

***Clarias microstomus*, a New Species of Clariid Catfish from Eastern Borneo (Teleostei: Siluriformes)**

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Heok-Hee Ng (2001) *Clarias microstomus*, a new species of clariid catfish from eastern Borneo (Teleostei: Siluriformes). *Zoological Studies* 40(2): 158-162. *Clarias microstomus*, a new species of clariid catfish is described from the Kayan and Mahakam River drainages in eastern Borneo. It differs from its congeners in having a narrow snout (with an egg-shaped head), a gently-sloping anterior margin of the dorsal fin, and a unique combination of the following characters: a gray body with white spots, a smooth anterior edge of the pectoral spine, a head length of 21.4%-22.5% SL, a head depth of 67.1%-70.6% HW, and an interorbital distance of 46.7%-50.2% HL.

Key words: Clariidae, Kalimantan Tengah, Kayan River, Mahakam River.

The Old World catfish genus *Clarias* is one of the most widespread catfish genera in the world. The taxonomy of African species has been revised (Teugels 1986), but that of Asian species remains unresolved. Ng (1999) recently described 2 new species of *Clarias* from Borneo, and the continued discovery of new taxa shows how little we understand of the diversity of this genus.

While conducting an ichthyological survey of the upper reaches of the Kayan River in eastern Borneo, specimens of *Clarias* were obtained. Comparison of these specimens with material previously collected from the Mahakam River drainage and specimens of *Clarias* from other parts of Southeast Asia revealed the existence of 3 species in the Kayan and Mahakam River drainages. One of the species is distinct from other Southeast Asian *Clarias* and belongs to a previously undescribed species, herein described as *C. microstomus*, sp. nov.

MATERIALS AND METHODS

Herein, I used the phylogenetic species concept, which considers a species to be a single lineage of an ancestor-descendant population that maintains its identity from other such lineages and

has its own evolutionary tendencies and historical fate (Wiley 1981). Because of the paucity of material available, a detailed phylogenetic study is not possible and I have inferred relationships based on the fact that the species are recognizably different and can be diagnosed by a unique set of characters exhibited by all members of the species. In this respect, this is closer to the "Pragmatic Species Concept" of Kottelat (1995), but the results, as pointed out by Cracraft (1989), can be very similar.

All measurements are taken from the left side of body with a pair of dial calipers to the nearest 0.1 mm. 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 and counts follow those of Ng (1999). Institutional codes follow those of Eschmeyer (1998).

***Clarias microstomus* sp. nov.**

(Fig. 1)

Clarias liacanthus (non Bleeker) Popta, 1906: 18 (in part).

Clarias leiacanthus (non Bleeker) Hardenberg, 1935: 232 (in part); Christensen, 1992: 601 (in part).

Holotype: MZB 9336, 122.9 mm SL, Borneo: Kalimantan Timur, Kayan R. drainage, Ladang near Sungai Pingai, 2°0'9.6"N 115°9'13.8"E, H.H. Tan and D. Wowor, 25 Nov. 1999.

Paratypes: RMNH 7540, 2 ex., 52.3-75.7 mm SL, Borneo: upper Mahakam, Long Bluu, A.W. Nieuwenhuis, 1898; RMNH 7541, 4 ex., 64.0-140.8 mm SL, Borneo: Kayan, A.W. Nieuwenhuis, Sept.-Oct.1900; ZRC 45776, 8 ex., 96.1-130.0 mm SL, data same as for holotype.

Diagnosis: *Clarias microstomus* can be differentiated from its congeners in having the following unique set of characters: a narrow snout (with an egg-shaped head), gray body with white spots, gently-sloping anterior margin of dorsal fin, anterior edge of pectoral spine smooth, head length 21.4%-22.5% SL, head depth 67.1%-70.6% HW, and interorbital distance 46.7%-50.2% HL.

Description: In percent SL: head length 21.4-22.5, head width 16.2-17.2, head depth 10.7-11.8, predorsal distance 33.8-35.9, preanal length 45.6-47.8, prepelvic length 40.8-41.5, prepectoral length 17.8-19.1, body depth at anus 13.0-13.5, depth of caudal peduncle 5.8-6.4, pectoral-spine length 5.9-8.6, pectoral-fin length 11.4-12.6, length of dorsal-fin base 65.2-66.8, distance between occipital process and dorsal fin 12.8-13.1, pelvic-fin length 6.9-7.6, length of anal-fin base 51.7-54.0, caudal-fin length 12.4-14.2; in percent HL: snout length 30.5-34.4, interorbital distance 46.7-50.2, eye diameter 4.8-6.0, width of mouth 47.8-52.0, width of premaxillary toothplate 21.3-24.9. Branchiostegal rays 8 (1), 9 (3), or 10 (1). Gill rakers 2 + 14 (1) or 3 + 12 (1). Vertebrae 18 + 43 = 61 (1), 20 + 44 = 64 (4), or 21 + 43 = 64 (1).

Skin smooth. Lateral line median, beginning just after operculum and ending at caudal peduncle. Openings to secondary sensory canals on body arranged regularly on upper part of flanks, and in vertical branches above lateral line, visible as white spots. Eye small and subcutaneous.

Four pairs of barbels with thick, fleshy base, and gradually tapering towards tips; in percent HL: length of nasal barbel 69.2-83.0, length of maxillary barbel 112.5-128.2, length of inner mandibular barbel 62.8-71.4, length of outer mandibular barbel 83.4-97.7. Nostril tube short, not extending beyond edge of mouth when directed forward.

Head large and flat with narrow snout, egg-shaped when viewed from top. Dorsal surface of head smooth. Anterior fontanelle short and squat ("sole-shaped" of Teugels 1986), length 8.3%-10.9% HL, width 2.1%-3.6% HL; anterior edge reaching imaginary line connecting anterior orbital borders. Occipital fontanelle oval, narrower than anterior fontanelle, length 5.8%-10.2% HL, width 2.6%-3.6% HL; posterior edge reaching imaginary line connecting base of pectoral spines.

Fin ray counts. Dorsal 65 (1), 67 (1), 69 (1), 70

(1) or 72 (2); pectoral I,7,i (4) or I,8,i (2); pelvic i,5 (6); anal 55 (1), 61 (3) or 63 (2); caudal 7/6 (4) or 7/7 (2). Pectoral spine broad, covered by skin, anterior margin smooth; pelvic fin origin at vertical through base of dorsal ray 8-10; first dorsal-fin ray shortest, last few rays progressively shorter, posterior part rounded, not joined to caudal fin; origin of anal fin at vertical through base of dorsal ray 13-16, caudal fin rounded.

Color: Dorsal surface of head and body uniform gray, fading to a paler color on ventral surfaces; adipose fin gray with hyaline margin; fin rays of all other fins dusky, with hyaline inter-radial membranes.

Distribution: Known from the Mahakam and Kayan River drainages in eastern Borneo.

Etymology: From the Greek *mikros*, meaning small, and *stoma*, meaning mouth, in reference to the narrow snout.

DISCUSSION

Clarias microstomus belongs to the group of *Clarias* defined by Ng (1999) as having a short body with 62-74 dorsal-fin rays and a greater length (7.1%-12.5% SL) between the tip of the occipital process and the base of the 1st dorsal-fin ray. The species in this group (here known as the *C. leiacanthus* species group) considered valid by Ng (1999) and Tan and Ng (2000) are *C. leiacanthus* Bleeker, 1851, *C. olivaceus* Fowler, 1904 (previously synonymized with *C. batrachus* by Fowler (1941) but demonstrated to be more closely related to *C. leiacanthus* by Tan and Ng 2000), *C. batu* Lim and Ng, 1999, *C. anfractus* Ng, 1999 and *C. planiceps* Ng, 1999.

Clarias microstomus differs from all congeners in the *C. leiacanthus* species group in having a dis-



Fig. 1. *Clarias microstomus*, ZRC 45776, paratype, 130.0 mm SL.

tinctly narrow snout when viewed dorsally, leading to a narrower mouth (47.8%-52.0% vs. 51.8%-55.9% HL) and premaxillary toothplate (21.3%-24.9% vs. 25.1%-27.5% HL). This has the effect of making the head look somewhat egg-shaped (vs. broadly oval in other congeners of the *C. leiacanthus* species group; Fig. 2). The only other species of Asian *Clarias* with a narrow snout and an egg-shaped head is *C. batrachus* (Linnaeus, 1758), but the sides of the head are less convex in *C. batrachus* (Fig. 2c). Furthermore, *C. batrachus* can be easily differentiated from *C. microstomus* in having a shorter distance (2.1%-4.7% vs. 12.8%-13.1% SL) between the tip of the occipital process and the base of the 1st dorsal-fin ray.

The anterior margin of the dorsal fin in *C. microstomus* is also more gently sloping (Fig. 3) than that of other congeners in the *C. leiacanthus* species group.

Clarias microstomus further differs from *C. batu* in having fewer vertebrae (61-64 vs. 67-71) and a deeper body (body depth at anus 13.0%-13.5% vs. 9.0%-11.4% SL), from *C. anfractus* in having a shorter head (21.4%-22.5% vs. 23.3%-25.2% SL) and eyes set further apart (interorbital distance 46.7%-50.2% vs. 43.4%-47.7% HL).

C. microstomus differs from both *C. olivaceus* and *C. planiceps* in having a smooth (vs. distinctly serrated) anterior edge of the pectoral spine. It further differs from *C. olivaceus* in having the eyes set further apart (interorbital distance 46.7%-50.2% vs. 40.9%-45.4% HL) and a gray body with numerous white spots (vs. a very dark gray body without spots), and from *C. planiceps* in having a deeper head (head depth 67.1%-70.6% vs. 59.0%-63.8% HW) and a gray (vs. light purplish brown) body.

Clarias microstomus is found sympatrically, but not syntopically with *C. leiacanthus* and *C. planiceps*.

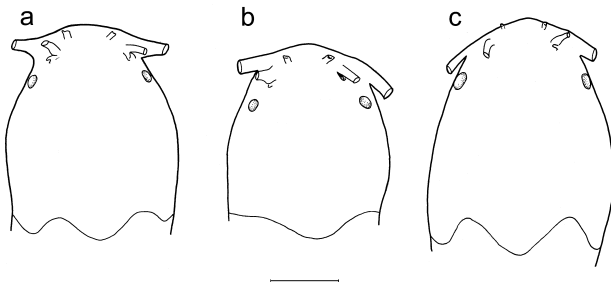


Fig. 2. Dorsal views of heads of: a. *Clarias microstomus*, 45776; b. Other congeners in the *C. leiacanthus* species group (*C. planiceps*, ZRC 45755, 131.8 mm SL, illustrated); c. *C. batrachus*, ZRC 45777, 136.8 mm SL. (Scale bar represents 10 mm).

In the Kayan R. basin, *C. microstomus* has been found in stagnant pools, whereas *C. leiacanthus* and *C. planiceps* are found in swift-flowing streams. Rendahl (1922) recorded 2 specimens of *C. teijsmanni* collected from Bulungan (in the Kayan River drainage), but only the location of 1 specimen (identified as *C. planiceps* by Ng [1999]) is known. The whereabouts of the other specimen is unknown, and given the fact that both *C. planiceps* and *C. microstomus* occur sympatrically, the identity of the other specimen remains in doubt.

Comparative materials.—*Clarias anfractus* Ng, 1999: ZRC 42598, holotype, 176.4 mm SL, Borneo: Sabah, Danum, forest stream 600 m into conservation area, tributary of Sungai Segama. FMNH 68095 (2), paratypes, 166.3-172.1 mm SL, Borneo: Sabah, Tawau District, Kalabakan, Sungai Tibas camp, Sungai Tawan, 4°25'N 117°28'E. —*C. batrachus* (Linnaeus, 1758): UMMZ 155705 (3), 92.4-170.2 mm SL, Sumatra: Meer van Singkarak. USNM

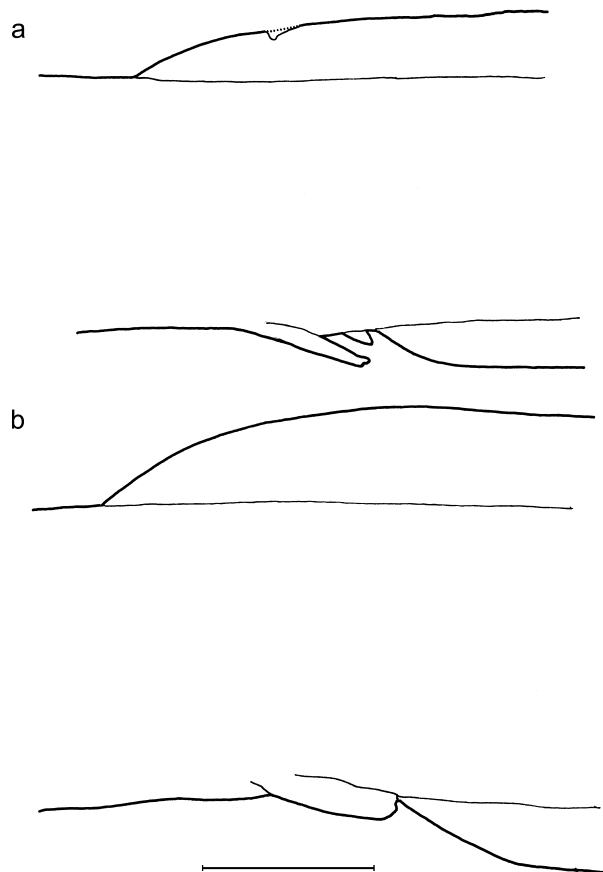


Fig. 3. Lateral views of body of: a. *Clarias microstomus*, 45776; b. Other congeners in the *C. leiacanthus* species group (*C. planiceps*, ZRC 45775, 131.8 mm SL, illustrated) showing slope of anterior margin of dorsal fins. (Scale bar represents 10 mm).

44980 (1), 92.3 mm SL, Java. USNM 72251 (1), 157.5 mm SL, Java: Buitenzorg. ZMA 111.535 (12), 60.8-211.4 mm SL, Sumatra: highlands of Padang, Kaking (Tilatang). ZRC 40860 (1), 120.9 mm SL, Thailand: Trat Prov., Klong Kwan, near Ban Klong Kwan village, 12°19'36.6"N 102°38'6.5"E. ZRC 45777 (1), 136.8 mm SL, Borneo: Sarawak, Sungai Kuhas. —*C. batu* Lim and Ng, 1999: ZRC 40087, holotype, 245.0 mm SL, ZRC 40088 (8), paratypes, 101.3-228.0 mm SL, CMK 13010 (1), paratype, 167.0 mm SL, Malaysia: Pulau Tioman, Sungai Baharu, on right side of Tekek-Juara trail (toward Juara). ZRC 40089 (9), paratypes, 179.0-305.0 mm SL, BMNH 1997.2.4.7-8 (2), paratypes, 191.0-263.0 mm SL, CAS 90501 (1), paratype, 250.0 mm SL, RMNH 33019 (1), paratype, 265.0 mm SL, Malaysia: Pulau Tioman, Sungai Nipah. —*C. leiacanthus* Bleeker, 1851: ANSP 64862 (1), 180.8 mm SL, Thailand: waterfall at Trang (holotype of *C. cataractus*). RMNH 7542 (1), 83.5 mm SL, Borneo: Mahakam R. basin, Howong (holotype of *C. pulcher*). RMNH 6803 (1), 91.0 mm SL, Java: Tjikoppo, Bogor Prov. (holotype of *C. teijsmanni*). CMK 11560 (1), 91.9 mm SL, Java: Bogor, Sungai Ciawi in BIOTROP. ZMA 121.779 (8), 76.5-90.4 mm SL, Java: Buitenzorg [= Bogor]. ZRC 18594 (1), 149.0 mm SL, Malaysia: Pahang, about 200 m southwest of the 33-km marker on the Segamat-Kuantan road. ZRC 39105 (4), 37.0-150.0 mm SL, Sumatra: Riau Prov., stream with grassy bank near Pangkalankasai, 43 km from Rengat on Rengat-Jambi road. CAS 49422 (2), 119.9-134.3 mm SL, Borneo: Kalimantan Barat, Sungai Paklehung, a low-lying forested hillstream tributary to Sungai Mempawah, 48 km NNW of Pontiank, 9 km NE of Andjongan and 1-3 km upstream from Toho (0°24.5'N 109°13.5'E). RMNH 7538 (6), 48.5-113.2 mm SL, Borneo: Howong. RMNH 7539 (2), 192.4-214.4 mm SL, Borneo: upper Mahakam. ZRC 45639 (2), 113.8-115.4 mm SL, Borneo: Kalimantan Timur, Kayan R. basin, Bahau R., Sungai En'ggeng l'ut ca. 200-300 m downstream of Kuala En'ggeng B'io (right bank of Bahau R.), 2°51'30.6"N 115°49'40.8"E. —*C. olivaceus* (Fowler, 1904): ANSP 27280, holotype, 241.8 mm SL, ANSP 27281 (3), paratypes, 157.5-209.5 mm SL, Sumatra: Padang. ZMB 20931 (2), 82.8-106.5 mm SL, ZMB 20944 (1), 115.7 mm SL, Sumatra: Porsea, Lake Toba (syntypes of *C. thienemanni*). CAS 108051 (1), 216.0 mm SL, Sumatra. USNM 193033 (9), 113.0-149.8 mm SL, Sumatra: Lake Toba at Prapet. ZRC 41697 (8), 116.2-231.7 mm SL, Sumatra: Jambi Prov., Kerinci, Sungaipenuh market. —*C. planiceps* Ng, 1999: SMK, holotype, 106.5 mm SL, Borneo: Sarawak, Belakin

area, Ulu Sungai Anap. FMNH 68103 (22), paratypes, 70.8-210.8 mm SL, Borneo: Sarawak, Third Division, tributary of Baleh R. between Sungai Entunau and Sungai Putai. MZB 6666 (1), paratype, 230.0 mm SL, Borneo: Kalimantan Barat, Sungai Embaloh, small stream at mouth of Sungai Tekelan. NRM 10273 (1), 178.4 mm SL, Borneo: Kalimantan Timur, Kayan R., Bulungan. USNM 323727 (1), paratype, 297.3 mm SL, Borneo: Sarawak, Batang Balui, tributary stream, Batang Belahui. ZRC 45755 (4), 131.8-153.0 mm SL, Borneo: Kalimantan Timur, Kayan R. basin, Sungai Busang Matu, tributary of Kayan R. ca. 500 m upstream of Data Dian, 1°59'40.2"N 115°7'35.4"E. ZRC 45756 (2), 145.6-161.0 mm SL, Borneo: Kalimantan Timur, Kayan R. basin, Sungai Belayan Tekan, tributary of Kayan R., 1°59'53.4"N 115°7'48.6"E.

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記產自東婆羅洲一新種鬚鯰(真骨魚：鯰形目)，小口鬚鯰
(*Clarias microstomus*)

黃旭晞^{1,2}

本文描述一種採自東婆羅洲 Kayan 及 Mahakam 河集水區之一新種鬚鯰，小口鬚鯰(新稱)(*Clarias microstomus*)，其特徵為吻窄(頭部呈卵形)，背鰭前緣緩慢傾斜及下列綜合之特徵：體灰色有白點，胸鰭棘前緣平滑，頭長為標準長之 21.4%-22.5%，頭高為頭寬的 67.1%-70.6%，兩眼間距為頭長之 46.7%-50.2%。

關鍵詞：鬚鯰科，Kalimantan Tengah，Kayan 河，Mahakam 河。

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