

***Kryptopterus platypogon*, a new silurid catfish (Teleostei: Siluridae) from Borneo**

HEOK HEE NG

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

Abstract

Kryptopterus platypogon, a new species of silurid catfish is described from the Rajang River drainage in northern Borneo. *Kryptopterus platypogon*, together with *K. hexapterus* and *K. cheveyi*, can be distinguished from congeners by a combination of the absence of the dorsal fin, a strongly-arched dorsal profile with a pronounced nuchal concavity and palatal teeth in a single elliptical patch. *Kryptopterus platypogon* differs from *K. hexapterus* in having a more strongly-projecting lower jaw, larger eye (14.1% HL vs. 8.0–12.6), longer maxillary (135.6% HL vs. 40.0–120.4) and mandibular (119.3% HL vs. 32.3–80.0) barbels that are flattened and ribbon-like (vs. flattened, but ovoid in cross section), and more ventrally-placed eyes (about one quarter of the orbital margin visible when the head is viewed ventrally vs. orbital margin barely visible), and from *K. cheveyi* in having a strongly projecting lower jaw (vs. upper and lower jaws of equal length), more anal-fin rays (83 vs. 66–71), narrower head (8.6% SL vs. 9.7–12.3) and smaller eye (14.1% HL vs. 18.9–22.7).

Key words: *Kryptopterus*, Siluridae, Borneo, Rajang River, Southeast Asia

Introduction

Members of the silurid catfish genus *Kryptopterus* Bleeker, 1858 are small-to medium-sized fishes found in inland waters throughout Southeast Asia. In recent years, it has been generally acknowledged that *Kryptopterus* is a paraphyletic assemblage consisting of at least two distinct clades (Bornbusch, 1995). Recent changes in the taxonomy of the group reflect this paraphyly, in which the large species with elevated (14–17 vs. 8–13) branchiostegal-ray counts and reduced barbels are reassigned to the genus *Micronema* (e.g. Rainboth, 1996; Kottelat, 2001). One of the species tentatively retained in *Kryptopterus*, *K. hexapterus*, is relatively rare in collections and is a medium-sized silurid easily distinguished by the absence of a dorsal fin, strongly projecting lower jaw, and a highly-arched dorsal profile with a distinct nuchal concavity.

During an ichthyological survey of the Rajang River in northern Borneo, a series of *K. hexapterus* were obtained, among which included an unusual specimen with larger eye and longer, flatter barbels. Closer examination revealed this specimen to belong to an undescribed species, which is described herein as *Kryptopterus platypogon*, new species.

Material and Methods

Measurements were made point to point with dial calipers and data recorded to tenths of a millimeter. 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 & Ng (1998).

Material examined in this study is deposited in the following institutions: Natural History Museum, London (BMNH), National Museum of Victoria, Melbourne (NMV), Nationaal Natuurhistorisch Museum, Leiden (RMNH), Museum of Zoology, University of Michigan, Ann Arbor (UMMZ), the Zoological Reference Collection of the Raffles Museum of Biodiversity Research, National University of Singapore (ZRC).

Kryptopterus platypogon sp. nov. (Figs. 1 & 2a)

Type material. Holotype: ZRC 45838, male, 176.3 mm SL; Borneo: Sarawak, Rajang River drainage, market at Sibul, 2°17'18.6"N 111°49'49.2"E; H. H. Tan & Y. Y. Goh, 3–4 March 1998.

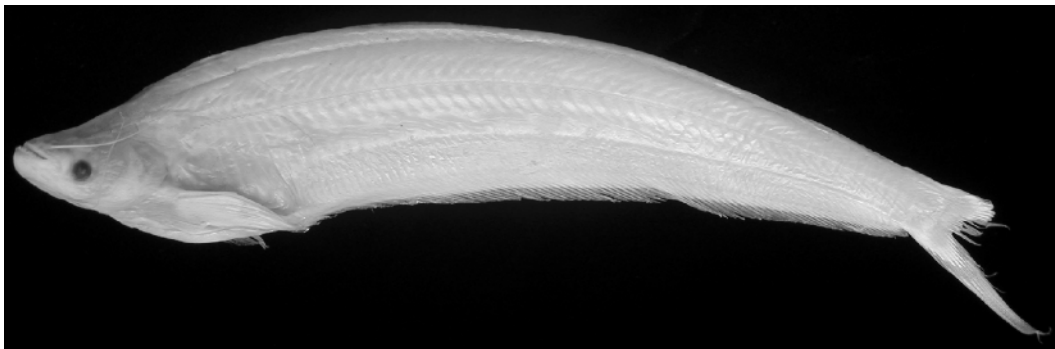


FIGURE 1. *Kryptopterus platypogon*, ZRC 45838, holotype, 176.3 mm SL; Borneo: Rajang River.

Diagnosis. *Kryptopterus platypogon*, *K. hexapterus* and *K. cheveyi* can be distinguished from congeners by a combination of the absence of a dorsal fin, a strongly-arched dorsal profile with a distinct nuchal concavity and vomerine teeth in a single ovoid patch.

The key distinguishing characters among the three species are discussed below and in Table 1.

TABLE 1. Key distinguishing characters between *K. cheveyi*, *K. hexapterus* and *K. platypogon*.

| | <i>K. cheveyi</i> | <i>K. hexapterus</i> | <i>K. platypogon</i> |
|---------------------------------|-------------------|----------------------|----------------------|
| Head width (% SL) | 9.7–12.3 | 8.2–9.5 | 8.9 |
| Eye diameter (% HL) | 18.9–22.7 | 8.0–12.6 | 14.1 |
| Maxillary barbel length (% HL) | 120.3–227.5 | 40.0–120.4 | 135.6 |
| Mandibular barbel length (% HL) | 63.9–126.6 | 32.3–80.0 | 119.3 |
| Anal-fin rays | 66–71 | 74–83 | 83 |

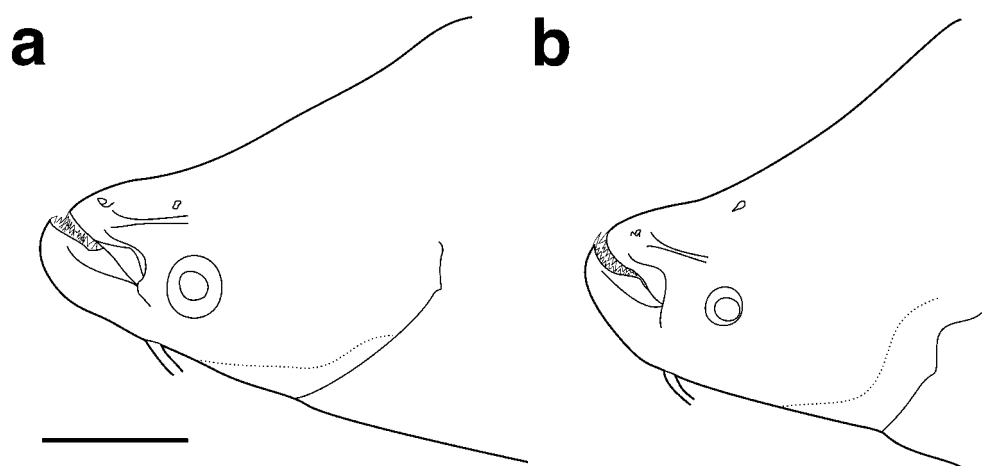


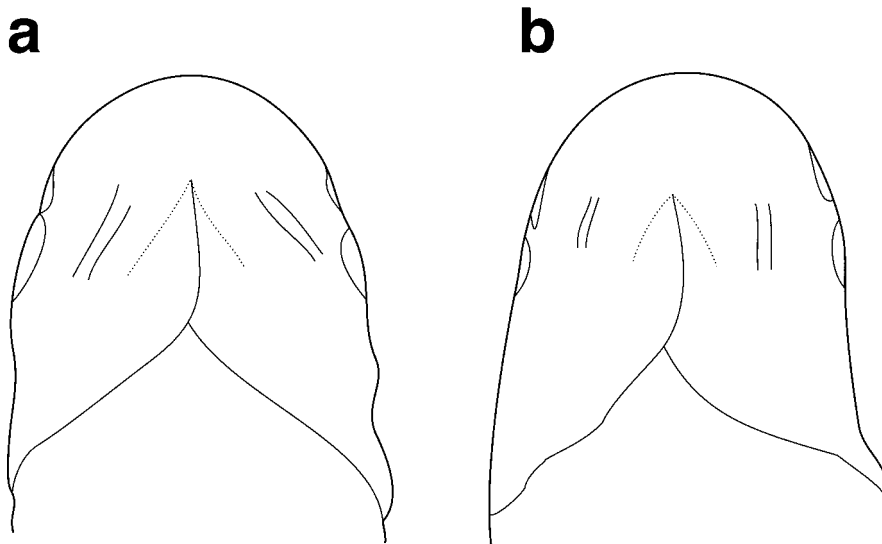
FIGURE 2. Lateral views of heads of: a. *Kryptopterus platypogon*, ZRC 45838, holotype, 176.3 mm SL; b. *K. hexapterus*, ZRC 45833, 184.8 mm SL. Scale bar represents 10 mm.

Kryptopterus platypogon differs from *K. hexapterus* in having a more strongly-projecting lower jaw (Fig. 2), larger eye (14.1% HL vs. 8.0–12.6), longer maxillary (135.6% HL vs. 40.0–120.4) and mandibular (119.3% HL vs. 32.3–80.0) barbels that are flattened and ribbon-like (vs. flattened, but ovoid in cross section), and more ventrally-placed eyes (about one quarter of the orbital margin visible when the head is viewed ventrally vs. orbital margin barely visible; Fig. 3). It is further distinguished from *K. cheveyi* in having a strongly projecting lower jaw (vs. upper and lower jaws of equal length), more anal-fin rays (83 vs. 66–71), narrower head (8.6% SL vs. 9.7–12.3) and smaller eye (14.1% HL vs. 18.9–22.7).

Description. Morphometric data in Table 2. Body laterally compressed; maximum body depth located at pelvic-fin origin; head as broad as body and moderately depressed. Dorsal profile of body strongly arched, with a pronounced nuchal concavity.

TABLE 2. Morphometric data for the holotype of *Kryptopterus platypogon*.

| %SL | |
|--------------------------|-------|
| Preanal length | 28.8 |
| Prepelvic length | 26.0 |
| Prepectoral length | 16.2 |
| Anal-fin length | 73.5 |
| Pelvic-fin length | 6.1 |
| Pectoral-fin length | 15.3 |
| Pectoral-spine length | 7.5 |
| Caudal-fin length | 19.0 |
| Body depth at anus | 18. |
| Caudal peduncle depth | 5.6 |
| Head length | 15.3 |
| Head width | 8.9 |
| Head depth | 9.3 |
| %HL | |
| Snout length | 41.9 |
| Interorbital distance | 53.0 |
| Eye diameter | 14.1 |
| Maxillary barbel length | 135.6 |
| Mandibular barbel length | 119.3 |

**FIGURE 3.** Ventral views of heads of: a. *Kryptopterus platypogon*, ZRC 45838, holotype, 176.3 mm SL; b. *K. hexapterus*, ZRC 45833, 161.3 mm SL. Scale bar represents 10 mm.

Snout rounded when viewed from above. Anterior pair of nostrils tubular and antero-medial to maxillary barbel base. Posterior pair of nostrils bordered by fleshy dorsal and ventral membranes and posteromedial to maxillary barbel base (at level of vertical through anterior orbital margin). Lower jaw strongly projecting forwards.

Mouth terminal; gape oblique, moderate and extending two-thirds of way between maxillary barbel base and anterior orbital margin. Well-developed rictal lobes present, subtended by deep submandibular groove; upper rictal lobe possessing skin fold with free dorsal edge extending from mouth corner to base of maxillary barbel. Thin, broad supralabial fold extending from below orbit to point two thirds of way between maxillary barbel base and anterior orbital margin.

Jaw teeth depressible and villiform. Premaxillary teeth in 4–5 irregular rows in narrow, gently curved rectangular bands. Dentary teeth in similar, slightly narrower bands narrowing posterolaterally, reaching from symphysis almost to mouth corners. First row of dentary teeth slightly visible when mouth is closed. Vomerine teeth in 2–3 rows in single ovoid patch straddling midline.

Two pairs of barbels, flattened and ribbon-like for entire length. Maxillary barbels reaching to middle of pectoral fin. Mandibular barbels (only outer pair present) reaching to middle of pectoral fin. Eyes small, subcutaneous (without free orbital margin); located at approximately anterior third of head and immediately behind supralabial fold. Dorsal orbital margin just visible dorsally; ventral quarter of orbital margin visible ventrally.

Gill membranes separate and overlapping, free from isthmus; gular fold well-developed and v-shaped. Branchiostegal rays 14. Gill rakers long and thin, without odontodes; anteriormost rakers on lower first arch widely spaced; 6+21.

Dorsal fin absent. Depressed pectoral fin reaching beyond origin of anal fin; distal margin broadly convex, with rounded tip. Fourth branched pectoral ray longest and fin with 13 rays. Proximal two-thirds of first pectoral-fin element co-ossified into a slender spine. Spine with shallow oblique striae on dorsal and ventral surfaces and with 5 serrations on posterior edge spanning the distal end of the ossified and proximal end of the flexible distal tip. Axillary pore small, located just above pectoral spine base. Depressed pelvic fin reaching to second or third anal-fin ray; distal margin convex with i,7 rays. Distal margin of anal fin straight, with 83 rays; separate from caudal fin. Integument over anal fin thickened proximally for two thirds of ray lengths; fin-ray erector muscles attaching to base of fin rays, ventralmost extent of muscles defined by area of thickened integument. Caudal peduncle slender. Caudal fin deeply forked, lobes elongate and with rounded tips; upper lobe slightly longer; principal rays i,7,8,i. Lateral line complete, extending to middle of caudal-fin base, with short branches along flanks directed posterovertrally. Urogenital papilla located immediately posterior to insertion of pelvic fin. Vertebrae 11+50=61.

Coloration. In 70% ethanol: Body and head pinkish cream and diffusely pigmented. Light powdering of melanophores on dorsal surface of head and on flanks above lateral

line. Thin, diffuse band of melanophores along dorsal midline. Ventral surfaces immaculate and lacking pigmentation. All fins hyaline. Barbels unpigmented.

Distribution. Known from the Rajang River drainage in northern Borneo (Fig. 4).

Etymology. From the Greek *platys*, meaning flat, and *pogon*, meaning beard; in reference to the flat ribbon-like barbels of this species. Used as a noun.

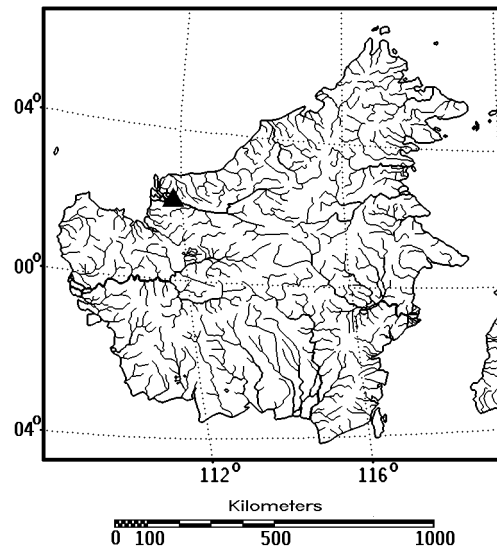


FIGURE 4. Map showing distribution of *K. platypogon* (▲).

Discussion

Bornbusch (1995) diagnosed the *K. hexapterus* species group as possessing the following synapomorphies: premaxilla with a slender toothless process extending posteriorly from the lateral corner of the premaxilla and nearly reaching the anterior margin of the metapterygoid, scaphium lacking an ascending process, and the first vertebral centrum lacking a pair of ventral crests. The group includes the following nominal species: *K. hexapterus* (Bleeker, 1851), *K. cheveyi* (Durand, 1940) and *K. moorei* Smith, 1945, with *K. moorei* considered a junior synonym of *K. cheveyi* (see Kottelat, 1998).

Superficially, members of the *K. hexapterus* group are easily distinguished from congeners in having a combination of the absence of a dorsal fin, a strongly-arched dorsal profile with a distinct nuchal concavity and vomerine teeth in a single ovoid patch. *Kryptopterus schilbeides* is the only other congener lacking a dorsal fin and with a strongly arched dorsal profile and distinct nuchal concavity, but it can be distinguished from the members of the *K. hexapterus* group in having the vomerine teeth in two elliptical patches (vs. in a single ovoid patch).

It is possible that the differences observed between *K. hexapterus* and *K. platypogon* are due to sexual dimorphism, but examination of the series of *K. hexapterus* collected

together with the sole specimen of *K. platypogon* shows that this is not the case. Both males (easily distinguished by their strongly serrated pectoral spines) and females of *K. hexapterus* occur in the series, and sexual dimorphism in barbel, snout and eye morphology was not evident in this species. These differences are also not due to allometry, as a bivariate scatterplot of eye diameter and maxillary barbel length against SL (Fig. 5) indicates (it was not possible to plot mandibular barbel length against SL due to the fact that the mandibular barbels were broken off in many of the specimens).

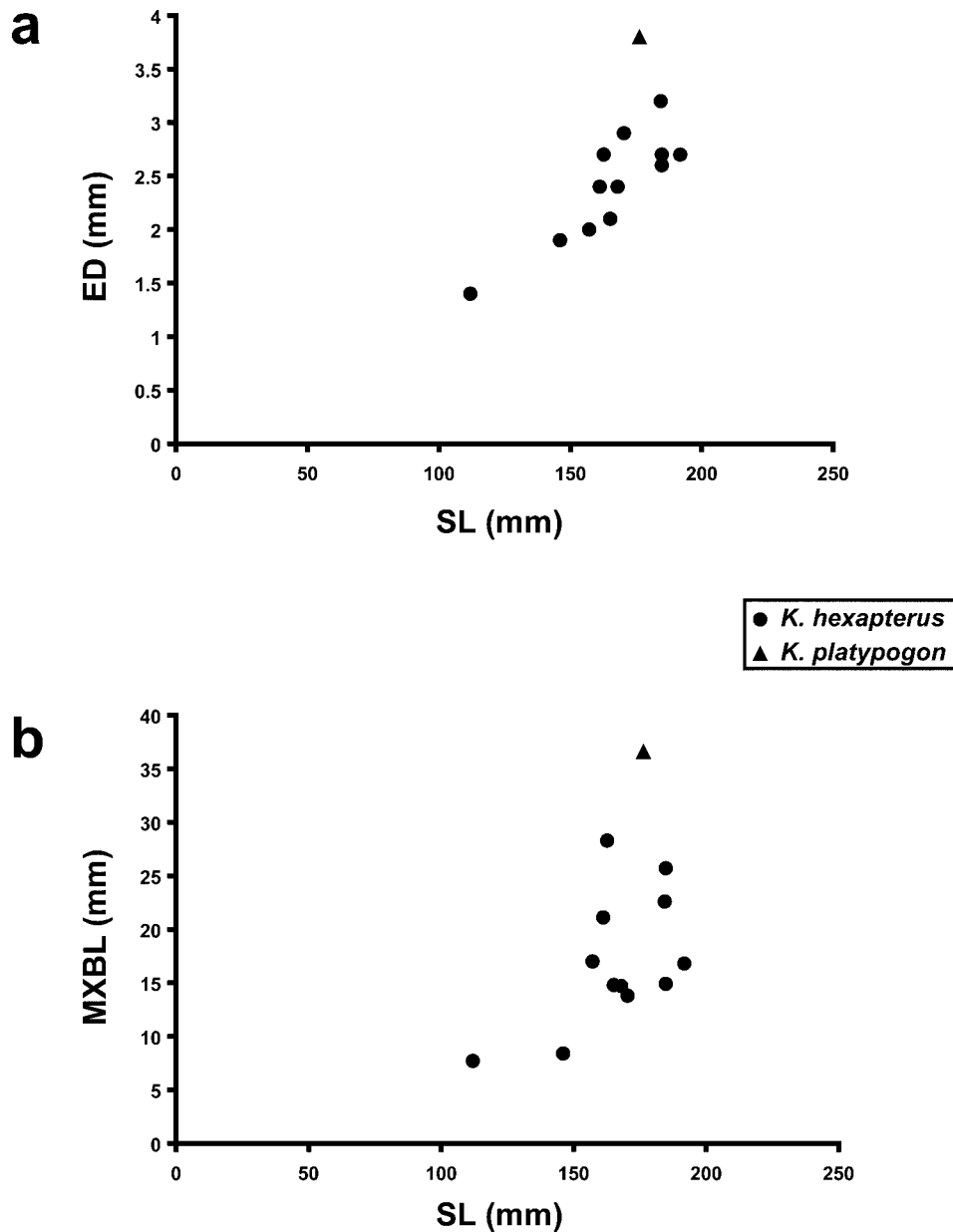


FIGURE 5. Scatterplots of: a. eye diameter (ED) and b. maxillary barbel length (MXBL) against SL for *K. hexapterus* and *K. platypogon*.

Comparative material

Kryptopterus cheveyi: UMMZ 232317 (8), 142.6–183.7 mm SL; Cambodia: Stung Treng morning market. UMMZ 232735 (1), 165.0 mm SL; Cambodia: Kompong Thom, Tonle Sap at exit to Great Lake, 4 km NW of Chhnok Trou at Kompong Thom fishing lot 2. UMMZ 232755 (1), 113.8 mm SL; Cambodia: Kompong Chhnang, Tonle Sap River, 17 km upstream from Kompong Chhnang. UMMZ 235384 (5), 114.7–203.6 mm SL; Laos: Champasak, Mekong River at Ban Hang Khone, just downstream of Khone Falls.

Kryptopterus hexapterus: RMNH 6842, holotype, 112.0 mm SL; Borneo: Banjarmasin. BMNH 1863.12.4.73 (1), 157.2 mm SL; NMV 46511 (1), 162.7 mm SL; Sumatra: Palembang. UMMZ 155810 (1), 191.8 mm SL; Sumatra: mouth of the Rokan River at Bagan Siapiapi. ZRC 45833 (8), 146.1–184.8 mm SL; Borneo: Sarawak, Rajang River drainage, market at Sibul, 2°17'18.6"N 111°49'49.2"E.

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