Cranoglanis henrici (Vaillant, 1893), a valid species of cranoglanidid catfish from Indochina (Teleostei, Cranoglanididae)

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ABSTRACT
Anopleutropius henrici Vaillant, 1893 is a valid species of *Cranoglanis* that differs from *C. bouderius* (with *C. sinensis* and *Macrones sinensis* as junior synonyms) in having a broader humeral process, a longer anal fin (30.2-35.0% SL *vs.* 27.6-30.0) with more branched fin rays (34-39 *vs.* 28-32) and more vertebrae (46-47 *vs.* 41-44), and from *C. multiradiatus* in having a narrower snout (snout width 34.5-36.4% HL *vs.* 30.8) and more widely-set eyes (interorbital distance 47.0-55.0% HL *vs.* 41.9-42.4). *Cranoglanis henrici* is known only from the Red River drainage in northern Vietnam and southern China. The identity of the other nominal species of *Cranoglanis* is discussed and a neotype is designated for both *Bagrus bouderius* and *Macrones sinensis*.

KEY WORDS
Cranoglanis,
Anopleutropius,
Vietnam,
neotype.

RÉSUMÉ
Cranoglanis henrici *(Vaillant, 1893), une espèce valide de poisson-chat cranoglanitidae d'Indochine (Teleostei, Cranoglanididae).*
Anopleutropius henrici Vaillant, 1893 est une espèce valide de *Cranoglanis* qui diffère de *C. bouderius* (dont *C. sinensis* et *Macrones sinensis* sont des synonymes juniors) par le processus huméral plus large, la nageoire anale plus longue (30,2-35,0 % SL *vs*. 27,6-30,0) et avec un plus grand nombre de rayons ramifiés (34-39 *vs.* 28-32), et un plus grand nombre de vertèbres (46-47 *vs.* 41-44). Elle diffère de *C. multiradiatus* par son museau plus étroit (largeur du museau 34,5-36,4 % HL *vs.* 30,8) et une plus grande distance interorbitale (47,0-55,0 % HL *vs.* 41,9-42,4). *Cranoglanis henrici* n'est connu que du bassin du fleuve Rouge au nord du Vietnam et en Chine méridionale. L'identité des autres espèces nominales de *Cranoglanis* est discutée et un néotype est désigné pour *Bagrus bouderius* et *Macrones sinensis.*

MOTS CLÉS
Cranoglanis,
Anopleutropius,
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néotype.

INTRODUCTION

Species of the East Asian genus *Cranoglanis* Peters, 1880 are medium sized catfishes with laterally compressed bodies that are found in large rivers. Prior to this study, only four nominal species have been included in *Cranoglanis*, i.e. *Bagrus bouderius* Richardson, 1845, *Macrones sinensis* Bleeker, 1873, *C. sinensis* Peters, 1880, and *Pseudeutropichthys multiradiatus* Koller, 1927. While attempting to identify *Cranoglanis* specimens recently obtained from northern Vietnam and comparing them with material from southern China and Hainan Island, we concluded that the Vietnamese population represents a distinct species and that *Anopleutropius henrici* Vaillant, 1893 is an available name for it. For unknown reasons, this name, as well as the three other species described in the same publication, had been overlooked in most of the available literature on Vietnamese fishes; Eschmeyer (1998) listed it as either a Schilbeidae (1998: 720) or a Siluridae (1998: 1839), reportedly on the basis of a personal communication by the second author, which is surprising since we know for about 15 years that *Anopleutropius* is a junior synonym of *Cranoglanis*.

MATERIAL AND METHODS

Measurements were made point to point with dial callipers and data recorded to tenths of a millimetre. Counts and measurements were made on the left side of specimens whenever possible. Subunits of the head are presented as proportions of head length (HL). Head length and measurements of body parts are given as proportions of standard length (SL). Measurements follow those of Ng & Dodson (1999) with the addition of snout width, which is the width of the snout measured at the rictus of the mouth. Numbers in parentheses following a particular count are the numbers of examined specimens with that count. The specimens examined for the present study are in the California Academy of Sciences, San Francisco (CAS), Muséum national d'Histoire naturelle, Paris (MNHN), Naturhistoriska Riksmuseet, Stockholm (NRM), Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin (ZMB), and the Zoological Reference Collection, National University of Singapore (ZRC).

SYSTEMATICS

Cranoglanis henrici (Vaillant, 1893) (Fig. 1)

Anopleutropius henrici Vaillant, 1893: 199.
TYPE LOCALITY. — Rivière Noire, Tonkin [= Song Da, Vietnam].

Cranoglanis sinensis [non Peters] – Chevey & Lemasson 1937: 102, fig. 68. — Mai 1978: 247, fig. 113.

Cranioglanis sinensis [non Peters] – Mai 1985: 284.

Cranoglanis bouderius multiradiatus [non Koller] – Chu & Kuang 1990: 141, fig. 144.

TYPE MATERIAL. — Rivière Noire [Vietnam, Song Da], Tonkin, 1892, Bonvalot & d'Orléans, syntypes 221.6 mm SL (MNHN 1892-259), 141.1 mm SL (MNHN 1892-260).

OTHER MATERIAL EXAMINED. — **Hoa Binh market.** Hoa Binh province, Vietnam, 10.VII.1995, T. R. Roberts, 2 ex. 143.3-157.4 mm SL (CAS 94943).
Phu Tho-Bai Bang-Lam Tao area. Vinh Phu province, Vietnam, 11.XI.1990, P. F. Nilsson *et al.,* 2 ex. 146.5-289.7 mm SL (NRM 13674).
Cho Gao market. About 3 km from Hung Yen, Hai Hung province, Vietnam, 10.IX.1997, P. K. L. Ng *et al.,* 6 ex., 1 ex. 80.6-97.5 mm SL (ZRC 43346).
Market in Hanoi. Vietnam, 12.IX.1997, H. H. Ng & D. C. J. Yeo, 3 ex. 197.8-235.9 mm SL (ZRC 42744).

DISTRIBUTION. — Known from the Red River drainage in northern Vietnam and Yunnan (southern China).

DIAGNOSIS. — *Cranoglanis henrici* is distinguished from all congeners by a combination of the following characters: snout width 34.5-36.4% HL, interorbital distance 47.0-55.0 % HL, length of anal-fin base 30.2-35.0% SL, 34-39 branched anal-fin rays, 46-47 vertebrae, broad humeral process (Fig. 2A).

COMPARATIVE MATERIAL EXAMINED. — **Lian Jiang.** Guangdong Province, Lianzhou, China, *Cranoglanis bouderius* neotype, holotype of *C. sinensis*, neotype of *Macrones sinensis*, 1 ex. 207.7 mm SL (ZMB 11325).
Wuzhou. Guangxi Province, China, 9 ex. 99.3-133.2 mm SL (CAS 169758).

FIG. 1. — *Cranoglanis henrici*, about 350 mm SL, Vietnam, Tuyen Quang Province, Song Lo basin, Song Gam at Chiem Hoa, 25.X.1999.

Nanning. Guangxi Province, China, 1 ex. 79.7 mm SL (NRM 10399).

Xijiang River. Guangxi Province, China, 2 ex. 230.3-235.5 mm SL (NRM 19840).

Cheng Mai market. From Jin Jiang, Hainan Island, China, *Cranoglanis multiradiatus* 1 ex. 197.0 mm SL (ZRC 40609); 1 ex. 187.6 mm SL (ZRC 42745).

DESCRIPTION

Head and snout relatively long and depressed; body laterally compressed. Dorsal profile rising moderately steeply from tip of snout to dorsal spine, then descending gently to posterior end of caudal peduncle. Supraoccipital and frontal bones exposed and rugose.

Anterior nostril at tip of short, wide tube and located anteromedial to maxillary barbel base. Posterior nostril bordered anteriorly by nasal barbel and located directly posterior to anterior nostril. Mouth subterminal, gape horizontal. Jaw teeth villiform. Dentary teeth in a curved elongate band narrowing posteriorly and interrupted medially. Premaxillary teeth in broader, slightly curved rectangular band interrupted medially. Eyes moderately large, laterally situated. Gill membranes separate and free from isthmus, with 5 (1), 6 (5), 7 (1) or 8 (1) branchiostegal rays.

Dorsal fin with spine and 6 (7) or 7 (2) rays; dorsal spine with 3-6 serrations on anterior edge and 8-14 serrations on posterior edge. Adipose fin with short base and rounded posterior margin. Anal fin moderately long, with iii,34 (1), iv,34 (1), iii,35 (1), iv,35 (2), iv,37 (1), iv,38 (1) or iv,39 (2) rays. Caudal fin forked, with equal lobes and i,7/7,i (2), i,7/8,i (3) or i,8/8,i (4) rays. Pelvic fin with convex distal margin and i,10 (2) or i,10,i (7) rays. Pectoral fin with spine and 9 (1), 9,i (2), 10 (1), 10,i (5) rays; pectoral spine with three to four serrations on anterior edge and 10-17 serrations on posterior edge.

In % SL: head length 24.5-27.7, head width 16.1-20.4, head depth 15.2-16.8, predorsal distance 36.2-41.3, preanal length 52.3-61.1, prepelvic length 45.1-49.3, prepectoral length 22.6-26.9, body depth at anus 20.5-26.2, length of caudal peduncle 11.8-13.5, depth of caudal peduncle 7.6-9.4, pectoral-spine length 15.3-20.8, pectoral-fin length 20.2-23.9, dorsal-spine length 19.1-28.5, length of dorsal-fin 25.5-32.5,

length of dorsal-fin base 7.8-9.6, pelvic-fin length 12.8-15.3, length of anal-fin base 30.2-35.0, caudal-fin length 19.7-25.8, length of adipose-fin base 12.4-18.7, maximum adipose height 3.2-4.8, post-adipose distance 17.5-20.0, dorsal to adipose distance 17.5-25.1; in % HL: snout length 40.1-49.1, snout width 34.5-36.4, interorbital distance 47.0-55.0, eye diameter 16.1-19.8, nasal barbel length 63.4-78.8, maxillary barbel length 148.1-187.1, inner mandibular barbel length 38.3-50.9, outer mandibular barbel length 76.4-99.5. Gill rakers 5 + 11 = 16 (1). Vertebrae 18 + 28 = 46 (1), 18 + 29 = 46 (1) or 19 + 28 = 47 (1).

Colour

In 70% alcohol, the specimens are grey on the dorsal regions and the upper third of the flanks. Lower two-thirds of the flanks and ventral regions whitish. Base of fins grey, distal regions of caudal fin black, distal regions of other fins hyaline. In life, body silvery to grey. In life, body from greyish-silvery to bronze, darker on the back, white on belly; fins brownish, with reddish hue; anal margin darker (specimens from the Song Lo basin [Vietnam] observed by the second author in December 1999).

Discussion

Richardson (1846) described *Bagrus bouderius* from Canton [Guangzhou], China based on a water-colour made by a Chinese artist commissioned by John Reeves (Whitehead 1969). Peters (1880) later established the genus *Cranoglanis* for a new species he described, *C. sinensis*; still later Koller (1927) described a new genus and species, *Pseudeutropichthys multiradiatus*, from Hainan Island. Myers (1931) synonymised *Cranoglanis* and *Pseudeutropichthys* but treated *C. sinensis* and *C. multiradiatus* as distinct species. He was unable to place the genus in any known family and therefore created the family Cranoglanididae, which has been accepted by all authors since (e.g., Mo 1991). Jayaram (1955) recognised the genus *Cranoglanis*, but synonymised all three of these nominal species under the senior name *C. bouderius*. Recent Chinese authors treat *C. bouderius* and *C. multiradiatus* as distinct subspecies, the last one being recorded from the Red River by Chu & Kuang (1991) and from Hainan by Pan (1991); but, to our knowledge, specimens of the Red River basin have never been compared with specimens from Hainan.

The description of *C. bouderius* is based solely on a water-colour of a specimen that evidently was not preserved as Richardson (1846) stated that no specimen accompanied the illustration of the species. Therefore, we can safely assume that the holotype is not extant, as was done by Jayaram (1955). Our comparison of the holotype of *C. sinensis* and the drawing on which the description of *C. bouderius* was based (reproduced as plate 19b *in* Whitehead 1969) leaves little doubt that they are conspecific. Both the Reeve drawing of *C. bouderius* and the holotype of *C. sinensis* exhibit a low number of branched anal-fin rays (about 31 in the drawing and 30 in the holotype of *C. sinensis*), relatively slender body and a slender humeral process. *Cranoglanis bouderius* is distinguished from the other two species of the genus by having fewer branched anal-fin rays (28-32 *vs.* 34-39). The type locality of *C. sinensis* is usually listed as Hong Kong (e.g., Eschmeyer 1998), a point challenged by Herre (1934), who suggested that the actual type locality may be Wuchow in central Canton (= Guangdong) province, southeastern China. Peters (1880) stated that the holotype of *C. sinensis* was part of a collection sent by Dr Gerlach, who was living in Hong Kong and commented "Wahrscheinlich stammen sie aber aus einem süssen Gewässer des Continents, da sie schwerlich sämmtlich, auf der kleinen Insel Hongkong vorkommen werden" [but they probably originate from a freshwater body of the continent, as it is unlikely that they would all occur on the small island of Hong Kong]. In fact, the label of the holotype of *C. sinensis* indicates that it came from the Lin River (= Lian Jiang) at Linchow (= Lianzhou or Lian Xian; 25°0'N, 113°27'E) in northern Guangdong province.

Macrones sinensis Bleeker, 1873, described on the basis of a Chinese painting, has been shown to be a *Cranoglanis* species by Jayaram & Boeseman (1976). This makes *Cranoglanis sinensis* Peters,

1880 a secondary junior homonym of *Macrones sinensis* Bleeker, 1873. The painting on which Bleeker's description was based (reproduced as plate 1 *in* Jayaram & Boeseman 1976) is not particularly accurate, especially in the key features such as the shape of the humeral process (the humeral process as depicted on the drawing is too broadly triangular for any *Cranoglanis* species) and the number of anal-fin rays (*c.* 22, which is too low for any *Cranoglanis* species). However, in the absence of any conclusive evidence that suggests otherwise, we concur with Jayaram & Boeseman (1976) in regarding the two nominal species conspecific.

In order to remove any ambiguity about the identities of the three nominal species, we hereby designate the holotype of *Cranoglanis sinensis* (ZMB 11325) as the neotype of *Macrones sinensis* and *Bagrus bouderius*, thus making the first two species objective synonyms of the third.

Both *C. henrici* and *C. multiradiatus* have a broader humeral process (Fig. 2), a longer anal fin (30.2-35.0% SL *vs.* 27.6-30.0) with more branched fin rays (34-39 *vs.* 28-32), and more vertebrae (46-47 *vs.* 41-44) than *C. bouderius*.

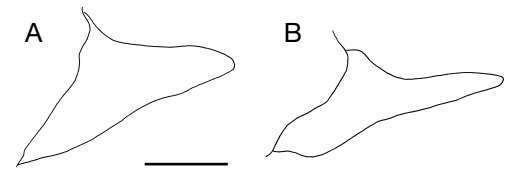

FIG. 2. — Schematic illustration; **A**, left lateral view of humeral process of *Cranoglanis henrici,* 143.3 mm SL (CAS 94943); **B**, left lateral view of humeral process of *C. bouderius,* 146.0 mm SL (CAS 169758). Scale bar: 5 mm.

The two species differ from each other in that *C. henrici* has a wider snout (snout width 34.5-36.4% HL *vs.* 30.8; Fig. 3) and more widely set eyes (interorbital distance 47.0-55.0% HL *vs.* 41.9-42.4) than *C. multiradiatus*.

For unknown reason, Vaillant's (1893) paper has been overlooked by all authors who published on the fishes of northern Vietnam and southern China since. Three species of Cyprinidae that have never been mentioned again in the literature are also described in this paper. The second author has examined them (in 1987) and the conclusions have not yet been published. *Barbus bonvaloti* Vaillant, 1893 is a species of *Folifer*

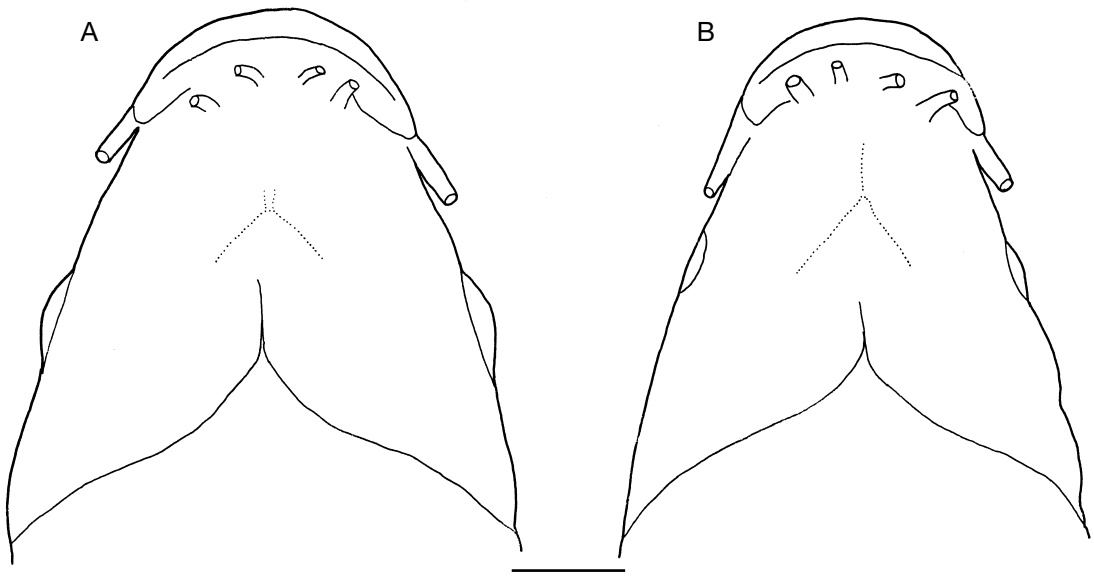

FIG. 3. — Ventral view of heads; **A**, *Cranoglanis henrici*, 197.8 mm SL (ZRC 42744); **B**, *C. multiradiatus*, 1 ex., 187.6 mm SL (ZRC 42745). Scale bar: 10 mm.

Wu, 1999, possibly a junior synonym of *F. brevifilis* (Peters, 1880). *Cyprinion orientalis* Vaillant, 1893 is a species of *Carassius* Nilsson, 1832. *Barbus alloiopleurus* Vaillant, 1893 is a valid species of *Poropuntius* Smith, 1931.

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