

# A new species of amblycipitid catfish, *Xiurenbagrus gigas* (Teleostei: Siluriformes), from Guangxi, China

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**Abstract** A new species of amblycipitid catfish is described based on five specimens (88.0–164.5 mm in standard length: SL) collected from the vicinity of Du'an, Guangxi Zhuangzu Autonomous Region, southern China. The new species, *Xiurenbagrus gigas*, is different from all other known amblycipitid catfish, but similar to *X. xiurenensis* by having two patches of vomerine teeth. The new species can be distinguished from *X. xiurenensis* by having a larger head (head length: 27.9–34.9% vs. 21.8–26.4% SL; head depth: 14.4–17.9% vs. 12.4–14.1% SL; head width: 22.4–29.4% vs. 18.1–20.3% SL), lower adipose fin (4.6–6.0% vs. 6.5–8.3% SL), shorter distance from dorsal origin to adipose origin (25.7–32.0% vs. 32.9–38.9% SL), longer dorsal fin (21.2–24.9% vs. 16.2–19.1% SL), longer pectoral fin (18.4–20.7% vs. 13.5–16.8% SL), longer pelvic fin (13.1–14.3% vs. 8.8–11.8% SL), and more gill rakers (7–9 vs. 5). *Xiurenbagrus gigas*, the largest known species in the family Amblycipitidae, is distributed in the Xijiang River, the longest tributary of the Zhujiang (Pearl) River basin.

**Key words** *Xiurenbagrus* · Amblycipitidae · New species · China

Fishes of the family Amblycipitidae are distributed in East, Southeast, and South Asia including India, Pakistan, China, Thailand, Burma, Korea, and southern Japan (Nelson, 1994; He, 1999). Three genera have been recognized in this family. *Amblyceps* Blyth 1858, including 11 species, can be distinguished from the other two genera by having double folded lips and uniformly colored fins. *Liobagrus* Hilgendorf 1878, which includes 12 species, differs from the rest of amblycipitid species by having a confluent adipose fin with caudal fin and relatively pale fin margins (Chen, 1994; Eschmeyer, 2003). Chen and Lundberg (1995) established the monotypic genus *Xiurenbagrus* by having a unique character, two patches of vomerine teeth, to distinguish from another two genera. In China, 8 *Liobagrus* species and 1 *Xiurenbagrus* species are distributed in the area between the Changjiang (Yangtze) River and Zhujiang (Pearl) River basins and in Taiwan Island (He, 1999).

In 2001, we collected five specimens of an amblycipitid catfish from the northern part of the Guangxi Zhuangzu Autonomous Region, southern China. Through careful comparisons with other amblycipitid catfishes, we found that some characters of these specimens were clearly different from those of other known species in this family but similar to *Xiurenbagrus xiurenensis* (Yue, 1981) by having two patches of vomerine teeth, and herein describe it as a new species of the genus *Xiurenbagrus*.

## Materials and Methods

Type and comparative specimens for this study were deposited in the Animal Museum of the Institute of Zoology, the Chinese Academy of Sciences (ASIZB; institutional abbreviation is according to the list in Leviton et al., 1985). The following species—*Xiurenbagrus xiurenensis*, *Liobagrus marginatus* (Günther, 1892), *Liobagrus kingi* Tchang, 1935, *Liobagrus nigricauda* Regan, 1904, *Liobagrus styani* Regan, 1908, *Liobagrus marginatoides* (Wu, 1930) and *Liobagrus anguillicauda* Nichols, 1926—were examined. Detailed specimen information is listed in the Comparative materials.

Measurements were taken point to point with a digital calliper to 0.1 mm. Morphometric and meristic characters were selected according to methods described by Chen (1994) and Chu et al. (1999). Osteological characters were observed on soft X-ray photographs following methods described by Zhao et al. (2002). Vertebrae were counted excluding the Weberian complex. Morphometric and meristic information was analyzed using SYSTAT version 10 (Wilkinson, 2001).

## *Xiurenbagrus gigas* sp. nov.

(Figs. 1, 2; Table 1)

**Holotype.** ASIZB 72944, 131.8 mm standard length (SL), Zhujiang River basin: Hongshuihe River, Anyang Town (23°17'N, 106°29' E), Du'an County, Guangxi, P.R. China; March 2001; J.H. Lan

**Table 1.** Meristics and morphometrics of *Xiurenbagrus xiurenensis* and *X. gigas* sp. nov.

	<i>Xiurenbagrus xiurenensis</i> (n = 5)				<i>Xiurenbagrus gigas</i> sp. nov (n = 5)				
	min	max	mean	SD	Holotype	min	max	mean	SD
Dorsal fin	i, 6	i, 6	I, 6		i, 6	i, 6	i, 6	i, 6	
Anal fin	vi, 8	vi, 11	vi, 9		vi, 9	vi, 9	vi, 8	vi, 8	
Pectoral fin	i, 6	i, 7	I, 7		i, 8	i, 8	i, 8	i, 8	
Pelvic fin	i, 6	i, 6	I, 6		i, 6	i, 5	i, 6	i, 5	
Vertebrae	41	44	42		40	40	43	41	
Gill rakers	5 <sup>a</sup>	7 <sup>a</sup>	5 <sup>a</sup>		7	7	9	7	
SL (mm)	43.4	73.1	62.1		131.8	88.0	164.5	128.7	
Body depth	16.7	19.9	18.5	1.6	19.8	18.7	24.2	21.2	2.7
Predorsal length	30.4	35.2	32.2	1.9	34.2	34.0	37.3	35.4	1.4
Preanal length	64.5	68.2	66.4	1.3	66.7	66.7	75.0	71.6	3.1
Prepectoral length	21.3	25.9	23.2	2.4	25.0	25.0	31.8	28.0	2.6
Prepelvic length	46.6	52.0	48.6	2.2	50.8	50.8	60.2	55.8	3.5
Dorsal origin to adipose origin	32.9	38.9	36.0	2.7	29.0	25.7	32.0	27.8	2.7
Pectoral origin to anal origin	46.4	49.5	48.3	1.2	45.5	42.1	52.9	46.9	4.1
Pelvic origin to anal origin	16.8	20.4	18.6	1.5	16.5	14.2	19.7	16.4	2.2
Width at pectoral origins	15.6	18.6	17.3	1.4	21.5	21.2	23.8	22.7	1.3
Width at pelvic origins	7.4	8.8	7.9	0.6	10.9	9.8	11.3	10.6	0.6
Dorsal-fin base length	10.0	13.4	11.9	1.3	14.2	11.7	17.2	13.7	2.2
Anal-fin base length	13.7	18.1	15.3	1.7	16.8	14.4	17.4	15.8	1.2
Pectoral-fin base length	5.1	5.6	5.3	0.2	6.4	6.3	7.1	6.7	0.4
Pelvic-fin base length	3.3	4.2	3.8	0.4	4.3	3.9	4.3	4.2	0.2
Adipose-fin base length	27.1	32.1	29.5	2.2	35.1	30.9	35.1	32.9	1.7
Adipose-fin depth	6.5	8.3	7.2	0.7	5.2	4.6	6.0	5.0	0.6
Caudal-peduncle length	13.9	21.6	18.4	3.3	18.7	13.2	18.7	16.4	2.1
Caudal-peduncle depth	12.8	14.7	13.9	0.7	13.7	12.2	13.9	13.0	0.8
Pectoral-fin length	13.5	16.8	14.7	1.4	18.4	18.4	20.7	19.6	0.9
Pelvic-fin length	8.8	11.8	10.1	1.2	13.3	13.1	14.3	13.6	0.5
Dorsal-fin length	16.2	19.1	17.1	1.2	21.2	21.2	24.9	22.4	1.6
Anal-fin length	19.9	25.0	22.0	2.0	23.4	16.2	23.5	21.7	3.1
Head length	21.8	26.4	23.6	1.8	27.9	27.9	34.9	29.9	2.8
Head depth	12.4	14.1	13.2	0.6	14.4	14.4	17.9	16.0	1.5
Head width	18.1	20.3	18.9	0.9	22.9	22.4	29.4	25.3	2.8
Snout length	8.3	9.9	9.2	0.7	9.7	8.9	12.6	10.0	1.5
Eye diameter	1.9	2.5	2.2	0.3	1.9	1.9	2.4	2.2	0.3
Interorbital width	5.3	7.8	6.8	0.9	7.9	7.9	9.7	8.8	0.6
Mouth width	11.7	13.5	12.9	0.8	15.6	15.6	19.5	17.5	1.7
Prenostril length	2.9	3.8	3.3	0.4	5.0	4.7	6.8	5.2	0.9
Width between anterior nares	3.6	4.5	3.9	0.4	6.2	5.5	6.6	6.0	0.5
Width between postoral nares	4.7	6.4	5.4	0.7	6.0	6.0	6.7	6.4	0.3

<sup>a</sup>Based on four specimens

**Paratypes.** ASIZB 72943, 164.5 mm SL; ASIZB 72945, 146.0 mm SL; ASIZB 72946, 113.0 mm SL; ASIZB 72947, 88.0 mm SL; data as for holotype.

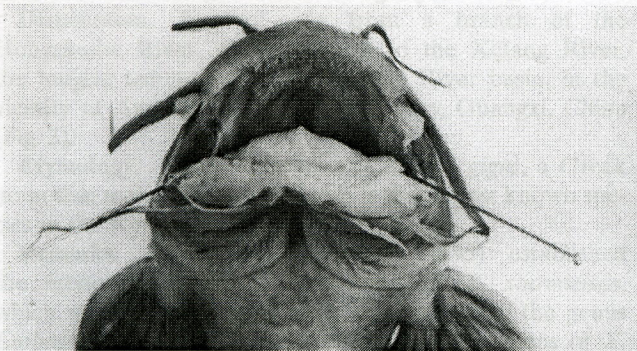
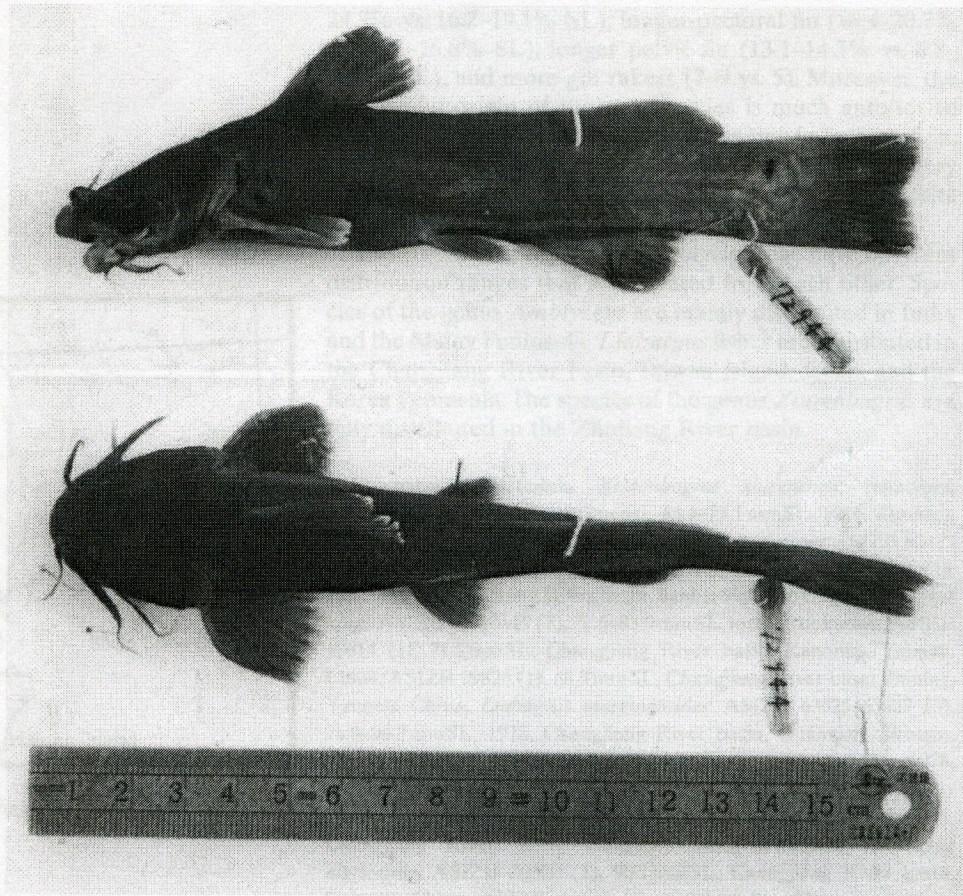
**Diagnosis.** The largest known species in the family Amblycipitidae, which can be distinguished from all other known amblycipitid species by the following combination of characters: two patches of vomerine teeth; gill rakers 7–9; head large (head length 27.9–34.9% SL, head depth 14.4–17.9% SL, and head width, 22.4–29.4% SL); adipose fin low (4.6–6.0% SL); distance from dorsal origin to adipose origin short (25.7–32.0% SL); dorsal fin (21.2–24.9% SL), pectoral fin (18.4–20.7% SL), and pelvic fin (13.1–14.3% SL) long.

**Description.** General body features and color pattern are shown in Fig. 1. Proportional measurements as percentages of standard length are given in Table 1.

Dorsal-fin rays i, 6 (5 specimens); anal-fin rays iv, 8 (4), 9 (1); pectoral-fin rays i, 8 (5); pelvic-fin rays i, 5 (4), 6 (1). Vertebrae 40 (2), 41 (1), 42 (1), 43 (1).

A large amblycipitid catfish, reaching about 165 mm in SL. Head rather long and broad, broader than maximum body width. Snout rounded in dorsal view. Mouth inferior, upper jaw prominently produced beyond lower jaw. Teeth on both premaxillary and dentary numerous, small but sharp, vomer with two bands of teeth (Fig. 2). Anterior nostril rounded, its rim with a fleshy flap forming incomplete tube; posterior nostril slitlike, making a nostril groove

**Fig. 1.** Holotype of *Xiurenbagrus gigas* sp. nov. (ASIZB 72944, 131.8mm SL)



**Fig. 2.** Mouth part (showing vomerine teeth) of the holotype of *Xiurenbagrus gigas* sp. nov. (ASIZB 72944, 131.8mm SL)

on lateral side of nasal barbel. Eye very small. Four pairs of barbels; nasal barbels long, reaching to preoperculum; maxillary barbels long, reaching to or slightly exceed pectoral-fin insertion; outer mental barbels moderately long, appreciably shorter than maxillary barbels; inner mental barbels shortest among four pairs of barbels, about one-third of outer mental-barbel length. Gill opening large; operculum membrane not connected at isthmus. Gill rakers

triangular, 7–9 in first gill arch (epibranchial with 1, ceratobranchial with 6, one specimen 8).

Body elongate, depressed in head and gradually compressed to tail; dorsal profile straight or slightly convex, ventral profile straight, tapering gradually toward anal fin, then abruptly to caudal peduncle.

Pectoral-fin insertion anterior to vertical through posterior margin of operculum, partly covered by operculum membrane; pectoral-fin spine relatively developed, about equal to or a little longer than half of pectoral-fin length, with strong serration on posterior edge; pectoral fin short, reaching to midway between pectoral and pelvic-fin insertion. Pelvic-fin insertion anterior to adipose-fin insertion; pelvic fin short, not or almost reaching to anal-fin insertion. Dorsal-fin origin midway between snout tip and anal-fin insertion, slightly closer to snout tip; dorsal-fin spine covered by thick skin, short and smooth, about a quarter of dorsal-fin length. Anal-fin insertion almost midway between pectoral-fin origin and caudal-fin base; anal fin short, posterior margin of anal fin not exceeding posterior margin of adipose. Adipose-fin insertion opposite to vent or almost reaching to pelvic-fin insertion; adipose-fin base long; adipose-fin depth relatively low, posteriorly with a free flap, not confluent with caudal fin. Caudal fin emarginate.

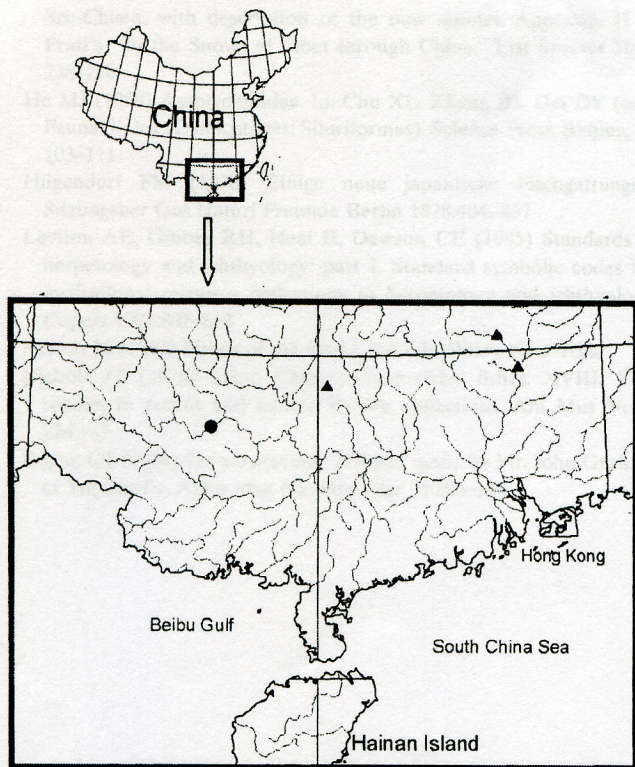


Fig. 3. Collection localities of *Xiurenbagrus gigas* sp. nov. (solid circle) and *X. xiurenensis* (triangles)

**Coloration in alcohol.**—Body generally dark brownish, without special markings; abdomen light yellowish. Fins dark brownish, margins of all fins light yellowish.

**Distribution.** Known only from a branch of the Hongshuihe River, which belongs to the Xijiang River, the longest tributary of the Zhujiang River basin, in the vicinity of Anyang Town, Du'an County, Guangxi, China (Fig. 3).

**Etymology.** The new species is named *gigas*, a Greek noun that means giant, because it is the largest known species in the Amblycipitidae.

**Remarks.** Chen and Lundberg (1995) established the monotypic genus *Xiurenbagrus* for *X. xiurenensis*, which was originally recognized as a species of the genus *Liobagrus* (Yue, 1981). After comparing specimens of *X. gigas* sp. nov. and *X. xiurenensis*, we found that the new species shares the presence of two patches of vomerine teeth with *X. xiurenensis*. This character distinguishes both species from all other species of the amblycipitid catfishes. On the basis of this feature, we classify the new species into the genus *Xiurenbagrus*.

The new species is different from *Xiurenbagrus xiurenensis* by having the following characters: larger head (head length: 27.9–34.9% vs. 21.8–26.4% SL; head depth: 14.4–17.9% vs. 12.4–14.1% SL; head width: 22.4–29.4% vs. 18.1–20.3% SL), lower adipose fin (4.6–6.0% vs. 6.5–8.3% SL), shorter distance from dorsal origin to adipose origin (25.7–32.0% vs. 32.9–38.9% SL), longer dorsal fin (21.2–

24.9% vs. 16.2–19.1% SL), longer pectoral fin (18.4–20.7% vs. 13.5–16.8% SL), longer pelvic fin (13.1–14.3% vs. 8.8–11.8% SL), and more gill rakers (7–9 vs. 5). Moreover, the adipose-fin origin of the new species is much anterior to the anal-fin origin and almost reaches pelvic-fin insertion, whereas the adipose-fin origin of *X. xiurenensis* is only very slightly anterior to the anal-fin origin and is almost opposite the anal-fin origin.

Three genera in the family Amblycipitidae have different distribution ranges that are isolated from each other. Species of the genus *Amblyceps* are mainly distributed in India and the Malay Peninsula. *Liobagrus* fishes are distributed in the Changjiang River basin, Taiwan Island, Japan, and the Korea Peninsula. The species of the genus *Xiurenbagrus* are only distributed in the Zhujiang River basin.

**Comparative materials.** *Xiurenbagrus xiurenensis*: paratypes, ASIZB 60289–60293 (5 specimens), 43.4–73.1 mm SL, 1981, Zhujiang River basin, Lipu, Guangxi, China. *Liobagrus andersoni*: ASIZB 62422 (1), 88.2 mm SL, Korea. *Liobagrus anguillicauda*: ASIZB 19906 (1), 73.7 mm SL, Changjiang River basin, Sanhe, Sichuan, China. *Liobagrus kingi*: ASIZB 20013–19 (7), 71.6–83.0 mm SL, locality unknown; ASIZB 19814 (1), 71.5 mm SL, Changjiang River basin, Kunming, Yunnan, China; ASIZB 19826 (1), 68.9 mm SL, Changjiang River basin, Jinning, Yunnan, China. *Liobagrus marginatoides*: ASIZB 63625–63627 (3), 74.8–90.7 mm SL, 1978, Changjiang River basin, Guanxian, Sichuan, China; ASIZB Chuan-78178–78184 (7), 79.0–96.4 mm SL, 1978, Changjiang River basin, Guanxian, Sichuan, China. *Liobagrus marginatus*: ASIZB 62900–62903 (4), 67.5–91.7 mm SL, Apr. 2, 1994, Changjiang River basin, Hanyuan, Sichuan, China. *Liobagrus nigricauda*: ASIZB 20020 (1), 90.1 mm SL, Changjiang River basin, Sichuan, China; ASIZB 42722 (1), 115.6 mm SL, Changjiang River basin, Sichuan, China. *Liobagrus styani*: ASIZB E-770020–E-770024 (5), 74.3–91.8 mm SL, 1977, Changjiang River basin, Chongyang, Hubei, China; ASIZB 19874–19875 (2), 80.3–105.9 mm SL, Changjiang River basin, Sanhe, Sichuan, China.

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