

# BEAUFORTIA

SERIES OF MISCELLANEOUS PUBLICATIONS  
INSTITUTE OF TAXONOMIC ZOOLOGY (ZOOLOGICAL MUSEUM)  
UNIVERSITY OF AMSTERDAM

No. 294

Volume 22

December 20, 1974

## On *Hemiodontichthys acipenserinus* and *Reganella depressa*, two remarkable Mailed Catfishes from South America (Pisces, Siluriformes, Loricariidae)

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### ABSTRACT

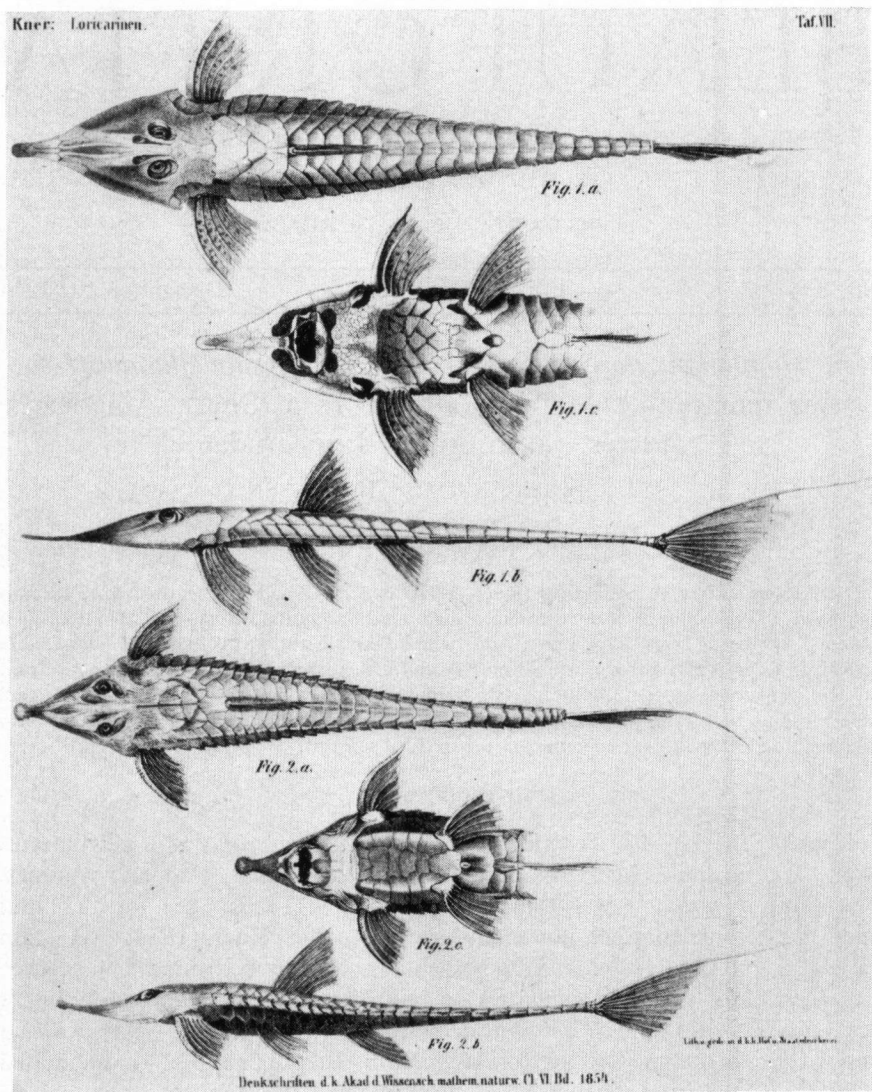
*Hemiodontichthys acipenserinus* (Kner, 1854) is redescribed and figured after examination of 132 specimens from the Rio Amazonas, Essequibo River, and Rio Paraguai systems, including five syntypes, from which the lectotype is selected. *Reganella depressa* (Kner, 1854) is redescribed and figured after examination of 7 specimens from the Rio Amazonas system, including two syntypes, from which the lectotype is selected. Relationships of the monotypic genera *Hemiodontichthys* Bleeker, 1862, and *Reganella* Eigenmann, 1905 with other genera are briefly discussed.

### INTRODUCTION

Kner (1854: 92—93) described *Hemiodon acipenserinus* as a new species from “Rio Guaporé, Matogrosso (Juquiá)”, Brazil, based on several syntypes. The genus *Hemiodon* was established by Kner (1853: 115) for “. . . drei Species . . .”, which were not mentioned by name. Kner (1854: 75) again gave a diagnosis of *Hemiodon* “nov. gen.”, and described three new species, viz. *Hemiodon* “?” *platycephalus* (loc. cit.: 89—91), *Hemiodon depressus* (loc. cit.: 91—92), and *Hemiodon acipenserinus* (loc. cit.: 92—93), without designation of a type-species for *Hemiodon*. Bleeker (1862: 4) designated *Hemiodon depressus* type-species of *Hemiodon*. He established new genera for Kner’s two remaining species, viz. *Pseudohemiodon* (1862: 3) for *Hemiodon platycephalus*, and *Hemiodontichthys* (1862: 4) for *Hemiodon acipenserinus*. Subsequently, Eigenmann (1905: 794) noticed that *Hemiodon* Kner, 1853 was preoccupied and proposed *Reganella* as a substitute name, its type-species being *Reganella depressa* (Kner, 1854). Kner’s new generic name *Hemiodon* was preoccupied twice, viz. in Mollusca, Gastropoda, Helicidae (Swainson, 1840: 164, 191, 192, 194), and in Mollusca, Lamelli-branchiata (= Pelecypoda), Unionidae (Swainson, loc. cit.: 286, 287, 381).

Received: September 10, 1974

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FIGS. 1—2. Reproduction of Kner's (1854) plate 7. Figs. 1a—c, *Reganella depressa*, in dorsal, ventral, and lateral view; figs. 2a—c, *Hemiodontichthys acipenserinus*, in dorsal, ventral, and lateral view.

*Hemiodontichthys acipenserinus* has hitherto been recorded from Brazil (Rio Guaporé, Jucuíá, Rio Amazonas, Rio Javari, Rio Juruá, Rio Paraguai, Rio Jaurú, Rio Tocantins (= Rio Manso), Rio Araguaia), Peru (Rio Amazonas, Rio Marañon), and from Guyana (lower Essequibo River). Most of the original information found in the scattered literature dealing with *Hemiodontichthys acipenserinus* is based on few specimens from several localities. Subsequent descriptions of material were given by Eigenmann &

Eigenmann (1890: 359—360), Regan (1904: 296—297), A. de Miranda Ribeiro (1911: 112), Eigenmann (1912: 250—251), and by van der Stigchel (1946: 182—183; 1947: 182—183). Figures were published by Kner (1854, pl. 7 figs. 2a—c), Eigenmann, McAtee & Ward (1907, pl. 35 fig. 1), and by A. de Miranda Ribeiro (1911, pl. 32 fig. 2). Gosline (1947: 85) noted that *Hemiodontichthys* has "... a normal, if somewhat rudimentary set of gill rakers." and (loc. cit.: 86) significantly better developed pharyngeal teeth than other genera of Loricariidae he studied, except *Loricaria*.

We have examined 132 specimens of *Hemiodontichthys acipenserinus* from various localities. Among these are five syntypes (from which the lectotype is selected), and a series of 18 specimens from Peru, including juveniles, females, and an adult male. The remaining material consists of smaller series from scattered localities.

*Reganella depressa* was hitherto only known from the specimens used in the original description. Figures were published by Kner (1854, pl. 7 figs. 1a—c), and by Fowler (1954, fig. 716, after Kner). From two syntypes we selected the lectotype. Five additional specimens from Amazonian localities were examined. No further material of this species seems to be present in museum collections.

The cooperation of several colleagues in procuring specimens is greatly

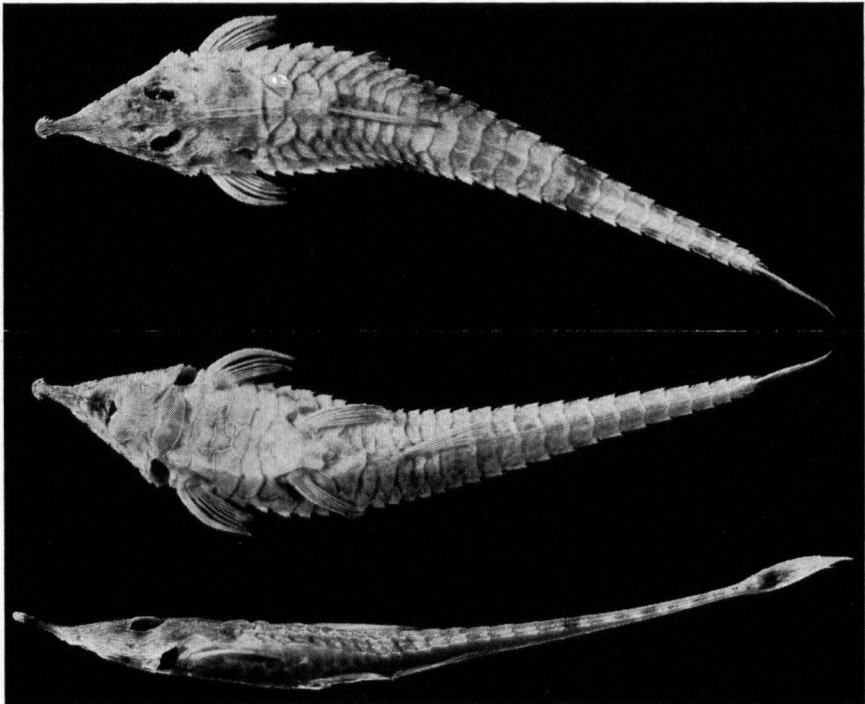


FIG. 3. *Hemiodontichthys acipenserinus*, specimen from Río Tocantins at Cametá, sl 101.5 mm (NMW 46405), in dorsal, ventral, and lateral view.

appreciated: Mrs Dr M. L. Bauchot (MNHN), Dr J. E. Böhlke (ANSP), Mrs M. M. Dick (MCZ), Dr W. N. Eschmeyer & Miss P. Sonoda (CAS), Dr J. P. Gosse & Mr E. Walschaerts (IRScNB), Dr P. H. Greenwood & Mr G. J. Howes (BMNH), Dr R. K. Johnson (FMNH), Dr P. Kähsbauer (NMW), Dr W. Klausewitz & Mr H. Zetzsche (SMF). Financial support for a visit to Vienna and Frankfurt was provided by the "Linnaeusfonds", Amsterdam, and for a visit to Cambridge (Mass.), Paris, and Brussels by the Netherlands Organization for the Advancement of Pure Research (Z.W.O.), the Hague. Mr G. J. Howes (BMNH) kindly corrected the English, and Mr L. A. van der Laan (ZMA) made the photographic illustrations.

#### RELATIONSHIPS

Kner (1854) ascribed three species to his genus *Hemiodon*, which were distinguished from each other at generic level by Bleeker (1862): *Hemiodon depressus* (= *Reganella depressa*), *Pseudohemiodon platycephalus*, and *Hemiodontichthys acipenserinus*.

Kner (1854: 89) placed a question mark behind the generic name of *H. platycephalus* and stated (loc. cit.: 90): "Diese Art theilt mit den beiden folgenden [viz. *H. depressus* and *H. acipenserinus*] mehrere wesentliche Eigenschaften, namentlich die sehr plattgedrückte Form, die kurzen Flossen, und den Mangel sichtbarer Zähne in den Zwischenkiefern, es muss jedoch vorläufig fraglich bleiben, ob sie mit Recht dieser Gattung zugezählt wird, da das k. k. Museum hiervon nur ein ausgestopftes Exemplar besitzt, und dieses die Etiquette und Nummer eines Individuums trägt, welches in Natterer's Notizen als *Lor. platycephala* bezeichnet, aber leider nur rhapsodisch beschrieben wird. Dasselbst geschieht aber sieben beweglicher Zähne in der oberen Kinnlade Erwähnung. Ist nun dies der Fall, so wäre dieses Individuum allerdings der Gattung *Loricaria* einzureihen. Da aber die übrige Beschreibung unklar lässt, ob wirklich dieses Exemplar gemeint sei, so nehme ich wenigstens bei dem Mangel sichtbarer Zähne im Zwischenkiefer Anstand, dasselbe unbezweifelt für eine *Loricaria* zu erklären. Sollte sie aber auch in der That eine solche sein, so unterscheidet sie sich durch die auffallende Breite des Kopfes allein schon von allen übrige Arten, und ist mit Recht als *platycephalus* zu bezeichnen, . . .". Bleeker's (1862: 3) diagnosis of *Pseudohemiodon*, based on characters mentioned in Kner's original description of *H. platycephalus*, reads among others: "Dentes intermaxillares nulli, . . .". This statement seems incorrect. Five other nominal species and subspecies of *Pseudohemiodon* (there are six nominal species and subspecies ascribed to this genus, see Isbrücker & Nijssen, 1974: 71) possess teeth in the upper jaws. This indicates the seeming correctness of Natterer's observation of the presence of teeth in the upper jaws of the (now lost) holotype of *Pseudohemiodon platycephalus*. Five genera have recently been assembled into the so-called *Pseudohemiodon*-group (Isbrücker & Nijssen, 1974: 68, 69—73), viz. *Pseudohemiodon*, *Rhadinoloricaria* Isbrücker & Nijssen, 1974, *Planiloricaria* Isbrücker, 1971, *Hemiodontichthys* and *Reganella*. Of these,

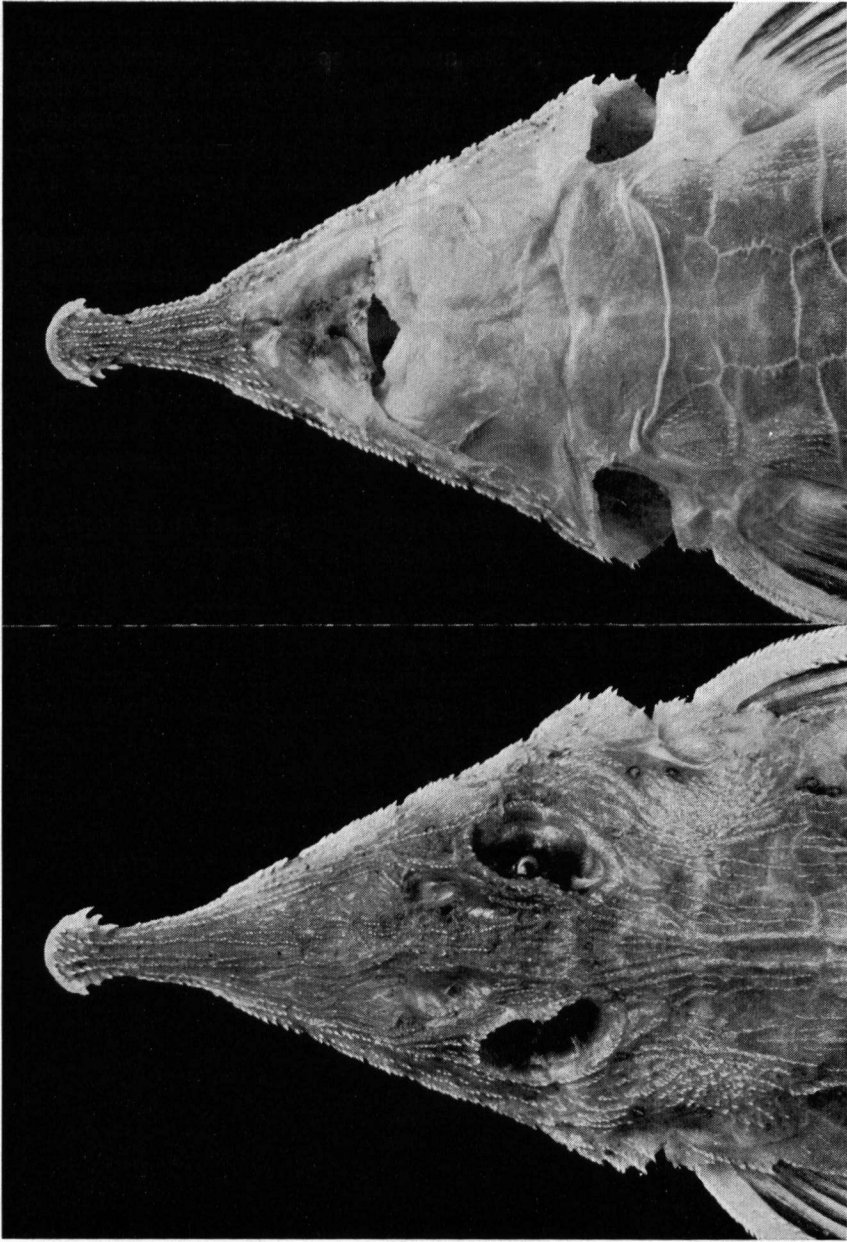


FIG. 4. *Hemiodontichthys acipenserinus*, head in ventral and dorsal view, same specimen as in fig. 3.

only *Pseudohemiodon* and *Rhadinoloricaria* possess teeth in the upper jaws. We hope that specimens of *Pseudohemiodon platycephalus* will be collected in the near future to produce definite information about its dentition. Apart from differences in dentition of the available species of *Pseudohemiodon* (some of these in figs. 13g—n), this genus is distinguished at a glance from *Hemiodontichthys* (teeth in figs. 13a—d) by the shape of the head, especially the rostrum, and by the structure of the lips, which are fimbriate in *Pseudohemiodon*, as against non-fimbriate, with small, slender, marginal papillae in *Hemiodontichthys*.

*Reganella* consists of a single species, *Reganella depressa*, which is rarely found in museum collections. Some authors consider *Reganella depressa* a second species of *Hemiodontichthys*, e.g. Regan (1904: 296), and A. de Miranda Ribeiro (1911: 113—114). *Reganella* and *Hemiodontichthys* are markedly distinguished by the smooth cover of minute dermal denticles in the former genus, versus the rough, strigilate denticles in the latter genus. Moreover, the shape of the snout of *Reganella* and *Hemiodontichthys* is sufficiently different to prevent confusion, as are the characters annotated in table I (see also figs. 4 and 12).

Several characters of *Hemiodontichthys* are also present in other genera of the subfamilies Loricariinae and Acestridiinae. The rugosity of the scutes is somewhat similar to those found in *Rineloricaria lima* (Kner, 1854) and allied species, such as *Rineloricaria strigilata* (Hensel, 1868). This rugosity and the remarkable expansion of the tip of the snout are characters shared with the monotypic genus *Acestridium* Haseman, 1911, type-genus of the subfamily Acestridiinae. Males of *Hemiodontichthys* develop a large lower (and upper —) lip to protect eggs, like males of *Loricariichthys* Bleeker, 1862, and of *Pseudoloricaria* Bleeker, 1862 (unpublished; this has been found in males of *Pseudoloricaria laeviuscula* (Valenciennes, in Cuvier & Valenciennes, 1840), and of *Pseudoloricaria punctata* (Regan, 1904)). Another similarity between *Hemiodontichthys*, *Loricariichthys*, and *Pseudoloricaria* is

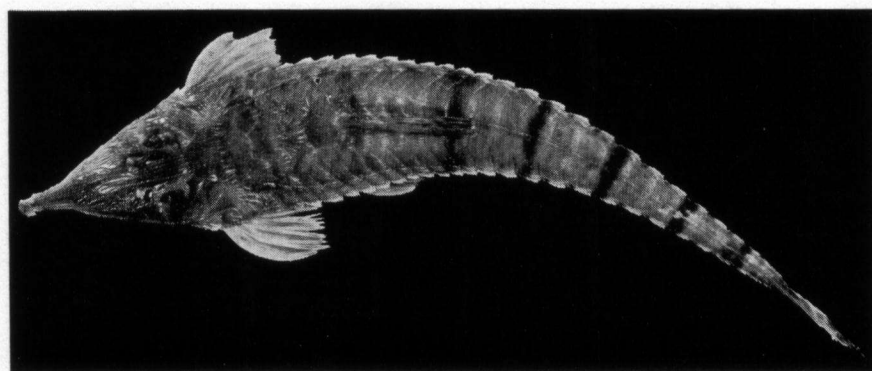


FIG. 5. *Hemiodontichthys acipenserinus*, specimen from Río Arari, male, sl 130 mm (MCZ 46059), in dorsal view, showing colour pattern.

a tendency to show sexual dimorphism in tooth shape, while this phenomenon occurs also in species of the unrelated genus *Spatuloricaria* Schultz, 1944 (unpublished). Finally, the abdominal scutes of *Hemiodontichthys* are much like those of *Loricariichthys* in shape and in relative size; both genera also have a small, horizontal naked area about the tip of the snout.

ABBREVIATIONS USED AND DEFINITIONS OF TERMS

- ANSP : Academy of Natural Sciences of Philadelphia, Philadelphia, Penn.  
BMNH : British Museum (Natural History), London.  
CAS : California Academy of Sciences, San Francisco, Calif.  
CM : Carnegie Museum (material now in FMNH).  
FMNH : Field Museum of Natural History, Chicago, Ill.  
IRScNB : Institut Royal des Sciences Naturelles de Belgique, Brussels.  
IU : Indiana University (material now in CAS).  
MCZ : Museum of Comparative Zoology, Cambridge, Mass.  
MNHN : Muséum National d'Histoire Naturelle, Paris.  
NMW : Naturhistorisches Museum, Vienna.  
SMF : Forschungsinstitut Senckenberg, Frankfurt/Main.  
SU (CAS) : Stanford University (material now in CAS).  
ZMA : Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam.

- abdominal length: taken between spine insertions of pelvic and anal fins, —  
axial length lower lip: median measurement, ignoring median notch, if present, —  
cleithral width (cw): greatest cleithral width, —  
coalescing scutes: number of those scutes which bear posteriorly converging rows of distinct denticles. First scute follows the cleithrum; last counted scute is situated anterior to scute where dorsal and ventral rows meet (and continue parallel posteriorly) (left/right), —  
depth caudal peduncle: least depth, —  
head depth (hd): taken at the end of the occipital process, —  
head length (hl): from tip of snout to end of occipital process, —  
head width: taken at the opercle, just before pectoral spine insertion, —  
internasal width: at the middle of the nostrils; estimated in certain cases (old specimens), —  
interorbital width (iow): least width, ignoring posterior orbital notch, —  
lateral scutes: number of body scutes in longitudinal lateral series; first scute follows the cleithrum; last scute is the middle triangular scute on caudal fin base (left/right), —  
length rictal barbel: taken at the height of upper jaws, or -in the case of *Hemiodontichthys* and *Reganella* at the height where such jaws are supposed to be located, —  
orbital diameter, minus notch: the diameter of eye; estimated in certain cases (old specimens), —  
orbital diameter, plus notch(es) (od'): the maximum distance within orbital rim, including posterior and, if present, anterior notch, —  
peduncular length: taken from base of last anal fin ray to base of middle triangular caudal scute, —  
predorsal length: from tip of snout to posterior rim of predorsal shield, —  
snout length (sn): from tip of snout to anteriormost point of orbital rim, —  
standard length (sl): from tip of snout to base of middle triangular caudal scute, —  
supra-cleithral width: transverse measurement of dorsalmost tip of cleithral process, —  
teeth of lower jaws: number of teeth in left against right (. / .) halves, —  
thoracic length: taken between spine insertions of pectoral and pelvic fins, —

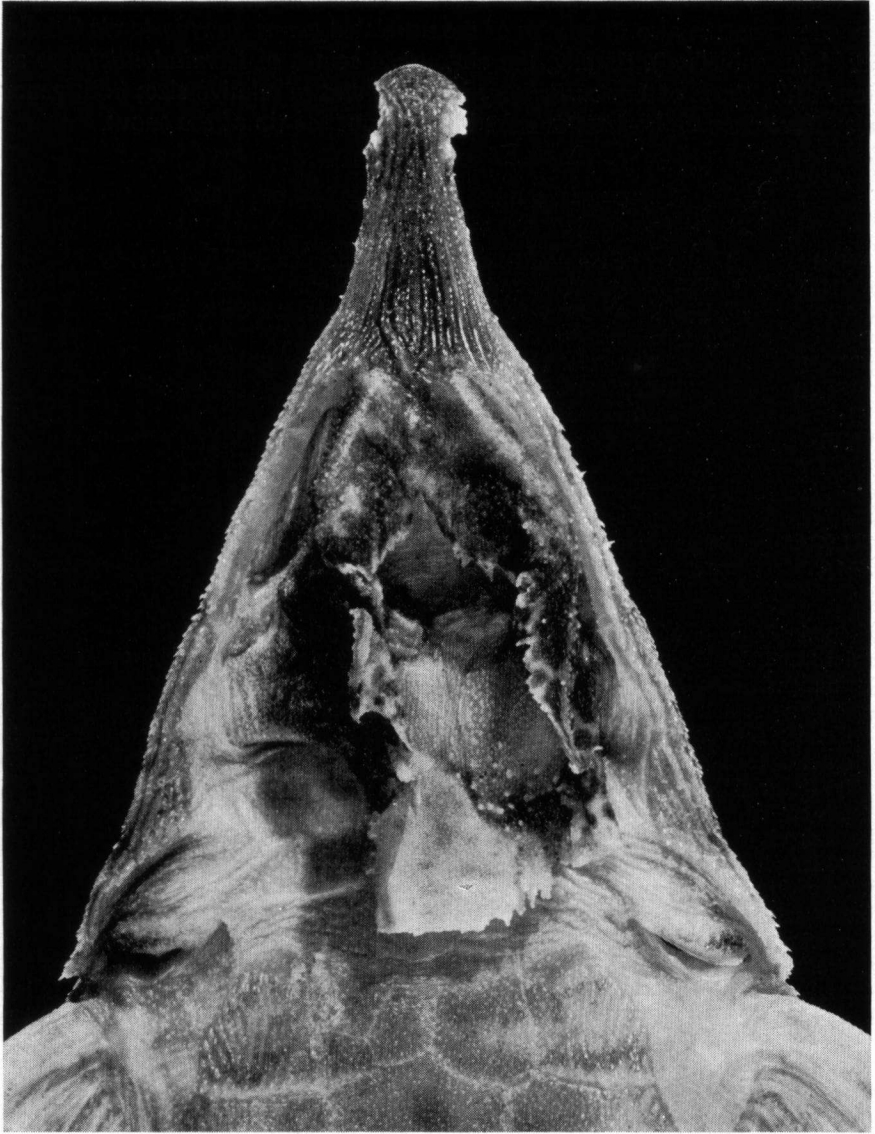


FIG. 6. *Hemiodontichthys acipenserinus*, head in ventral view, showing enlarged lower and upper lips of male, same specimen as in fig. 5.

thoracic scutes: number of prominent, more or less oblong scutes between last pectoral fin ray and pelvic fin spine (left/right), —  
ventrostral length (vrl): ossified tip of vent of snout, anterior to upper lip (where this lip touches posterior part of snout tip), —  
width caudal peduncle: taken at the height of least depth.



### **Hemiodontichthys Bleeker, 1862**

*Hemiodontichthys* Bleeker, 1862: 4 (original diagnosis; type-species, by original monotypy, *Hemiodontichthys acipenserinus* (Kner, 1854) = *Hemiodon acipenserinus* Kner, 1854).

*Hemiodontichthys*; Pearson, 1937: 112 (lapsus).

The original diagnosis (Bleeker, 1862: 4) reads: "*Hemiodontichthys* Blkr. Velum labiale postice latum. Dentes inframaxillares conspicui, intermaxillares nulli. Rostrum apice tumidum dentatum. Cristae nuchales et laterales dentibus valde conspicuis serratae. Pinna dorsalis post ventrales sita. Corpus valde depressum.

Spec. typ. *Hemiodontichthys acipenserinus* = *Hemiodon acipenserinus* Kner."

Diagnosis: *Hemiodontichthys* is a genus of the subfamily Loricariinae distinguished by a combination of the following characters: a long, acute snout, usually with a terminal expansion provided with distinct, recurved dermal denticles; tip of snout with a narrow naked horizontal area; small teeth in lower jaws, upper jaws hard to observe, toothless; dermal denticles on dorsum of head and body, and on both sides of rostrum, arranged in strongly wavy lines; dermal denticles form distinct ridges along longitudinal lateral body scutes; breast and belly covered by large, mostly square-like scutes which are arranged in three median rows; anterior to these scutes two to several small, triangular or irregular scutes may be present; eye moderate, orbit with a large posterior notch; supra-occipital process with a broad tip; gill rakers and pharyngeal teeth present; pectoral pore present.

Dorsal fin I,6, last ray split to its base; anal fin I,4, last ray split to its base; pectoral fin I,6; pelvic fin I,5; caudal fin I,10,I.

Sexual dimorphism. Nuptial males develop large, broad upper and lower lips (fig. 6). Shape of the teeth differs slightly in both sexes (figs. 13a—b from male teeth, figs. 13c—d from female teeth).

*Hemiodontichthys* contains a single, variable species, *Hemiodontichthys acipenserinus* (Kner, 1854), which eventually might prove to consist of several subspecies. The material at hand does not allow conclusions of this kind.

### **Hemiodontichthys acipenserinus (Kner, 1854)**

(figs. 2—9, 13a—d, 14; tabs. I—VI)

*Hem. [iodon] acipenserinus* Kner, 1854: 92—93, pl. 7 figs. 2a—c (original description; number of specimens not stated; type locality: "Rio Guaporé\*, Matogrosso (Juquia)"; lectotype in Naturhistorisches Museum, Vienna, NMW 46139\*).

*Hemiodon acipenserinus*; Bleeker, 1858: 331 (listed).

*Hemiodontichthys acipenserinus*; Bleeker, 1862: 4 (listed; designation as type-species of the new genus *Hemiodontichthys*); — Bleeker, 1863: 82 (listed; type-species of *Hemiodontichthys*); — Eigenmann & Eigenmann, 1889: 34 (listed; Manacapuru\*, Hyavary); — Eigenmann & Eigenmann, 1890: 359—360 (description; Manacapuru\*,

\* Material indicated by an asterisk has been re-examined.

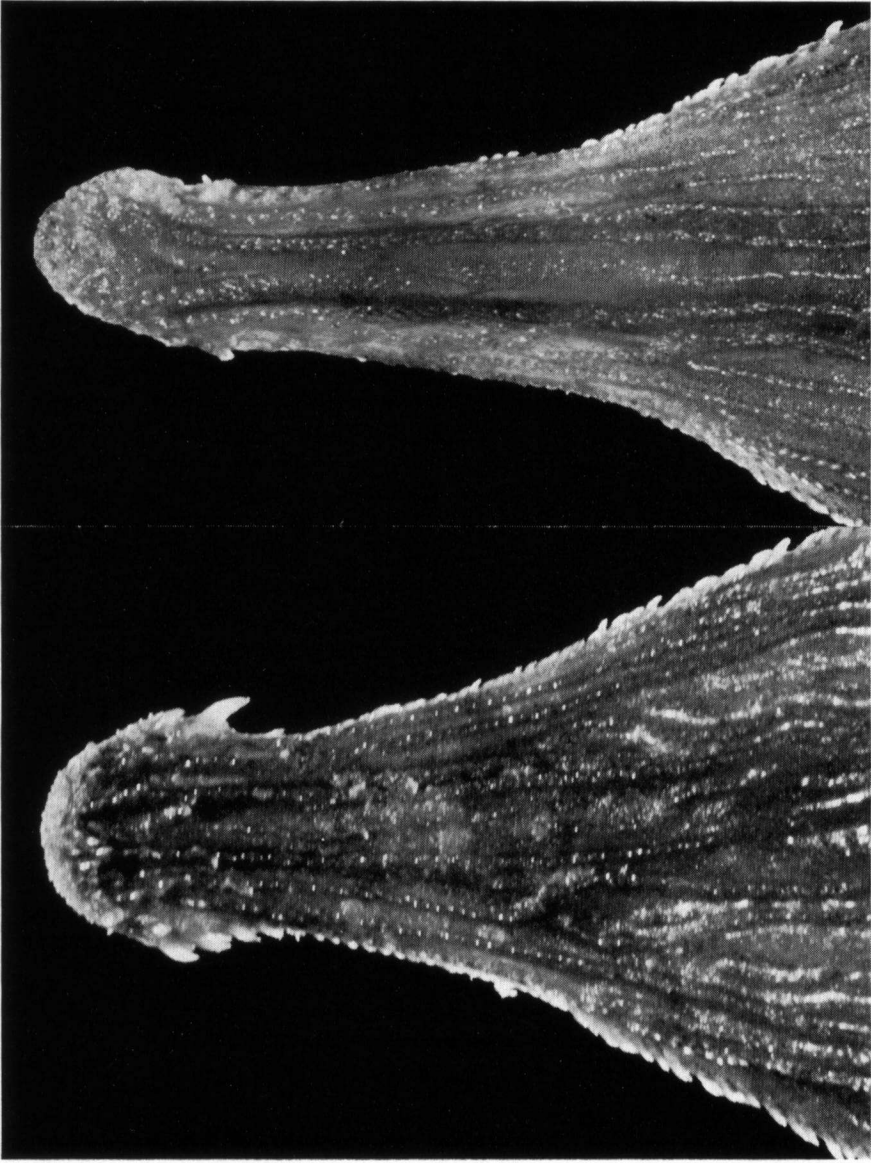


FIG. 7. *Hemiodontichthys acipenserinus*, dorsal view of snout tips of two specimens from Iquitos (CAS 28394), sl right specimen 112.5 mm, sl left specimen 119 mm.

Hyavary); — Eigenmann & Eigenmann, 1891: 38 (listed; Solimoens, Marañon and tributaries); — Regan, 1904: 296—297 (description; R. Amazon\*; also on: 197, in distributional list); — Eigenmann, McAtee & Ward, 1907: 120, pl. 35 fig. 1 (listed; Corumba\*; also listed on: 150); — Eigenmann, 1910: 415 (listed; Amazon and Paraguay); — A. de Miranda Ribeiro, 1911: 112, pl. 32 fig. 2 (description; Guaporé, Manacapurú, Caldeirão, and Javari; references listed on: 425); — A. de Miranda Ribeiro, 1912: 9 (listed; Rio Jaurú, and Rio Manso, affluente do Araguaya; reference to Eigenmann, McAtee & Ward, 1907); — Eigenmann, 1912: 250—251 (description; Gluck Island, British Guiana; also recorded on: 43, 67, 78, and 88, based on a single specimen\* collected in a small brook on Gluck Island, lower Essequibo River); — Bertoni, 1914: 8 (Paraguay; paper not seen, reference taken from Fowler, 1954: 90); — A. de Miranda Ribeiro, 1918: 717 (listed; Rio Juruá); — Bertoni, 1939: 53 (Paraguay; paper not seen, reference taken from Fowler, 1954: 90); — Eigenmann & Allen, 1942: 210 (listed; Iquitos\*; also listed on: 44, lower Marañon, and: 52, table 2); — Fowler, 1942: 88 (listed; Perú, Río Marañon); Fowler, 1945: 108 (listed; Perú, Río Marañon); — Gosline, 1945: 108 (listed; Amazonas e Paraguai); — van der Stigchel, 1946: 182—183 (description; Matto Grosso [one of the syntypes?]); — van der Stigchel, 1947: 182—183 (same as the preceding reference); — Fowler, 1954: 89—90, fig. 689 (listed; Amazônia, Rio Tocantins, Rio Paraguai; figure based on Kner, 1854); — Isbrücker & Nijssen, 1974: 71 (comparison of *Hemiodontichthys* with related genera). *Loricaria acipenserina*; Günther, 1864: 260 (description, copied from Kner, 1854); — Vaillant, 1880: 159 (listed; Caldéron\* [= Caldeirão]); — Boulenger, 1898: 425 (listed; Rio Juruá\*).

*H. [emiodontichthys] acipenserinum*; A. de Miranda Ribeiro, 1911: 112 (name in key). *Homiodontichthys acipenserinus*; Pearson, 1937: 112 (in distributional list; lapsus).

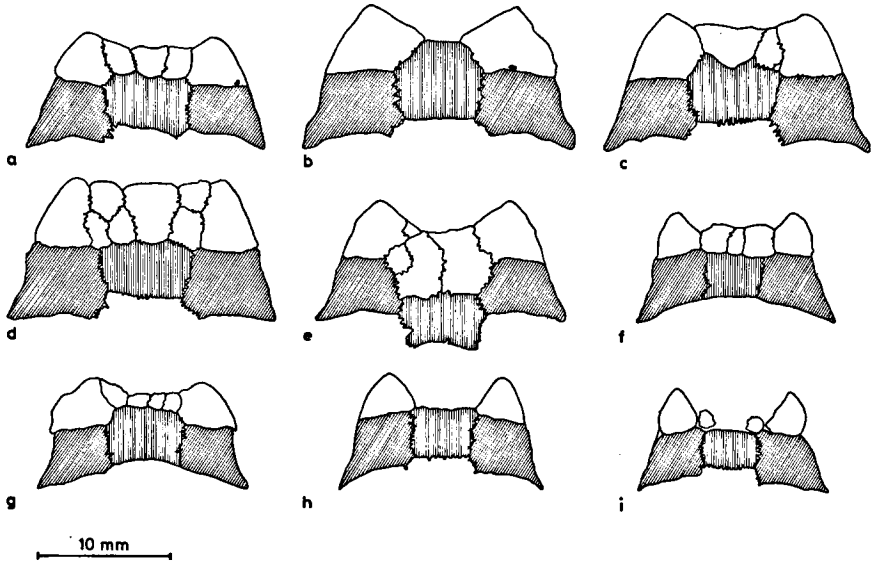


FIG. 8. *Hemiodontichthys acipenserinus*, variability in shape and number of anterior-most ventral scutes, in transverse series. The three scutes that are developed in all specimens examined are shaded: a — lectotype, Río Guaporé, sl 120 mm; b through e — paralectotypes, Río Guaporé, sl 134, 132.5, 132.5, and 123.5 mm, respectively; f — ZMA 113.268, Iquitos, sl 112.5 mm; g — ZMA 109.243, Río Chapare, sl 107.5 mm; h — NMW 46404, Amazonas territory, sl 104.2 mm; i — NMW 46405, Rio Tocantins, sl 101.5 mm.

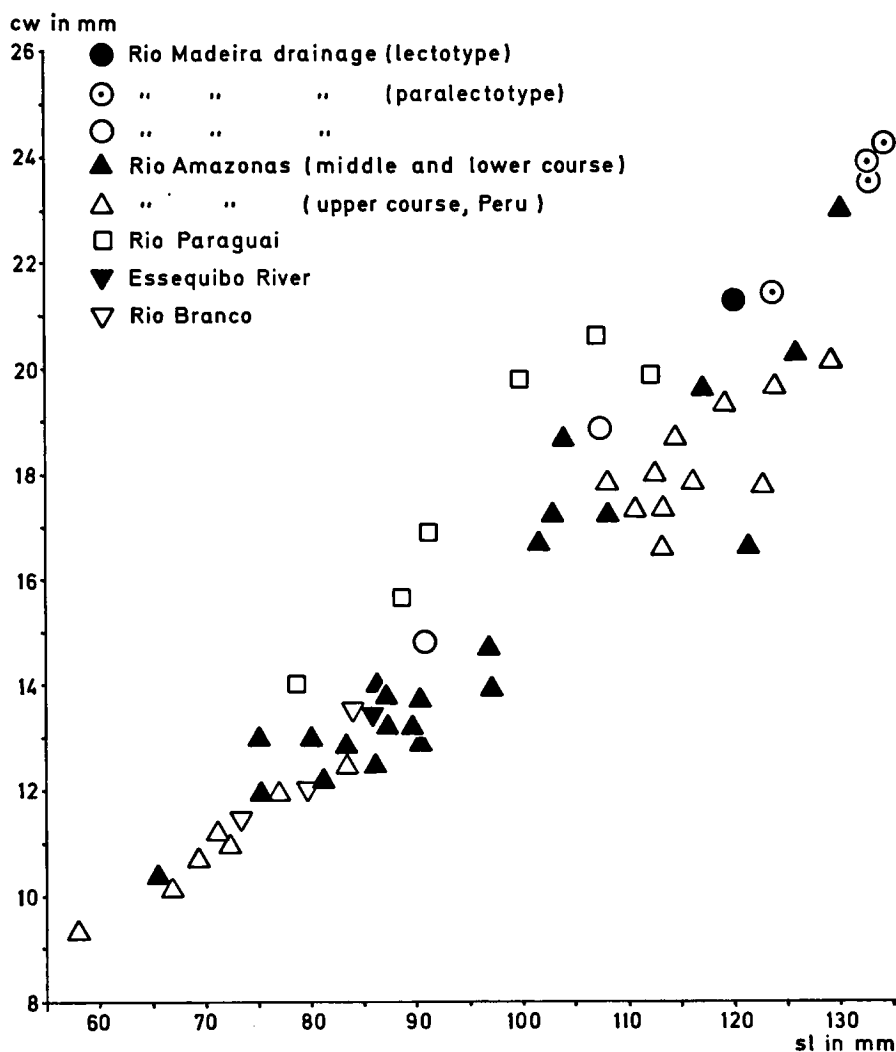


FIG. 9. *Hemiodontichthys acipenserinus*, cleithral width (cw) plotted against standard length (sl) in 61 specimens from various localities, showing the variability of this character.

Specimens examined. —

BRAZIL: NMW 46139, one (lectotype, by present designation), sl 120 mm, Est. Rondônia (= Est. Guaporé), Rio Amazonas system, Rio Madeira drainage, Rio Guaporé, coll. J. Natterer, between 1817 and 1820; — NMW 74914 (ex-NMW 46139), one (paralectotype), sl 132.5 mm, NMW 46138, one (paralectotype), sl 134 mm, male, ZMA 112.957 (ex-NMW 46138), one (paralectotype), sl 132.5 mm, NMW 46140, one (paralectotype), sl 123.5 mm, Rio Guaporé, coll. J. Natterer, between 1817 and 1820.



FIG. 10. *Reganella depressa*, lectotype from Marabitanas, sl 113 mm (NMW 9438), in dorsal and ventral view.

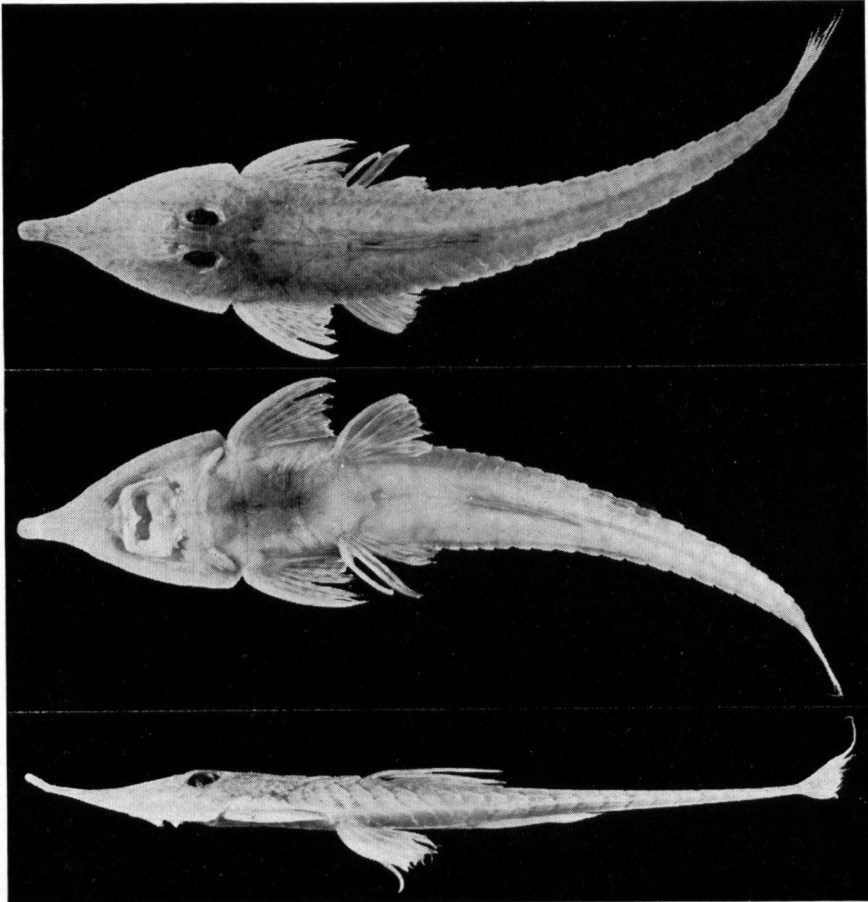


FIG. 11. *Reganella depressa*, specimen from west of Moura, sl 111 mm (ANSP 124251), in dorsal, ventral, and lateral view.

CAS 28395, one, sl 107 mm, Est. Mato Grosso, Rio Paraguai system, Corumbá, 19°00' S, 57°25' W, coll. J. D. Anisits, 1900 or thereafter; — FMNH 55137, five, sl 65.2 to 111.4 mm, largest specimen and one of 88 mm, males, Corumbá, coll. C. H. Eigenmann, 1912; — FMNH 55072, five, sl 59.2 to 90.5 mm, Rio Jauru into Rio Paraguai, 28 miles above mouth of Rio Jauru and about 30 miles southwest of ("São Luiz de") Cáceres, 16°05' S, 57°40' W, coll. J. D. Haseman, 2-VI-1909.

BMNH 1897.12.1.75-79, five, sl 69.9 to 108 mm, Est. Amazonas, Rio Amazonas system, Rio Juruá, coll. J. Bach, VII-1897; — NMW 46404, one, sl 104.2 mm, and one, sl about 80 mm (dried out), Amazonas territory, gift from Museum Goeldi at Belém; — BMNH 1926.10.27.361-366, six, sl 70.6 to 86.4 mm, Rio Amazonas at Monte Alegre, 02°00' S, 54°04' W, presented by W. Ehrhardt; — MNHN A1986, four, sl 89.5 to 126 mm, Rio Amazonas at Caldeirão, 03°15' S, 60°15' W, coll. Jobert; — BMNH 1927.6.7.30, one, sl 85.5 mm, Rio Auati-Paraná, upper Rio Solimões, presented by W. Ehrhardt; — MCZ 8092, one, sl 96.5 mm, Rio Amazonas at Manacapuru, 03°16' S, 60°37' W, coll. W. James, Thayer Expedition; — NMW 46395, and 46397 through 46402, twenty-nine, sl 47.4 to 83.2 mm, and nine, sl up to about 80 mm (dried out), Rio Amazonas at mouth of Rio Negro, coll. J. D. Haseman, 18/24-IX-1912.

NMW 46403, seven, sl 64.3 to 84.5, and NMW 46396, five, sl 51.9 to 79.8 mm, Est. Roraima (= Est. Rio Branco), Serra Grande (Carauná) mountains, 02°35' N, 60°45' W, tributary of Rio Branco between Boa Vista (02°51' N, 60°43' W), and Conceição (02°10' N, 60°55' W), coll. J. D. Haseman, 1913; — SMF 10339, one, sl 77.5 mm, Rio Negro, coll. R. Geisler, 4-XI-1967.

MCZ 46059, two, sl 117 and 130 mm, largest a male, Est. Pará, Rio Arari, Cachoeira do Arari, 01°00' S, 48°58' W, Ilha de Marajó, coll. N. Menezes, VII-1965; — NMW 46405, one, sl 101.5 mm, Rio Tocantins at Cametá, 02°14' S, 49°30' W, gift from Museum Goeldi at Belém; — FMNH 55068, six, sl 66.9 to 99.7 mm, Santarém, 02°26' S, 54°41' W, Rio Amazonas at mouth of Rio Tapajós, coll. J. D. Haseman, 6/20-XII-1909; — SU(CAS) 6445, 6428, ten, sl 57.3 to 86.1 mm, one male with fully developed labial fold, sl 75.1 mm, Lago Grande into Rio Amazonas between Santarém and Obidos (01°52' S, 55°30' W), coll. C. Ternetz, X-1924; — NMW 46136, one, sl 103.5 mm, Rio Amazonas ("Rio Hyavary" according to label) at Obidos, coll. Exp. Agassiz & Steindachner, 1871 to 1874; — NMW 46137, three, sl 87 to 92 mm, "Hyavary" near Obidos, Rio Amazonas, coll. Exp. Agassiz & Steindachner, 1871 to 1874.

GUYANA: FMNH 53084 (ex-CM 1514), one, sl 86.4 mm, male, a small brook on Gluck Island, in the Essequibo River at about 06° N, coll. C. H. Eigenmann, 29-IX-1908.

PERU: NMW 44143, one, sl 113 mm, Est. Loreto, Río Amazonas at Pebas, 03°10' S, 71°46' W, bought by Steindachner from the Agassiz collection; —

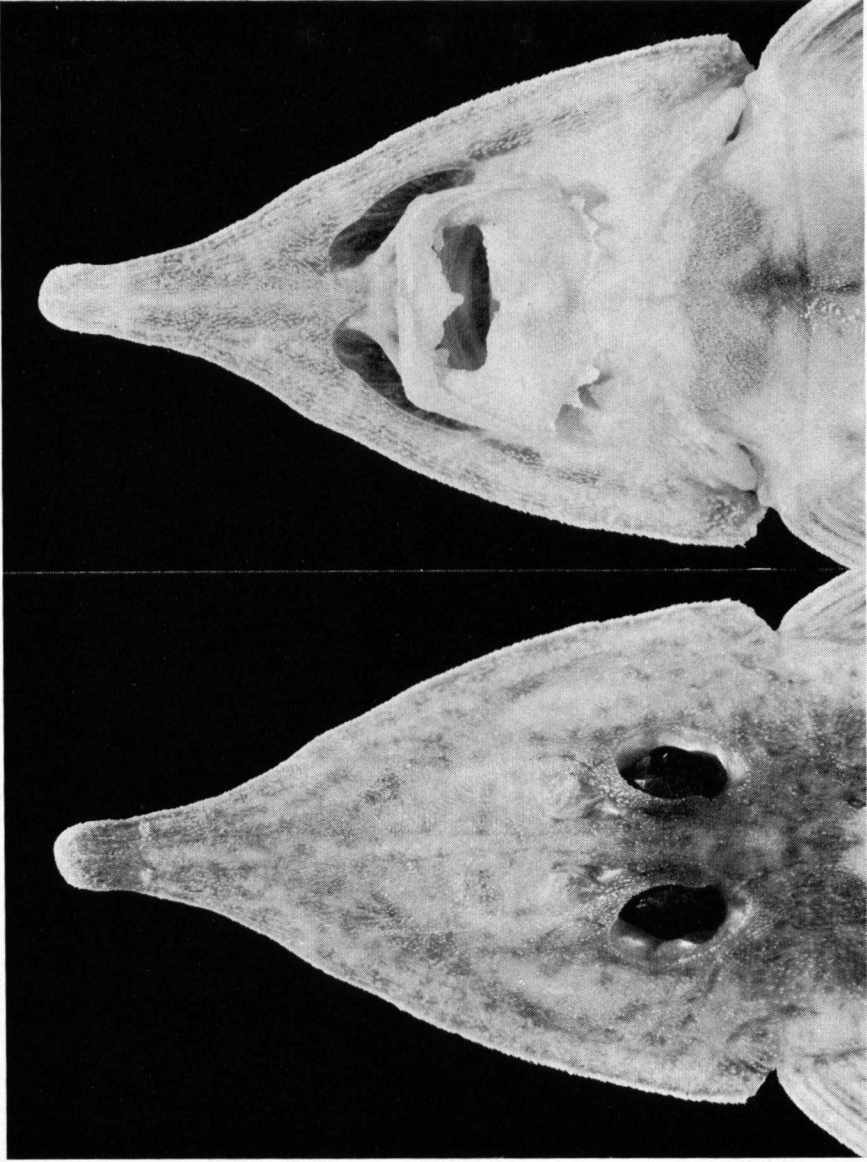


FIG. 12. *Reganella depressa*, head in ventral and dorsal view, same specimen as in fig. 11.

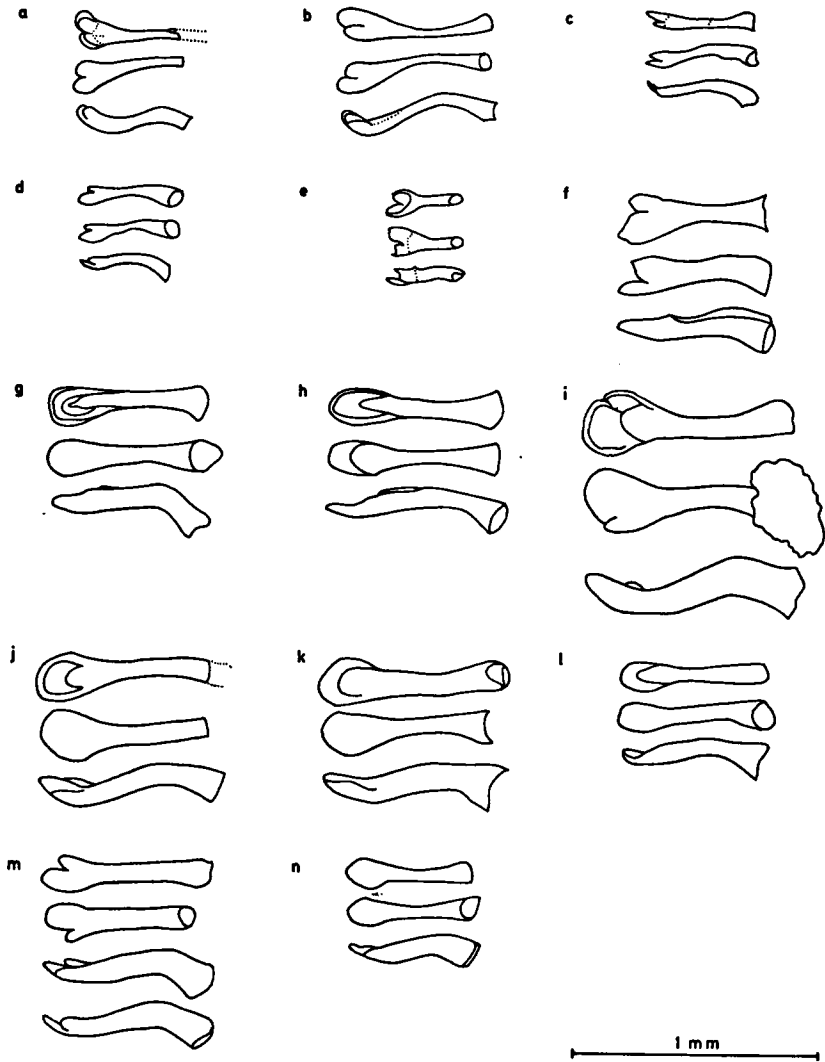


FIG. 13. Profiles of the teeth from: a—d, left lower jaw of *Hemiodontichthys acipenserinus*, a — NMW 46138, ♂, sl 134 mm, b — FMNH 55137, ♂, sl 111.4 mm, c — ZMA 112.957, ♀, sl 132.5 mm, d — FMNH 55137, ♀, sl 99.2 mm; e—f, right lower jaw of *Reganella depressa*, e — NMW 9438, sl 113 mm, f — IRScNB 17870, estimated sl about 170 mm; g — left lower jaw, and h — left upper jaw of *Pseudohemiodon lamina*, MCZ 33511, sl 138.5 mm; i — right lower jaw, and j — right upper jaw of *Pseudohemiodon variegatus*, BMNH 1947.7.1.228—232, sl 110 mm; k — right lower jaw, and l — right upper jaw of *Pseudohemiodon variegatus*, BMNH 1947.7.1.228—232, sl 111.5 mm; m — right lower jaw, and n — right upper jaw of *Pseudohemiodon variegatus venezuelae*, ZMA 102.134, sl 146 mm. Each letter represents a single tooth.



CAS 28394 (ex-IU 15972), five, sl 108 to 119 mm, Iquitos, 03°51' S, 73°13' W, coll. W. R. Allen, 1922 (one specimen deposited in ZMA 113.268); — SU(CAS) 34260 and 34261, two, sl 69 and 123 mm, SU(CAS) 33266, one, sl 110.5 mm, male, SU(CAS) 36228, three, sl 66.7 to 116 mm, largest a male, Río Amazonas system, Río Ampiyacu, a small, lowland stream entering the Peruvian Amazon from the left at Pebas, coll. W. G. Scherer, 1936, 10-IV-1937, and 4-IX-1940, respectively; — SU(CAS) 33265 and 33267, one female, sl 124 mm, and one, sl 71.7 mm, respectively, SU(CAS) 34259, one, sl 82.9 mm, SU(CAS) 36226, one, sl 58.2 mm, SU(CAS) 36227, one, sl 76.8 mm, SU(CAS) 17222, one, sl 129 mm, Shansho Cano near Pebas, coll. W. G. Scherer, 14-IX-1936, 24-VII-1936, 20-VI-1940, 20-VIII-1940, and 11-XI-1943, respectively.

BOLIVIA: ZMA 109.243, one, sl 107.5 mm, Est. Cochabamba, Río Amazonas system, Río Madeira drainage, Río Chapare, tributary of Río Mamoré, small turbid creek at airport of Todos Santos, 16°49' S, 65°08' W, coll. K. H. Lüling, 28-IX-1966; — FMNH 55065, three, sl 58.8 to 91 mm, Est. Beni, Río Amazonas system, Río Madeira drainage, Río Machupo at San Joaquín, 13°06' S, 64°47' W, tributary of Río Guaporé, coll. J. D. Haseman, 4/7-IX-1909.

Description. — Detailed morphometric and meristic data are represented in tables II through IV, based on twelve specimens from four localities. After comparison of these data, another 49 specimens from all localities were measured to obtain the following dimensions: standard length, head length, head depth, snout length, ventrorostral length, orbital diameter plus notch, interorbital width, and cleithral width. Ranges and means of these data obtained from 61 specimens (the 12 from tables II through IV plus the 49 just mentioned) are represented in table V, arranged after the main river system from which the specimens originate.

The Río Madeira drainage is represented by the lectotype, four paralectotypes (Río Guaporé), ZMA 109.243 (one, Río Chapare), and FMNH 55065 (one, Río Machupo).

The Río Paraguai is represented by CAS 28395 (one) and FMNH 55137 (three, Corumbá), and by FMNH 55072 (two, Río Jauru).

The middle and lower courses of the Río Amazonas are represented by BMNH 1897.12.1.75 (one, Río Juruá), NMW 46404 (one, Est. Amazonas), BMNH 1926.10.27.361 (one, Monte Alegre), MNHN A1986 (four, Caldeirão), BMNH 1927.6.7.30 (one, Río Auati-Paraná), MCZ 8092 (one, Manacapuru), NMW 46401 (four), and 46402 (one, mouth Río Negro), NMW 46405 (one, mouth Río Tocantins), FMNH 55068 three, Santarém), SU 6445 (one), and 6428 (one, Lago Grande), NMW 46136 (one), and 46137 (three, Obidos), and by MCZ 46059 (two, Río Arari).

The upper course of the Río Amazonas (Peru) is represented by NMW 44143 (one, Pebas), SU(CAS) 17222 (one), 33265 (one), 33267 (one), 34259 (one), 36226/27 (two), all from Shansho Cano, by SU(CAS) 33266 (one), 34260/61 (two), and 36228 (three), all from Río Ampiyacu, and by CAS 28394 (five, Iquitos).

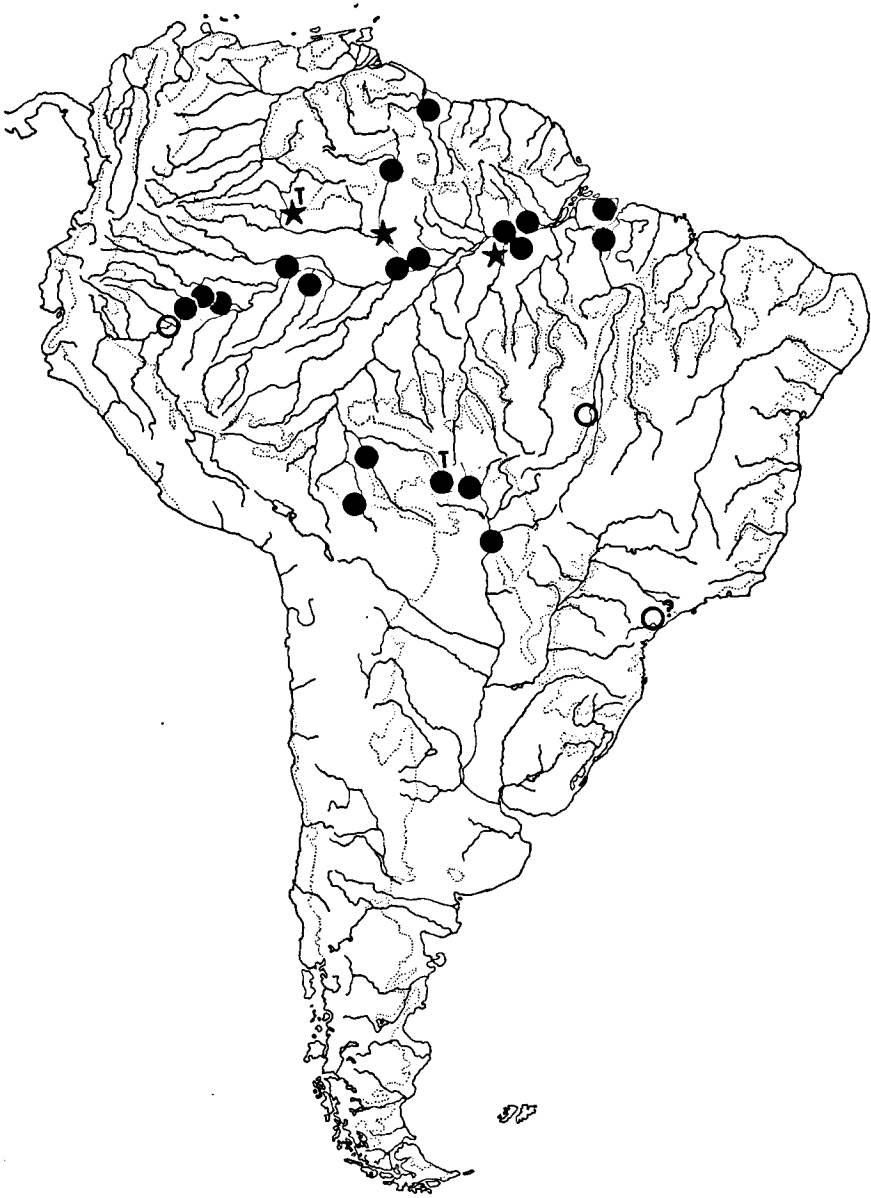


FIG. 14. Distribution of *Hemiodontichthys acipenserinus* (dots, based on specimens examined, circles, based on published records) and *Reganella depressa* (stars). T indicates type locality.

The Rio Branco is represented by NMW 46403 (one), and 46396 (two).  
The Essequibo River is represented by FMNH 53084 (one).

Tables II through V show that *Hemiodontichthys acipenserinus* is a quite variable species in several respects. Comparing the Río Guaporé and Río Paraguai specimens with those from both the Brazilian and Peruvian Amazon, there is an obvious tendency in the latter to be somewhat more slender. The relative slenderness of Amazonian specimens compared to Río Guaporé and Río Paraguai specimens also is apparent from the results obtained by measuring interorbital width. Our material as a whole, however, does not permit us to draw conclusions on trends in the nature of certain characters (e.g., fig. 9, showing variability in cleithral width, is inconclusive). Therefore, we present the data without much discussion. Much more material, particularly adult males and females from several localities, is needed to determine whether certain populations represent distinct subspecies, as we sometimes have suspected while studying our material. The shape of the snout tip may vary considerably in specimens from the same locality (fig. 7), but some samples contain specimens with a generally broader snout tip than found in certain other samples.

The number of lateral scutes varies from 27 to 29, the number of coalescing scutes varies from 11 to 14. In one specimen (FMNH 55068, sl 85 mm) there are 7/8 coalescing scutes. The variability of the number of scutes found in 47 specimens is represented in table VI. Between pectoral and pelvic fin there are usually 4 thoracic scutes (rarely 3 or 5), which are always quite regularly shaped. Between the left and right rows of thoracic scutes is a single row of quite regularly shaped scutes, though some may be

TABLE I. Nine characters distinguishing *Hemiodontichthys* and *Reganella*.

<i>Hemiodontichthys</i>	versus	<i>Reganella</i>
1. Opercle reaching lower margin of head		Opercle not reaching lower margin of head
2. Interorbital broad anteriorly		Interorbital narrow anteriorly
3. Head more slender than body		Head broader than body
4. Ventral margin of head slender and rounded		Ventral margin of head broad and flat
5. Upper lip well-developed, fused with ventral margin of head		Upper lip weakly developed, narrow, not fused with ventral margin of head
6. Pectoral fin not reaching origin of pelvic fin		Pectoral fin reaching origin of pelvic fin
7. Area surrounding anal papilla almost completely ossified		Area surrounding anal papilla naked
8. Few large scutes in front of pre-anal scute, not decreasing in size anteriorly		Numerous irregular small scutes in front of pre-anal scute, gradually decreasing in size anteriorly
9. Antermost ventral scutes reach to height of gill openings, but remain free from ventral margin of head		Antermost ventral scutes extend height of gill openings and are connected with ventral margin of head

TABLE II. Morphometric data (in mm) and meristic data of *Hemiodontichthys acipenserinus* (specimens a through k) and *Reganella depressa* (specimens l and m); a — lectotype, Rio Guaporé; b through e — paralectotypes, Rio Guaporé; f — SU(CAS) 28395, Rio Paraguai system; g — MCZ 46059, Rio Arari; h — SU(CAS) 17222, Shansho Cano; i — SU(CAS) 33265, Shansho Cano; j — SU(CAS) 34260, Rio Ampiyacu; k — SU(CAS) 36228, Rio Ampiyacu; l — lectotype, Marabitanas; m — ANSP 124251, west of Moura.

specimen	a	b	c	d	e	f	g	g	g	h	i	j	k	l	m
sex	?	♂	?	?	?	?	♂	♂	?	?	♀	?	♂	?	?
morphometric data:															
standard length	120.0	134.0	132.5	132.5	123.5	107.0	130.0	117.0	117.0	129.0	124.0	123.0	116.0	113.0	111.0
predorsal length	46.8	53.0	53.9	51.0	47.8	42.5	52.8	46.3	46.3	51.2	48.6	46.5	44.0	50.0	46.3
head length	33.3	39.1	37.2	36.4	33.6	30.7	38.8	34.2	36.8	35.0	34.5	34.5	33.3	38.1	34.8
head width	20.2	23.6	22.9	22.7	20.3	19.1	22.7	19.0	19.0	19.0	18.3	17.5	17.1	21.4	21.0
head depth	10.1	10.5	11.2	10.4	9.6	9.0	10.8	8.5	8.5	10.9	9.2	8.8	8.9	6.8	6.8
snout length	18.7	22.9	20.8	20.7	18.9	16.9	22.6	20.1	20.5	20.5	20.5	21.0	19.6	25.3	23.2
ventrorostral length	8.9	10.7	9.4	9.5	8.4	7.3	9.8	8.9	8.9	9.9	9.5	10.3	8.5	14.8	13.6
orbital diameter, minus notch	3.4	3.8	3.7	2.9	3.3	2.6	3.4	2.4	2.4	3.2	3.3	2.3	2.9	3.9	4.0
orbital diameter, plus notch	6.2	7.5	7.4	6.7	6.3	5.9	7.6	6.6	6.6	7.3	6.0	5.5	6.3	5.3	5.7
interorbital width	6.2	8.0	7.4	7.5	6.5	6.3	6.8	6.3	6.1	6.4	6.4	5.6	5.8	3.8	3.4
internasal width	4.6	4.7	5.4	5.0	4.3	3.9	4.8	4.0	4.0	5.2	4.0	4.1	4.1	3.2	3.3
dorsal spine length	18.4	21.1	20.6	20.2	19.3	-	21.0	18.3	21.2	-	-	20.5	-	17.2	17.5
length 1st dorsal ray	17.6	20.6	18.7	19.2	17.8	-	20.7	18.0	22.0	-	-	18.9	-	-	17.1
dorsal fin base	10.6	12.0	12.5	12.2	11.2	8.3	11.9	10.0	12.0	12.0	10.3	9.7	10.3	9.3	9.5
anal spine length	14.4	16.6	16.7	16.5	-	-	-	16.4	17.8	17.7	16.7	16.4	-	17.7	13.0
pectoral spine length	15.8	18.8	17.8	17.7	17.3	-	-	-	-	-	-	-	-	-	16.7
pelvic spine length	11.9	13.5	11.8	13.4	13.7	11.6	14.0	13.6	12.8	13.4	13.2	13.2	12.7	14.3	13.8
cleithral width	21.4	24.3	23.9	23.6	21.5	20.3	23.0	19.6	20.1	19.7	17.8	17.8	17.9	19.6	17.0
supracleithral width	15.9	18.0	18.3	17.2	16.3	15.5	16.8	14.3	14.9	14.7	13.0	13.4	13.4	15.5	13.3
thoracic length	18.5	18.8	20.4	19.4	18.3	16.5	19.3	17.4	18.3	18.6	18.6	15.4	15.1	15.5	14.3
abdominal length	16.0	17.7	18.4	18.1	17.1	14.4	17.3	15.4	16.0	15.7	14.9	14.9	14.6	17.0	19.0
peduncular length	56.2	61.3	59.2	61.2	57.8	49.8	58.5	53.2	59.4	57.0	61.0	61.0	55.7	45.1	44.7
depth caudal peduncle	1.7	1.9	2.0	1.7	1.6	1.6	1.8	1.8	1.7	1.7	1.5	1.4	1.4	1.5	1.2
width caudal peduncle	3.2	3.5	3.6	3.5	3.2	2.9	3.4	3.3	3.3	3.3	3.0	2.4	2.9	2.6	2.7
anus-anal fin origin	9.8	10.9	10.4	10.7	10.7	7.8	10.5	9.4	8.8	9.1	8.8	8.2	8.4	10.9	12.0
length rectal barbel	9.2	10.8	9.2	-	-	7.8	-	10.9	9.1	9.6	8.2	-	-	-	5.5
axial length lower lip	4.8	7.2	5.1	5.5	4.1	3.7	10.4	6.2	5.6	5.6	5.3	5.5	13.1	-	3.4
meristic data:															
lateral scutes	28/28	28/28	28/28	28/28	28/28	27/27	28/28	28/28	28/28	28/28	28/28	28/28	28/28	28/28	29/29
coalescing scutes	12/12	11/11	13/13	12/12	11/11	14/14	13/12	12/12	12/12	11/11	12/12	12/13	11/12	15/14	14/14
thoracic scutes	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
teeth lower jaws	12/14	16/12	16/±13	11/14	10/12	present/10/9	present/10/9	present/15/12	present/15/12	4/11	present/13/12	>5/10	>5/10	>5/10	10/13

TABLE III. Morphometric data of *Hemiodontichthys acipenserinus* and *Reganella depressa*, expressed as ratios in standard length. Same specimens as in table II.

specimen	a	b	c	d	e	f	g	g	h	i	j	k	l	m
sex	?	?	?	?	?	?	?	?	?	?	?	?	?	?
standard length	120.0	134.0	132.5	132.5	123.5	107.0	130.0	117.0	129.0	124.0	123.0	116.0	113.0	111.0
predorsal length	2.6	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.3	2.5
head length	3.6	3.4	3.6	3.6	3.7	3.5	3.4	3.4	3.5	3.5	3.6	3.5	3.0	3.2
head width	5.9	5.7	5.8	5.8	6.1	5.6	5.7	6.2	6.8	6.8	7.0	6.8	5.3	5.3
head depth	11.9	12.8	11.8	12.7	12.9	11.9	12.0	13.8	11.8	13.5	14.0	13.0	16.6	16.3
snout length	6.4	5.9	6.4	6.4	6.5	6.3	5.8	5.8	6.3	6.0	5.9	5.9	4.5	4.8
ventrostral length	13.5	12.5	14.1	13.9	14.7	14.7	13.3	13.1	13.0	13.1	11.9	13.6	7.6	8.2
dorsal spine length	6.5	6.4	6.4	6.6	6.4	-	6.2	6.4	6.1	-	6.0	-	6.6	6.3
dorsal 1st dorsal ray	6.8	6.5	7.1	6.9	6.9	-	6.3	6.5	5.9	-	6.5	-	-	6.5
dorsal fin base	11.3	11.2	10.6	10.9	11.0	12.9	10.9	11.7	10.8	12.0	12.7	11.3	12.2	11.7
anal spine length	8.3	8.1	7.9	8.0	-	-	-	7.1	7.2	7.4	7.5	-	6.4	8.5
pectoral spine length	7.6	7.1	7.4	7.5	7.1	-	-	-	7.3	-	-	-	-	6.6
pelvic spine length	10.1	9.9	11.2	9.9	9.0	9.2	9.3	8.6	10.1	9.3	9.3	9.1	7.9	8.0
cleithral width	5.6	5.5	5.5	5.6	5.7	5.3	5.7	6.0	6.4	6.3	6.9	6.5	5.8	6.5
supra-cleithral width	7.5	7.4	7.2	7.7	7.6	6.9	7.7	8.2	8.7	8.4	9.5	8.7	7.3	8.3
thoracic length	6.5	7.1	6.5	6.8	6.7	6.5	6.7	6.7	6.7	6.7	8.0	7.7	7.3	7.8
abdominal length	7.5	7.6	7.2	7.3	7.2	7.4	7.5	7.6	8.1	7.9	8.3	7.9	6.6	5.4
peduncular length	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.0	2.1	2.5	2.5
anus-anal fin origin	12.2	12.3	12.7	12.4	11.5	12.2	12.4	12.4	13.2	14.1	13.4	13.8	10.4	9.3
length rectal barbel	13.0	12.4	14.4	-	-	13.7	-	10.7	14.2	12.9	15.0	-	-	20.2

made up of several fused parts. In front of these rows, mostly halfway the pectoral fins, scutes (shown in figs. 8a—i) may be entirely lacking or are present. If present, there may be a single, more or less triangular, scute in front of each of the rows of of thoracic scutes (figs. 8b, e, h). In other specimens the transverse area in front of thoracic and abdominal scutes may be covered by a full series of small, mostly rather regularly shaped scutes (figs. 8a, c, d, f, g, i). There is no geographical correlation in the development of these scutes: figs. 8a—e are from the lectotype and paralectotypes from Río Guaporé. Pre-anal plate present.

There are about 10 to 16 teeth in each of the lower jaws.

Edge of both upper and lower lips with irregular small flaps. Upper lip with a deep median notch, lower lip more or less notched in the middle.

Lips covered on both ventral and dorsal sides by numerous small papillae, more distinct in nuptial males, giving a granular appearance to the surface.

Eye moderate in size, round in shape, dorsally covered by a narrow skinny flap; iris partly covered by a ventrally pointed flap.

Pores of the sensory canal system present on head and between converging and parallel edges of lateral scutes, the latter pores sometimes bifurcated.

Colour in alcohol (figs. 4 and 5), based on recently preserved specimens (MCZ 46059, Rio Arari). — Ground colour of dorsum of body and head tan. Five to six transverse brown bars on dorsum of body, the first (faint) at origin of dorsal fin, extending halfway to lateral ridges, the remaining bars more distinct, reaching to the lateral denticle ridges from base of last dorsal fin ray to base of caudal fin. Some brown pigmentation scattered all over dorsum of head and body, which may form numerous spots. Fins with brown dots on the rays, faint on pelvic and anal fin, more distinct on dorsal and pectoral fins. Caudal fin with brown blotches at base and margin, caudal rays with spots, which may form indistinct vertical bars. Ventral region pale tan, except for the rostrum, which is as dark as the dorsum. Dorsal surface of upper lip marbled with brown. This pattern is also present in the dorsal surface of the lower lip in the male.

A specimen from Bolivia (ZMA 109.243) shows more pigmentation on the rays of the pectoral fins (towards distal end) and pelvic fins (on distal half only). Specimens from Peru are less pigmented, especially on soft fin rays. Most Peruvian specimens have a somewhat more yellowish ground colour, but this may be due to the method of preservation.

Discussion. — Only one out of the five syntypes examined completely agrees with the figure published by Kner (1854, pl. 7 figs. 2a—c; reproduced in this paper as fig. 2), especially in the development of the — anteriormost — ventral scutes (compare fig. 2c with fig. 8a). This specimen is herewith designated the lectotype. The four paralectotypes examined differ from the lectotype in the development of their anteriormost ventral scutes (figs. 8b—e).

Kner (1854: 93) states about the length of his specimens: "Körperlänge des grössten Exemplares 5", Länge der Caudale sammt Faden über 2"."

TABLE IV. Morphometric data of *Hemiodontichthys acipenserinus* and *Reganella depressa*, expressed as ratios in head length. Same specimens as in table II.

specimen	a	b	c	d	e	f	g	g	h	i	j	k	l	m
sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♀	♂	♂	♂	♂
standard length	120.0	134.0	132.5	132.5	123.5	107.0	130.0	117.0	129.0	124.0	123.0	116.0	113.0	111.0
head width	1.6	1.7	1.6	1.6	1.7	1.6	1.7	1.8	1.9	1.9	2.0	1.9	1.8	1.7
head depth	3.3	3.7	3.3	3.5	3.5	3.4	3.6	4.0	3.4	3.8	3.9	3.7	5.6	5.1
snout length	1.8	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.8	1.7	1.6	1.7	1.5	1.5
ventrostral length	3.7	3.7	4.0	3.8	4.0	4.2	4.0	3.8	3.7	3.7	3.3	3.9	2.6	2.6
orbital diameter, minus notch	9.8	10.3	10.1	12.6	10.2	11.8	11.4	14.3	11.5	10.6	15.0	11.5	9.8	8.7
orbital diameter, plus notch	5.4	5.2	5.0	5.4	5.3	5.2	5.1	5.2	5.0	5.8	6.3	5.3	7.2	6.1
interorbital width	5.4	4.9	5.0	4.9	5.2	4.9	5.7	5.4	6.0	5.5	6.2	5.7	10.0	10.2
internasal width	7.2	8.3	6.9	7.2	7.8	7.9	8.1	8.6	7.1	8.8	8.4	8.1	11.9	10.5
dorsal spine length	1.8	1.9	1.8	1.8	1.7	-	1.8	1.9	1.7	-	1.7	-	2.2	2.0
length 1st dorsal ray	2.0	2.0	2.0	2.0	1.9	-	1.9	1.9	1.7	-	1.8	-	-	2.0
dorsal fin base	3.1	3.3	3.0	3.0	3.0	3.7	3.3	3.4	3.1	3.4	3.6	3.2	4.1	3.7
anal spine length	2.3	2.4	2.2	2.2	-	-	-	2.1	2.1	2.1	2.1	-	2.2	2.7
pectoral spine length	2.1	2.1	2.1	2.1	1.9	-	-	-	2.1	-	-	-	-	2.1
pelvic spine length	2.8	2.9	3.2	2.7	2.5	2.6	2.8	2.5	2.9	2.6	2.6	2.6	2.7	2.5
cleithral width	1.6	1.6	1.6	1.5	1.6	1.5	1.7	1.7	1.8	1.8	1.9	1.9	1.9	2.0
supra-cleithral width	2.1	2.2	2.0	2.1	2.1	2.0	2.3	2.4	2.5	2.4	2.7	2.5	2.5	2.6
thoracic length	1.8	2.1	1.8	1.9	1.8	1.9	2.0	2.0	1.9	1.9	2.2	2.2	2.5	2.4
abdominal length	2.1	2.2	2.0	2.0	2.0	2.1	2.2	2.2	2.3	2.2	2.3	2.3	2.2	1.8
depth caudal peduncle	19.6	20.6	18.6	21.4	21.0	19.2	21.6	19.0	21.6	23.3	24.6	23.8	25.4	29.0
width caudal peduncle	10.4	11.2	10.3	10.4	10.5	10.6	11.4	10.4	11.2	11.7	14.4	11.5	14.7	12.9
anus-anal fin origin	3.4	3.6	3.6	3.4	3.1	3.5	3.7	3.6	3.8	4.0	3.8	4.0	3.5	2.9
length rectal barbel	3.6	3.6	4.0	-	-	3.9	-	3.1	4.0	3.6	4.2	-	-	6.3
axial length lower lip	6.9	5.4	7.3	6.6	8.2	8.3	3.7	5.5	6.6	6.6	6.6	2.5	-	10.2

Kner used "Wiener Zoll" to express the lengths, 1' equaling 12", and 1" equaling 12". 1' (Wiener Fuss, foot) = 316.0807 mm, 1" (Wiener Zoll, inch) = 26.342583 mm, and 1" (Wiener Linie, line) = 2.1950 mm. From this, Kner's largest specimen had a body length of 131.7 mm and a tail length including filament of more than 52.7 mm. The largest specimen we examined, however, is a paralectotype of 134 mm standard length. In only a few specimens a caudal filament is still present, as such filaments easily break off. The figures in Kner (1854, pl. 7 figs. 2a—c) measure 125.5 and 123 mm sl; the lectotype 120 mm sl. It is quite likely that the specimen recorded by van der Stigchel (1946: 182—183; 1947: 182—183) from the collection of the Rijksmuseum van Natuurlijke Historie at Leiden, RMNH 2991, also is a paralectotype, although the date given (1856) cannot be the date of collection. All type specimens in Vienna bear "Guaporé" as locality, not "Matto Grosso", as is the case with the specimen at Leiden. Kner (1854: 93) refers (in parentheses) to Juquia as one of the syntype localities. We did not succeed in finding a syntype from this locality, which should be Juquiá, 24°17' S, 47°36' W at Rio Juquiá, Est. São Paulo, Brazil. If Kner really had material from this locality, it would be the southernmost record of *Hemiodontichthys acipenserinus*.

Eigenmann & Eigenmann (1889, 1890) refer to Rio Hyavary as the locality for some of their specimens. This is the Río Javari of Peru, which is the same as Rio Javari, Brazil, Est. Amazonas; we could not locate this material. The specimens in NMW 46136 and 46137 bear the indication of "Rio Hyavary" and "Hyavary" on their locality label and may have been examined by Eigenmann & Eigenmann. However, both samples are also indicated to originate from Obidos, which is situated along the Rio Amazonas, not along Rio Javari.

#### Reganella Eigenmann, 1905

*Hemiodon* Kner, 1853: 115 (: 5 of reprint) (original diagnosis; no nominal species; in part); — Kner, 1854: 75 (diagnosis), : 76 (diagnoses of the following nominal species included: *Hemiodon depressus*, *H. acipenserinus*, and, with a question mark, *H. platycephalus*; in part) — pre-occupied in *Hemiodon* Swainson, 1840: 164, 191, 192, 194 (genus in Mollusca, Gastropoda, Helicidae), and in *Hemiodon* Swainson, 1840: 286, 287, 381 (genus in Mollusca, Lamellibranchiata, Unionidae).

*Hemiodon*; Bleeker, 1862: 4 (diagnosis, after Kner; designation of *Hemiodon depressus* as type-species).

*Reganella* Eigenmann, 1905: 794 (substitute name for *Hemiodon* Kner, 1853; type-species *Hemiodon depressus* Kner, 1854 = *Reganella depressa* (Kner, 1854)).

The original diagnosis of *Hemiodon* (Kner, 1853: 115; : 5 of reprint) reads:

"*Hemiodon*. Körper sehr plattgedrückt, Zähne nur im Unterkiefer, Zwischenkiefer rudimentär, zahnlos."

The diagnosis of *Hemiodon* Kner, 1853, as restricted by Bleeker (1862: 4) reads:

"*Hemiodon* Kner.



TABLE V. Some morphometric data of 61 specimens of *Hemiodontichthys acipenserinus*: ranges and, between brackets, mean. Sample A — Rio Madeira drainage (N = 7), sample B — Rio Paraguai (N = 6), sample C — middle and lower Rio Amazonas (N = 26), sample D — upper Rio Amazonas (N = 18), sample E — Rio Branco (N = 3), sample F — Essequibo River (N = 1). For reference to specimens grouped into each of the samples, see text.

	sample A	sample B	sample C	sample D	sample E	sample F
sl in mm	91.0-134.0 (120.1)	78.4-111.4 (95.8)	65.5-130.0 (94.5)	58.2-129.0 (98.9)	74.0-84.5 (79.4)	86.4
hl in sl	3.4-3.7 (3.6)	3.1-3.6 (3.4)	3.1-3.8 (3.6)	3.3-3.7 (3.5)	3.4-3.7 (3.6)	3.4
hd in sl	11.8-14.2 (12.9)	10.6-14.5 (12.4)	12.0-15.4 (14.1)	11.8-15.2 (13.9)	13.4-15.1 (14.5)	14.4
sn in sl	5.9-6.5 (6.3)	5.7-6.3 (6.0)	5.4-6.8 (6.4)	5.6-6.5 (6.0)	5.6-6.4 (6.1)	5.6
vr1 in sl	12.5-14.7 (13.7)	12.9-14.7 (13.6)	11.4-16.9 (13.8)	10.8-14.5 (12.8)	12.8-14.0 (13.4)	12.2
od' in sl	17.9-20.2 (19.0)	17.3-20.6 (18.5)	15.6-23.1 (20.0)	17.7-22.4 (20.0)	18.8-20.0 (19.6)	21.1
low in sl	16.6-19.8 (18.5)	16.3-18.2 (17.3)	17.1-23.6 (20.4)	18.5-22.0 (20.3)	19.8-20.0 (19.9)	21.1
cw in sl	5.5-6.1 (5.7)	5.0-5.6 (5.4)	5.6-7.3 (6.4)	6.0-6.9 (6.4)	6.3-6.7 (6.5)	6.4
hd in hl	3.3-4.0 (3.6)	3.4-4.3 (3.7)	3.6-4.4 (4.0)	3.4-4.4 (4.0)	3.9-4.1 (4.0)	4.2
sn in hl	1.7-1.8 (1.8)	1.7-1.9 (1.8)	1.6-2.0 (1.7)	1.6-1.8 (1.7)	1.6-1.7 (1.7)	1.6
vr1 in hl	3.7-4.0 (3.8)	3.7-4.5 (4.0)	3.4-4.9 (3.9)	3.2-4.1 (3.6)	3.6-3.8 (3.7)	3.6
od' in hl	5.0-5.7 (5.3)	5.2-5.9 (5.5)	5.1-6.4 (5.7)	5.0-6.3 (5.7)	5.4-5.5 (5.5)	6.2
low in hl	4.9-5.6 (5.2)	4.9-5.5 (5.1)	5.2-6.5 (5.8)	5.3-6.2 (5.8)	5.4-5.7 (5.5)	6.2
cw in hl	1.5-1.7 (1.6)	1.5-1.7 (1.6)	1.6-2.1 (1.8)	1.7-2.0 (1.8)	1.8 (1.8)	1.9

TABLE VI. Lateral and coalescing scute counts in 47 specimens of *Hemiodontichthys acipenserinus*; in all specimens both sides are counted; not all the same specimens used for tables II through IV are represented in this table.

	lateral scutes			coalescing scutes					
	27	28	29	7	8	11	12	13	14
Rio Madeira drainage (2N = 16)	4	12				6	4	5	1
Rio Paraguai (2N = 12)	10	2				4	4	2	2
middle and lower									
Rio Amazonas (2N = 38)	5	21	12	1	1	3	13	19	1
upper Rio Amazonas (2N = 10)		8	2			3	5	2	
Rio Branco (2N = 16)	13	3					10	6	
Essequibo River (2N = 2)		2				2			

Velum labiale mediocre. Dentes inframaxillares conspicui, intermaxillares nulli. Cristae occipitales vel nuchales vel laterales serratae nullae. Pinna dorsalis supra ventrales incipiens. Corpus valde depressum. Spec. typ. *Hemiodon depressus* Kner."

Eigenmann (1905: 794) substituted *Reganella* for *Hemiodon* Kner, 1853 in the following words:

"The *Hemiodontichthys* of Regan contains two distinct generic types, the one with the snout expanded at the tip (the *Hemiodontichthys* of Bleeker), and the other with the snout simply pointed (the *Hemiodon* of Bleeker). *Hemiodon* being preoccupied, this genus may be termed *Reganella*, in recognition of this author's invaluable services in reviewing the group."

Diagnosis: *Reganeila* is a genus of the subfamily Loricariinae distinguished by a combination of the following characters: long, acute snout, slightly concave on the sides. Tip of snout with very narrow naked horizontal area and straight tip. Small teeth in lower jaws; upper jaws — very difficult to locate in well-preserved specimens — toothless; dermal denticles on external ossifications comparatively weakly developed, though forming distinct ridges along lateral scutes; throat, breast and belly covered by small, irregular scutelets, decreasing in size anteriorly, reaching almost towards posterior margin of lower lips; eye moderate, orbit with a moderate posterior notch; supra-occipital process with broad tip (though somewhat slenderer than in *Hemiodontichthys*); pectoral pore present.

Dorsal fin I,6, last ray split to its base (there are only 5 branched dorsal fin rays in the specimen IRScNB 17870); anal fin I,4, last ray split to its base; pectoral fin I,6; pelvic fin I,5; caudal fin I,10,I.

Sexual dimorphism unknown.

*Reganella* contains a single species: *Reganella depressa* (Kner, 1854), known from seven specimens originating from the Rio Amazonas drainage, Brazil.

A comparison of *Reganella* with *Hemiodontichthys* is given in table I; comparison of certain characters of these two genera with *Pseudohemiodon*,

*Planiloricaria*, and *Rhadinoloricaria* (these five genera forming the *Pseudohemiodon*-group of genera within the subfamily Loricariinae) was recently published by Isbrücker & Nijssen (1974: 69—73).

***Reganella depressa* (Kner, 1854)**

(figs. 1, 10—12, 13e—f, 14; tables I—IV)

- Hem[iodon] depressus* Kner, 1854: 91—92, pl. 7 figs. 1a—c (original description; number of specimens not stated; type localities: “Rio negro\* und Marabitanos\*”; lectotype — from Marabitanas — in Naturhistorisches Museum, Wien, NMW 9438\*).
- Hemiodon depressus*; Bleeker, 1858: 331 (listed); — Bleeker, 1862: 4 (listed; designation as type-species of *Hemiodon* Kner, 1853); — Bleeker, 1863: 82 (listed; type-species of *Hemiodon* Kner, 1853).
- Loricaria depressa*; Günther, 1864: 259 (description, abstracted from Kner, 1854): — Eigenmann & Eigenmann, 1889: 34 (listed; in subgenus *Hemiodon* Kner, 1853); — Eigenmann & Eigenmann, 1890: 365 (listed; Rio Negro; in key on: 361, in subgenus *Hemiodon* Kner, 1853; based on Kner, 1854); — Eigenmann & Eigenmann, 1891: 38 (listed; Rio Negro; in subgenus *Hemiodon* Kner, 1853).
- Hemiodontichthys depressus*; Regan, 1904: 296 (description, abstracted from Kner, 1854); — A. de Miranda Ribeiro, 1911: 113—114 (description, translated from Kner, 1854; references listed on: 426).
- Reganella depressa*; Eigenmann, 1910: 415 (listed; Rio Negro); — Gosline, 1945: 108 (listed; Rio Negro); — Fowler, 1954: 112, fig. 716 (references; Amazonas; figures after Kner, 1854); — Isbrücker, 1971: 276 (name only); — Isbrücker, 1973: 188 (note); — Isbrücker & Nijssen, 1974: 71 (comparison of *Reganella* with related genera).

**Specimens examined. —**

BRAZIL: NMW 9438, one (lectotype, by present designation), sl 113 mm, Est. Amazonas, Marabitanas, 00°57' N, 66°55' W, upper Rio Negro, coll. J. Natterer, before 1853; — NMW 44862, one (paralectotype), total length about 145 mm (specimen in very poor condition), Rio Negro, coll. J. Natterer, before 1853; — ANSP 124251 (one), ANSP 124252 (two), ZMA 112.742 (one), sl 76.3 to 111 mm, Est. Amazonas, west of Moura, near junction of Rio Negro and Rio Branco, approximately at 01°05' S, 61°08' W, coll. J. Faughn, RV “Alpha Helix”, IV/VI-1967; — IRScNB 17870, one, total length 153 mm (tip of snout broken off during life), Est. Pará, mouth of Rio Tapajós at Santarém, coll. Knowles & G. Marlier, I-1964.

**Description.** — Detailed morphometric and meristic data are represented in tables II through IV, based on the lectotype and the specimen in ANSP 124251. The remaining five specimens available are either too badly damaged (the paralectotype and the specimen in IRScNB 17870), or too small (ANSP 124252, ZMA 112.742) for comparative purposes.

The number of lateral scutes is 29 to 30, the number of coalescing scutes is 14 to 15. Between pectoral and pelvic fin there are 4 to 5 thoracic scutes. Pre-anal plate present. There are up to 18 teeth in each of the lower jaws (the specimen in IRScNB 17870 has 18/13).

\* Material indicated by an asterisk has been re-examined.

Upper lips narrow, the outer edge with small papillae; lower lips moderate in length, deeply to moderately notched in the middle, the outer edge with up to 4 rather prolonged papillae, or small flaps. Ventral surface of lower lips with numerous minute papillae, dorsal surface smooth.

Eye moderate in size, little oval in shape, covered dorsally by a narrow skinny flap; iris partly covered with a ventrally rounded flap.

Pores of the sensory canal system present on head and between converging and parallel edges of lateral scutes, the latter pores sometimes bifurcated.

Colour in alcohol (figs. 11 and 12). — Ground colour pale yellow. Dorsum of head, body, and tail with many very pale tan, small irregular spots. Such spots are also present in dorsal, pectoral, and pelvic fins, and in upper lobe of caudal fin. Dorsal fin with two or three dark brown spots on the membrane at the base of spine through third soft ray. Anal fin and lower lobe of caudal fin without pigment. The specimen in IRScNB 17870 is somewhat darker than the other recently collected specimens we examined (from ANSP & ZMA); it is also the largest specimen of *Reganella depressa*, with an estimated standard length of approximately 170 mm.

Discussion. — The larger syntype (NMW 44862) has not been selected as the lectotype as this specimen is very badly damaged. It has about 9 bilobed teeth — botch lobes being somewhat rounded — in each of the lower jaws. The lectotype also is in a poor state of preservation.

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