigmentación que consiste de barras claras alternando con oscuras. Además, difiere de todas los demás, menos *P. genisetiger* y *P. papariae* en tener la fila medio-dorsal de placas incompleta, y de *P. genisetiger* y *P. papariae* difiere en tener 18 placas medio-dorsales contiguas vs. 14 placas seguidas por una zona sin placas y luego dos placas más en el pedúnculo caudal). La localidad típica de *P. reus* fue sumergida por las aguas del embalse Caruachi. Ese sitio es también la localidad típica de *Sternarchorhynchus gnomus*, haciéndolo imprescindible evaluar el estado de conservación de estas dos especies más las otras endémicas del bajo Caroní. *Pseudancistrus reus* es la primera especie de *Pseudancistrus sensu stricto* de la cuenca del río Orinoco. Aunque desconocemos las relaciones con otras *Pseudancistrus*, *P. reus* puede haber ganado acceso al Caroní vía la captura de caños en las cabeceras del río Uruicoera-Branco-Negro o del río Cuyuní o Mazaruni, afluentes del río Essequibo.

Introduction

In the early history of loricariid taxonomy (suckermouth armored catfishes of the neotropics), *Pseudancistrus* was a genus in which many species of the current Hypostominae (as well as the Neoplecostominae) were placed solely based on the presence of hypertrophied odontodes along the snout. By the time of Isbrücker (2001), *Pseudancistrus* had largely been whittled down to those species of the Ancistrinae (now Ancistrini)

that have hypertrophied cheek odontodes, but little ability to evert those plates (this group, with the addition of *P. genisetiger* and *P. papariae*, is referred to as *Pseudancistrus sensu stricto* here). Armbruster (2004a, b) found that there was good support for an expanded, monophyletic *Pseudancistrus* that included *Lithoxancistrus*, *Guyanancistrus*, *Hemiancistrus megacephalus*, and a species described in Armbruster (2004b) as *Pseudancistrus sidereus*. Although *Pseudancistrus sensu stricto* and *Lithoxancistrus* were found to be monophyletic (see also Lujan et al., 2007), *Guyanancistrus* did not have any synapomorphies to unite the species, the diagnoses of *Pseudancistrus* and *Lithoxancistrus* were weak, and several more poorly diagnosed genera would have to be described to preserve *Guyanancistrus* as a valid taxon.

Pseudancistrus sensu stricto are those species that have only a modest ability to evert the cheek plates. They can evert the plates to about 30° from the head, a condition similar to *Hypostomus* (Armbruster, 2004a). *Pseudancistrus s.s.* has six described, accepted species: *P. barbatus*, *P. depressus*, *P. genisetiger*, *P. guentheri*, *P. nigrescens*, and *P. papariae*. *Pseudancistrus guttatus* is considered a synonym of *P. barbatus* (Fisch-Muller, 2003). The species are found mostly in Guyana, Suriname, and French Guiana, but *P. genisetiger* and *P. papariae* are found in coastal drainages in northeastern Brazil. In addition, undescribed species of *Pseudancistrus s.s.* are known from middle and lower Amazonian tributaries (O. Ribeiro, pers. comm.). Although other members of *Pseudancistrus* have been described from the Orinoco (Isbrücker et al., 1988; Armbruster, 2004; Lujan et al., 2007), no members of *Pseudancistrus s.s.* had previously been collected in the Orinoco basin.

We discovered two specimens of a clearly new species of *Pseudancistrus s.s.* at MCNG that were collected from a rocky side channel of the Río Caroní in eastern Venezuela that is now part of the Caruachi reservoir. The species is quite different from any described *Pseudancistrus* (alternating dark and light bars vs. spots or mottling or solid coloration) and it differs from all except *P. genisetiger* and *P. papariae* in having the mid-dorsal plate row incomplete. We describe the species here as *P. reus* and discuss its biogeography.

Methods

Counts and measurements follow Armbruster (2003). Institutional abbreviations are as in Leviton et al. (1985). Dentary papillae are defined as a simple papilla or clusters of papillae located proximally along each dentary, internal to the tooth cup (Lujan et al., 2007). For other species of *Pseudancistrus* examined, we provide the catalog number, number of specimens measured, type status, and size range of the examined specimens. The species description follows the format of Armbruster (2004b) and Lujan *et al.* (2007). Names of plate rows follow Schaefer (1997). Tentacles are the fleshy sheaths of odontodes that form in some ancistrins when the odontodes erupt from the anterior of the odontode sheath (Sabaj *et al.*, 1998). The following abbreviations are used in the text: D. = distance, Dia. = diameter, Dp. = depth, dr. = drainage, L. = length, premax. = premaxillary, W = width.

Pseudancistrus reus, new species

(Fig. 1, Table 1)

Holotype: MCNG 18447, 72.2 mm SL, Venezuela, Estado Bolívar, Río Caroní in a small side channel very close to the confluence of the Río Claro, 07°54'30"N, 063°02'50"W, D.C. Taphorn, O. León M., L. Balbás, R. Smith, J. García T. and A. Barbarino, 6 March 1988.

Paratype: AUM 47152, 1, 76.5 mm SL, same locality data as holotype.

Diagnosis: *Pseudancistrus reus* can be separated from all other described *Pseudancistrus* by the presence of bars on the body (vs. spots, mottling, or entirely dark coloration), and from all examined *Pseudancistrus*

except *P. genisetiger* and *P. papariae* by having an incomplete mid-dorsal plate row with 18 plates (vs. a complete mid-dorsal row with 21–25 plates). In the one specimen of *P. genisetiger* examined and the holotype of *P. papariae*, the mid-dorsal row has 14 plates, then a break around the adipose fin and then two more plates at the posterior end of the caudal peduncle (vs. 18 continuous plates in *P. reus*). The other specimen of *P. papariae* (AUM 20768) examined had a complete mid-dorsal row (the plate rows were not examined on the paratypes).



FIGURE 1. Dorsal, lateral and ventral views of holotype of *Pseudancistrus reus*, MCNG 18447, 72.2 mm SL. Photos by N.K. Lujan.

Description: Morphometrics presented in Table 1. Meristics based on two individuals. Largest specimen 76.5 mm SL. Body very dorsoventrally flattened and fairly narrow. Head and nape gently convex to maximum depth at insertion of dorsal fin, then very gradually decreasing to dorsal procurrent caudal-fin spines, then

angled dorsally $\sim 45^\circ$ to caudal fin. Ventral surface flat to ventral procurrent caudal fin rays, then angled ventrally $\sim 30^\circ$ to caudal fin. Eyes set fairly close together, almost completely dorsally oriented. In dorsal profile, head broadly triangular, body widest at pectoral-fin insertions, then narrowing slightly to dorsal-fin origin, then expanding to about middle of dorsal fin before tapering to end of caudal peduncle.

TABLE 1. Selected morphometrics of *Pseudancistrus reus* (n=2). Landmarks represent the two landmarks the measurement is between (see Armbruster 2003). Measurements are ratios of SL (predorsal l. to pelvic-dorsal l.) or head l. (head-eye l. to premaxillary tooth cup l.).

Landmarks	Measurement	Average	Holotype	Paratype
1–20	SL	74.3	72.2	76.5
1–10	Predorsal L.	44.1	43.2	45.0
1–7	Head L.	33.9	33.2	34.6
7–10	Head-dorsal L.	10.0	9.8	10.2
8–9	Cleithral W.	33.0	32.2	33.8
1–12	Head-pectoral L.	30.0	28.8	31.2
12–13	Thorax L.	23.1	23.1	23.2
12–29	Pectoral-spine L.	25.5	25.0	26.0
13–14	Abdominal L.	24.5	24.7	24.3
13–30	Pelvic-spine L.	23.8	23.6	24.0
14–15	Postanal L.	28.1	29.5	26.7
14–31	Anal-fin spine L.	11.1	10.7	11.5
10–12	Dorsal-pectoral D.	26.0	26.3	25.6
10–11	Dorsal spine L.	26.3	25.1	27.4
10–13	Dorsal-pelvic D.	22.0	21.4	22.6
10–16	Dorsal-fin base L.	29.2	30.6	27.8
16–17	Dorsal-adipose D.	15.3	14.6	16.0
17–18	Adipose-spine L.	5.6	6.1	5.2
17–19	Adipose-up. caudal D.	11.9	12.3	11.4
15–19	Caudal peduncle Dp.	10.9	10.6	11.1
15–17	Adipose-low. caudal D.	18.4	18.9	18.0
14–17	Adipose-anal D.	19.4	18.3	20.5
14–16	Dorsal-anal D.	13.1	12.8	13.4
13–16	Pelvic-dorsal D.	27.2	25.9	28.5
5–7	Head-eye L.	30.2	31.6	28.7
4–5	Orbit Dia.	19.3	19.5	19.1
1–4	Snout L.	65.8	65.9	65.8
2–3	Internares W.	8.5	9.5	7.5
5–6	Interorbital W.	52.2	56.7	47.8
7–12	Head Dp.	62.4	63.7	61.2
1–24	Mouth L.	60.5	61.1	59.9
21–22	Mouth W.	63.1	69.2	57.0
22–23	Barbel L.	7.6	5.6	9.6
25–26	Dentary tooth cup L.	18.3	18.3	18.3
27–28	Premaxillary tooth cup L.	17.4	19.0	15.7

Anterior margin of snout with small to medium-sized hypertrophied odontodes; tentacles of snout odontodes not longer than odontodes, unbranched. Evertible cheek plates not strongly evertible (to ~30° from head), with relatively short hypertrophied odontodes that reach maximally to posterior edge of pectoral-fin spine. Head contours smooth with slightly raised supraorbital crest from anterolateral corner of nares to posterior edge of pterotic.

Mouth relatively small with premaxillary and dentary tooth cups forming gentle arcs. Premaxillary teeth 62–77; dentary teeth 68. Teeth viliform and bicuspid with very short cusps (medial cusp longer than lateral cusp). Lateral edge of oral disk not extending beyond lateral margins of head. Maxillary barbels short, not reaching base of evertible cheek plates. Ventral surface of lips papillose. Papillae increasing in size distally. Dentary papillae absent. Buccal papilla absent in one individual and barely present in other. Buccal valve fairly unusual, with median, ridge-like, thickened region, and very thin, translucent lateral wings (usually in loricariids lateral wings are fairly thick and only slightly thinner than median ridge).

Dorsal fin II,7; dorsal-fin spinelet short and V-shaped; dorsal-fin lock functional. Dorsal fin short, reaching preadipose plate when adpressed. First dorsal-fin ray longer than dorsal-fin spine. Pectoral fin I,6; pectoral spine short (just slightly longer than pelvic spine) extending to middle of pelvic fin when adpressed. Pectoral-fin spine fairly weak with odontodes that increase in size and density distally; tentacles of pectoral-fin spine not longer than odontodes, unbranched. Distal odontodes slightly elongated. Anterior pectoral-fin rays longer than pectoral-fin spine, decreasing to about half of length of spine posteriorly. Pelvic fin I,5; pelvic-fin spine weak, reaching middle of base of anal fin when adpressed; anterior pelvic-fin rays longer than pelvic-fin spine with posterior margin of fin curving out beyond posterior tip of spine. Anal fin I,5; anterior anal-fin rays slightly longer than unbranched anal-fin ray, posterior anal-fin rays slightly shorter than unbranched anal-fin ray. First anal-fin pterygiophore not exposed to form a plate-like structure. Adipose-fin spine straight with adipose membrane extending beyond posterior extent of spine. Caudal fin I,14,I; at least upper caudal-fin spines longer than caudal-fin rays (lower spines broken on both specimens). Dorsal procurrent caudal-fin rays four or five, ventral procurrent caudal-fin rays three. Posterior caudal-fin margin slightly concave. Rays of all fins supporting small odontodes.

Median plate series with 20–22 plates. Ventral plates forming gentle arc on caudal peduncle and not forming strong rounded keel. Plates in mid-dorsal row weakly arched submedially forming low ridge from cleithrum to posterior insertion of pelvic fin. Four rows of plates on caudal peduncle (mid-dorsal plate series ending at level of adipose fin). Abdomen naked.

Color: Alcohol preserved specimens mostly brown on head and sides, lighter tan spots on nose and top of head, as well as below and behind eye. On dorsum of body of paratype, three lighter tan saddles, first from middle of dorsal fin base to end of dorsal fin base, next begins just behind the dorsal fin base and extends posterior to about one plate before adipose insertion, last begins just anterior to adipose insertion and continues to caudal base. No saddles in smaller specimen (holotype), vertical bars extend up from sides to unite at midline. Sides brown with darker brown oblique narrow vertical bars; six bars in paratype, stronger posteriorly; nine bars in holotype that begin under middle of dorsal-fin base. Undersurfaces lighter, creamy white on unplated breast and abdomen, tan on plated caudal peduncle. Oral disk with inner papillated surfaces pale tan but brown on outer anterior margin. All fin spines and rays with alternating wide dark and narrow light bands (pattern most evident in caudal and dorsal fin, least evident in pectorals); fin membranes hyaline or dusky with melanophores. Small but distinct black spot present at base of anteriormost dorsal-fin membrane in both specimens.

Range: Known only from the type locality in the Río Caroní, Bolivar, Venezuela (Fig. 5). The type locality is now part of the Caruachi Reservoir. Therefore, a status survey of the species should be performed to determine the extent of its range.

Water conditions: The following water conditions were recorded at the time of capture: water tea-colored, low conductivity (12 µmho/cm), visibility ~2m, moderate current, pH 6.6, temperature 28°C.

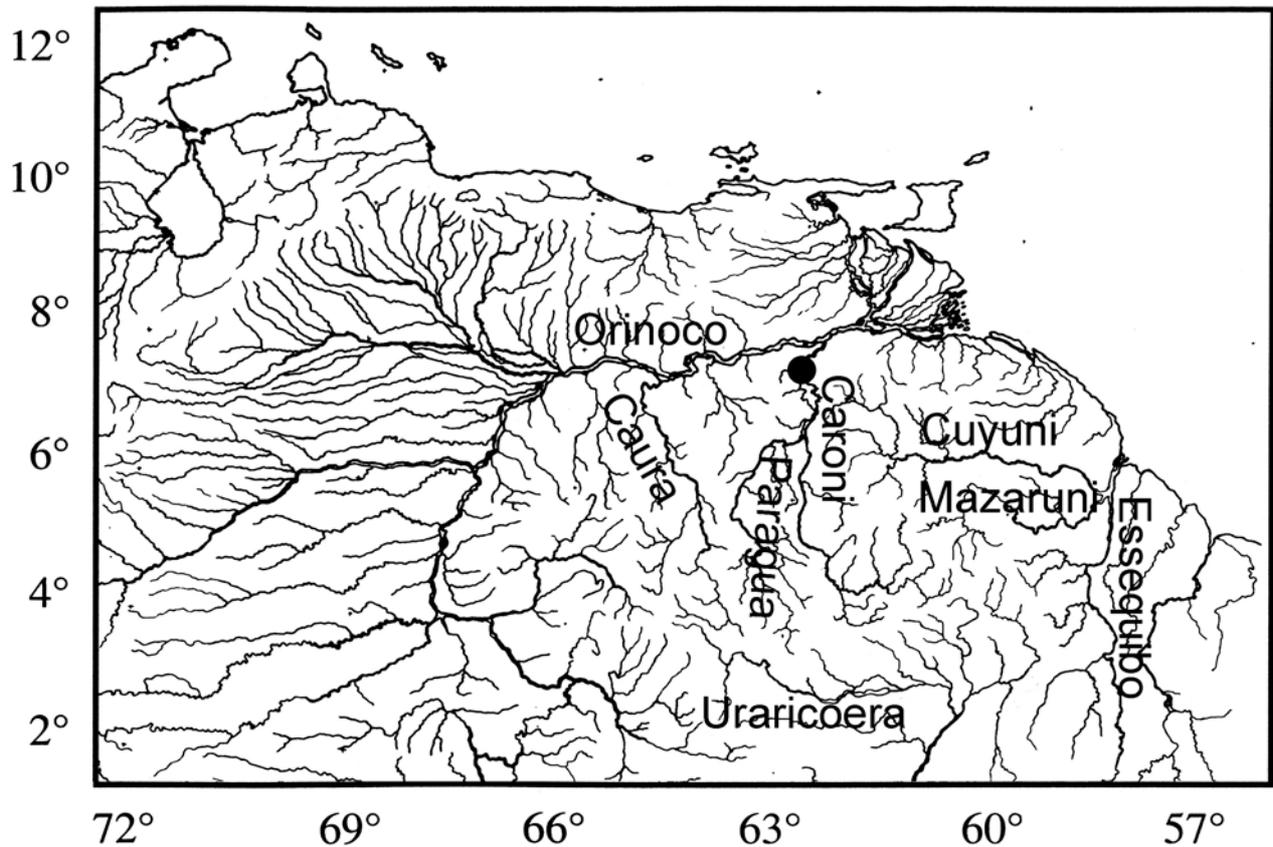


FIGURE 2. Type locality of *Pseudancistrus reus* and important rivers mentioned in the text.

Etymology: From the Latin *reus*, meaning one who is accused or arraigned like a defendant, prisoner, criminal, or culprit; in reference to the barred pattern that looks like the stripes of the stereotypical prisoner's uniform. Treated as a noun in apposition.

Discussion

Only two specimens of *Pseudancistrus reus* were available, so we did not clear and stain any; however, the species clearly is a member of *Pseudancistrus sensu stricto* because it lacks evertible cheek plates, has a sickle-shaped opercle, and has hypertrophied odontodes along the snout, no other hypostomines have those three characteristics (Armbruster, 2004a, b). Despite having only two specimens, we considered it imperative to describe this species at this time because the type locality was submerged with the recent construction of dams on the Río Caroní further downstream from the Guri reservoir. The type locality is currently part of the Caruachi Reservoir, and the same collection produced the only known locality for the gymnotiform *Sternarchorhynchus gnomus* (de Santana and Taphorn, 2006). With the Río Caroní largely impounded from its mouth to the confluence of the Río Paragua, it is imperative that remaining free-flowing stretches of the Caroní below Guri Reservoir and the main channel of the Caroní and Paragua upstream of Guri be surveyed for these and other potentially unique species.

Despite fairly heavily sampling in the upper Orinoco, no members of *Pseudancistrus s.s.* have been collected there. The upper Orinoco and upper Negro of Venezuela has been a treasure trove of undescribed loriciid species, so the fact that no *Pseudancistrus s.s.* have been collected in that region may still be a sampling artifact; however, if it is a real pattern, it begs an explanation.

Given that all other species of *Pseudancistrus s.s.* are located in the Branco and lower Negro and rivers to the east, presence of the Caroní *Pseudancistrus* can be explained by stream capture events either between the Caroní and the Negro or the lower Essequibo (most river names in this discussion are in figure 2). Evidence could be mustered to support either hypothesis. *Chaetostoma vasquezii* is known from the Ríos Caura and Paragua and lower Río Caroní (Orinoco drainage; Lasso and Provenzano, 1998), and its potential sister species (*C. jegui*) is located in the Rio Uraricoera (Rio Negro drainage; Rapp Py-Daniel, 1991). The upper Caroní, Caura, and Uraricoera are physically close, and there is the potential for the Orinoco, as it shifted west (Lundberg, 1998), to have captured the Caura and Caroní and their faunas from the Negro. The Caroní also has tributaries that interdigitate with the Cuyuní and Mazaruni rivers (Essequibo River drainage) offering other modes of entry into the lower Orinoco. Given that the closest relative of *P. reus* is unknown, a fully developed hypothesis of the biogeography of *Pseudancistrus s.s.* is impossible at this moment, but it does represent a species that would be interesting to better study in the future. It also suggests that the Uraricoera, Cuyuní, and Mazaruni should be much better sampled.

The only other described species of *Pseudancistrus* in the Caroní drainage is *P. coquenani*, which is indistinguishable at this time from *P. orinoco* (Lujan *et al.*, 2007). *Pseudancistrus coquenani* has fully evertible cheek plates, dentary papillae, and a complete mid-dorsal row of plates. An undescribed species of *Pseudancistrus* is known from the Río Paragua, but this species has a deeper body, longer odontodes along the snout, fully evertible cheek plates, and a complete mid-dorsal row of plates. Neither *P. coquenani* nor the undescribed species has the banded pattern of *P. reus*. *Ancistrus yaravi* was described from the upper Caroní (Steindachner, 1915), but its type is lost (E. Mikschi, pers. comm.), and the species is currently listed as a *Neblinichthys* (Ferraris, 2007). The description of the *A. yaravi* is excellent, and the color pattern described (violet brown) and other elements of the description do not fit with *P. reus*; however, *P. reus* shares with the former type of *A. yaravi* the presence of pectoral and pelvic-fin spines of about the same length (this is also present in species of *Neblinichthys*, JWA, pers. obs.).

Specimens examined

Pseudancistrus barbatus—ANSP 167365, 2, 81.4–106.5; ANSP 167366, 2, 77.8–102.9; AUM 39002, 38, 78.4–154.7; CAS 56702, 1, 92.0; FMNH 35617, 1, 96.6; FMNH 53099, 1, 104.5; FMNH 53100, 2, 43.0–85.4; FMNH 53101, 2, 59.3–105.5; MNHN A-9564, holotype, 204.0; USNM 226181, 4, 116.4–161.6; USNM 226182, 1, 177.0.

Pseudancistrus brevispinnis—ANSP 152115, 2, paratypes, 52.0–92.3; BMNH 1982.9.30:1-2, 2, paratypes, 88.5–106.8; FMNH 94506, 2, paratypes, 68.9–103.7; MNHN 1994-0783, 1, 126.1; MNHN 1994-0784, 1, 131.0; MNHN 1995-1935, 2, 69.5–106.9; MNHN 1998-1859, 1, 80.8; MNHN 1998-1982, 1, 81.7; MNHN 2001-0845, 1, 77.2; MNHN 2001-2242, 1, 68.5; MNHN 2003-0065, 2, 76.3–80.1; MNRJ 12199, 2, 56.8–90.9; NRM 12199, 2, 56.8–90.9; NRM 32374, 3, 42.6–56.8.

Pseudancistrus coquenani—AMNH 91023, 6, 44.8–64.5; NMW, 48023, 2, syntypes, 75.5–78.6.

Pseudancistrus depressus—BMNH 1866.14.139, holotype, 105.4.

Pseudancistrus genisetiger—MNRJ, 1, 127.6.

Pseudancistrus guentheri—BMNH 1978.3.2.1, holotype, examined, but not measured.

Pseudancistrus longispinnis—MNHN 1979-158, 1, paratype, 94.0; MNHN 1979-159, 1, paratype, 99.3; MNHN 1979-160, 1, paratype, 80.9; MNHN 1979-161, 1, paratype, 76.5; MNHN 1979-162, 1, paratype, 80.6; MNHN 1979-163, 1, paratype, 80.6; MNHN 1982-851, 1, paratype, 81.9; MNHN 1982-852, 1, paratype, 75.2; MNHN 1982-854, 1, 111.63.

Pseudancistrus megacephalus—BMNH 1978.9.12:3, holotype, 122.8; CAS 56703, 1, 99.7; FMNH 7414, 1, 74.2; FMNH 53103, 1, 78.5; FMNH 53104, 1, 66.9.

- Pseudancistrus niger*—BMNH 1926.3.2:756, lectotype, 157.8; BMNH 1926.3.2:757-760, 4, paralectotypes, 81.8–129.8; MNHN 1900-0157, 1, 130.1; MNHN 1981-0500, 1, 91.2; MNHN 1981-0501, 1, 74.5; MNHN 1982-0852, 1, 113.1; MNHN 1982-0855, 1, 117.7; MNHN 1982-0856, 1, 49.3.
- Pseudancistrus nigrescens*—AMNH 54950, 5, 117.6–149.9; ANSP 175914, 1, 113.4; ANSP 175915, 1, 114.0; ANSP 177378, 5, 82.8–134.4; ANSP 177379, 4, 96.4–135.6; ANSP 177380, 1, 67.3; ANSP 177383, 5, 119.7–139.3; ANSP 177383, 1, 75.7; AUM 35743, 2, 46.4–66.9; AUM 53102, 2, 77.3–140.9; FMNH 53105, holotype, 131.8; INHS 31684, 1, 59.9; MCNG 17525, 2, 64.6–94.2; MCNG 29524, 2, 62.8–83.8.
- Pseudancistrus orinoco*—ANSP 160600, 5, 79.5–79.0; ANSP 165824, 1, 78.1; AUM 39479, 5, 56.7–82.4; AUM 39542, 5, 67.5–105.8; AUM 42179, 1, 93.1; AUM 42184, 1, 80.6; MCNG 17525, 2, 64.6–94.4; MCNG 18339, 5, 58.8–68.4; MCNG 18410, 6, 52.0–62.9; MCNG 20204, 1, 61.0; MCNG 21631, 1, 70.7; MCNG 25794, 1, 48.2; MCNG 25924, 2, 62.7–82.6; MCNG 30407, 2, 45.5–58.4.
- Pseudancistrus papariae*—ANSP 69398, holotype, 104.4; ANSP 69399, 1, 106.6; ANSP 49400-401, 2, paratypes, 98.5–115.7 (lots once separate, but now mixed); AUM 20768, 1, 173.6. All characteristics were not examined on ANSP specimens; photographs of holotype examined on All Catfish Species Inventory web page, photos provided by F. Mendonça.
- Pseudancistrus pectegenitor*—AUM 42202, 1, paratype, 227.0; AUM 43192, 1, paratype, 173.6; ANSP 182801, 1, paratype, 225.1; MCNG, holotype, 241.6.
- Pseudancistrus sidereus*—AUM 37562, 1, 148.7; AUM 42180, 1, 110.7; AUM 42185, 3, 141.3–180.0; AUM 43443, 5, 141.8–164.8; FMNH 105294, 4, 149.5–176.7; MCNG 26125, 1, 175.6, holotype; MCNG 48261, 1, 149.8.
- Pseudancistrus yekuana*—AUM 39473, 2, paratypes, 35.0–40.5; ANSP 182802, 1, 32.7; MCNG 54798, holotype, 42.7.

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