

A New Basal Ancistrini Genus and Species from the Andes of Northern Peru (Siluriformes: Loricariidae)

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***Etsaputu relictum*, a new genus and species sister to all other Ancistrini, is described from the upper Marañon River in Northern Peru. *Etsaputu relictum* can be diagnosed from all other Hypostominae by having a coracoid with a serrated posterior margin of the posterior process, an opercle with a process extending ventrolaterally from the ventral margin, and branchiostegals one and two fused. *Etsaputu relictum* is further distinguished by having cheek plates evertible to less than 45° from the sagittal plane, by having fewer than ten (typically zero or six) enlarged cheek-plate odontodes, by having enlarged cheek-plate odontodes straight and no longer than 15 times length of odontodes on lateral body plates, by having large eyes (mean 24.0% of head length, range 21.7–27.6% HL), and by having uniformly gold-brown to bronze base color with golden sheen when alive.**

IN July and August of 2006, two of the authors (NKL, BR) with Peruvian and American colleagues surveyed the ichthyofauna of the Marañon River main channel and tributaries between the towns of Bagua and Borja in northern Peru. The Marañon River is a whitewater tributary of the upper Amazon River, and the sampled region is separated from lowlands of the Amazon Basin by the Pongo de Manseriche, a narrowly constricted and turbulent stretch of the Marañon River where it breaches an eastern ridge of the Andes Mountains. This fieldwork yielded many specimens of a previously undescribed species of suckermouth armored catfish (Loricariidae) that has weakly evertible cheek plates and only slightly enlarged cheek odontodes. Phylogenetic analysis of this new species by Armbruster (2008; new genus 3) recovered it as sister to all other genera in the species-rich and morphologically diverse tribe Ancistrini. This new genus and species is described herein as *Etsaputu relictum*.

MATERIALS AND METHODS

Counts and measurements follow Armbruster (2003) and are reported only for those specimens larger than 20 mm SL. Trunk plate row names follow Schaefer (1997). Meristics include dorsal-fin spinelet as a dorsal-fin spine. Institutional abbreviations are as listed at <http://www.asih.org/node/204>. Taxonomic groupings follow Armbruster (2008). Illustrations were drawn by hand using a camera lucida mounted to a Leica MZ6 stereomicroscope, then modified for uniformity using Powerpoint (Microsoft, v. 12.2.9).

Etsaputu, new genus

Type species.—*Etsaputu relictum*, new species

Diagnosis.—*Etsaputu relictum* can be diagnosed from all other Hypostominae by having a serrate posterior margin of the posterior process of the coracoid (Fig. 1; vs. straight and flat or pointed), a process on the ventral margin of the opercle extending ventrolaterally (Fig. 2C), and fusion of

branchiostegal one and two (Fig. 3B; only *Lasiancistrus* has three branchiostegals and this appears to be a loss of the first). *Etsaputu relictum* can be further diagnosed from all members of Hypostomini and Rhinelepini by having cheek plates evertible up to 45° from the sagittal plane (vs. evertible cheek plates absent); from members of the Pterygoplichthyini by lacking a modified stomach (vs. stomach with a connective tissue sheet); and from members of the genus *Pterygoplichthys* by having seven dorsal-fin rays (vs. nine or ten). *Etsaputu relictum* may be distinguished from other members of the Ancistrini by having cheek plates evertible to less than 45° from the sagittal plane (vs. >80° from sagittal plane in most species), by having fewer than ten (typically zero or six) enlarged cheek-plate odontodes, by having enlarged cheek-plate odontodes straight and no longer than 15 times length of odontodes on lateral body plates, by having large eyes (mean 24.0% of head length, range 21.7–27.6% HL), and by having uniformly gold-brown to bronze base color with golden sheen when alive.

Etymology.—*Etsa* means ‘sun’ in Awajun—the language of the Aguaruna people indigenous to the upper Marañon region of northern Peru—and is a reference to the type species’ golden sheen when alive. *Putu* is the Awajun word used to refer to hypostomin loricariids. The Aguaruna typically preface *putu* with a descriptor referring to specific taxa. For example *nun putu* refers to large species of *Panaque*, *shasham putu* refers to *Panaque albomaculatus*, *shake putu* refers to *Panaque gnomus*, *shui putu* refers to *Ancistrus* spp., *nayun putu* refers to species of *Chaetostoma*, and *paka putu* refers to *Lasiancistrus schomburgkii*. In contrast, *Sturisoma nigrrostrum* is referred to as *tsentsak*, and species of *Farlowella* are referred to as *tsentsak tsutsum*. Hence, *etsaputu* can be translated as ‘sun pleco.’ Gender treated as neuter.

Etsaputu relictum, new species

Figure 4, Table 1

“New Genus 3”.—Armbruster, 2008:47 [phylogenetic relationships].

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Holotype.—MUSM 32383, 87.3 mm SL, Perú, Amazonas Department, Marañon River drainage, Cenepa River, gravel shoal at Tsantsa, 58 km N of Imacita, 4°33'37"S, 78°11'07"W, 228 m asl, N. K. Lujan, D. C. Werneke, D. C. Taphorn, K. A. Capps, D. P. German, and D. Osorio, 2 August 2006.

Paratypes.—187 specimens, all Peru, Amazonas Department, Marañon River drainage: AUM 45531, 13 (13 measured), 33.9–85.3 mm SL, same data as holotype; MUSM 12502, 4 (0 measured), 53.9–74.6 mm SL, Cenepa River, 4°43'S, 78°10'W, F. Chang and E. Castro, 30 October 1997; MUSM 12546, 3 (0 measured), 45.5–47.1 mm SL, Marañon River at Samari, 4°58'S, 78°20'W, F. Chang and E. Castro, 31 October 1997; MUSM 19125, 37 (0 measured), 44.4–75.1 mm SL, Nieva River, Viejo Tayuntza, 4°49'8"S, 77°57'55"W, 213 m asl, M. Hidalgo, 23 September 2001; AUM 45538, 54 (43 measured), 11.9–61.4 mm SL, Cenepa River, rocky beach near Tsantsa, 4°33'37"S, 78°11'07"W, N. K. Lujan, D. C. Taphorn, A. S. Flecker, B. Rengifo, and D. Osorio, 2 August 2006; ANSP 182810, 6 (6 measured), 34.9–82.7 mm SL, AUM 45545, 3 (3 measured), 57.9–60.7 mm SL, Marañon River, log debris dam 1.57 km ENE of Juan Velasco (Santa Maria de Nieva), 4°35'22"S, 77°51'10"W, 180 m asl, N. K. Lujan, D. C. Werneke, D. C. Taphorn, A. S. Flecker, K. A. Capps, D. P. German, and D. Osorio, 3 August 2006; AUM 45571, 23 (0 measured), 30.6–46.9 mm SL, CU 94199, 8 (0 measured), 24.8–76.0 mm SL, MZUSP 99606, 8 (0 measured), 20.3–80.0 mm SL, Nieva River, 7.4 km SSW of Juan Velasco (Santa Maria de Nieva), 4°39'38"S, 77°53'02"W, 189 m asl, N. K. Lujan, D. C. Werneke, D. C. Taphorn, D. P. German, and D. Osorio, 5 August 2006; AUM 45588, 1 (measured), 71.9 mm SL, Marañon River, Pongo de Manseriche above Borja, 35.5 km NE Juan Velasco (Santa Maria de Nieva), 4°27'38"S, 77°34'53"W, 170 m asl, N. K. Lujan, D. C. Werneke, D. C. Taphorn, A. S. Flecker, K. A. Capps, D. P.

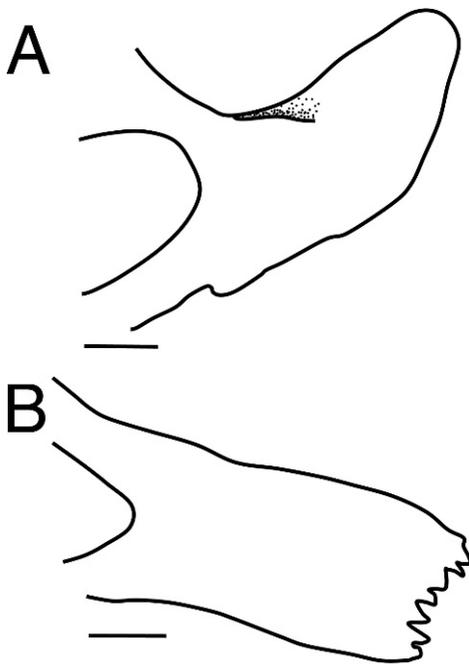


Fig. 1. Posterior process of the coracoid of (A) *Hypostomus* cf. *plecostomus*, UF 77909, and (B) *Etsaputu relictum*, new genus, new species, AUM 45538. Left side, lateral view, anterior to left. Scale bars = 1 mm.

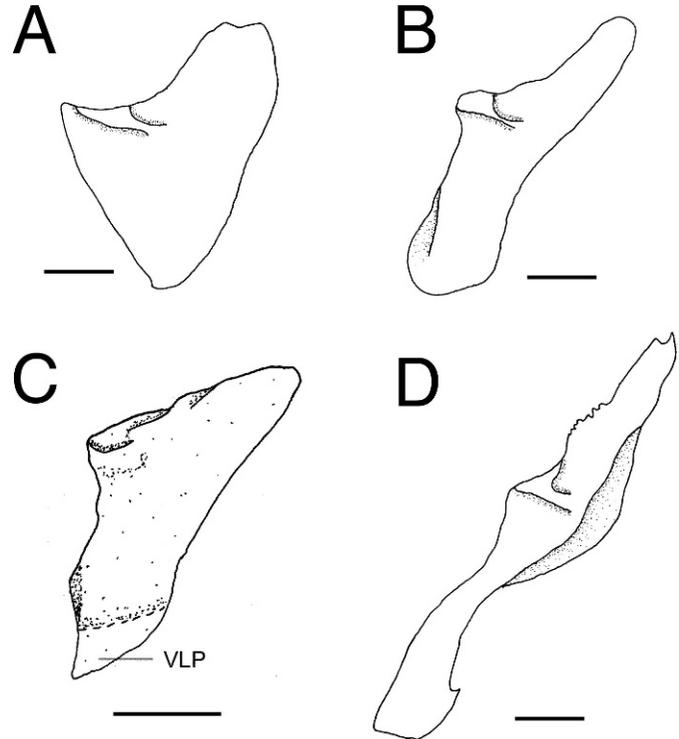


Fig. 2. Opercles of (A) *Hemiancistrus maracaiboensis*, EBRG 2855, (B) *Peckoltia furcata*, FMNH 70863, (C) *Etsaputu relictum*, new genus, new species, AUM 45538, and (D) *Ancistrus pirareta*, UMMZ 206085 (illustrations A, B, and D from Armbruster, 2004). Right side, mesial view, anterior to left. Scale bars = 1 mm.

German, and D. Osorio, 6 August 2006; AUM 45608, 5 (5 measured), 52.4–60.6 mm SL, Marañon River, log debris dam 1.57 km ENE of Juan Velasco (Santa Maria de Nieva), 4°35'22"S, 77°51'10"W, 180 m asl, N. K. Lujan, A. S. Flecker, D. C. Werneke, K. A. Capps, D. P. German, and D. Osorio, 8 August 2006; AUM 45625, 6 (0 measured), 23.0–38.1 mm SL, FMNH 117788, 8 (0 measured), 19.5–65.4 mm SL, UF 171281, 8 (0 measured), 24.5–71.2 mm SL, Marañon River at Imacita, 5°03'28"S, 78°20'06"W, 258 m asl, D. C. Taphorn, M. Arizaga, E. Lopez, and D. Osorio, 10 August 2006.

Non-type material.—All Peru, San Martín Department, To-cache Province, Huallaga River drainage: MUSM 36217, 18, Nuevo Progreso District, Uchiza River, 8°24'02"S, 76°19'05"W, 514 m asl, V. Meza et al., 23 November 2006; MUSM 36218, 15, Uchiza District, Cachiyacu River, 8°18'31"S, 76°22'06"W, 501 m asl, V. Meza et al., 23 November 2006.

Diagnosis.—As given for genus.

Description.—Morphometrics presented in Table 1. Medium-sized loriciid, largest known specimen 87.3 mm SL. In dorsal view, head and body teardrop-shaped, widest at pectoral-fin insertion, rounded snout tapering back to caudal-fin insertion. Dorsal profile of head in lateral view rising at approximately 40° from snout to supraorbital region, slope decreasing to approximately 30° from supraorbital region to dorsal-fin spinelet, then descending at similarly shallow slope to posterior insertion of adipose-fin membrane and rising from adipose-fin membrane to terminus of dorsal caudal-fin spine. Ventral profile straight

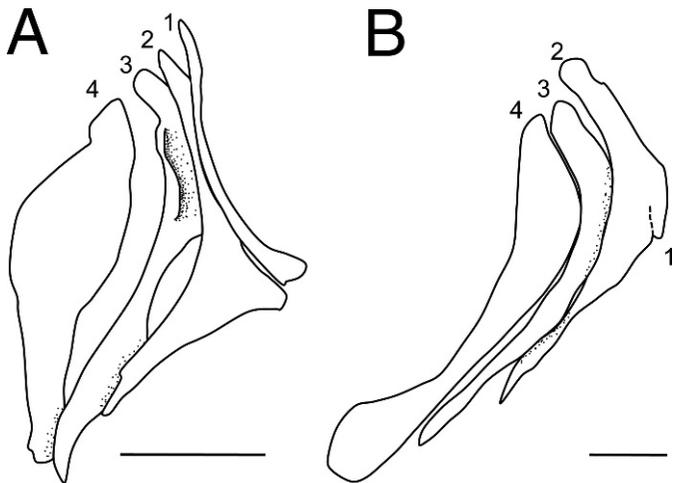


Fig. 3. Branchiostegals 1–4 of (A) *Chaetostoma pearsei*, INHS 34589, and (B) *Etsaputu relictum*, new genus, new species, AUM 45538. Short, dashed line between distal end of branchiostegal 1 and branchiostegal 2 of *Etsaputu relictum* indicates the visible line of fusion between these elements. Left side, lateral view, anterior to left. Scale bars = 1 mm.

from snout to anal-fin origin, then shallowly concave to insertion of ventral caudal-fin spine.

Entire snout, dorsal and lateral surfaces of trunk armored with plates; 25 median plates, 24 mid-dorsal plates, 25 mid-ventral plates, five caudal peduncle plate rows, five medially contacting dorsal-series plates between dorsal and adipose fins. Cheek plate with no more than six moderately hypertrophied, straight odontodes limited to posterolateral margin of plate, and only in large (>70 mm SL), mature specimens (all other specimens lacking hypertrophied cheek odontodes); cheek plate minimally evertible, to no more than 35° from sagittal plane. Modestly hypertrophied odontodes also common on anterior surface of pectoral-fin spines, anterodorsal edge of adipose-fin spine and posterior margins of body plates. Head contours with medial and supraorbital ridges, medial ridge of head confluent with medial region through nuchal and predorsal plates. Orbits large (mean 24.0%, range 21.7–27.6% head length) and nearly vertical, angled at approximately 30° from sagittal plane. Iris operculum present.

Oral disk wide and ovate, width greater than length, occupying approximately three quarters of snout anterior of pectoral girdle; jaws broad with interpremaxillary and intermandibular tooth row angles greater than 100°; dentary tooth row straight, premaxillary tooth row slightly curved. 36–79 premaxillary teeth (mode 39), 33–82 dentary teeth (mode 46); teeth villiform and flexible with narrow, elongate medial cusp and short lateral cusp. Maxillary barbel short, terminating well anterior of opercular opening and largely adnate to labial disk. Ventral surface of labial disk with globose papillae decreasing in size with distance from jaws, posterior margin of lower lip papillose but papillae not forming fimbriae.

Dorsal fin II,7; dorsal-fin spinelet short and V-shaped; dorsal-fin lock functional; last dorsal-fin ray free from body. Pectoral fin I,6; pectoral-fin spine terminating slightly past insertion of pelvic-fin spine or rarely past pelvic-fin base when addressed ventral to pelvic fin. Pelvic fin I,5; pelvic-fin spine just reaching anal-fin origin or extending beyond anal-fin base when addressed. Anal fin i,4; anal-fin spine

flexible. Adipose-fin spine straight, laterally compressed, adnate to caudal peduncle via fleshy membrane terminating coequally with spine or with base extending posteriorly barely beyond spine. Caudal fin I,14,I; dorsal procurrent caudal-fin rays five, ventral procurrent caudal-fin rays three; caudal fin deeply and obliquely emarginate with ventral lobe slightly longer than dorsal lobe. Rays of all fins except anal fin with small odontodes.

Color.—Most alcohol preserved specimens with uniformly gray to brown base color (Fig. 4), some specimens with caudal portion of trunk disrupted by contrasting dark and light blotches, mottling, or spots. Irregular light spots or broken bands in pectoral, pelvic, dorsal, and caudal fins. Ventral surfaces of oral disk, head, abdomen, and trunk pale yellow to white without distinct markings; pale coloration sometimes extending up ventrolateral surfaces of posterior trunk. Live specimens as above but with slight golden to bronze sheen along flanks.

Distribution.—Type material of *Etsaputu relictum* is restricted to the Marañon River and its tributaries between the Pongo de Manseriche (170 m asl) downstream and the confluence of the Chinchipe and Marañon rivers (Pongo de Rentema; 258 m asl) upstream (Fig. 5). Late in this study, the first author examined additional specimens from the Huallaga River (501–514 m asl) and tentatively identified them as *Etsaputu relictum*. Given the highly disjunct distribution apparent from the limited material available, we conservatively restricted type material to the Marañon River drainage.

Etymology.—*Relictum* is Latin for ‘abandoned,’ and is in reference to the apparently relictual biogeographic distribution of this species. Treated as a noun in apposition.

Ecology.—*Etsaputu relictum* was the numerically dominant loricariid in shoal habitat of the Cenepa River. Substrates in these shoals and in other areas where *Etsaputu relictum* was collected consisted of baseball to cantaloupe-sized cobble embedded in sand and silt. The broad, nearly parallel jaws of *Etsaputu relictum* and its preferred high-gradient, cobble substrate habit suggest that it subsists by scraping epilithic periphyton like many other lithophilic ancistrins.

DISCUSSION

Ancistrini is partially diagnosed by a tall levator arcus palatini crest, by a vertically oriented preopercle, by participation of the frontal in the circumorbital plate series, and by a bar- or sickle-shaped opercle that is lost only in *Spectracanthicus murinus* (Armbruster, 2004, 2008). Most Ancistrini (all except *Spectracanthicus* and some *Pseudancistrus*) can also be distinguished from other loricariids (except members of the Pterygoplichthyini) by having modified cheek plates with hypertrophied odontodes that can be rapidly and forcefully everted (Armbruster, 2004, 2008). To not bias results in what seemed to be an intermediate species, Armbruster (2008) coded *Etsaputu* as having a sickle-shaped opercle (character 75, state 1) and fully evertible cheek plates (character 184, state 2) despite having only marginal manifestation of these traits (see opercle in Fig. 2B). Parsimony analysis recovered *Etsaputu* as sister to all other ancistrins, though with weak Bremer support (decay index = 2). Recovery of *Etsaputu relictum* as sister to

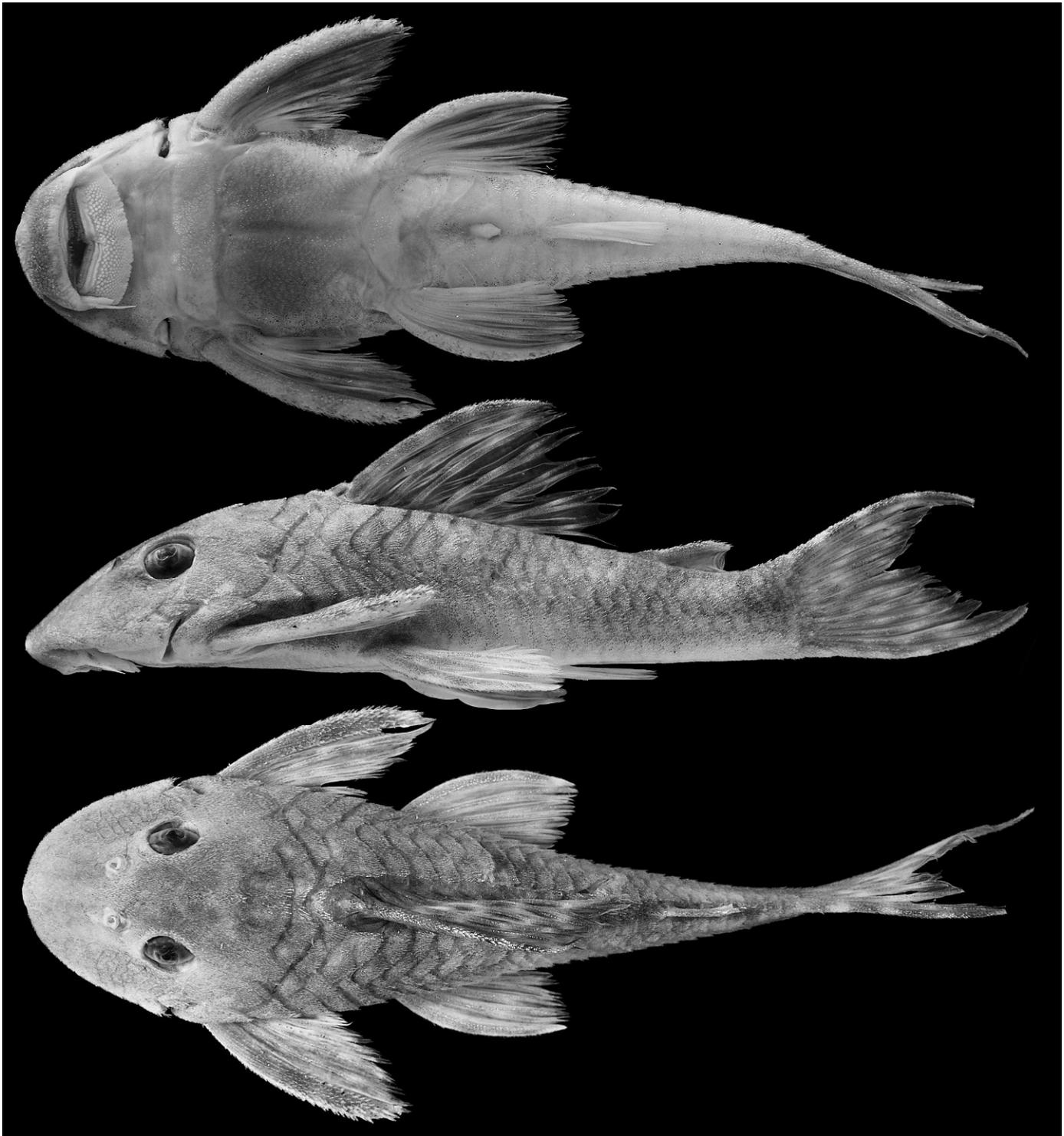


Fig. 4. Holotype of *Etsaputu relictum*, new genus, new species, MUSM 32383, 87.3 mm SL, Peru, Amazonas Department, Marañon River drainage, gravel shoal at Tsantsa in the Cenepa River, 4°33'37"S, 78°11'07"W, N. K. Lujan, D. C. Werneke, D. C. Taphorn, K. A. Capps, D. P. German, and D. Osorio, 2 August 2006.

all other Ancistrini suggests that its weakly evertible cheek plates represent an intermediate state in the evolution of the highly derived evertible cheek plate mechanism observed in many Ancistrini genera (e.g., *Ancistrus*; Geerinckx and Adriaens, 2006).

Ancistrini (Loricariidae: Hypostominae) currently comprises 23 genera and at least 250 species (Reis et al., 2003), making it the most species-rich tribe within Loricariidae. It

is also the most broadly geographically distributed of loricariid tribes. Although biogeographic studies of the Ancistrini are in their infancy (e.g., Cardoso and Montoya-Burgos, 2009; Lujan and Armbruster, 2011) and remain hindered by large numbers of undescribed taxa and poor sampling densities throughout their range, it is clear that the basal phylogenetic position of *Etsaputu relictum* and its apparent endemicity to tributaries of the Amazon Basin in

Table 1. Morphometric Data for *Etsaputu relictum*, New Genus, New Species ($n = 72$). Interlandmarks (ILM) are the two points between which measurements were taken (from Armbruster, 2003).

ILM	Morphometric	Mean	SD	Min.	Max.
	Standard length (SL)	50.8	13.9	27.5	87.3
	As percents of standard length				
1–10	Predorsal length	43.1	1.6	40.3	47.3
1–7	Head length	36.0	1.8	31.8	40.3
7–10	Head–dorsal length	7.6	1.3	4.4	9.8
8–9	Cleithral width	26.8	2.8	16.5	30.7
1–12	Head–pectoral length	26.4	1.9	23.6	31.8
12–13	Thorax length	23.6	1.5	20.6	26.0
12–29	Pectoral spine length	27.1	2.0	22.9	30.0
13–14	Abdominal length	21.2	1.5	18.7	24.8
13–30	Pelvic spine length	23.5	2.6	14.1	28.1
14–15	Postanal length	34.5	1.9	31.1	37.8
14–31	Anal-fin spine length	11.7	2.8	0.0	15.7
10–12	Dorsal–pectoral depth	28.4	1.2	26.0	32.4
10–11	Dorsal spine length	23.8	8.4	0.0	29.4
10–13	Dorsal–pelvic depth	21.3	2.1	17.1	25.1
10–16	Dorsal-fin base length	26.4	2.0	22.6	29.6
16–17	Dorsal–adipose distance	10.8	1.7	7.8	14.2
17–18	Adipose spine length	11.9	1.0	10.5	14.6
17–19	Adipose–upper caudal distance	21.9	1.7	17.8	24.8
15–19	Caudal peduncle depth	8.6	1.3	6.0	11.2
15–17	Adipose–lower caudal depth	26.6	2.1	22.4	33.0
14–17	Adipose–anal depth	17.7	1.7	12.5	21.1
14–16	Dorsal–anal depth	14.8	2.0	9.4	18.2
13–16	Pelvic–dorsal depth	25.8	2.5	15.2	28.8
	As percents of head length				
5–7	Head–eye length	39.0	4.2	34.0	56.5
4–5	Orbit diameter	24.0	1.6	21.7	27.6
1–4	Snout length	53.5	3.1	47.2	58.4
2–3	Internares width	12.3	3.4	8.7	27.4
5–6	Interorbital width	46.9	2.8	40.6	52.3
7–12	Head depth	68.4	3.1	62.7	73.1
1–24	Mouth length	50.3	3.2	44.0	57.7
21–22	Mouth width	58.7	4.3	50.0	67.2
22–23	Barbel length	8.9	2.6	5.1	17.7
25–26	Dentary tooth cup length	20.5	1.5	17.8	23.7
27–28	Premaxillary tooth cup length	20.2	1.8	17.4	24.3

the Andes Mountains of northern Peru make it an important discovery. Ancistrin generic richness is currently greatest in clearwater rivers draining geologically ancient uplands of the Guiana (e.g., Ventuari River) and Brazilian (e.g., Xingu and Tapajós rivers) shields, which are also refugia for several genera that comprise basal branches of the Ancistrini parent clades Hypostominae and Loricariidae (e.g., *Corymbophanes*, *Delturus*, *Lithogenes*; Lujan and Armbruster, 2011). Besides *Etsaputu*, there are only four ancistrin genera having distributions largely or entirely restricted to whitewater rivers draining the Andes Mountains: *Chaetostoma*, *Cordylancistrus*, *Dolichancistrus*, *Leptoancistrus*; these constitute a single clade that is nested well within Ancistrini (Armbruster, 2004, 2008). Furthermore, most of these genera (all except *Chaetostoma*) have distributions restricted to the northern Andes of Colombia and Panama. Long distances from the range of *Etsaputu relictum* to other centers of ancistrin endemism and to the narrowly restricted ranges of other more basal loricariid taxa, suggest that the current distribution of *Etsaputu relictum* is relictual, having once been much broader.

MATERIAL EXAMINED

Ancistrus pirareta: UMMZ 206085, Paraguay, La Plata drainage.
Chaetostoma pearsei: INHS 34589, Venezuela, Lake Valencia drainage.

Hemiancistrus maracaiboensis: EBRG 2855, Venezuela, Lake Maracaibo drainage.

Hypostomus cf. *plecostomus*: UF 77909, Venezuela, Apure River drainage.

Peckoltia furcata: FMNH 70863, Ecuador, Pastaza River drainage.

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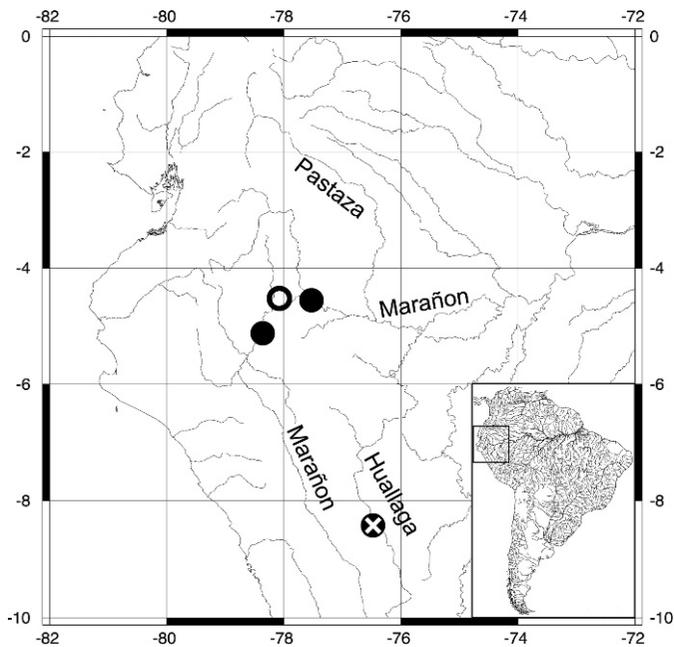


Fig. 5. Known distribution of *Etsaputu relictum* in northern Peru: open circle indicates type locality (228 m asl), closed circles represent multiple paratype localities (170–258 m asl), circle with × represents localities of non-type material from the Huallaga River drainage (501–514 m asl).

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