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Two new species and a new genus of neotropical mailed catfishes of the subfamily Loricariinae Swainson, 1838 (Pisces, Siluriformes, Loricariidae)

I. J. H. ISBRÜCKER & H. NIJSSEN

ABSTRACT

A new monotypic genus and two new species of South American mailed catfishes of the subfamily Loricariinae are described and figured. A discussion of and comparative notes on related taxa are added.

Ricola genus novum is established for the species originally described by Regan (1904) as *Loricaria* (*Loricaria*) *macrops*. A lectotype for *Ricola macrops* is selected from the two syntypes, originating from Río de la Plata in Argentina/Uruguay. *Ricola macrops* is compared with species of the genus *Loricaria* Linnaeus, 1758.

Loricaria prolixa species nova is described from Rio Piracicaba, Est. São Paulo, Brazil. It is compared with *Loricaria macrodon* Kner, 1854, and with *Loricaria lata* C. H. Eigenmann & R. S. Eigenmann, 1889.

Pseudohemiodon apithanos species nova is a species which displays remarkable colour polymorphism. It was previously recorded by Saul (1975) as *Loricaria* cf. *laticeps* from Río Conejo, Ecuador. The new species certainly appears most closely related to *Pseudohemiodon laticeps* (Regan, 1904).

INTRODUCTION

The examination of several hundred members of the neotropical mailed catfishes of the subfamily Loricariinae Swainson, 1838, during the last seven years has resulted in the discovery of two new species that are described and figured in this paper. Furthermore, the examination of two freshly preserved specimens of *Loricaria* (*Loricaria*) *macrops* Regan, 1904, shows that this species is clearly distinct at generic level from all members we ascribe to *Loricaria* Linnaeus, 1758, or to other known genera of the Loricariinae.

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Thus, we have established a new genus, *Ricola*, to contain this species.

Loricaria prolixa and *Pseudohemiodon apithanos* are described as new species. These new species belong to genera which contain several species (genera, which in our opinion, are in need of revision). Most of the work on the redescription of the types of the nominal species within the Loricariinae (to which ca. 180 species have been ascribed) is in progress.

In a recent publication, Boeseman (1976) expresses disagreement with various opinions about the taxonomy and systematics of Loricariinae sensu lato (including Harttiinae and Acestridiinae) as published previously by the present authors. However, he does not propose an alternative classification but accepts the one which he admits is erroneous. In due course we intend to publish the results of examination of all members of the Loricariinae. We believe that this will provide the necessary data to enable the evaluation of the characters, useful in discriminating between the various taxa.

For the time being, however, we should like to remark that, in our opinion, Boeseman's (loc. cit.) *Loricaria* (*Loricariichthys*?) *brunnea* Hancock, 1828 [sensu C. H. Eigenmann, 1912] actually represents *Rineloricaria fallax* (Steindachner, 1915), and that his *Loricaria* (*Loricariichthys*?) cf. *stewarti* C. H. Eigenmann, 1909 (not 1910) is a representative of the genus *Rineloricaria* sensu lato (including *Hemiloricaria*). C. H. Eigenmann (1912: 244—245, in key) referred both species to *Rineloricaria*, which taxon he considered as a subgenus of *Loricariichthys*, not of *Loricaria* as proposed by C. H. Eigenmann & R. S. Eigenmann (1889, 1890, 1891), Berg (1895), and Regan (1904).

Harttia nijsseni Boeseman, 1976 should, in our opinion, be placed into the genus *Metaloricaria* Isbrücker, 1975. *Metaloricaria paucidens* Isbrücker, 1975, and *Metaloricaria nijsseni* (Boeseman, 1976) are closely related to each other. They possess a peculiar lip shape and have a reduced number of teeth, which are much more prominent than those in the "comb-toothed" genera *Sturisoma* Swainson, 1838, *Lamontichthys* P. de Miranda Ribeiro, 1939, *Harttia* Steindachner, 1876, *Harttiella* Boeseman, 1971, and *Farlowella* C. H. Eigenmann & R. S. Eigenmann, 1889.

The present authors (1974: 68) have stated that *Parasturisoma* A. de Miranda Ribeiro, 1911, is a junior synonym of *Sturisoma* Swainson, 1838, not of *Harttia* Steindachner, 1876, as suggested by Boeseman (1976: 170). Isbrücker (1975: 9) referred *Parasturisoma maculata* Boeseman, 1971, to the genus *Harttia*, without discussing the generic position of the eight other species ascribed to *Parasturisoma* sensu Boeseman, 1971. This point will be commented upon in a forthcoming publication.

The subfamily name Harttiinae as proposed by Boeseman (1971) is superfluous if the genus *Farlowella* is to be retained within this taxon, since Fowler (1958: 14) already proposed the tribe Farlowellidi (type-genus *Farlowella*). Fowler indicates that his Farlowellidi is a substitute for Acestrini Bleeker, 1862, based on the generic junior homonym *Acestra* Kner, 1853. However, we propose to classify the genera within the Loricariinae into four tribes, as follows:

Subfamily LORICARIINAE Swainson, 1838
Tribe LORICARIINI Swainson, 1838
Loricaria Linnaeus, 1758
(*Fusiloricaria* Fowler, 1940 = *Loricaria*)
Ricola, new genus
Pseudohemiodon Bleeker, 1862
Rhadinoloricaria Isbrücker & Nijssen, 1974
Planiloricaria Isbrücker, 1971
Reganella C. H. Eigenmann, 1905
(substitutes *Hemiodon* Kner, 1853, preoccupied)
Rineloricaria Bleeker, 1862
(*Hemiloricaria* Bleeker, 1862 = *Rineloricaria*?)
Spatuloricaria Schultz, 1944
(*Euacanthagenys* Fowler, 1945 = *Spatuloricaria*)
Loricariichthys Bleeker, 1862
(*Parahemiodon* Bleeker, 1862 = *Loricariichthys*)
Pseudoloricaria Bleeker, 1862
Hemiodontichthys Bleeker, 1862
Tribe HARTTIINI Boeseman, 1971, new rank
Sturisoma Swainson, 1838
(*Oxyloricaria* Bleeker, 1862 = *Sturisoma*)
(*Parasturisoma* A. de Miranda Ribeiro, 1911 = *Sturisoma*)
Lamontichthys P. de Miranda Ribeiro, 1939
Harttia Steindachner, 1876
Harttiella Boeseman, 1971*)
Metaloricaria Isbrücker, 1975
Tribe FARLOWELLINI Fowler, 1958
Farlowella C. H. Eigenmann & R. S. Eigenmann, 1889
(substitutes *Acestra* Kner, 1853, preoccupied)
Tribe ACESTRIDIINI Isbrücker & Nijssen, 1974, new rank
Acestridium Haseman, 1911

*) It is useful to record — although it concerns a generic name not included in the subfamily Loricariinae — that several authors, including Boeseman (1971: 28) have overlooked that *Canthopomus* C. H. Eigenmann (1910: 404 and 407) is an objective junior synonym of *Pseudorinelepis* Bleeker (1862: 3; also 1863: 79), both having the same type-species: *Pseudorinelepis genibarbis* (Valenciennes, in Cuvier & Valenciennes, 1840), originally described and figured as *Rinelepis genibarbis* (Valenciennes, loc. cit.: 484—486 and: 357—359 in another edition, pl. 453). The taxonomic status of *Pseudorinelepis* is uncertain; see Gosline (1947: 108) under *Canthopomus* C. H. Eigenmann, and Boeseman (1971: 18), who noted that: "... *Canthopomus* may well prove to be a synonym of *Rhinelepis* Agassiz, 1829." *Canthopomus* "gen. nov." as proposed by C. H. Eigenmann & Allen (1942: 182—183), type-species, by original designation, *Rhinelepis agassizii* Steindachner, 1878, is a junior homonym, and therefore invalid.

Finally, Boeseman's (1976: 155) statement about several specimens pertaining to the group under consideration, collected in Surinam by Nijssen and ". . . withdrawn before I had the opportunity to compose the present review . . ." is incorrect, considering the unstated fact that Boeseman had all but four of the 449 of these Loricariinae from Surinam on loan from May 1970 until February 1976, the year in which his paper was published.

Several colleagues have been helpful in sending specimens in their care on loan or on exchange, and/or provided us with information. We would like to express our great appreciation of this cooperation to the following persons: Dr. J. E. Böhlke (ANSP), Dr. H. A. Britski (MZUSP), Dr. H. P. Castello (MACN), Dr. P. H. Greenwood (BMNH), Mr. G. J. Howes (BMNH), Mrs. S. Karnella (USNM), Dr. P. Kähsbauer (NMW), Dr. E. A. Lachner (USNM), Mr. W. G. Saul (ANSP), and Dr. P. J. P. Whitehead (BMNH). Mr. L. A. van der Laan (ZMA) made the photographic illustrations and Mr. J. Zaagman (ZMA) made the drawings in this publication.

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Abbreviations used

ANSP : Academy of Natural Sciences of Philadelphia, Philadelphia, Penn.
BMNH : British Museum (Natural History), London.
MACN : Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires.
MZUSP : Museu de Zoologia da Universidade de São Paulo, São Paulo.
NMW : Naturhistorisches Museum, Vienna.
USNM : National Museum of Natural History, formerly United States National Museum, Washington, D.C.
ZMA : Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam.
hl : head length
sl : standard length

Definitions of terms

abdominal length: taken between "spine" insertions of pelvic and anal fins; ratios expressed in hl, —

anal spine length: length of "spine" (or first "ray", which is always unbranched); ratios expressed in sl, —

axial length: from tip of snout to end of middle caudal fin rays; in mm to the nearest tenth, —

body depth at dorsal: taken just in front of dorsal fin "spine"; ratios expressed in hl, —

body width at anal: taken just in front of anal fin "spine"; ratios expressed in hl, —

body width at dorsal: taken just in front of dorsal fin "spine"; ratios expressed in hl, —

cleithral width: greatest cleithral width; ratios expressed in hl, —

coalescing scutes: number of those scutes bearing two posteriorly converging rows of distinct dermal denticles in longitudinal lateral series. First scute follows the cleithrum (ventral row of denticles); last counted scute is situated anterior to scute where dorsal and ventral rows meet and continue parallel posteriorly; left and right series are indicated separately, —

depth caudal peduncle: least depth; ratios expressed in hl, —

dorsal spine length: measured in the same way as the anal spine length; direct measurement, also when "spine" is more or less curved; ratios expressed in sl, —

first dorsal ray: greatest length of first branched dorsal fin ray; ratios expressed in sl, —

head depth: taken at tip of supraoccipital process; ratios expressed in hl, —

head length: from tip of snout to tip of supraoccipital process; ratios expressed in sl, —

head width: taken at the operculum, just anterior to pectoral "spine" insertion; ratios expressed in hl, —

interorbital width: least width, ignoring posterior orbital notch; ratios expressed in hl, —

lateral scutes: number of body scutes in longitudinal lateral series (including coalescing scutes); last scute is the middle triangular scute on caudal peduncle; left and right series are indicated separately. —

lower caudal spine: length of ventral "spine" or unbranched "ray", including filamentous extension if present; ratios expressed in sl, —

lower lip: median measurement, ignoring median notch if present, excluding subbarbels, flaps, or papillae along edge; ratios expressed in hl, —

lower lip barbels: a measurement of the longest subbarbels, sometimes the range of the shortest and the longest subbarbel; ratios expressed in hl, —

max. orbital diameter: the maximum distance within orbital rim, including posterior and, if present, anterior orbital notch; ratios expressed in hl, —

pectoral spine length: measured in the same way as the anal spine length; direct measurement of usually curved "spine"; ratios expressed in sl, —

pelvic spine length: as pectoral spine length; ratios expressed in sl, —

postanal length: from posterior base of last anal fin ray to base of middle triangular caudal scute; ratios expressed in sl, —

postdorsal length: from posterior base of last dorsal fin ray to base of middle triangular caudal scute; ratios expressed in sl, —

predorsal length: from tip of snout to posterior rim of predorsal shield; ratios expressed in sl, —

rictal barbel: taken at the height of anterior edge of upper jaws, or where these are supposed to be located; ratios expressed in hl,—

snout length: from tip of snout to anterior point of orbital rim; ratios expressed in hl, —
standard length: from tip of snout to base of middle triangular caudal scute; in mm to the nearest tenth, —
supra-cleithral width: transverse measurement of dorsal tip of cleithral process; ratios expressed in hl, —
teeth lower jaws: number of teeth in lower jaws; left and right series are indicated separately, —
teeth upper jaws: expressed in the same way as for lower jaws, —
thoracic length: taken between "spine" insertions of pectoral and pelvic fins; ratios expressed in hl, —
thoracic scutes: number of oblong scutes reaching dorsally the ventral edge of lateral body scutes, and present between "spine" insertions of pectoral and pelvic fins, —
total length: including filamentous caudal extension, if any; in mm to the nearest tenth, —
upper caudal spine: measured in the same way as lower caudal spine; ratios expressed in sl, —
ventrorostral length: ossified tip of vent of snout, anterior to origin of upper lip; ratios expressed in hl (measured in *Pseudohemiodon* species only), —
width caudal peduncle: taken at height of least depth, usually at second lateral body scute anterior to triangular caudal scute; ratios expressed in hl.

Fin ray counts

Except for an aberrant individual, all the specimens recorded in this paper have the usual fin ray counts for species of *Loricaria* (including *Ricola*) and *Pseudohemiodon*, which they share with species of the genera *Rhadinoloricaria*, *Planiloricaria*, *Reganella*, *Rineloricaria*, *Spatuloricaria*, *Loricariichthys*, *Pseudoloricaria*, and *Hemiodontichthys* (see Isbrücker & Nijssen, 1976: 121—122, table IV). An unbranched ray, or (not spiny) "spine" is indicated by a capital Roman numeral, to a branched ray which is split to its base, a lower case Roman numeral is added; ½ indicates a regenerated ray: dorsal fin I,6,i; anal fin I,4,i; pectoral fin I,6; pelvic fin I,5; and caudal fin I,10,I. One of the *Pseudohemiodon laticeps* in USNM 177212 (sl 220 mm) has the anal fin with I,4½,i rays.

Ricola new genus

Type-species: *Ricola macrops* (Regan, 1904)

Ricola is a monotypic genus of the tribe Loricariini, subfamily Loricariinae. It is very similar to the genus *Loricaria* Linnaeus, 1758 (type-species *Loricaria cataphracta* Linnaeus, 1758) in all external characters except for the structure of the barbels and the shape and number of the teeth.

Ricola has numerous long and short barbels and subbarbels on and along

upper and lower lips, as in *Loricaria*. In *Ricola* many of these barbels and subbarbels are further subdivided into minute branches, suggesting the shape of freshly grown fine roots of a plant. This barbel structure is peculiar not only among Loricariinae but also among Loricariidae; it is diagnostic for *Ricola*.

Ricola has up to 15 teeth in each of the upper jaws and up to 14 teeth in each of the lower jaws. The teeth in upper jaws are about twice as long as the teeth in lower jaws. They have a prominent inner lobe and a somewhat smaller outer lobe; both lobes have an acute tip in females and a somewhat broader and more roundish tip in males. The shape and number of the teeth resemble those of many species of the genus *Rineloricaria* Bleeker, 1862 (except for the relative size of teeth in upper and lower jaws, respectively) rather than that of any of the species of *Loricaria* and related genera (review in preparation). Pectoral fin spine somewhat thicker in males than in females.

The species we ascribe to *Loricaria* have the teeth in upper jaws also about twice as long as the teeth in lower jaws (with only one exception: the unique specimen of *Loricaria macrodon*, discussed under *Loricaria prolixa* below). Often there is a small outer lobe present, but specimens with all or some of the teeth simple are not rare. The inner lobe is usually oblong with a slightly acute or roundish tip in juveniles and females, often with a broader, rounded tip in males. In *Loricaria* there are usually three to four, rarely five, teeth in each of the upper jaws, and up to eleven in each of the lower jaws.

Etymology. — The generic name *Ricola* is an anagram of the Latin "lorica", meaning leather cuirass or corselet; we propose the gender to be feminine.

Ricola macrops (Regan, 1904)

(figs. 1—3; tables I—II)

Loricaria macrops Regan, 1904: 290—291, pl. 17 figs. 3, 3a (original description, based on two syntypes [BMNH 1868.9.16:2, BMNH 1855.9.19:1180]; type-locality: ". . . the R. de la Plata"; in distributional table on: 196; in key on: 273; in subgenus *Loricaria*), — C.H. Eigenmann, 1910: 414 (listed; in subgenus *Loricaria*; Rio de la Plata), — Gosline, 1945: 106 (listed; in subgenus *Loricaria*; Rio da Prata [sic]), — Fowler, 1954; 97, fig. 699 (references; figure from Green, in Regan, 1904; Rio de la Plata).

Loricaria (*Loricaria*) *macrops*; Ringuelet, Arámburu & Alonso de Arámburu, 1967: 402—403, pl 9 upper fig. (description; in key on: 400; figure from Green, in Regan, 1904; San Pedro (Bs As.), Punta Lara, and San Pedro; Río Paraná inferior, Río de la Plata; up to 263 mm).

In addition, Ringuelet *et al.* (1967: 402) list five records which we could not verify: Marelli (1924: 554, Río de la Plata), Mac Donagh (1938: 177, Río Paraná en San Pedro, Bs. As.), Pozzi (1945: 263, "Rio de la Plata"), Ringuelet & Arámburu (1957: 21, "Paraná-Plata", and 1962: 53, no locality given).

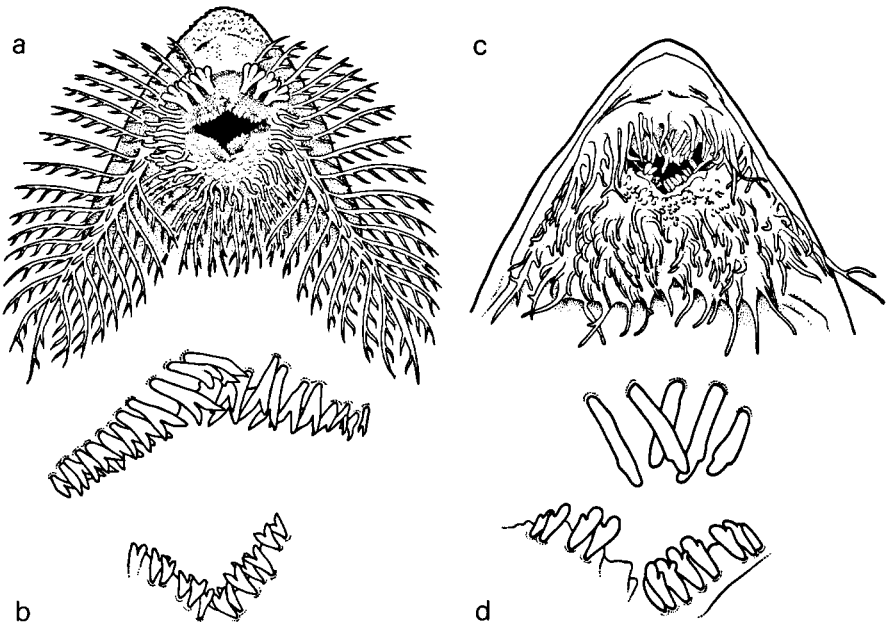

Fig. 1. Differences in lip structure (a and c) and in dentition (b and d) between *Ricola* and *Loricaria*. (a and b) *Ricola macrops*, ZMA 114.327, sl 185.2 mm, (c and d) *Loricaria cataphracta*, ZMA 109.616 (neotype), sl 292 mm (schematic, drawn to different scales).

Lectotype (by present designation): BMNH 1868.9.16:2, sl 177 mm, Argentina/Uruguay, Rio de la Plata, coll. Cunningham.
Paralectotype: BMNH 1855.9.19:1180, sl 219 mm, bad state, male, Argentina /Uruguay, Rio de la Plata, Haslar collection. Two specimens: MACN no register number, ZMA 114.327 (ex MACN), sl 139.1 and 185.2 mm, Argentina, Prov. Santa Fé, Río San Javier at Helvecia, 31°09′ S, 60°09′ W, Río Paraná system, coll. Bellisio, Estudio Ecológico del Río Paraná Medio.

Description. — Morphometric and meristic data are presented in tables I and II and are not repeated here.

In most of the morphological characters and in general appearance *Ricola macrops* resembles *Loricaria cataphracta* and related *Loricaria* species very much. The differences with the latter species are as follows: Snout more acute. Dermal denticles on dermal ossifications of head and body, fin spines, and rays more strongly developed, particularly those along the head and snout margin, and around the orbital rim. A pectoral pore could not be found.

Upper lip very narrow; a series of about five barbels at either side along the posterior edge of this lip, increasing in length towards the rictal barbel. Posterior to these series are three quite thick, deeply branched barbels

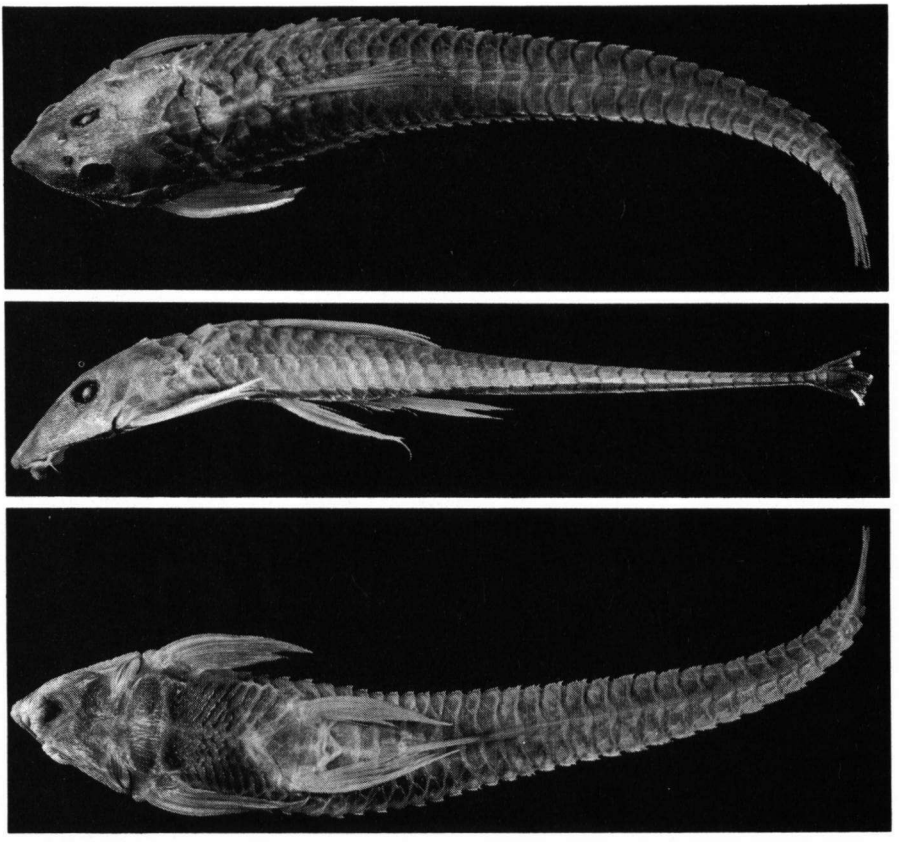

Fig. 2. ***Ricola macrops*****, lectotype in dorsal, lateral, and ventral view.**

present on the outer surface of upper jaws. Outer side of rictal barbels with a series of long barbels (actually the continuation of the series anterior to upper jaws), each barbel being provided with numerous small barblets in a linear series. Inner side of producing part of rictal barbels likewise with several long barbels with small barblets.

Lower lip narrow, the anterior half consisting of a thick, semicircular cushion-like structure. This structure bears irregular, very low papillae on the surface. The posterior part of the lower lip has numerous slender, simple papillae or subbarbels (like those in *Loricaria cataphracta*). Edge of lower lip with numerous long barbels, each provided ventrally with shorter, slender subbarbels. A short, thick, triangular papilla between upper and lower jaws. Three rather long papillae in the buccal cavity posterior to the upper jaws, one in the middle and one at either side.

The jaws, especially the upper jaws, are larger and far more conspicuous than in any *Loricaria* species. For a description of the teeth, see the generic diagnosis above.

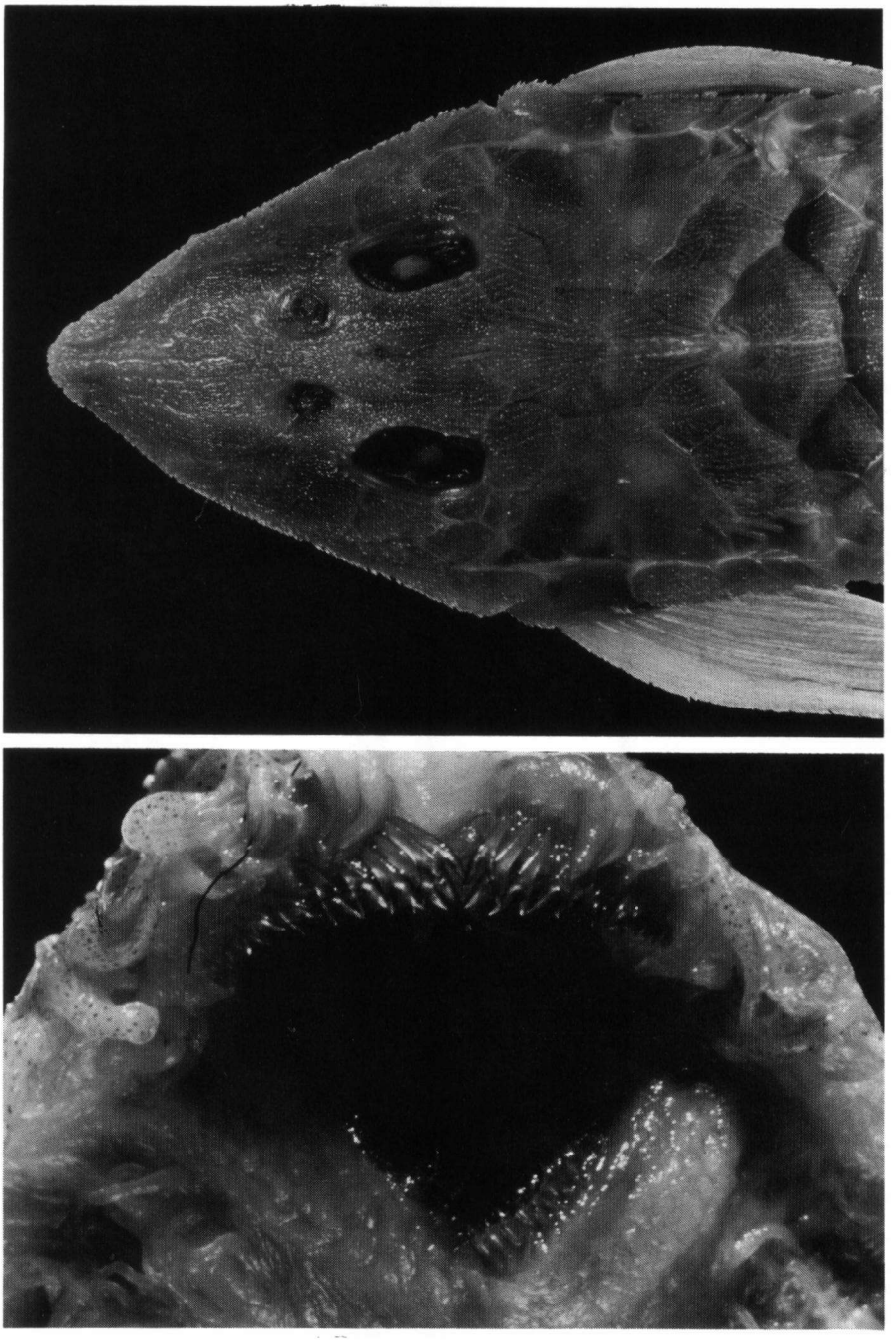

Fig. 3. *Ricola macrops*, top, detail of dorsum of head of lectotype; bottom, detail of dentition of lectotype.

Table I. Measurements in mm to the nearest tenth of (a) *Ricola macrops*, lectotype, (b) *Loricaria prolixa*, holotype, (c) *Loricaria macrodon*, holotype, (d) *Pseudohemiodon apithanos*, holotype, (e) *Pseudohemiodon laticeps*, lectotype.

specimen	a	b	c	d	e
standard length	177.0	295.0	268.0	136.4	189.7
axial length	-	322.0	-	152.9	210.5
total length	-	495.0	-	-	309.7
head length	39.5	62.9	60.7	36.5	44.1
predorsal length	56.9	90.5	86.6	47.3	62.5
postdorsal length	99.5	176.0	154.6	76.7	109.8
postanal length	88.8	143.6	129.0	63.2	90.9
dorsal spine length	>35.7	50.0	55.7	23.4	37.4
first dorsal ray	36.9	48.4	51.6	21.6	34.2
anal spine length	27.8	52.2	48.7	-	29.0
pectoral spine length	31.9	81.9	61.0	23.8	35.1
pelvic spine length	32.4	70.2	57.4	17.0	24.2
upper caudal spine	-	206.0	-	-	120.0
lower caudal spine	-	53.2	-	19.6	29.7
snout length	19.4	36.0	34.7	21.0	26.8
ventrorostral length	-	-	-	4.6	7.3
lower lip	4.6	±13.2	12.6	5.0	3.9
thoracic length	32.8	51.3	48.3	26.4	35.8
abdominal length	20.4	50.4	39.2	21.8	24.8
max. orbital diameter	7.9	7.6	9.1	6.0	6.1
interorbital width	6.9	11.1	11.1	5.3	7.4
cleithral width	29.2	63.1	53.0	34.2	42.9
supra-cleithral width	21.2	42.2	34.5	22.0	28.8
head width	26.0	59.0	50.0	34.4	43.8
head depth	14.4	22.5	22.1	11.1	14.8
body depth at dorsal	15.4	24.1	26.4	12.2	15.3
body width at dorsal	24.0	53.2	43.6	26.9	34.0
body width at anal	20.8	52.7	36.3	21.8	30.1
depth caudal peduncle	2.6	4.7	4.3	2.0	3.0
width caudal peduncle	6.1	14.1	12.4	3.7	5.5
rictal barbel	17.8	28.5	21.6	14.8	19.3
lower lip barbels	2.3	4.9	-	5.3	-

Tip of supraoccipital process slender and acute.
No flap on dorsal side of the iris.
Colour in alcohol (fig. 2). — Ground colour of ossified parts light yellowish tan, ground colour of unossified parts whitish. All fins with series of indefinite, widely distributed, small grey spots.

Discussion. — The range of morphometric and meristic characters (table II) of *Ricola macrops* agrees with that of those same characters occurring in the species recognized as representatives of the genus *Loricaria* sensu stricto.

Table II. Morphometric and meristic data of four specimens of *Ricola macrops*. (a) lectotype (b) paralectotype, (c) ZMA 114.327, (d) MACN no register number.

specimen	a	b	c	d
standard length	177.0	219.0	185.2	139.1
head length	4.5	4.6	4.7	4.6
predorsal length	3.1	3.2	3.3	3.3
postdorsal length	1.8	1.7	1.7	1.7
postanal length	2.0	2.0	2.0	1.9
dorsal spine length	<5.0	-	5.0	5.1
first dorsal ray	4.8	5.4	5.3	5.4
anal spine length	6.4	7.0	6.4	6.6
pectoral spine length	5.5	5.6	5.4	5.6
pelvic spine length	5.5	6.6	5.7	6.0
snout length	2.0	2.0	2.0	2.0
lower lip	8.6	±9.5	7.7	8.8
thoracic length	1.2	1.2	1.2	1.2
abdominal length	1.9	1.7	1.6	1.7
max. orbital diameter	5.0	5.5	5.0	4.9
interorbital width	5.7	5.6	5.5	5.7
cleithral width	1.4	1.4	1.3	1.3
supra-cleithral width	1.9	1.7	1.8	1.8
head width	1.5	1.4	1.4	1.4
head depth	2.7	2.6	2.8	2.6
body depth at dorsal	2.6	2.5	2.3	2.3
body width at dorsal	1.6	1.6	1.6	1.7
body width at anal	1.9	1.9	1.8	1.9
depth caudal peduncle	15.2	11.6	13.1	15.0
width caudal peduncle	6.5	6.3	6.4	6.4
rictal barbel	2.2	±2.8	2.6	2.6
lower lip barbels	17.1	±11.3	8.8	7.3
lateral scutes	37/38	38/39	37/37	37/37
coalescing scutes	23/23	23/23	23/23	23/23
thoracic scutes	9/10	9/9	9/11	9/9
teeth upper jaws	14/13	11/11	13/15	14/14
teeth lower jaws	14/13	12/12	12/12	*)

*) Difficult to count accurately.

Loricaria prolixa new species

(figs. 4a—5; tables I and III)

Loricaria macrodon (non Kner, 1854); A. de Miranda Ribeiro, 1918: 718—719 [see discussion below].

Holotype: NMW 45091, sl 295 mm, Brazil, Est. São Paulo, Rio Piracicaba, through River Tietê, Rio Paraná system [Piracicaba, 22°45′ S, 47°40′ W], coll. R. von Ihering. Four paratypes: NMW 45088, NMW 45089, ZMA

113.537 (ex NMW 45090), sl 234 to 346 mm, same data as holotype, and BMNH 1905.6.9:6, sl 345 mm, Brazil, Est. São Paulo, likely also collected in Rio Piracicaba, coll. R. von Ihering. Paratype: MZUSP 333, sl 306 mm, Brazil, Est. São Paulo, Piracicaba, coll. E. Garbe, exact date unknown, before 1919. Paratype: MZUSP 13186, sl 230.5 mm, Brazil, Est. São Paulo, Corumbataí on Rio Corumbataí, an affluent of the right bank of Rio Piracicaba, coll. H. A. Britski & A. E. C. Gomes, 2-XI-1963.

Not a type: MZUSP 13187, sl 266.5 mm, Brazil, Est. São Paulo, upper Rio Paraná basin, Rio Mogi-Guaçu, Emas, coll. U. Burheimer, VII-1973.

Not types: MZUSP 13188, 13189, 13190, three specimens, sl 255.5 to 292.5 mm, Brazil, Est. São Paulo, upper Rio Paraná basin, Represa de Volta Grande, Rio Grande, coll. H. A. Britski, 6/7-XI-1975.

Description. — Morphometric and meristic data are presented in tables I and III and are not repeated here.

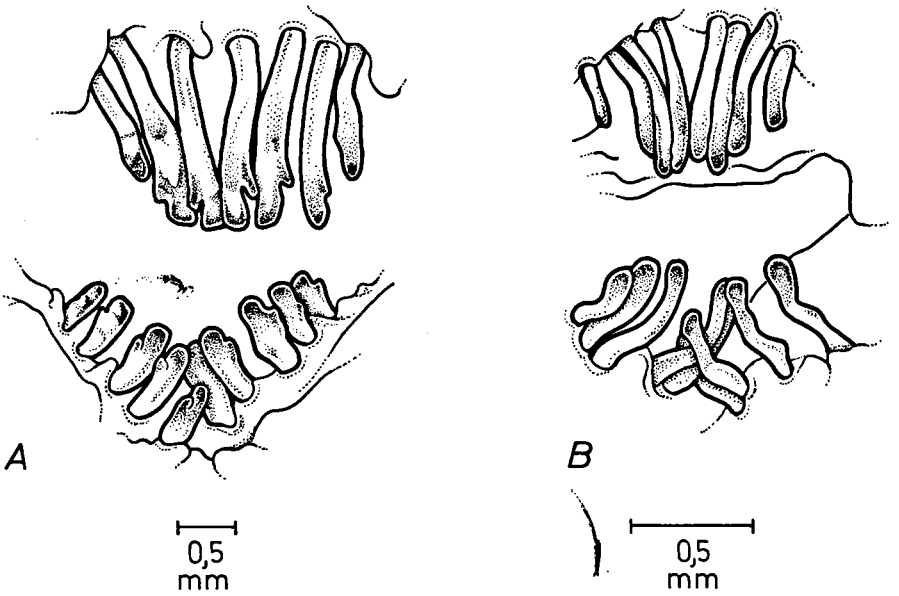

Fig. 4. Differences in dentition between (a) *Loricaria prolixa*, paratype, ZMA 113.537, sl 265 mm, and (b) *Loricaria macrodon*, holotype, sl 268 mm.

Anus surrounded by a relatively large, naked oval area, on which few minute roundish, isolated ossifications may occur. Abdomen covered with small to minute roundish ossifications, increasing in size and number with age. In a paratype of 265 mm sl the midventral area (reaching the thoracic scutes) is scarcely provided with such ossifications, leaving this area practically naked, whereas in the paratype of 345 mm sl the ossifications almost completely cover this area. The ossifications are small, roundish to

polygonal scutelets anterior to anus through about a transverse line at the height of posterior edge of last thoracic scute. In large specimens the abdominal ossifications reach to a vertical from origin of pectoral fin spine. Anterior to this area occurs a median, ill-defined concentration of minute, isolated ossifications, reaching to somewhat further than posterior edge of lower lip.

Ventral tip of snout naked. Ventral surface of head naked, except for a series of mostly square-like marginal scutes.

Minute dermal denticles are present on all dermal ossifications, fin spines, and rays. These denticles are prominent on dorsoanterior part of orbital rim, along edge of operculum and on ventroposterior part of preoperculum. The denticles form a conspicuous ridge on tip of supraoccipital process, and a ridge at either side of the supraoccipital process on the three subsequent predorsal scutes. A small ridge of denticles is present on the single predorsal

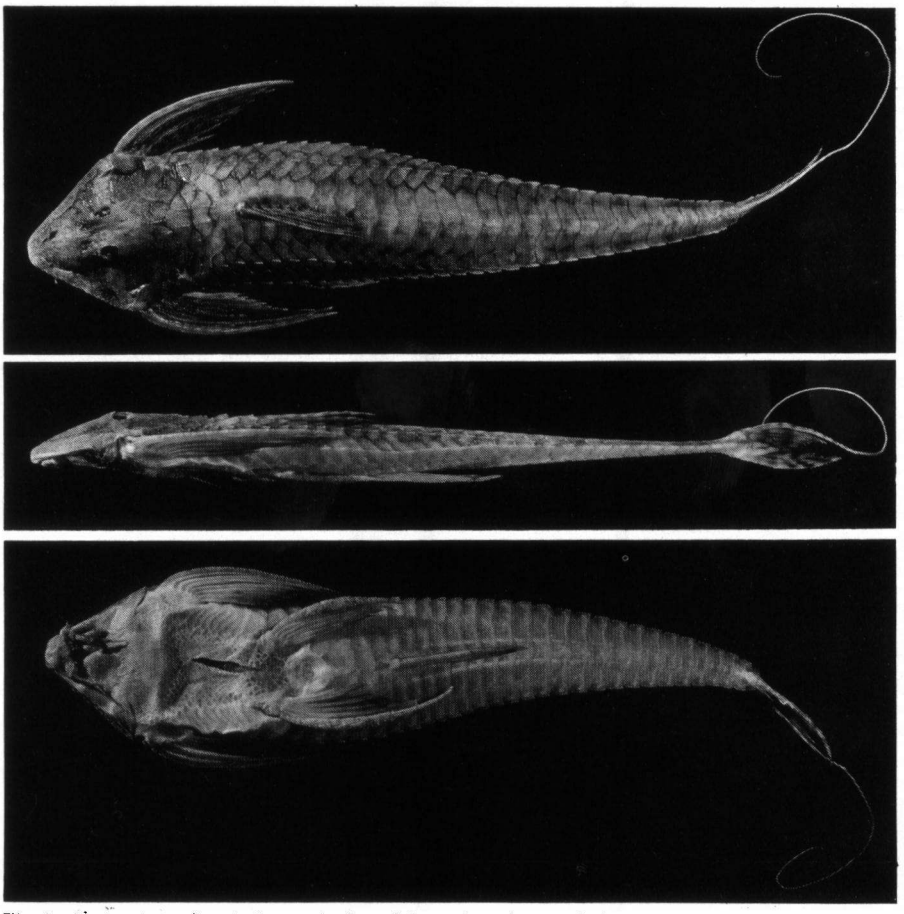

Fig. 5. *Loricaria prolixa*, holotype in dorsal, lateral, and ventral view.

Table III. Morphometric and meristic data of (a-e) five specimens of *Loricaria prolixa* and of (f) the holotype of *Loricaria macrodon*. (a) holotype, (b) NMW 45088, (c) BMNH 1905.6.9:6, (d) ZMA 113.537, (e) NMW 45089.

specimen	a	b	c	d	e	f
standard length	295.0	346.0	345.0	265.0	234.0	268.0
axial length	322.0	375.0	377.0	286.0	254.0	-
total length	495.0	>403.0	>395.0	>310.0	>312.0	-
head length	4.7	4.7	4.8	4.6	4.5	4.4
predorsal length	3.3	3.2	3.1	3.1	3.1	3.1
postdorsal length	1.7	-	1.7	1.7	1.7	1.7
postanal length	2.1	2.1	2.1	2.1	2.1	2.1
dorsal spine length	5.9	6.0	-	6.0	5.9	4.8
first dorsal ray	6.1	6.6	-	6.3	6.2	5.2
anal spine length	5.7	5.7	5.6	5.8	5.5	5.5
pectoral spine length	3.6	3.8	3.5	3.9	3.8	4.4
pelvic spine length	4.2	4.2	4.5	4.6	3.9	4.7
upper caudal spine	1.4	<5.9	<7.1	<7.2	<2.9	-
lower caudal spine	5.5	6.0	<6.5	5.6	5.3	-
snout length	1.7	1.7	1.7	1.8	1.7	1.7
lower lip	±4.8	4.3	5.1	4.7	4.7	4.8
thoracic length	1.2	1.2	1.2	1.3	1.3	1.3
abdominal length	1.2	1.3	1.2	1.2	1.3	1.5
max. orbital diameter	8.3	9.0	9.1	8.3	6.9	6.7
interorbital width	5.6	5.1	5.2	5.4	5.8	5.5
cleithral width	1.0	1.0	1.0	1.0	1.0	1.1
supra-cleithral width	1.5	1.5	1.5	1.5	1.6	1.8
head width	1.1	1.0	1.1	1.1	1.1	1.2
head depth	2.8	2.6	2.4	2.9	2.8	2.7
body depth at dorsal	2.6	-	2.3	2.7	2.6	2.3
body width at dorsal	1.2	-	1.1	1.3	1.3	1.4
body width at anal	1.2	-	1.1	1.4	1.4	1.7
depth caudal peduncle	13.4	13.6	13.2	14.0	14.4	14.1
width caudal peduncle	4.5	4.3	3.6	4.7	5.1	4.9
rictal barbel	2.2	2.3	2.3	2.3	2.5	2.8
lower lip barbels	12.8	10.5	9.8	8.3	8.6	-
lateral scutes	36/35	36/36	36/36	37/36	36/35	36/36
coalescing scutes	22/21	21/21	23/23	22/21	23/21	21/21
thoracic scutes	9/9	9/8	8/8	9/9	7/6	8/9
teeth upper jaws	2/3	3/3	2/3	4/3	2/2	5/4
teeth lower jaws	8/5	5/5	3/6	6/6	6/5	4/5

plate, just anterior to origin of dorsal fin spine. Prominent denticles are also present in two longitudinal rows along coalescing and parallel lateral body scutes.

Orbital rim circular, without posterior or anterior notches.

Pectoral pore absent. Simple pores are present on dorsum of head, as short

curved or long straight canals, usually between fusions of some of the dermal ossifications. Bifurcated pores are visible between denticle rows along coalescing and parallel lateral body scutes.

Upper lip narrow, the margin to base of rictal barbels provided with a series of about 24 rather long and thick subbarbels, some of which are deeply bifurcated. A large number of similar, mostly simple, subbarbels are present in the area posterior to edge of upper lip at either side of upper jaws, reaching to base of rictal barbels. The subbarbels continue along and on ventral surface of rictal barbels, rapidly decreasing in size towards the direction of producing part of rictal barbels. Surface of lower lip with a large series of long, slender papillae, except for a narrow area running along rictal barbels. Edge of lower lip with about 26 rather long, slender papillae, or subbarbels.

Surface of upper jaws consists of a series of about four axial fleshy lamellae, well separated from each other and apparently allowing replacement teeth to elevate in position from the bottom of the jaw. Posterior surface of these lamellae provided with small and low papillae. Anterior surface (posterior to origin of functional teeth) provided with one rather prominent acute papilla, about half the length of the teeth. Between both upper jaws the surface is similarly papillose, bearing three prominent acute papillae. Three rather small and slender papillae in the buccal cavity, just posterior to inner edge of upper jaws, quite close to each other in a transverse series.

Teeth in upper jaws about twice as long as in lower jaws. Each tooth has a minute outer lobe and a prominent inner lobe. Teeth in upper jaws with a more or less obtuse tip, those in lower jaws with rounded tips.

Tip of supraoccipital process roundish. Eye dorsally covered with a narrow pigmented flap of skin; iris with a small dorsal flap.

Colour in alcohol (fig. 5). — Ground colour of dorsum of body and head greyish tan. Ground colour of ventrum of body and head pale tan. Unossified parts whitish.

A faint, darker grey transverse band in front of eyes through nostrils. An ill-pigmented, light area as broad as orbital diameter posterior to this grey band, medianly extending to about tip of supraoccipital process. An irregular series of small roundish dark brown spots (about half the size of eye) on posterior dorsum of head and on dorsum of body, the latter spots tending to be arranged into a row on either half of middorsal scutes, and some irregular small dark brown spots all over dorsum of body.

Dorsal fin with small roundish dark brown spots, mostly confined to or close to rays and arranged into about four oblique series. Caudal fin with prominent dark brown pigmentation forming spots which are arranged into three or four irregular vertical bars. Anal fin with some faint dark brown stains on posterior half of first two rays.

Dorsum of pelvic fin spine with eight to ten prominent dark brown square-

like, oval, and/or roundish spots; dorsum of rays and membrane irregularly spotted with smaller concentrations of dark brown pigment. Dorsum of pectoral fin spine, rays, and membrane with numerous irregular dark brown spots, which may become very obscure in larger specimens, causing a much more plain brownish colour.

Etymology. — The specific name *prolixa* is from the Latin "prolixus" meaning stretched out, long, and refers to the long and flat-robust body shape.

Discussion. — Five specimens on which we base *Loricaria prolixa* were found during visits to the collections of BMNH and NMW, where they had been identified as *Loricaria macrodon*. We do not know who is responsible for these identifications. It is not unlikely that they were identified by their collector, Dr R. von Ihering (who in 1907 described *Loricaria piracicabae* as a new species from the same locality as *Loricaria prolixa*). However, the specimens were obviously accepted as representatives of *Loricaria macrodon* by both Regan and Steindachner, and it is possible that material in other collections identified as *Loricaria macrodon* Kner, 1854 (which is unique among its congeners by its type of dentition) also represents *Loricaria prolixa*.

The only author who actually listed additional material (subsequent to the original description) as *Loricaria macrodon* is A. de Miranda Ribeiro (1918: 718—719), who wrote: „Nome vulgar *Cascudo-Espada* — 1 Exemplar, n. 7 E. de S. Paulo. Determinado *L. macrodon* e *L. macrochir*. Rud. & Eigenm. 2 exemplares (n. 333) de Piracicaba, determinados *Lor. macrochir*. 1 exemplar do Rio Mogy-Guaçú, de Pirassununga n. 998—1907. Coll. et det. R. Iher."

Loricaria macrochir is a *nomen nudum*, published without description and, moreover, as a junior synonym. R. von Ihering was right in recognizing this material as a new species, as it represents our *Loricaria prolixa*. *Macrochir* means a long or a large hand, and *Loricaria prolixa* differs from *Loricaria macrodon* in, among other characters, possessing larger pectoral fins.

Just after the manuscript of this publication was sent to the editorial board, we received six additional specimens of *Loricaria prolixa* through the kindness of Dr H. A. Britski. Among these is one of the specimens recorded as *Loricaria macrodon* by A. de Miranda Ribeiro (1918).

The specimen in MZUSP 333 is completely devoid of pigmentation at present. It differs somewhat in morphometric and meristic details from the paratypes represented in Table IIIa-e, as follows: postanal length 2.0, anal spine length 5.9, lower lip 3.9, max. orbital diameter 9.2, depth caudal peduncle 13.1, width caudal peduncle 5.6, rictal barbel 2.8, lateral scutes 35/35, coalescing scutes 21/20, and teeth lower jaws 9/6.

The specimen in MZUSP 13186 is the smallest known specimen of *Loricaria prolixa*. It agrees completely with the other specimens from Rio Piracicaba in colour pattern. The following differences in morphometric characters may be recorded: head length 4.3, anal spine length 6.1, pectoral

spine length 4.1, lower caudal spine 8.4, lower lip 3.9, thoracic length 1.4, abdominal length 1.4, cleithral width 1.1, depth caudal peduncle 15.8, width caudal peduncle 5.9, and lower lip barbels up to 11.7. It has 35/35 lateral scutes.

The remaining four specimens are not designated paratypes because of the presence of numerous distinct spots on dorsum of head, absent in the type-specimens. It is possible that these four specimens represent a distinct subspecies, a matter which needs more consideration than we are able to present now.

Superficially *Loricaria prolixa* resembles *Loricaria macrodon* Kner, 1854. *Loricaria macrodon* was originally described and figured from the holotype (NMW 45087) from the "... Cujabaflusse." (Kner, 1854: 79—80, pl. 1 figs. 3a-d, pl. 2 figs. 1—3, in synopsis on: 76). Rio Cuiabá is situated in Brazil, Est. Mato Grosso, upper Rio Paraguay system, Rio Paraná drainage (Cuiabá, 15°32′ S, 56°05′ W). We examined the unique holotype of *Loricaria macrodon* and we have included its morphometric and meristic data in tables I and III for comparison. The holotype of *Loricaria macrodon* differs from the five specimens of *Loricaria prolixa* in relative dimensions of head length, dorsal spine length, first dorsal ray, pectoral spine length, pelvic spine length, abdominal length, maximum orbital diameter, cleithral width, supra-cleithral width, head width, body width at dorsal, body width at anal, and of rictal barbel. In the left upper jaw of the holotype of *Loricaria macrodon* there are five teeth, whereas the highest number of upper jaw teeth in *Loricaria prolixa* is four. Besides these small differences, *Loricaria prolixa* differs from *Loricaria macrodon* greatly in relative length of the teeth in lower jaws. In *Loricaria macrodon* these are as long as the teeth in upper jaws, which is contrary to the condition in all other species of *Loricaria*, including *Loricaria prolixa*. In addition, *Loricaria macrodon* has a much more rounded head as viewed from above or below, whereas the head shape of *Loricaria prolixa* looks more or less triangular, and is stouter than in *Loricaria macrodon*.

Loricaria prolixa is reminiscent of *Loricaria lata* C. H. Eigenmann & R. S. Eigenmann, 1889, both having a quite depressed head and body. We compared *Loricaria prolixa* directly with the six type-specimens of *Loricaria lata* described and figured by Isbrücker (1972: 171, 179—183, 187, figs. 9—10, 12k-m, table I), the lectotype and five paralectotypes from the type-locality: Brazil, Est. Goiás, Rio Araguaia drainage, upper course of Rio Vermelho at Goiás, 15°57′ S, 50°07′ W. These six specimens were remeasured and recounted, because of some improvements of the procedure previously employed (1972), and the following morphometric characters were found to differ from *Loricaria prolixa*: sl 165 to 267 mm (sl *L. prolixa* is 234 to 346 mm), dorsal spine length 5.1 to <5.3 in sl (5.9 to 6.0 in *L. prolixa*), first dorsal ray 5.2 to 5.3 in sl (6.1 to 6.6 in *L. prolixa*), pectoral spine length 4.9 to <5.2 in sl (3.5 to 3.9 in *L. prolixa*), pelvic spine length 5.6 to 6.2 in sl (3.9 to 4.6 in *L. prolixa*), maximum orbital diameter 5.0 to 6.5 in hl (6.9 to 9.1 in *L. prolixa*),

cleithral width 1.1 to 1.2 in hl (1.0 in *L. prolixa*), head width 1.2 to 1.3 in hl (1.0 to 1.1 in *L. prolixa*), and width caudal peduncle 5.2 to 5.7 in hl (3.6 to 5.1 in *L. prolixa*).

In a few other characters there is some overlap in the range of the following ratios: anal spine length is 5.7 to < 6.3 in sl in *L. lata* against 5.5 to 5.8 in *L. prolixa*, snout length is 1.8 to 1.9 in hl against 1.7 to 1.8, abdominal length is 1.3 to 1.4 in hl against 1.2 to 1.3, body width at dorsal is 1.2 to 1.4 in hl against 1.1 to 1.3, and body width at anal is 1.4 to 1.7 in hl against 1.1 to 1.4.

Loricaria lata has 34 to 35 lateral scutes against 35 to 37 in *Loricaria prolixa*. The abdomen is completely covered with small dermal ossifications even in the smallest known specimen of *Loricaria lata* (sl 165 mm), whereas in *Loricaria prolixa* such ossifications almost completely cover the abdomen in very large specimens (345 and 346 mm) only. Finally, the colour pattern present in *Loricaria prolixa* is not known to be present in *Loricaria lata*.

Additional paratype of *Loricaria prolixa*: MZUSP 13394, sl 344 mm, Brazil, Est. Paraná, Rio Paraná at Guaíra, 24°05′ S, 54°15′ W, coll. CETESB, VII/VIII-1977.

Snout more acute than in the other seven paratypes, the margin slightly concave. Dorsum of body just posterior to base of dorsal fin spine with a double longitudinal series of comparatively large (up to 7.5 mm) greyish brown spots, continuing to the height of about the 23d lateral scute. Unpigmented areas on dorsal and caudal fin, and on dorsum of pectoral fin spine with a reddish brown hue. Transverse blackish band about supraoccipital process contains some irregular black markings.

Axial length 373.4 mm, total length > 453 mm, head length 4.4, dorsal spine length 6.5, first dorsal ray 5.9, anal spine length 6.2, pectoral spine length 4.0, pelvic spine length 5.6, max. orbital diameter 7.9, body depth at dorsal 2.8, width caudal peduncle 5.9, rictal barbel 2.1, lower lip barbels 6.1, lateral scutes 34/36, coalescing scutes 19/20, thoracic scutes 10/9. In all other characters this specimen agrees with the other paratypes.

Pseudohemiodon apithanos new species

(figs. 6—8; tables I and IV)

Loricaria cf. *laticeps* (non Regan, 1904); Saul, 1975: 119, table II: 129 (ecological observations on nine specimens [ANSP 130592, ANSP 130593, KU 13784, ANSP 134370, ZMA 114.692] from Río Conejo, upper Amazonian Ecuador; also a general ecological remark on: 124, notes on locality on: 94, figs. 1—2).

Holotype: ANSP 134370 (ex ANSP 130592), sl 136.4 mm; — six paratypes: ANSP 130592 (two), ZMA 114.692 (ex ANSP 130592), ANSP 130593 (three), sl 100 to 145 mm, all from: Ecuador, Prov. Napo, Río Conejo, a tributary of Río San Miguel, vicinity of Santa Cecilia, 00°06′ N, 76°51′ W, upper Río Amazonas system, coll. W. G. Saul, 1967/1968.

There are two more specimens recorded as *Loricaria* cf. *laticeps* from this locality by Saul, deposited in the Museum of Natural History of the University of Kansas, Lawrence, U.S.A., register number KU 13784; our request to examine these specimens was not granted.

Description. — Morphometric and meristic data are presented in tables I and IV and are not repeated here.

Anus surrounded by a small oval naked area. Abdomen completely covered with scutes. A firm plate anterior to anus consists posteriorly of two large, medially fused scutes, centrally of many small polygonal scutes, and anteriorly of the posterior pair of thoracic scutes. Anterior to this plate a rather irregular pattern of scutes is present between the thoracic scutes, decreasing in size anteriorly. In this pattern are three scutes in a transverse series posteriorly and eight or nine anteriorly, continuing almost through the

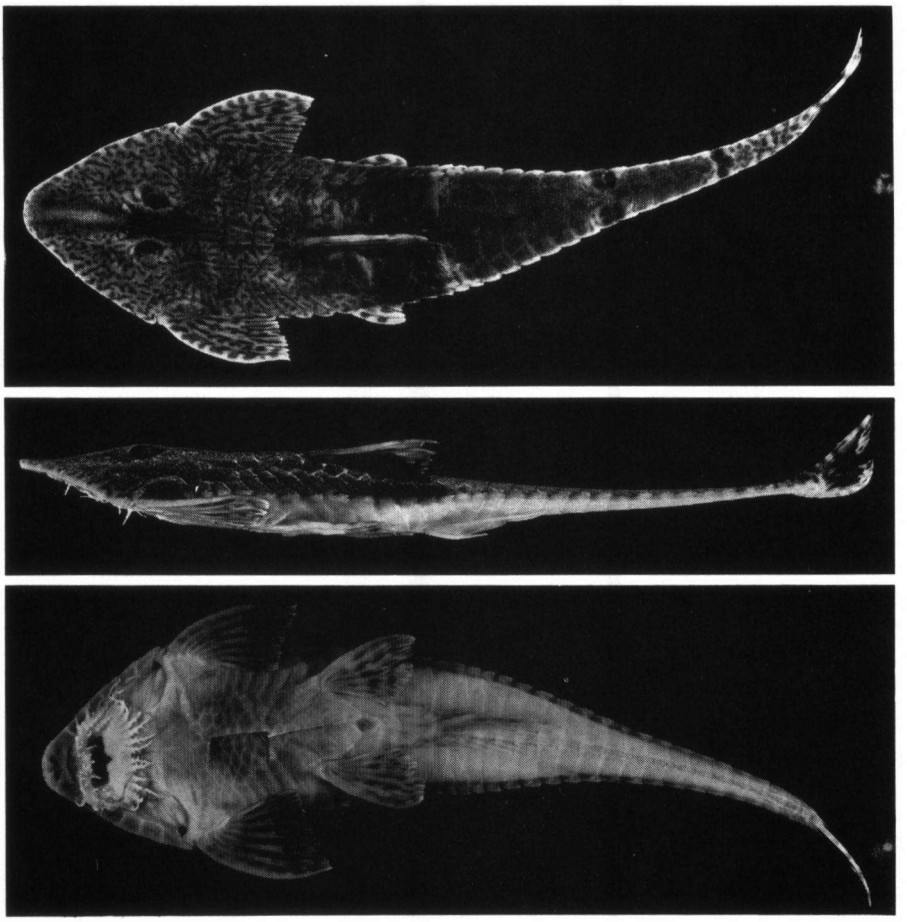

Fig. 6. *Pseudohemiodon apithanos*, holotype in dorsal, lateral, and ventral view.

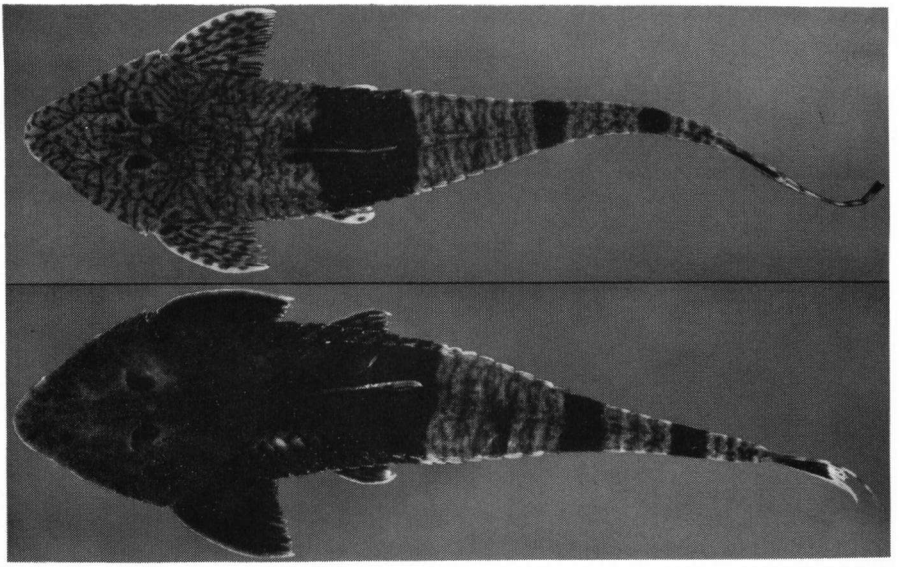

Fig. 7. *Pseudohemiodon apithanos*, top, paratype, ZMA 114.692, sl 108.3 mm; bottom, paratype, ANSP 130593, sl 114.6 mm, in dorsal view, showing differences in colour pattern.

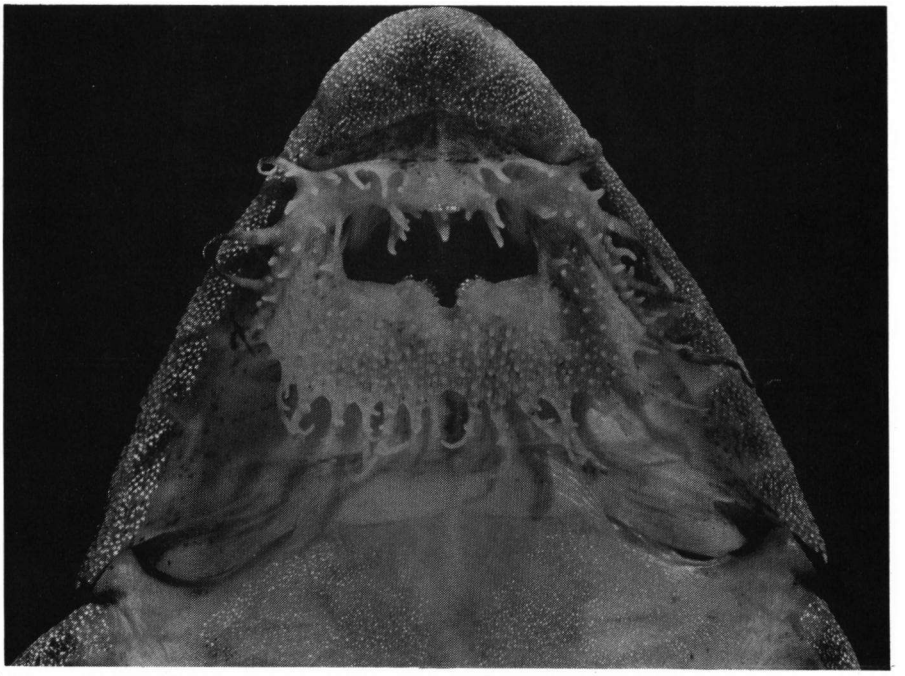

Fig. 8. *Pseudohemiodon apithanos*, paratype, ANSP 130593, sl 114.6 mm, showing details of lip structure and dentition.

Table IV. Morphometric and meristic data of seven specimens of *Pseudohemiodon apithanos*. (a) holotype, (b and g) ANSP 130592, (c, d, and e) ANSP 130593, (f) ZMA 114.692.

specimen	a	b	c	d	e	f	g
standard length	136.4	145.0	121.9	114.6	114.0	108.3	100.0
axial length	152.9	162.0	136.5	128.7	127.5	120.3	110.9
total length	-	-	-	>141.3	-	>146.9	>139.7
head length	3.7	3.8	3.7	3.6	3.8	3.7	3.7
predorsal length	2.9	2.8	2.8	2.7	2.8	2.8	2.8
postdorsal length	1.8	1.8	1.8	1.8	1.8	1.8	1.8
postanal length	2.2	2.2	2.2	2.2	2.2	2.2	2.2
dorsal spine length	5.8	5.9	6.1	5.6	5.7	5.8	5.9
first dorsal ray	6.3	6.5	6.5	5.9	6.2	6.4	6.5
anal spine length	-	6.8	6.8	6.3	6.8	6.5	6.7
pectoral spine length	5.7	5.8	5.8	5.4	5.6	5.7	6.0
pelvic spine length	8.0	7.7	8.5	7.3	7.9	7.6	8.1
upper caudal spine	-	-	-	<4.3	<7.1	<2.8	<2.5
lower caudal spine	7.0	7.4	6.6	6.6	7.1	6.9	7.3
snout length	1.7	1.8	1.8	1.7	1.7	1.8	1.8
ventrorostral length	7.9	7.9	8.7	7.9	8.2	8.2	9.3
lower lip	7.3	7.6	7.7	10.6	8.4	7.8	7.9
thoracic length	1.4	1.3	1.4	1.4	1.4	1.4	1.4
abdominal length	1.7	1.7	1.7	1.8	1.8	1.9	1.7
max. orbital diameter	6.1	6.1	5.2	5.8	5.6	5.8	5.5
interorbital width	6.9	7.0	6.7	6.5	6.6	6.6	6.3
cleithral width	1.1	1.0	1.1	1.1	1.1	1.1	1.1
supra-cleithral width	1.7	1.7	1.7	1.7	1.8	1.7	1.8
head width	1.1	1.0	1.0	1.1	1.1	1.0	1.1
head depth	3.3	3.2	3.2	3.2	3.3	3.4	3.2
body depth at dorsal	3.0	3.0	3.0	3.1	3.0	3.1	3.0
body width at dorsal	1.4	1.3	1.4	1.4	1.4	1.4	1.4
body width at anal	1.7	1.6	1.7	1.7	1.8	1.8	1.8
depth caudal peduncle	18.3	18.9	19.4	18.6	17.9	19.7	19.3
width caudal peduncle	9.9	10.2	10.0	9.6	8.9	10.2	10.4
rictal barbel	2.5	2.5	2.5	2.2	2.3	2.8	2.5
lower lip barbels	6.9	6.3	7.0	6.3	6.8	7.2	6.4
lateral scutes	32/32	32/32	32/32	32/32	32/32	32/32	32/32
coalescing scutes	14/14	14/15	14/14	15/14	14/14	14/14	15/14
thoracic scutes	6/6	7/6	6/7	5/5	6/5	6/5	5/6
teeth upper jaws	5/6	5/6	4/5	4/4	5/3	4/4	4/5
teeth lower jaws	7/9	5/8	9/8	8/8	7/7	7/8	7/7

height of the branchiostegal membrane. A narrow naked median notch reaches to about the height of the origin of first pectoral fin ray.

Ventral surface of head naked, except for a series of mainly square-like marginal scutes.

On all dermal ossifications, fin spines, and rays, quite weak dermal

denticles are present. They form two weak, longitudinal ridges along the tip of the supraoccipital process, on the two subsequent predorsal scutes, and one longitudinal ridge is present on the five anterior dorsolateral body scutes. The denticles are more prominent in two rows along coalescing and parallel lateral body scutes.

A shallow, rather inconspicuous, posterior orbital notch is present.

We are unable to locate a pectoral pore. A small number of very poorly developed pores is widely distributed on dorsum of head, in a small naked area dorsal to first lateral body scute, and between denticle ridges along the lateral body scutes.

Upper lip very narrow, the anterior edge with three widely separated, rather short, simple subbarbels. About four longer, simple subbarbels along outer edge of rictal barbel. An elongate papilla between two subbarbels is usually present. Two elongate papillae on inner surface of upper lip, posterior to subbarbels. Ventral surface and inner edge of rictal barbels with elongate papillae.

Lower lip rather narrow, the surface covered with numerous minute papillae. Edge with about twelve long barbels, each with lateral series of elongate papillae.

On three positions in the buccal cavity near the upper jaws (just posteriorly to the middle of the upper jaws, and at either side of this pair) originate two long, simple, barbel-like papillae, of which the anterior one is shorter than the posterior papilla. Between these three pairs of papillae, two pairs of much shorter papillae are present. In both upper and lower jaws the "gums", posterior to the teeth, are covered with a small patch of papillae, about as thick as the teeth and little shorter.

Teeth somewhat smaller in upper jaws than in lower jaws. Each tooth with a small outer and a rather large inner lobe, both with rounded, spoonshaped tips.

Eye dorsally covered with a narrow, pigmented flap of skin, the iris with a conspicuous dorsal flap.

Colour in alcohol. — General: Ground colour of dorsum of head and body pale tan. Dorsal fin rays and membrane with heavy, dark brown pigment forming a solid blotch, leaving an unpigmented triangle in upper part of the fin. Caudal fin rays and membrane between dorsal- and ventralmost ray with a dark brown blotch (similar to the one on the dorsal fin) from near the base through about three-quarters the length of the rays. Anal fin unpigmented. Ventrum of body very pale tan with a variable amount of brownish pigment opposite to the first transverse stripe on dorsum. All specimens have principally three transverse dark brown stripes on dorsum of body, the first one near to dorsal fin base being quite broad.

Holotype (fig. 6): Dorsum of head, pectoral and pelvic fins, and dorsum of body somewhat anterior to origin of dorsal fin spine with a large number of irregular, medium brown spots and narrow lines, giving a variegated appearance. Dorsum of caudal peduncle (between posterior edge of last

Table V. Morphometric and meristic data of ten specimens of *Pseudohemiodon laticeps*. (a) lectotype, (b) paralectotype, (c) NMW 44950, 44955, 44956, ZMA 113.725, (d) ZMA 114.328, MACN no register number, (e) USNM 177212.

specimen(s)	a	b	c	d	e
standard length	189.7	185.0	184.0-198.0	66.3- 87.8	200.5-220.0
axial length	210.5	±203.0	up to 210.0	73.5- 97.2	223.0-244.0
total length	>309.7	>206.0	up to 453.0	>189.2-278.8	-
head length	4.3	4.5	3.9-4.5	4.3	4.1
predorsal length	3.0	3.1	2.8-3.1	3.1-3.2	2.9
postdorsal length	1.7	1.7	1.7-1.8	1.7-1.8	1.8
postanal length	2.1	2.0	2.1-2.2	2.0	2.2
dorsal spine length	5.1	5.8	5.4-6.2	5.2-6.0	5.9-6.1
first dorsal ray	5.5	6.2	5.7-6.5	5.4-6.3	6.4-6.5
anal spine length	6.5	<7.0	6.9-8.1	7.4-7.5	6.3*
pectoral spine length	5.4	6.1	5.4-6.3	5.6-5.8	5.6-5.7
pelvic spine length	7.8	8.5	7.8-9.0	7.1-7.8	7.2-7.6
upper caudal spine	<1.6	-	0.7*	0.5	-
lower caudal spine	<6.4	-	6.4*	6.9-7.0	-
snout length	1.6	1.7	1.7	1.8	1.8
ventrorostral length	6.0	6.8	6.4-7.0	8.5-12.8	8.2-9.1
lower lip	11.3	7.6	10.3-11.5	6.4-12.0	7.8-9.3
thoracic length	1.2	1.2	1.2-1.4	1.3-1.4	1.1-1.2
abdominal length	1.8	1.6	1.5-1.6	1.8	1.4
max. orbital diameter	7.2	6.9	7.1-7.4	7.0-7.3	6.6-6.8
interorbital width	6.0	6.1	6.0-6.3	5.0-5.4	6.4-6.6
cleithral width	1.0	1.0	1.0	1.2	0.9-1.0
supra-cleithral width	1.5	1.5	1.5	1.8	1.5
head width	1.0	0.9	1.0	1.1-1.2	0.9
head depth	3.0	3.2	3.1-3.7	3.2	2.9
body depth at dorsal	2.9	2.8	2.7-3.4	2.9	2.6
body width at dorsal	1.3	1.3	1.3	1.6-1.7	1.1-1.2
body width at anal	1.5	1.5	1.4-1.6	1.9-2.1	1.4
depth caudal peduncle	14.7	14.6	15.4-17.0	15.4-15.7	15.6-16.3
width caudal peduncle	8.0	7.4	6.7-7.4	9.7-11.0	8.3-8.4
rictal barbel	2.3	±2.3	1.9-2.3	1.5-2.2	1.9-2.0
lower lip barbels	-	7.3	6.6-6.8	7.7-8.2	6.1-7.9
lateral scutes	33/33	34/34	33-34/33-34	34/34	32-33/32-33
coalescing scutes	15/15	14/14	15-16/14-16	15/15-16	15/15
thoracic scutes	6/8	6/6	6-7/5-7	6-8/6	6-7/7
teeth upper jaws	3/4	5/5	5-8/3-9	2-3/2-3	5-6/5
teeth lower jaws	8/3	9/11	8-10/8-11	6/6-8	6-9/7-8

*) In a single specimen.

transverse dark brown stripe and base of caudal fin) with a diffuse, brown and pale tan pattern. A narrow, median, reddish brown streak runs forward from about tip of supraoccipital process between eyes through tip of snout.

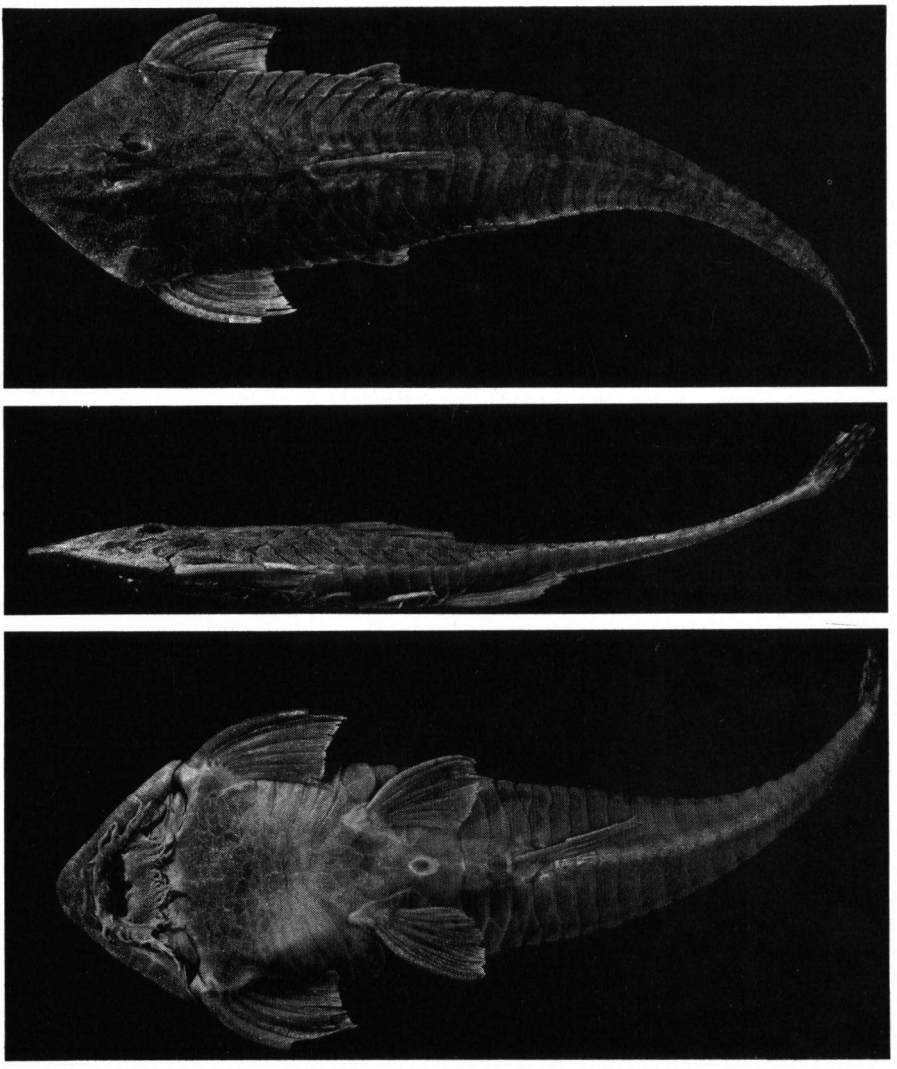

Fig. 9. *Pseudohemiodon laticeps*, USNM 177212, sl 200.5 mm, from Ecuador, in dorsal, lateral, and ventral view.

This streak is of a much duller colour tone in the middle from about the nostrils through near tip of snout. A reddish brown blotch (from the predorsal scute to the dorsalmost ridge of dermal denticles) covers the area around base of dorsal fin, almost reaching the first dark brown stripe. This blotch is irregular with pale tan interruptions on the right side, and is almost complete on the left side. A similar reddish brown area (between posterior margin of first and anterior margin of last transverse stripe), separated from the margin by a narrow unpigmented line, interrupts centre of middle

transverse stripe. Dorsal fin spine and membrane between spine and first ray tan. Dorsal fin blotch somewhat lighter than in most of the other specimens, tips of fin rays with reddish brown in area outside the blotch. Tips of caudal fin rays grey with some darker spots in area outside the blotch.

Four paratypes (fig. 7, top) differ from the holotype in having the areas between the transverse stripes covered with diffuse medium brown pigment, whereas the holotype has reddish brown pigmentation. Two paratypes have an additional, narrow transverse line between first and second transverse stripe.

One of the remaining two paratypes (fig. 7, bottom) shows a very dark brown pigmentation on entire dorsum of head and body, anterior to posterior margin of first transverse stripe, including dorsum of pectoral and pelvic fins. The other paratype looks very much like this specimen, but has a somewhat lighter, brownish grey pigmentation. Colour pattern of posterior part of dorsum of caudal peduncle similar to that described above. Upper caudal filament (still present in some of the paratypes only) with alternating small medium brown spots. None of the paratypes shows reddish brown pigmentation.

Etymology. — The specific name *apithanos* (Greek) means incredible, an allusion to the variability in colour pattern, which is unique among its numerous subfamilial relatives.

Discussion. — As already suggested by Saul's preliminary identification, *Pseudohemiodon apithanos* appears to be closely related to *Pseudohemiodon laticeps* (Regan, 1904), of which we examined the following specimens:

Lectotype (designated by Isbrücker, 1973: 187): BMNH 1895.5.17:113, sl 189.7 mm, Paraguay, coll. C. Ternetz. Paralectotype: BMNH 1895.5.17:114, sl 185 mm, Paraguay, coll. C. Ternetz.

Four specimens: NMW 44950, ZMA 113.725 (ex NMW 44950), NMW 44955, NMW 44956, sl 184 to 198 mm, Paraguay, Hapitapunta or Itapitapunta [this locality could not be traced; probably these specimens are topotypes], coll. C. Ternetz.

Two specimens: MACN no register number, ZMA 114.328 (ex MACN), sl 66.3 and 87.8 mm, Argentina, Río Paraná, "Est. 35, Bupue Petrel", coll. Toano-Bellisio, 30-X-1974.

Two specimens: USNM 177212, sl 200.5 and 220 mm, Ecuador, Prov. Napo-Pastaza, Chichirota, 02°22′ S, 76°38′ W, Río Pastaza system, coll. R. Olalla, I-1949.

Apart from morphometric differences shown in tables IV and V (presenting the data of *Pseudohemiodon apithanos* and of *Pseudohemiodon laticeps*, respectively), *Pseudohemiodon apithanos* differs greatly from *Pseudohemiodon laticeps* in colour pattern (fig. 9). *Pseudohemiodon laticeps* has a light tan

ground colour, with a light brownish tan pattern of small dots and lines on dorsum of head and body, giving a variegated appearance to this region, and small, roundish, faint dots in dorsal and pectoral fins.

The record by López Rojas & Machado Allison (1975: 51—76) of *Loricaria laticeps* from Venezuela (including most interesting observations concerning development and growth) probably refers to a (sub?-) species closely related to — or identical with — *Pseudohemiodon apithanos*. López Rojas & Machado Allison described specimens from " . . . la localidad de Sun Sun, puerto sobre el río Boconó en el estado Portuguesa, Venezuela.", Orinoco River drainage. The dense pigmentation of the dorsal, caudal, and pectoral fins is particularly reminiscent of *Pseudohemiodon apithanos*, cf. their figures 2c, 3a-b, and 4a. Juveniles of *Pseudohemiodon laticeps* are not unlike adults in pigmentation. Without a more extensive study of the morphometric characters of the Río Boconó material, we hesitate to ascribe it to *Pseudohemiodon apithanos*, in spite of López Rojas & Machado Allison's very useful description of several characters. Their record is the first of a *Pseudohemiodon* species from the Orinoco River drainage.

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I. J. H. ISBRÜCKER & DR H. NIJSSEN
Institute of Taxonomic Zoology, University of Amsterdam
Plantage Middenlaan 53
Amsterdam - 1018 DC
The Netherlands.