

Redescription of *Glyptoperichthys scrophus*, a loricariid catfish from Peru

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A species of *Glyptoperichthys* originally described by Cope (1874) as *Liposarcus scrophus* is distinguishable from the six species recognized by Weber (1991, 1992). *Glyptoperichthys scrophus* is easily recognized by its extremely elevated supraoccipital crest, a body that is uniformly colored except for three large, bold, dark brown saddles that extend down the side of the body, a light-colored upper caudal fin ray, and a light interorbital stripe. Dark or light spots on the body and dorsal fin, present in all other species of *Glyptoperichthys*, are absent. All known records of *G. scrophus* are from the upper Río Amazonas basin of Peru.

Resumen. Una especie de *Glyptoperichthys* descrito originalmente por Cope (1874) como *Liposarcus scrophus* está distinguible de las seis especies reconocidas por Weber (1991,1992). *Glyptoperichthys scrophus* está identificado fácilmente por su estremadamente elevado hueso supraoccipital, un cuerpo con color uniforme con la excepción de tres franjas morenas, grandes y claras, que se extienden hacia abajo en el lado del cuerpo, el radio superior de la aleta caudal de color claro y una franja interorbital de color claro. Las manchas oscuras o claras en el cuerpo y la aleta dorsal que están presente en todas otras especies de *Glyptoperichthys* están ausentes. Todos archivos conocidos de *G. scrophus* son del parte superior de la cuenca del río Amazonas de Peru.

Introduction

Weber (1991, 1992) reviewed populations of loricariid catfishes that had been assigned to the genus *Pterygoplichthys* and determined that the genus was paraphyletic. To correct the paraphyly, he reduced the number of species in *Pterygoplichthys* Gill 1858 to three: *P. etentaculatus* (Spix, 1829), *P. undecimalis* (Steindachner, 1878), and *P. zuliaensis* Weber, 1991; resurrected *Liposarcus* Günther, 1864 to include four species: *L. multiradiatus* (Hancock, 1828), *L. pardalis* (Castelnau, 1855), *L. anisitsi* (Eigenmann & Kennedy, 1903), and *L. disjunctivus* Weber, 1991; and created a new

genus, *Glyptoperichthys*, to include six species: *G. gibbiceps* (Kner, 1854), *G. lituratus* (Kner, 1854), *G. punctatus* (Natterer, 1854), *G. joselimaianus* Weber, 1991, *G. parnaibae* Weber, 1991, and *G. xinguensis* Weber, 1991. Weber hypothesized that *Pterygoplichthys* is the sister genus to *Glyptoperichthys* plus *Megalancistrus*, and that this three-genus clade is sister to *Liposarcus*. He considered these four genera to be closely related because they shared the derived characteristics of having modally more than nine branched rays in the dorsal fin (hence, the name sailfin catfishes) and modally more than 10 vertebrae articulating with the dorsal fin.

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Using Weber's descriptions and maps, we have had few problems identifying the hundreds of specimens of sailfin catfishes that we have examined in our field and museum studies. The only discrepancies with Weber's work are the identification of the species redescribed below as *G. scrophus*, and the identification of an as-yet unrecognized species from the Río Mamoré (Río Madeira) drainage of Bolivia. The species in the Río Mamoré is under study and will be addressed in a later paper.

Methods

Measurements follow Boeseman (1968) except as follows: head length is from the tip of the snout to the posterior end of the opercle, body depth is the depth at the dorsal fin origin, postdorsal length is the distance from the dorsal fin origin to the end of the vertebral column (inflexion point at end of hypural plate), length of the nostril flap is from the base of the flap to the distal tip of the flap. Institutional abbreviations follow Leviton et al. (1985) except that MUSM refers to the Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru, IIAP refers to the Instituto de Investigaciones de la Amazonia Peruana, Iquitos, Peru, and MNHNB refers to the Museo Nacional de Historia Natural, LaPaz, Bolivia.

The Genus *Glyptoperichthys*

Weber (1991, 1992) recognized the following six species of *Glyptoperichthys*, mapped their distributions, and listed synonyms of each: *G. gibbiceps*, found throughout much of the Río Amazonas and Río Orinoco basins; *G. lituratus*, in the Río Madeira drainage (and questionably the Río Xingu drainage) of the Río Amazonas basin; *G. punctatus*, throughout much of the Río Amazonas basin; *G. joselimaianus*, in the Río Tocantins drainage; *G. parnaibae*, in the Río Parnaíba drainage; and *G. xinguensis*, in the Río Xingu drainage (Río Amazonas basin). Each of these species is easily diagnosable, although Weber (1992) noted significant variation throughout the range of *G. gibbiceps* and suggested that additional study of this species might be warranted.

A seventh species of *Glyptoperichthys*, described by Cope (1874) as *Liposarcus scrophus*, is clearly distinguishable from the six species recognized by Weber. The species is restricted to the upper Río Amazonas basin of Peru and appears to be rare in scientific collections; specimens were found during our study only at CAS, IIAP, INHS, and USNM. However, the species is fairly common in the ornamental fish trade and is depicted by Baensch & Riehl (1985: 514) as *Pterygoplichthys* sp., by Burgess (1989: pl. 231, left column, second from top) as *Pterygoplichthys* sp., by Kobayagawa (1991: 61, top) as *Pterygoplichthys* sp., and by Schaefer (1992: 51) as *G. cf. lituratus*. Weber (1992) included *L. scrophus* Cope, 1874 in the synonymy of *G. gibbiceps*, noting that he had been unable to examine the types because they cannot presently be located at ANSP.

Glyptoperichthys scrophus (Cope) Rhinoceros sailfin

Types. *Liposarcus scrophus* Cope 1874:136-137. The two syntypes ('cotypes') of *Liposarcus scrophus*, from Nauta, Peru, and collected by J. Orton in 1873, cannot presently be located (Böhlke, 1984). We are not designating a neotype under the assumption that eventually they will be found.

Material examined. Twenty one specimens, all from Peru. Departamento Loreto: CAS 78404 (1; 273.4 mm), near Iquitos, Sept. 1920. - CAS 133223 (1; 100.4 mm), CAS 133224 (1; 80.5 mm), Tuye Caño, Pebas, 28 Aug. 1936. - IIAP uncat. (1), Río Samiria (Caño Ungvrahuillo), 3 Sept. 1986. - INHS 36937 (11; 44.6 - 99.8 mm), Río Amazonas at Pueblo Gallito, upstream of Iquitos, 27 July 1995. - USNM 86853 (2; 110.0-223.3), Río Picoyu, Aug., 1920. - USNM 124859 (1; 177.8 mm), Tuye Cocha, 2 Sept. 1935. Departamento Ucayali: CAS 77273 (2; 105.9-215.2 mm SL), L. Yarinacocha, 29 Aug. - 1 Sept. 1920. - USNM 167830 (1; 225.0 mm), Yarinacocha (Pacaya), Aug. 1920.

Diagnosis. Member of genus *Glyptoperichthys*, as defined by Weber (1991). All species in the genus are recognized by the elevated supraoccipital crest; however, within the genus the elevation is most extreme in large *G. scrophus* (Figs. 1 & 2). In individuals > 100 mm SL, the body is uniformly tan except for three large bold dark brown sad-



Fig. 1. *Glyptoperichthys scrophus*, ca. 120 mm SL, aquarium specimen (photograph L. M. Page).

dles that extend down the side of the body, a large dark brown blotch on top of the head, a light yellow interorbital stripe, and a light yellow to red upper caudal fin ray. Dark or light spots are absent on the body and fins. The massive dorsal fin is dark brown throughout, without distinct spots or other marks. Head and body are strongly ridged; in addition to the elevated supraoccipital crest, bony orbits protrude above the top of the head, and the upper body and caudal peduncle are covered with strongly keeled (anterior) or spiny (posterior) scutes. Nostril flaps are long, >0.6 times the orbital diameter.

Comparisons (Table 1). Other species of *Glyptoperichthys* lack the large bold dark brown saddles on the dorsum and sides of the body, the large dark brown blotch on top of the head, and the light interorbital stripe. Also, unlike *G. scrophus*, which lacks dark or light spots, all other species of *Glyptoperichthys* have spots on the body and fins, including the dorsal fin, as juveniles and adults. *Glyptoperichthys lituratus*, *G. joselimaianus*,

G. xinguensis, and *G. parnaibae* have light spots on a dark background, and *G. gibbiceps* and *G. punctatus* have dark spots on a light background. Development of the spots is variable among the species, but they usually are more prominent on small individuals. The light-colored vermiculations on the venters of *G. parnaibae* and *G. lituratus* are absent in *G. scrophus*. All other species have shorter nostril flaps (<0.6 orbital diameter) and are less strongly ridged than is *G. scrophus*.

Specific epithet. Although the types are lost (Böhlke, 1984), the original description of *L. scrophus* is sufficient to conclude that Cope (1874) described the species redescribed herein as *G. scrophus*, the rhinoceros sailfin. Characteristics in the original description of *L. scrophus* (from two specimens) that vary among species of *Glyptoperichthys* and agree with specimens that we are assigning to this species include: 'robust and rough in character. The dorsal outlines arched, rising abruptly in a strong crest on the posterior cephalic scutum, and maintained by the rough lateral

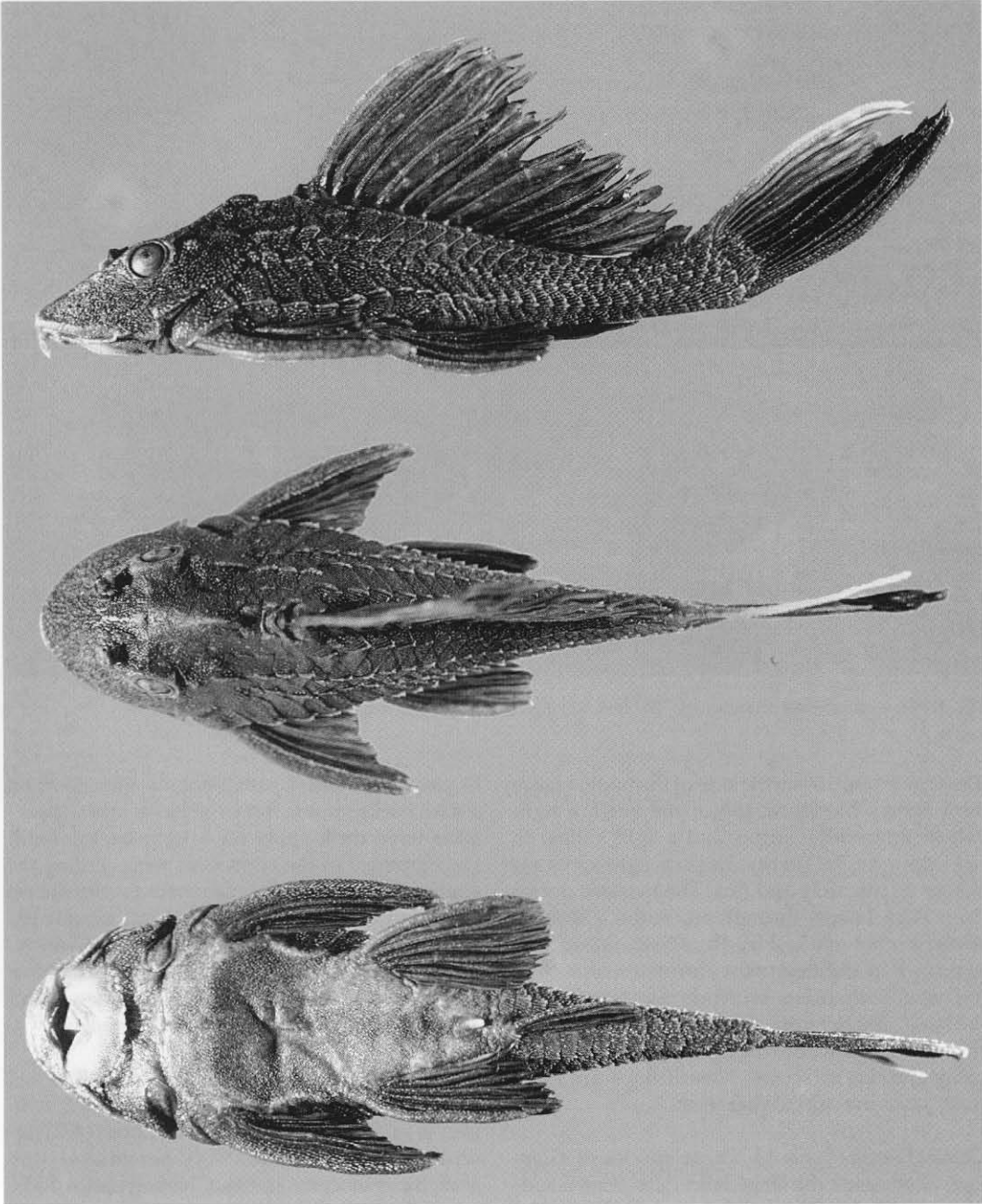


Fig. 2. *Glyptoperichthys scrophus*, INHS 36937, 99.8 mm SL, Rio Amazonas at Pueblo Gallito, Peru; lateral, dorsal and ventral views (right side, reversed) (photograph K. S. Cummings).

keels of the nuchal plates ... There is an angular tuberosity on the upper posterior part of the orbit, and a low ridge on the inner side of each of the nares... Lower surfaces everywhere rugose ...

Scuta in twenty-seven transverse, and four longitudinal series, all rugose with lines of points and each with an elevated keel-brush of small spines ... sides are swollen from opposite the base of

the dorsal fin ... Radii of fins; D. II. 12; C. I. 14, I; A. I. 4; V. I. 5; P. I. 6. Color uniform black; upper caudal ray yellowish'.

With 12 branched rays in the dorsal fin and 'a strong crest on the posterior cephalic scutum', it is clear that Cope was describing a species now assignable to the genus *Glyptoperichthys*. The only species of *Glyptoperichthys* known from Peru, other than the rhinoceros sailfin, are *G. gibbiceps* and *G. punctatus*. *Glyptoperichthys gibbiceps* and *G. punctatus* are both profusely covered with dark spots, a feature not mentioned by Cope. Also, neither *G. gibbiceps* nor *G. punctatus* have the yellowish upper caudal fin ray, a distinctive feature of the rhinoceros sailfin mentioned by Cope. Finally, the supraoccipital crest is only slightly elevated in *G. punctatus* and is not the 'strong crest' described by Cope.

The most troubling aspect of assigning the name *scrophus* to the rhinoceros sailfin is that Cope does not mention the dark saddles that are characteristic of the rhinoceros sailfin; however, the saddles sometimes fade on preserved specimens (Fig. 2) and may not have been visible on the syntypes. Based on the specimens available to us it is our conclusion that the specific epithet *scrophus* should be applied to the rhinoceros sailfin.

Etymology. *Glyptoperichthys* is an anagram of *Pterygoplichthys* (Weber 1991). The name *scrophus* is the masculine form of *scrofa*, which is a Latin word for breeding sow. Apparently the species reminded Cope (1874) of a pig.

Description. Specimens examined (N = 21) ranged from 44.6 to 273.4 mm SL. The dorsal fin is massive, extending posteriorly beyond the adipose fin on all specimens. Body strongly sculptured, with elevated supraoccipital crest, bony orbits that protrude above the top of the head, upper body and caudal peduncle covered with strongly keeled (anterior) or spiny (posterior) scutes. Very small scutes cover venter from head to anal fin. The long nostril flaps are conspicuous when held erect on live individuals, giving the appearance of horns and suggest the name rhinoceros sailfin.

Dorsal fin with 2 spines (1 spinelet and 1 large spine) and 12 (18 specimens) or 13 (2) branched rays; caudal fin with 1 upper and 1 lower unbranched ray, 14 branched rays; pectoral fin with 1 spine and 6 branched rays; pelvic fin with 1 spine and 5 branched rays; anal fin with 1 unbranched and 4 branched rays; scutes along lateral line 27 (10), 28 (9), or 31 (1); teeth on left premaxilla 23-28; teeth on left dentary 28-31. Morphometrics are given in Table 2.

Color. In specimens > 100 mm SL, the body, including the venter, is light brown. The top of the head is dark brown with a light yellow stripe extending from eye to eye. Three dark brown saddles extend down the side of the body to the venter. The first saddle begins under the rear end of the dorsal fin and extends forward to the pelvic fin. The second saddle begins on the adipose fin and extends downward from the front of the adipose fin onto the caudal peduncle. The third,

Table 1. Diagnostic characteristics of species of *Glyptoperichthys*.

character	species						
	<i>G. scrophus</i>	<i>G. lituratus</i>	<i>G. joselimaianus</i>	<i>G. xinguensis</i>	<i>G. parnaibae</i>	<i>G. gibbiceps</i>	<i>G. punctatus</i>
dorsal coloration	large bold dark brown saddles on brown body		light spots on dark background			dark spots on light background	
ventral coloration	uniformly brown	light vermiculations	large light spots	small light spots	light vermiculations	large dark spots	small dark spots
dorsal fin	uniformly brown			light or dark spots			
caudal fin	dark with much lighter upper ray			without much lighter upper ray			
interorbital stripe	present				absent		
supraoccipital crest	highly elevated				elevated		
nostril flaps	long; > 0.6 orbital diameter				short; < 0.6 orbital diameter		

less defined, saddle begins at the top of the caudal fin origin and extends down and forward to blend with the second saddle on the lower caudal peduncle. The dorsal fin is dark brown throughout, without distinct spots or other marks (some individuals have faint spots along the dorsal fin spine). The paired fins are uniformly light brown. The caudal fin is dark brown except for the dorsal unbranched ray which is red- to yellow-brown and much lighter than the rest of the fin.

Small individuals (45-100 mm SL) are colored the same as those > 100 mm except that the light ground color and dark bands on the body are less contrasting, and the long spine on the leading edge of the dorsal and paired fins is light with dark spots. Unlike on juveniles of other species of *Glyptoperichthys*, no spots are present on the body or fin membranes.

Distribution. All known records of *G. scrophus* are from the upper Río Amazonas basin in the departments of Loreto and Ucayali, Peru. The syntypes were from Nauta, Peru, which is located on the Río Marañon, just upstream of where the Río Marañon joins the Río Ucayali to form the Río Amazonas. Records for the species exist from the Río Marañon and Río Ucayali drainages, as well as the Río Amazonas proper (Fig. 3). The only species of *Glyptoperichthys* that occur sympatrically (but perhaps not syntopically) with *G. scrophus* are *G. gibbiceps* and *G. punctatus* (Figs. 3 & 4).

During our study of *Glyptoperichthys*, we located specimens that considerably expand the distribution of *G. gibbiceps* beyond that recorded by Weber (1992). The most notable record is a collection from the Río Madeira drainage of Bolivia (Fig. 4): *G. gibbiceps*: MNHNB 00136 (3 specimens; 82.8-113.1 mm SL), Bolivia, Beni, Río Itenez or Guapore between the mouths of the Río Machupo and the Río Blanco (ca. 100 km NE San Joaquin), 2-5 Sept. 1984. Additional localities in Figure 4 not shown by Weber (1992) for *G. gibbiceps* are based on the following collections. ANSP 135655, 139884; FMNH 85831, 95576; MCNG 24618, 24619; USNM 26713.

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Table 2. Morphometric characteristics of *Glyptoperichthys scrophus* (CAS 77273, 78404, 133223, 133224; USNM 86853, 124859, 167830). Ratios expressed as percents.

morphometric Feature	n	mean	SD	range
standard length (SL), mm	9	167.9	70.0	80.5-273.4
predorsal length/SL	9	43.6	2.1	39.7-46.7
head length/SL	9	30.3	1.3	27.7-32.1
snout length/SL	9	19.5	0.9	17.9-20.7
orbital diameter/SL	9	4.6	0.6	3.8-5.4
interorbital width/SL	9	16.9	0.8	15.8-18.1
body depth/SL	9	23.1	1.5	21.7-26.3
tip of snout to pelvic fin origin/SL	9	49.5	2.3	45.8-52.5
thoracic length/SL	9	23.4	2.0	20.1-26.3
pectoral fin spine length/SL	9	35.2	2.2	31.5-37.9
pelvic fin spine length/SL	9	26.9	2.1	22.6-29.2
anal fin spine length/SL	9	17.8	1.9	15.8-21.2
dorsal fin spine length/SL	8	34.3	6.4	26.8-45.0
postdorsal length/SL	9	60.5	3.0	56.0-63.3
caudal peduncle depth/SL	9	9.3	0.6	8.7-10.6

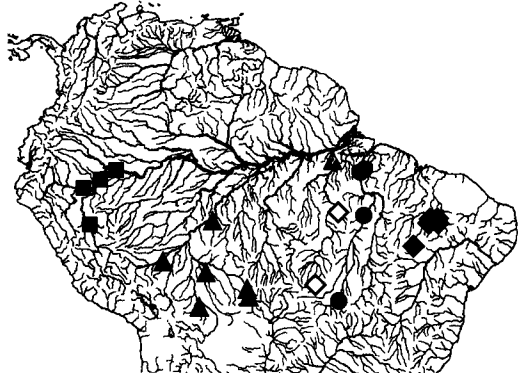


Fig. 3. Distributions of *Glyptoperichthys joselimaianus* (●), *G. lituratus* (▲), *G. paranaibae* (◆), *G. scrophus* (■), and *G. xinguensis* (◇); after Weber (1992), in part.

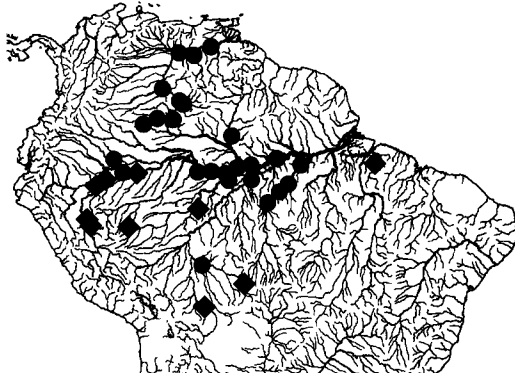


Fig. 4. Distributions of *Glyptoperichthys gibbiceps* (●) and *G. punctatus* (◆); after Weber (1992), in part.

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