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A new species of the catfish genus *Akysis* (Siluriformes: Akysidae) from southern Borneo

HEOK HEE NG[1] & DARRELL J. SIEBERT[2]

[2] *Fish Division, Museum of Zoology, University of Michigan, 1109 Geddes Avenue, Ann Arbor, MI 48109-1079, USA (heokheen@umich.edu)*

[2] *Department of Zoology, The Natural History Museum, Cromwell Road, London SW7 5BD (d.siebert@nhm.ac.uk)*

Abstract

A new species of akysid catfish, *Akysis meridionalis*, is described from the Barito River drainage of southern Borneo. The new species is distinguished from all congeners by the following combination of characters: 1) upper jaw projects more strongly forward, premaxillary teeth exposed when the mouth is closed; 2) head width 18.2–19.4 % SL, body depth at anus 10.7–11.5 % SL, depth of caudal peduncle 6.5–6.7 % SL, interorbital distance 32–34 % HL, length of maxillary barbels 104–110 % HL; 3) presence of 5 teeth on posterior edge of the pectoral spine; and 4) colour pattern of dark background with light patches. *Akysis meridionalis* is the first record of the genus from the Barito River drainage.

Key words. Siluriformes, Akysidae, *Akysis*, new species, southern Borneo

Introduction

Akysid catfishes are known from across a large area of Southeast Asia. Roberts (1989) described them as small to minute fishes with cryptic colouration, tiny eyes, and completely covered with unculiferous plaques or tubercles. In some genera some of the tublercles on the body are enlarged and arranged in distinctive longitudinal rows, the number of which may be diagnostic. Among akysids, fishes of the genus *Akysis* are very small, cryptically coloured species generally found in fast-flowing streams with a sandy or rocky bottom and, until recently they have been poorly studied, mainly due to the paucity of material in museum collections.

Recent work (e.g. Ng, 1996; Ng & Kottelat, 1996, 1998, 2000; Ng & Tan, 1999; Ng & Freyhof, 2003; Ng & Kottelat, 2004) indicates that *Akysis* is more diverse than previously

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thought, with 23 species now known. Even so, the genus remains known only from widely scattered localities from over a vast area that is under-surveyed. Appropriate collecting, especially aimed at small, cryptic, and possibly nocturnal fishes is needed from throughout its range if the diversity of the genus is to be fully understood. During an on-going survey of the Barito River drainage in southern Borneo a species of *Akysis* was obtained which, on comparison with other known species, was found to be undescribed. We describe this species here as *A. meridionalis* new species, which represents the first record of this genus from the Barito River drainage.

Material and Methods

Measurements were made point-to-point with dial calipers and recorded to 0.1 mm. Ng & Lim (1995) is followed for all measurements and counts, except for the following: head length is measured from the tip of the snout to the posteriormost extremity of the fleshy opercular flap; preanal, prepelvic and prepectoral lengths are measured from the tip of the snout to the anterior basis of the anal, pelvic and pectoral fins respectively; length of adipose fin base is measured from the anteriormost point of origin to the posteriormost point of the adipose fin base; and vertebral counts, which are given as abdominal (with open haemal arches) + caudal (with closed haemal arches) vertebrae. The number of specimens observed to have a particular count is given in parentheses immediately following that count. Drawings of the specimens were made with a Nikon SMZ-10 fitted with a camera lucida. Eschmeyer (1998) is followed for all institutional codes.

Akysis meridionalis sp. nov. (Fig. 1)

Type material. Holotype: MZB 6102, 31.4 mm SL; Indonesia, Kalimantan Tengah (Borneo); Barito River drainage, Sungai Laung at Dessa Maruwei (0º21.986'S 114º44.103'E); D. J. Siebert, A. Tjakrawidjaja & O. Crimmen, 15-18 July 1992.

Paratype: BMNH 1998.9.30.18, 30.9 mm SL; data as for holotype.

Diagnosis. *Akysis meridionalis* is distinguished from all congeners by the following combination of characters: upper jaw projects more strongly forward, premaxillary teeth exposed when the mouth is closed; head width 18.2–19.4 % SL, body depth at anus 10.7–11.5 % SL, depth of caudal peduncle 6.5–6.7 % SL, interorbital distance 32–34 % HL, length of maxillary barbels 104–110 % HL; 5 teeth on posterior edge of pectoral spine, and a colour pattern of a dark background with light patches (Fig. 1).

Description. Head depressed and broad; body moderately compressed and relatively elongate. Mouth conspicuously subterminal; tip of snout noticeably protruding in front of apex of lower jaw (Fig. 2a). Dorsal profile rising evenly from tip of snout to origin of dorsal fin, then sloping gently ventrally to end of caudal peduncle. Ventral profile horizontal

to origin of anal, then sloping dorsally to end of caudal peduncle. Head covered with small tubercles, body with tubercles arranged in 5–6 longitudinal rows on each side. Relatively large anterior and posterior nostrils, situated closely together and separated only by base of nasal barbel. Cranial fontanel not reaching base of supraoccipital process. Supraoccipital process narrow, its tip tapering and reaching predorsal plate. Premaxillary tooth plates exposed when mouth is closed. Dorsal origin nearer tip of snout than caudal flexure. Pectoral spine stout, with 5 (2) large serrae posteriorly. Anal origin posterior to adipose origin. Depressed dorsal not reaching adipose fin. Caudal fin strongly forked with pointed lobes.

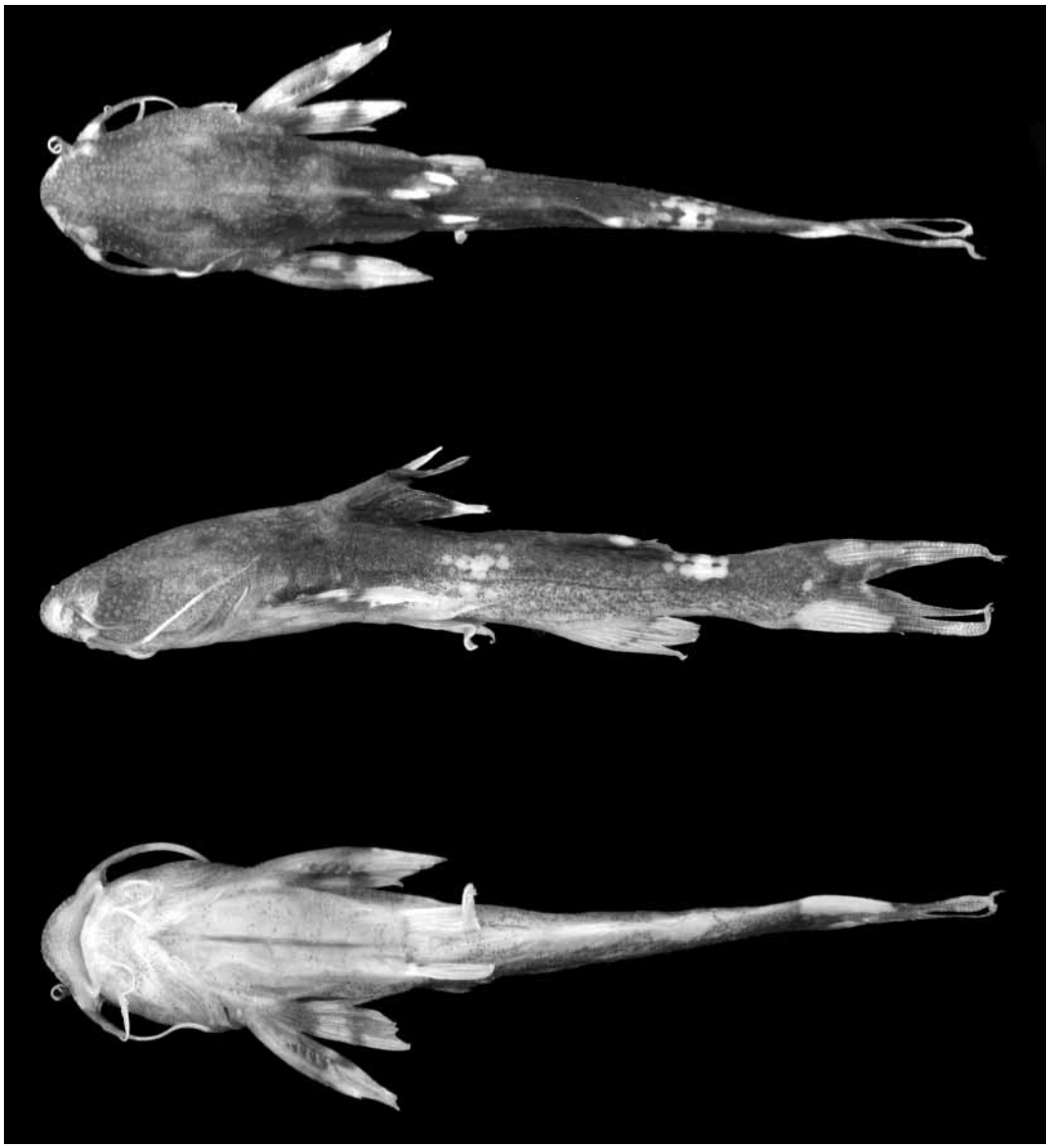

FIGURE 1. *Akysis meridionalis*, MZB 6102, holotype, 31.4 mm SL; Borneo: Barito River basin. Dorsal, lateral and ventral views.

Proportional measurements. In % SL: head length 26.5–29.0, head width 18.2–19.4, predorsal distance 35.6–38.5, preanal length 62.1–63.4, prepelvic length 44.0–45.2, prepectoral length 25.6–27.4, body depth at anus 10.7–11.5, length of caudal peduncle 21.3–22.0, depth of caudal peduncle 6.5–6.7, pectoral-spine length 14.9–18.2, pectoral-fin length 22.3–25.2, length of dorsal-fin base 10.8–12.0, pelvic-fin length 12.3–13.7, length of anal-fin base 11.7–14.3, caudal-fin length 22.7–25.8, length of adipose-fin base 9.7–13.1. In % HL: snout length 34–37, interorbital distance 32–34, eye diameter 10, length of nasal barbel 36–40, length of maxillary barbel 104–110, length of inner mandibular barbel 39–46, length of outer mandibular barbel 59–62.

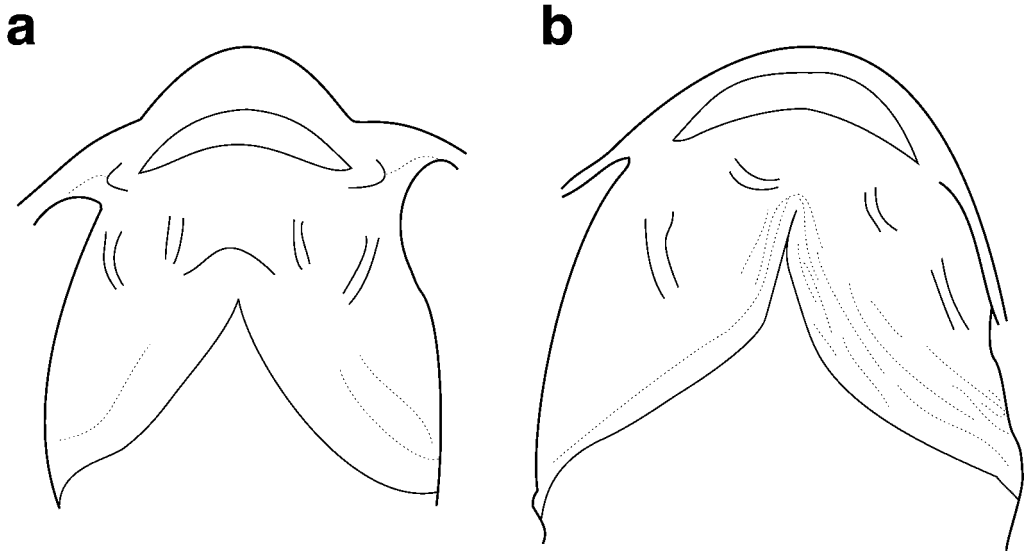

FIGURE 2. Ventral view of head of: a. *A. meridionalis*, MZB 6102, holotype, 31.4 mm SL; b. *A. baramensis*, ANSP 88950, paratype, 36.3 mm SL.

Counts. Branchiostegal rays 7 (2). Gill rakers 1+6 (1). Vertebrae 11+23=34 (1) or 12+22=34 (1). Fin ray counts: dorsal I,4,i (2); pectoral I,6,i (2); pelvic i,5 (2); anal ii,7 (2); caudal 7/8 (2).

Coloration. Dorsal surface and sides of head and body dark brown; anterior and posterior nostrils rimmed with white; a white spot at base of maxillary barbel. Belly, chest and ventral surface of head white. Ventral surface of body posterior to belly white with scattered melanophores. A white spot on side of body between the dorsal and adipose fins; a white saddle mark on caudal peduncle posterior to adipose fin. Basal two-thirds of dorsal fin brown, remaining one-third hyaline. Anal-fin ray hyaline, but with a series of brown spots forming a stripe at about one-third of anal fin height from base. Pectoral and

pelvic fins hyaline. Adipose fin with white spot at sub-anterior upper margin. Caudal fin brown with tips of lobes hyaline; a large hyaline spot at base of upper and lower lobe.

Distribution. Presently known only from the Barito River drainage of southern Borneo.

Etymology. From the Latin *meridionalis*, meaning southern, in reference to the known distribution of this species (southern Borneo); used as a noun in apposition.

TABLE 1. Tabulation of diagnostic features distinguishing *A. meridionalis* from southern members of the *A. pseudobagarius* species group. Head width, body depth at anus, and caudal peduncle depth are % SL; interorbital distance and maxillary barbel length are % HL.

	N; size range (mm)	Head width	Interorbital distance	Maxillary barbel length	Body depth at anus
A. meridionalis	2; 30.9–31.4	18.2–19.4	32–34	104–110	10.7–11.5
A. pseudobagarius	4; 21.4–48.2	16.6–17.8	20–32	71–100	9.3–11.1
A. alfredi	26; 23.5–30.0	20.3–25.0	34–39	122–144	11.3–14.7
A. fuscus	13; 22.2–28.8	21.1–26.2	31–42	121–146	11.3–16.1
A. baramensis	10; 30.2–39.4	17.6–20.1	29–36	58–104	9.8–11.3
A. macronema	5; 30.9–31.4	20.3–21.0	32–38	110–137	8.3–13.0

	Caudal peduncle depth	No. of serrae on pectoral spine	Premaxillary tooth plate	Colour pattern
A. meridionalis	6.5–6.7	5	Largely exposed	Dark brown with light patches
A. pseudobagarius	3.5–5.5	8–9	Partially exposed	Light with dark brown patches
A. alfredi	5.7–7.3	4–5	Partially exposed	Light with dark brown patches
A. fuscus	6.5–9.4	4–5	Not exposed	Dark brown
A. baramensis	6.1–7.4	4–5	Largely exposed	Dark brown
A. macronema	6.4–7.3	5–6	Not exposed	Light with dark brown patches

Discussion

Ng & Kottelat (1998) recognised two species groups within *Akysis*. Members of the *A. pseudobagarius* species group can be identified by a conspicuously subterminal mouth, relatively large and closely set narial openings, and deeply forked caudal fin. The snout clearly overhangs the lower jaw in this group and the projection of the snout beyond the apex of the lower jaw is supported by bones of the upper jaw. With a conspicuously sub-

terminal mouth, large anterior and posterior narial openings separated only by the base of the nasal barbel, relatively elongate body and strongly forked caudal fin, *A. meridionalis* clearly belongs to the *A. pseudobagarius* species group as defined by Ng & Kottelat (1998).

Akysis meridionalis shares the southern part of the geographic range of *Akysis* with the following members of the *pseudobagaruis*-group: *A. pseudobagarius* Roberts, 1989; *A. alfredi* Ng & Kottelat, 1998; *A. baramensis* Fowler, 1905; *A. fuscus* Ng & Kottelat, 1998; and *A. macronema* Bleeker, 1860. Differences between it and the other southern members of the *A. pseudobagarius* species group are summarised in Table 1. *Akysis meridionalis* resembles *A. pseudobagarius* in overall physiogamy but can be distinguished from it by fewer serrae on the inner edge of the pectoral spine (5 vs. 8–9; Roberts, 1989), depth of caudal peduncle (6.5–6.7 %SL vs. 3.5–5.5) and a wider head (18.2–19.4 %SL vs. 16.6–17.8) with more widely set eyes (interorbital distance 32–34 %HL vs. 20–32). The snout of *A. meridionalis* is much more produced than that of *A. baramensis* (Fig. 2). The largely exposed-when-mouth-is-closed premaxillary tooth plates of *A. meridionalis* separate it from *A. alfredi* (partially exposed; contra Ng & Kottelat, 1998), *A. fuscus* (not exposed, Ng & Kottelat, 1996), and *A. macronema* (not exposed, Tan & Ng, 2000); it can be further distinguished from *A. alfredi* and *A. fuscus* by a narrower head (18.2–19.4 %SL vs. 20.3–25.0 21.1–26.2 respectivelly). *Akysis meridionalis* also has a wider head (18.2–19.4 %SL vs. 20.3–21.0) than A. *macronema*.

The colour pattern of *A. meridionalis* is unique among southern memberts of the *A. pseudobagarius* species group but can be characterised as intermediate between that found in *A. baramensis* and *A. fuscus*, both of which are dark brown without any light patches or bands, and that found in *A. alfredi*, *A. macronema*, and *A. pseudobagraius*, all of which have a light background with dark brown patches or bands. *Akysis meridionalis* has a dark brown background colouration with white patches, the reverse of the colour pattern known for *A. alfredi*, *A. macronema*, and *A. pseudobagarius*.

Comparative material

Akysis alfredi: ZRC 40714 (holotype), 25.3 mm SL; CMK 13026 (3 paratypes), 25.3–27.7 mm SL; UMMZ 233004 (2 paratypes), 25.9–28.4 mm SL; ZRC 40715 (17 paratypes), 23.5–30.0 mm SL; Malaysia: Pahang, Tasek Bera, approximately 300m E of Fort Iskandar. ZRC 20755–20757 (3 paratypes), 24.7–25.6 mm SL; Malaysia: Pahang, Fort Iskandar.

A. baramensis: ANSP 114887 (holotype), 35.9 mm SL; ANSP 88950 (16 paratypes), 30.2–39.4 mm SL; Borneo: Baram River.

A. fuscus: MZB 5934 (holotype), 22.8 mm SL; MZB 5935 (3 paratypes), 22.2–28.2 mm SL; CMK 11712 (8 paratypes); 22.6–28.8 mm SL; ZRC 38840 (4 paratypes), 26.1–28.8 mm SL; Borneo: Kalimantan Barat, Danau Sentarum area, Sungai Hulu Leboyan at Keluwin.

A. macronema: BMNH 1863.12.11.188 (1 syntype), 40.5 mm SL; RMNH 6729 (2 syntypes), 35.1–35.7 mm SL; Sumatra: Lahat. ZRC 39523 (1), 38.4 mm SL; Sumatra: Sumatera Barat, market at Sungaidareh.

A. pseudobagarius: CAS 49414 (1 paratype), 21.4 mm SL; Borneo: Kalimantan Barat, Kapuas River opposite Silat, rocky area on left bank. UMMZ 155702 (1 paratype), 46.0 mm SL; Sumatra: Musi River at Muara Klingi. CMK 6855 (1), 58.4 mm SL; Borneo: Kalimantan barat, Kapuas River mainstream at Nanga Embaluh.

The reader is referred to Ng & Kottelat (1998; 2000) for a list of additional comparative material.

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