Rev. Biol. Trop., 47(3): 545-552, 1999
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Bagrichthys obscurus, a new species of bagrid catfish from Indochina (Teleostei: Bagridae)

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Received 16-XI-1998. Corrected 9-III-1999. Accepted 18-III-1999.

Abstract: *Bagrichthys obscurus* new species, is described from drainages in Indochina. It is morphologically similar to and has been previously identified as *B. macropterus*, but can be differentiated from that species in having a uniformly brown body without a pale midlateral stripe and without pale blotches on the sides of the body, a more slender body, a shorter adipose-fin base, and the genital papilla in males meeting the base of the first anal-fin ray.

Key words: Bagridae, new species, Indochina.

Catfishes of the highly specialized bagrid genus *Bagrichthys* Bleeker, 1858, live in large muddy rivers throughout Southeast Asia and are characterised by their elongate and laterally compressed caudal peduncle, the dorsally-directed serrations on the posterior edge of the dorsal-fin spine, gill membranes united at the isthmus, and a long adipose fin without a free posterior margin (Roberts 1989, Mo 1991). For some time, the taxonomy of species of *Bagrichthys* has been confused, but the problems have largely been resolved by Roberts (1989). Even so, Roberts (1989) recognised that specimens identified as *B. macropterus* Bleeker, 1853, from the Mekong drainage in Thailand appeared to have a different body colour than did Sundaic *B. macropterus* and may represent an undescribed species, a point also discussed by Rainboth (1996). Examination of specimens identified as *B. macropterus* from both the Mekong drainage (and other drainages in Indochina) and near the type locality (Muara Kompeh) in the Batang Hari drainage in Sumatra reveal that morphological differences exist besides body colour, thus confirming Roberts' (1989) and Rainboth's (1996) supposition that the two populations are not conspecific. The specimens from Indochina are thus described herein as representing a new species.

MATERIALS AND METHODS

Measurements were made point to point with dial calipers 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 and counts were made following Ng and Ng (1995) with the following exceptions: head length is measured from the anterior point of SL to the posteriormost extremity of fleshy opercular flap. Length of the adipose-fin base is

measured from the anteriormost point of origin to the posteriormost point of the adipose-fin base. Post-adipose distance is measured from the posteriormost point of the adipose-fin base to the posterior point of SL.

The following additional measurements were made: predorsal, preanal, prepelvic and prepectoral lengths are those measured from the anterior point of SL to the anterior basis of the dorsal, anal, pelvic and pectoral fins respectively. Lengths of the dorsal- and anal-fin bases include the respective bases of the first and last rays and the distance between them. Pelvic- and pectoral-fin lengths are measured from the origin to the tip of the longest filament. Dorsal and pectoral spine lengths are measured from the base to the tip. Dorsal to adipose distance is measured from the base of the last dorsal-fin ray to the origin of the adipose fin. Adipose maximum height is the maximum height of the adipose fin. Caudal-fin length is the length of the longest ray of the upper lobe measured from the posterior margin of the hypural complex. The length of the caudal peduncle is measured from base of the last anal-fin ray to the posterior point of SL. Nasal-, maxillary- and mandibular-barbel lengths are measured from the base to the tip. The morphometric values for the holotype are given in parentheses.

Fin ray counts were obtained under a binocular dissecting microscope using transmitted light. Numbers in parentheses following a particular fin-ray, branchiostegal-ray or gill-raker count are the numbers of examined specimens with that count. Vertebral counts were taken from radiographs following the method of Roberts (1994). Numbers in parentheses following a particular vertebral count are the numbers of radiographed specimens with that count.

Drawings of the specimens were made with a Nikon SMZ-10 microscopic camera lucida and institutional codes follow Eschmeyer (1998).

Bagrichthys obscurus new species
(Fig. 1 & 2)

Bagrichthys macropterus (non Bleeker)—Jayaram 1968: 380 (in part); Kottelat et al. 1993: 63, pl. 30 (in part); Roberts and Warren 1994: 101; Rainboth 1996: 139.

Bagrichthys sp. undet.—Roberts 1989: 115.

Bagroides macropterus (non Bleeker)—Sauvage 1881: 161 (in part); 1883: 154; Weber and de Beaufort 1913: 349 (in part); Durand 1940: 29; Smith 1945: 377; Chaux and Fang 1949: 342; Suvatti 1950: 292; 1981: 89; Kuronuma 1961: 6; Thiemmedh 1966: 51; Orsi: 1974:

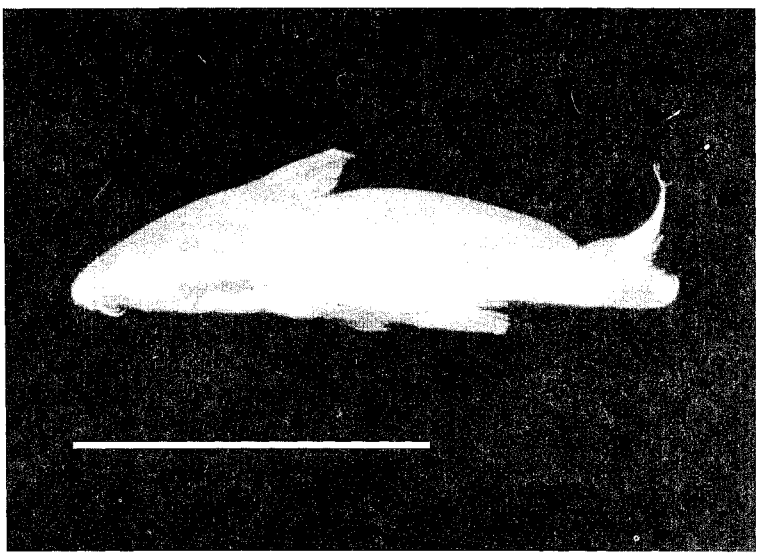

Fig. 1. *Bagrichthys obscurus,* holotype; USNM 317511, 153.2 mm SL.

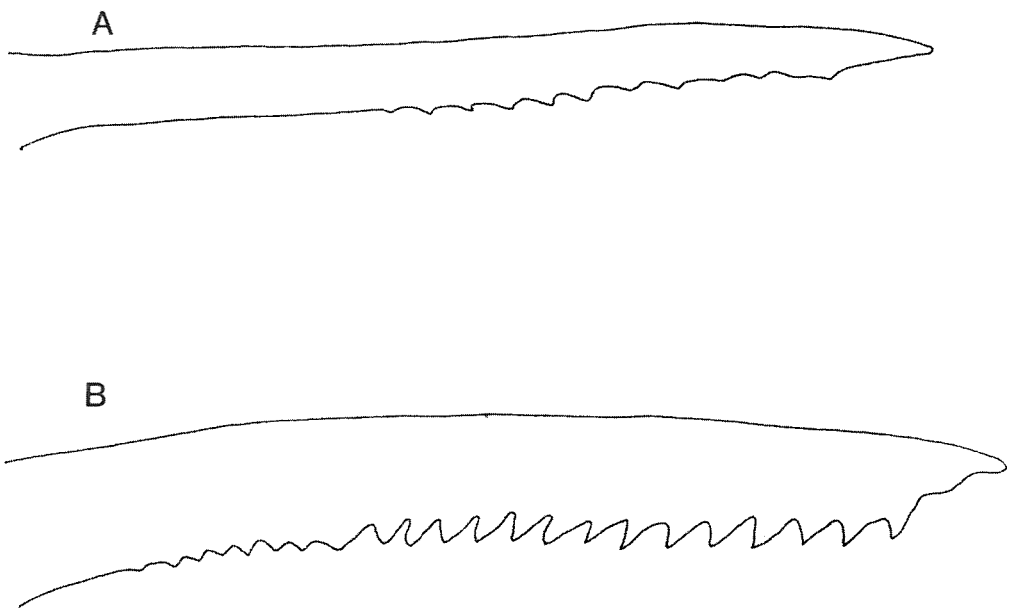

Fig.2. a. Dorsal spine of *B. obscurus*, UMMZ 232307, paratype, 192.5 mm SL; b. Left pectoral spine (inverted) of *B. obscurus*, UMMZ 232307, paratype, 192.5 mm SL.

161; Taki 1974: 49, fig. 50; 1978: 19; Desoutter 1975: 472; Kottelat 1985: 270; Mai and Nguyen 1988: 49; Mai et al. 1992: 184; Anon. 1993: 201, fig. 87; Serov, 1994: 24.

Bagroides (*Pseudobagrichthys*) *macropterus* (non Bleeker) — Suvatti 1936: 77.

Pseudobagrichthys macropterus (non Bleeker)— Bleeker 1864: 357; 1865a: 34; 1865b: 99; 1865c: 175.

Holotype: USNM 317511, 153.2 mm SL; Thailand: Roi Et province, Lam Chi, 1.5 km below highway 23 bridge, 4 km W of Selaphum; Smithsonian Oceanographic Sorting Center expedition, 31 January 1971.

Paratypes: CAS 92567, 1 ex., 249.1 mm SL; Laos: Mekong River below Khone Falls; I. G. Baird, February-March 1994. - CAS 92580, 2 ex., 166.6-216.1 mm SL; Laos: Mekong River at Ban Hang Khone, just below Khone Falls; T. R. Roberts, June-July 1993. - UMMZ 186765, 3 ex., 85.5-164.3 mm SL; UMMZ 214485, 1 ex., 113.7 mm SL; Thailand: Ubon Ratchathani province, Khong Chiam District, Mun River at Ban Dan, 3 km upstream from confluence with Mekong River; R. E. Arden, 1 July 1975. - UMMZ 214486, 1 ex., 128.3 mm SL; Thailand: Ubon Ratchathani province, Khong Chiam District, Mun River at Ban Dan, 3 km upstream from confluence with Mekong River; Songrad and Buskirk, 15 July 1975. - UMMZ 214914, 2 ex., 154.6-179.4 mm SL; Vietnam: Phong Dinh province, Can Tho fish market; W. J. Rainboth, 19 July 1974. - UMMZ 214917, 1 ex., 187.4 mm SL; Thailand: Thailand: Ubon Ratchathani province, Khong Chiam District, Mun River at Ban Dan, 3.5 km upstream from confluence with Mekong River; Songrad and Buskirk, 14 Jun 1975. - UMMZ 214918, 2 ex., 115.0-138.5 mm SL; Thailand: Ubon Ratchathani province, Mun River 6.5 km downstream from Ubon Ratchathani bridge; W. J. Rainboth, R. E. Arden and Buskirk, 29 June 1975. - UMMZ 224509, 3 ex., 107.7-113.9 mm SL; Thailand: Ubon Ratchathani province, stream from Bung Klang Hean to Mun River, 10 m from Mun River, 3 km E of Ubon Ratchathani; S. Sairaj, 10 July 1975. - UMMZ 232307, 2 ex., 192.5-203.3 mm SL; Cambodia: Stung Treng morning market, 13°30'N 105°58'E; W. J. Rainboth, van Zalinga and Rotha, 26 June 1995. - USNM 103201, 2 ex., 136.7-146.1 mm SL; Thailand: central Bangpakong River; H. M. Smith, 1 July 1923. - USNM 297111, 24 ex., 97.7-132.9 mm SL; Thailand: Ubon Ratchathani province, market in Ubon, at edge of Mun River; WBD-Mekong expedition, 14 September 1971. - USNM 315897, 1 ex., 92.8 mm SL; Thailand: Ubon Ratchathani province, morning market at Ubon; WBD-Mekong expedition, 22 January 1972.

Non-types: CAS 61918, 22 ex., 64.2-188.0 mm SL; Thailand: fish market at Ubon Ratchathani; T. R. Roberts, 28 June-2 July 1985. - CMK 5998, 1 ex., 151.4 mm SL; Thailand: Ayuttaya; K. Jarutanin, May 1988. - UMMZ 186851, 1 ex., 119.9 mm SL; Thailand: reportedly from Mool River of Mekong River drainage; K. F. Lagler, 17 August 1964. - UMMZ 214478, 2 ex., 89.9-100.9 mm SL; Thailand: Ubon Ratchathani province, Mun River 3 km downstream from bridge at Ubon Ratchathani, at mouth of small creel on N bank of the Mun; W. J. Rainboth, R. E. Arden and Buskirk, 29 June 1975. - UMMZ 214479, 1 ex., 57.3 mm SL; Thailand: Nakhon Phanom province. Mekong River 3 km downstream from Nakhon Phanom; Yongsak

and Suban, 5 August 1975. - UMMZ 214915, 1 ex., 60.8 mm SL; Vietnam: Phong Dinh province, Bassac River adjacent to Dong Phu; R. E. Arden and O. K. Minh, 31 October 1974. - UMMZ 224639, 2 ex., 104.6-109.5 mm SL; Vietnam: Chau Doc province, Chau Doc fish market; W. J. Rainboth, 15 October 1974. - ZRC 39343, 2 ex., 117.7-139.4 mm SL; Thailand: Ubon Ratchathani province, Amphoe Warin Chamrap; Somluck Kuntarphrung, 20 December 1994.

Diagnosis: *Bagrichthys obscurus* can be differentiated from its congeners in having the following unique combination of characters: a relatively small and narrow mouth opening, extremely reduced oral dentition, relatively short dorsal-fin spine with 15 or fewer serrae, both inner and outer mandibular barbels crenulated, a slender body (body depth at anus 15.1-18.4 %SL; depth of caudal peduncle 6.7-8.3 %SL), a short adipose fin base (length of adipose-fin base 43.3-48.9 %SL), the genital papilla in males touching the base of the first anal-fin ray, and a uniformly brown body without both a pale midlateral stripe and pale blotches on the sides of the body.

Description: Head and body compressed. Dorsal profile rising steeply from tip of the snout to origin of the dorsal fin, then sloping gently ventrally from there to the end of the caudal peduncle. Ventral profile horizontal to origin of anal, then sloping dorsally to the end of the caudal peduncle. In % SL: head length 19.5-21.3 (19.9), head width 12.1-14.3 (14.3), head depth 14.8-16.7 (16.7), predorsal distance 33.6-37.7 (37.7), preanal length 59.3-65.9 (61.1), prepelvic length 44.2-48.3 (45.7), prepectoral length 17.2-21.9 (19.5), body depth at anus 15.4-18.4 (18.3), length of caudal peduncle 25.2-29.2 (26.2), depth of caudal peduncle 6.7-8.3 (8.3), pectoral-spine length 15.7-19.1 (17.0), pectoral-fin length 18.2-22.2 (19.8), dorsal-spine length 15.3-17.8 (17.6), length of dorsal-fin base 8.3-12.0 (11.0), pelvic-fin length 13.0-16.2 (13.9), length of anal-fin base 9.7-14.0 (14.0), caudal-fin length 21.3-28.2 (22.7), length of adipose-fin base 43.3-48.9 (48.9), adipose maximum height 6.3-8.3 (8.2), post-adipose distance 8.1-10.7 (8.3), dorsal to adipose distance 0.0-4.4 (2.7); in % HL: snout length 28.9-34.2 (31.8), interorbital distance 25.3-30.2 (30.2), eye diameter 10.9-14.1 (14.1). Barbel length sexually dimorphic, males with longer barbels than females; in %HL: nasal barbel length 33.0-45.5 (38.0) (in females), 81.7-84.9 (in males); maxillary barbel length 73.0-93.5 (86.2) (in females), 108.8-117.4 (in males); inner mandibular barbel length 14.4-21.4 (21.3) (in females), 21.7-21.8 (in males); outer mandibular barbel length 29.5-46.8 (44.9) (in females), 52.6-60.9 (in males). Branchiostegal rays 5 (1) or 6 (3) (holotype 6). Gill rakers 2+6=8 (1). Vertebrae 19+26=45 (1), 20+25=45 (7), 21+24=45 (1), 21+25=46 (2) or 21+26=47 (1) (holotype 21+24=45).

Fin ray counts: dorsal I,7 (16) (holotype I,7); pectoral I,7 (7), I,7,i (2), I,8 (6) or I,9 (1) (holotype I,7); pelvic i,5 (16) (holotype i,5); anal ii,7,ii (1), iv,7,i (1), iii,8 (1), iii,8,i (9), iii,9,i (2), iii,10 (1) or iii,10,i (1) (holotype iii,10,i); caudal 8/9 (16) (holotype 8/9). Dorsal spine stout, with 11-12 irregular serrae posteriorly (Fig. 2a). Pectoral spine stout, with 18-22 large serrae posteriorly (Fig. 2b).

Colour: Dorsolateral surface of head and body uniformly brown (without cream-coloured marks and midlateral streak on sides of body) with pale abdomen. Fins hyaline.

Distribution: Known from the Chao Phraya, the Bang Pakong and Mekong drainages in Indochina.

Etymology: From the Latin obscurus, meaning indistinct, in reference to the uniform brown colour of the fish.

DISCUSSION

Bagrichthys obscurus resembles *B. macropterus* and *B. micranodus* in having a relatively small and narrow mouth opening, extremely reduced oral dentition and a relatively short dorsal-fin spine with 15 or

fewer serrae (vs. relatively large and broad mouth opening, well developed oral dentition and moderately to extremely long dorsal-fin spine with 18 or more serrae in adults of *B. hypselopterus* and *B. macracanthus*). *Bagrichthys obscurus* also differs from both *B. macropterus* and *B. micranodus* in having a uniformly brown body without both a pale midlateral stripe and pale blotches on the sides of the body (vs. presence of both a pale midlateral stripe and pale blotches on the sides of the body). It can be further differentiated from *B. micranodus* in having both inner and outer mandibular barbels crenulated (vs. inner mandibular barbels crenulated and outer mandibular barbels simple), and from *B. macropterus* in having a more slender body (body depth at anus 15.1-18.4 %SL vs. 18.7-22.4; depth of caudal peduncle 6.7-8.3 %SL vs. 8.2-9.8), shorter adipose-fin base (length of adipose-fin base 43.3-48.9 %SL vs. 49.1-52.3), and the genital papilla in males meeting (vs. not meeting) the base of the first anal-fin ray. *Bagrichthys obscurus* is also geographically disjunct from the other two species: *B. obscurus* is found only in drainages in the Indochinese peninsula (mainland Southeast Asia) while *B. macropterus* is only known from drainages in Borneo and Sumatra, and *B. micranodus* is known only from the Kapuas drainage in western Borneo.

Bagrichthys obscurus is reported to feed on small fishes, benthic invertebrates and large amounts of plant detritus (Rainboth 1996). The species spawns in the beginning of the rainy season and utilizes flooded forests along the river edge, with the juveniles appearing in August (Rainboth 1996).

COMPARATIVE MATERIAL

Bagrichthys hypselopterus: CAS 49366, 2 ex., 228.4-242.7 mm SL; Borneo: Kalimantan Barat, fish market at Sintang; T. R. Roberts and S. Wirjoatmodjo, 19 Jul-1 Aug 1976. - CAS 49367, 1 ex., 179.2 mm SL; Borneo: Kalimantan Barat, Sungai Tawang near Danau Pengembung; T. R. Roberts and S. Wirjoatmodjo, 14-15 Aug 1976. - ZRC 40472, 1 ex., 242.0 mm SL; Sumatra: Jambi, Pasar Angso Duo (fish market); H. H. Tan et al., 5-8 Jun 1996. - ZRC 41532, 15 ex., 166.1-279.5 mm SL; Sumatra: Jambi, Pasar Angso Duo (fish market); H. H. Tan and H. H. Ng, 23-29 Jul 1997. - ZRC 41898, 1 ex., 208.8 mm SL; Sumatra: Jambi, Pasar Angso Duo (fish market); H. H. Tan et al., 21-28 Nov 1996. *B. macracanthus*: ZRC 38547, 2 ex., 36.2-67.3 mm SL; Sumatra: Jambi, Sungai Kumpeh in Arang Arang; M. Kottelat, 29 May 1994. - ZRC 38633, 1 ex., 108.4 mm SL; Sumatra: Jambi, Danau Arang Arang and Sungai Kembang; M. Kottelat, 8 Jun 1994. - ZRC 39034, 1 ex., 101.9 mm SL; Sumatra: Riau, Sungai Bengkwan, tributary of Indragiri (Batang Kuantan), 4 hrs downstream from Rengat; P. K. L. Ng et al., 13-14 Jun 1995. - ZRC 41533, 1 ex., 145.2 mm SL; Sumatra: Jambi, Pasar Angso Duo (fish market); H. H. Tan and H. H. Ng, 23-29 Jul 1997. - ZRC 41897, 1 ex., 169.2 mm SL; Sumatra: Jambi, Pasar Angso Duo (fish market); H. H. Tan et al., 21-28 Nov 1996. *B. macropterus*: USNM 230275, 4 ex., 99.3-148.5 mm SL; Borneo: Kalimantan Barat, Kapuas mainstream 58 km NE of Sintang and 1 km downstream from Sebruang; T. Roberts and S. Wirjoatmodjo, 16 Aug 1976. - ZRC 38997, 1 ex., 224.8 mm SL; Sumatra: Jambi, Pasar Angso Duo (fish market); P. K. L. Ng et al., Jun 1995. - ZRC 41534, 5 ex., 199.7-296.9 mm SL; Sumatra: Jambi,Pasar Angso Duo (fish market); H. H. Tan and H. H. Ng, 23-29 Jul 1997. *B. micranodus*: CAS 49369, 2 ex., paratypes, 71.3-94.7 mm SL; USNM 230276, 3 ex., paratypes, 58.1-75.2 mm SL; Borneo: Kalimantan Barat, Kapuas mainstream 58 km NE of Sintang and 1 km downstream from Sebruang; T. Roberts and S. Wirjoatmodjo, 16 Aug 1976.

ACKNOWLEDGMENTS

I thank the following for permission to examine specimens under their care: David Catania (CAS), Maurice Kottelat (CMK), William Fink (UMMZ), Douglas Nelson (UMMZ), Susan Jewett (USNM) and Yang Chang Man (ZRC). I am also grateful to Lynne Parenti and Peter K. L. Ng for their advice, Tan Heok Hui for taking the pictures, and Phaibul Naiyanetr for donating specimens of *B. obscurus* to Peter Ng. This study has been supported by a short-term visitor grant to the author from the Smithsonian Institution and research grant RP 960314 to Peter K. L. Ng from the National University of Singapore.

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