

## HELICOPHAGUS LEPTORHYNCHUS, A NEW SPECIES OF MOLLUSCIVOROUS CATFISH FROM INDOCHINA (TELEOSTEI: PANGASIIDAE)

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**ABSTRACT.** - *Helicophagus leptorhynchus*, a new species of molluscivorous catfish from Indochina is described here. It can be differentiated from its congeners *H. typus* and *H. waandersii* in having a slender snout and the following combination of characters: length of anal-fin base 34.5-38.2 %SL, length of caudal peduncle 12.9-15.3 %SL, head length 20.8-22.8 %SL, eye diameter 16.1-21.2 %HL.

**KEY WORDS.** - Molluscivorous catfish, new species, *Helicophagus*, Indochina.

### INTRODUCTION

According to Roberts & Vidthayanon (1991), the Southeast Asian molluscivorous catfish genus *Helicophagus* Bleeker comprises two species: *H. typus* Bleeker, 1858, and *H. waandersii* Bleeker, 1858. A comparison of Indochinese and Sumatran specimens of *H. waandersii* showed that two allopatric species may be recognised, and the Indochinese specimens are described here as a new species, *H. leptorhynchus*.

### MATERIAL AND METHODS

Specimens are deposited in the California Academy of Sciences, San Francisco (CAS), the collection of the second author, Cornol (CMK), Museum of Zoology, University of Michigan, Ann Arbor (UMMZ), National Museum of Natural History, Smithsonian Institution, Washington (USNM), Instituut voor Systematiek en Populatiebiologie, Universiteit van Amsterdam (ZMA) and the Zoological Reference Collection of the Raffles Museum, National University of Singapore (ZRC). The following anatomical abbreviations are used: HL, head length and SL, standard length. All measurements are taken from point-to-point and follow Roberts & Vidthayanon (1991) with the following exceptions: body depth is measured at anus, length of adipose fin is measured from the anterior point of origin to the distal

margin, caudal peduncle length is the distance from the base of the posteriormost anal-fin ray to the end of the hypural complex, and head depth is measured at the base of the occipital process.

Vertebral counts are reported as preanal + postanal = no. of vertebrae (sensu Kottelat & Lim, 1994) and were taken from radiographs, with the fused  $PU_1 + U_1$  considered a single vertebra and the vertebrae incorporated into the Weberian apparatus counted as four elements.

### *Helicophagus leptorhynchus*, new species (Figs. 1, 2a)

*Helicophagus waandersii* (non Bleeker) – Hora, 1937: 256; Smith, 1945: 371; Taki, 1968: 18; Taki, 1974: 68, fig. 68; Kottelat, 1989: 14; Roberts & Vidthayanon, 1991: 140, figs. 1p, 24 (in part); Anonymous, 1993: 178, fig. 76; Roberts, 1993: 34; Roberts & Warren, 1994: 102; Serov, 1994: 24.

*Helicophagus waandersii* (non Bleeker) – Durand, 1940: 21; Kuronuma, 1961: 5; Orsi, 1974: 162; Kottelat, 1985: 269; Rainboth, 1996: 152, pl. 20 fig. 159.

*Helicophagus waandersii* (non Bleeker) – Mai & Nguyen, 1988: 49; Mai et al., 1992: 182.

*Helicophagus waandersii* (non Bleeker) – Vidthayanon & Roongthongbaisuree, 1993: 18, figs. 2a, 5f, 6f, 7c.

**Material examined.** - Holotype. - USNM 288676, 210.3 mm SL; Thailand: Ubon Ratchathani province, Mun River at Bung

Wai, about 7 km W of Ubon Ratchathani (15°12'30"N 104°47'30"E); WBD-Mekong expedition, 14 Sep.1971.

**Paratypes.** - CAS 67226, 2 ex., 145.3-185.7 mm SL; Thailand: Prachin Buri province, Prachin Buri market, said to be from Bangpakong River; T. R. Roberts, 22 Mar.1989. - CAS 94281, 1 ex., 143.6 mm SL; Cambodia: Stung Treng market; T. R. Roberts, 2 Feb.1994. - CAS 96864, 4 ex., Thailand: Ubon Ratchathani province, Ubon Ratchathani market; T. R. Roberts, 15 Dec.1990. - CMK 5094, 3 ex., 158.0-166.0 mm SL; Thailand: Nakhon Phanom province, Mekong basin, market at That Phanom; M. Kottelat, 18 Mar.1985. - CMK 13799, 2 ex., 98.8-113.0 mm SL; Laos: Savannakhet province, market in Savannakhet, reportedly from Mekong River; M. Kottelat, 24 Apr.1997. - CMK 13829, 1 ex., 116.7 mm SL; Laos: Savannakhet province, Mekong River at Ban Donsen, about 6 km S of Savannakhet (16°30'45"N 104°45'47"E); M. Kottelat et al., 3 May 1997. - CMK 12246, 1 ex., 185.0 mm SL; Laos: Khammouan province; Mekong River, 1 km north of Ban Pong Pak Xe Bangfai; M. Kottelat, 27 Mar.1996. UMMZ 214469, 8 ex., 80.1-135.1 mm SL; Thailand: Ubon Ratchathani province, Mun River, 13 km downstream from bridge at Ubon Ratchathani; R. E. Arden & Yongsak, 15 Aug.1975. - UMMZ 214471, 4 ex., 144.0-176.9 mm SL; Thailand: Nakhon Phanom province, Ban Tha Kai, 21 km downstream from Mukdahan, 16 km E of Mukdahan by road (16°22'9"N 104°53'37"E); Yongsak & Suban, 2 Oct.1975. - UMMZ 214475, 1 ex., 242.9 mm SL; Vietnam: Chau Doc province, Chau Doc fish market; W. J. Rainboth, 16 Oct.1974. - UMMZ 227503, 2 ex., 106.9-109.2 mm SL; Vietnam: Phong Dinh province, Can Tho River, mainstream of Bassac (Mekong); Mekong Research Team, 25 Jan.1974. - UMMZ 232321, 2 ex., 152.9-239.0 mm SL; Cambodia: Stung Treng morning market (13°30'N 105°58'E); W. J. Rainboth, N. van Zalinga & C. Rotha, 26 Jan.1995. - USNM 288675, 7 ex., 157.7-181.4 mm SL; Thailand: Nakhon Phanom province, bought from fishermen and from market in Nakhon Phanom; WBD-Mekong expedition, 27 Sep.1971. - USNM 355238, 12 ex., 120.0-172.5 mm SL; data as for holotype. - USNM 305704, 1 ex., 157.0 mm SL; Thailand: Ubon Ratchathani province, market at Warin Chamrap; A. H. Bornbusch, 26-30 Mar.1987. - USNM 316781, 1 ex., 122.3 mm SL; Thailand: Ubon Ratchathani province, morning market at Ubon Ratchathani; WBD-Mekong expedition, 22 Jan.1972. - ZRC 43590, 4 ex., 117.1-276.8 mm SL; Thailand: Nakhon Phanom province, market at That Phanom; Y. Y. Goh & Y.-X. Cai, 17 Jun.1998. - ZRC 43591, 1 ex., 70.3 mm SL; Thailand: Nakhon Phanom province, Mekong River at Ban Phaeng; Y. Y. Goh & Y.-X. Cai, 18 Jun.1998.

**Non-types.** - CAS 61908, 50 ex., 51.8-233.0 mm SL; Thailand: Ubon Ratchathani province, Ubon Ratchathani market; T. R. Roberts, 28 Jun.1985. - CAS 92946, 1 ex., 73.0 mm SL; Thailand: Nakhon Phanom province, Ta Uten market, about 30 km NW of Nakhon Phanom; T. R. Roberts, 7 Jul.1985. - CAS 94890, 1 ex., 63.1 mm SL; Laos: Mekong at Ban Hang Khone, just below Khone falls; T. R. Roberts, Jun.1993. - ZRC 37582, 1 ex., 94.6 mm SL; Thailand: Mekong River; K. Jaratanin, ca. 1982-83. - ZRC 39356, 3 ex., 147.5-178 mm SL; Thailand: Ubon Ratchathani Province, Amphoe Muang; S. Kuntarphung, 25 Nov.1993.

**Diagnosis.** - *Helicophagus leptorhynchus* can be differentiated from all its congeners by the following combination of characters: length of anal-fin base 34.5-38.2 %SL, length of caudal peduncle 12.9-15.3 %SL, head length 20.8-22.8 %SL, eye diameter 16.1-21.2

%HL;

**Description.** - Body long, laterally compressed; in %SL: body depth at anus 19.2-24.2, predorsal length 36.7-40.3, preanal length 49.9-55.6, prepelvic length 39.4-44.1, prepectoral length 19.0-23.1, length of dorsal-fin base 6.2-8.2, length of dorsal spine 11.9-19.9, length of adipose fin 5.6-7.7, dorsal to adipose distance 29.8-36.3, length of anal-fin base 34.5-38.2, length of pelvic fin 10.1-12.6, length of pectoral fin 15.5-18.5, length of pectoral spine 12.2-16.7, depth of caudal peduncle 6.0-7.4, length of caudal peduncle 12.9-15.3, length of caudal fin 19.4-24.1, head length 20.8-22.8, head width 11.8-14.8, head depth 13.2-15.7; in %HL: snout length 28.4-34.7, interorbital distance 38.3-41.7, eye diameter 16.1-21.2, length of maxillary barbel 90.3-114.6, length of mandibular barbel 65.0-81.6. First branchial arch with 3+6 (1), 3+7 (1) or 3+9 (1) gill rakers. Branchiostegal rays 7 (4), 8 (4) or 9 (4). Vertebrae 17+29=46 (1), 18+28=46 (1), 18+29=47 (4), 18+30=48 (2) or 19+29=48 (2).

Fin-ray counts: dorsal I,6 (5), I,6,i (5) or I,7 (2); pectoral I,7,ii (1), I,9,ii (1), I,10 (2), I,10,i (4) or I,10,ii (4); pelvic i,5 (12); anal iii,32 (1), iii,34 (1), iv,33 (1), iii,36 (1), v,34 (2), v,35 (2), vi,34 (1), iv,36 (1), v,36 (1) or v,37 (1); caudal 9/8 (7) or 9/9 (5). Posterior edge of pectoral spine with 17-19 serrae. Posterior edge of dorsal spine with 15-23 serrae.

**Colour.** - In 70% alcohol, the specimens are grey on the dorsal regions and the upper third of the flanks. A small patch of grey present on the humeral region, immediately above the pectoral fin. Lower two-thirds of the flanks and ventral regions whitish. Base of fins dark yellow, distal regions of dorsal and caudal fins black, distal regions of other fins hyaline. In life, body silvery to grey or pinkish, dorsal, anal, caudal and pelvic fin reddish.

**Distribution.** - Known from the Chao Phraya and Mekong River drainages in Indochina.

**Etymology.** - From the Greek *leptos* (slender) and *rhychos* (snout), in reference to the relatively slender snout of this species.

**Ecology.** - *Helicophagus leptorhynchus* in the Mekong stays in permanent river channels and does not move into flooded forests; it migrates upstream when water levels begin to rise at the beginning of the flood season and moves downstream as the water clears at the end of the flood season (Rainboth, 1996). *Helicophagus leptorhynchus* feeds predominantly on bivalves; specimens from the Mun River had bivalves of the genera *Corbicula* (Corbiculidae) and *Physunio* (Amblemidae) in their guts (Roberts & Vidthayanon, 1991; pers. obs.).

**Remarks.** - *Helicophagus leptorhynchus* is morphologically similar to, and has been previously

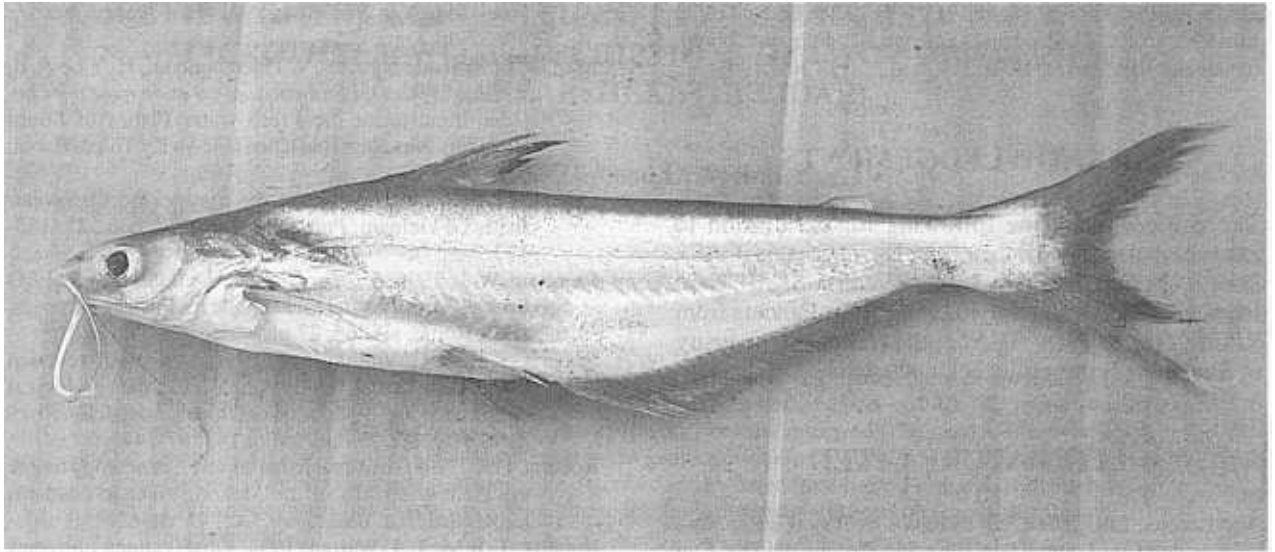


Fig. *Helicophagus leptorhynchus*, paratype, CMK 12246, 185.0 mm SL; Laos: Khammouan Prov.: Mekong River.

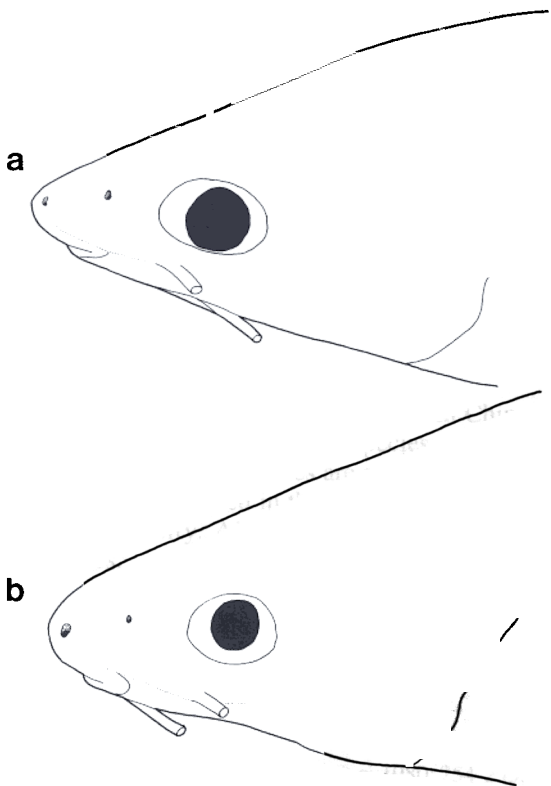


Fig. 2. Schematic illustrations of lateral views of heads: a. *Helicophagus leptorhynchus*, CMK 5094, paratype, 165.6 mm SL; b. *H. waandersii*, ZRC 41528, 197.2 mm SL. Scale bars represent 10 mm.

identified as *H. waandersii*, but differs from it in having a longer anal fin (34.5-38.2 % SL vs. 31.9-34.3), shorter caudal peduncle (12.9-15.3 % SL vs. 15.6-16.7), longer head (20.8-22.8 %SL vs. 18.9-20.3), and larger eye (16.1-21.2 %HL vs. 14.1-15.9). *Helicophagus leptorhynchus* also has a more slender snout (when viewed laterally) than that of *H. waandersii* (Fig. 2). Furthermore, the two species do not have the same distribution: *H. leptorhynchus* is known only from the Chao Phraya and Mekong River drainages in Indochina while *H. waandersii* has been reported from drainages in Sumatra and Peninsular Malaysia (Lim & Zakaria-Ismail, 1995)

*Helicophagus leptorhynchus* differs from *H. typus* (known only from drainages in Sumatra) in having more anal-fin rays (35-42 vs. 30-32), the premaxillary teeth in two quadratic patches (vs. in a single curved patch), 9-12 (vs. 27-30) gill rakers on the first branchial arch, and absence (vs. presence) of numerous small gill rakers on anterolateral face of the first branchial arch.

#### Comparative material

*Helicophagus typus* - ZRC 40472, 1 ex., 487.0 mm SL; Sumatra: Jambi, freshwater fish market; H. H. Tan et al., 5 Aug.1996. - ZRC 41524, 2 ex., 540-555 mm SL; Sumatra: Jambi, Angso Duo fish market; H. H. Tan & H. H. Ng, 23-29 Jul.1997. - ZRC 41540, 8 ex., 203.9-223.5 mm SL; Sumatra: Jambi, Angso Duo fish market; H. H. Tan & H. H. Ng, 23-29 Jul.1997.

*Helicophagus waandersii* - ZMA 120.519, 3 ex., 194.0-267.0 mm SL; Sumatra: Jambi, Batang Hari; P. H. Moolenburgh, 1909. - ZRC 41528, 25 ex., 195.3-224.6 mm SL; Sumatra: Jambi, Angso Duo fish market; H. H. Tan & H. H. Ng, 23-29 Jul.1997. - ZRC 41905, 1 ex., 371 mm SL; Sumatra: Jambi, freshwater fish market; H. H. Tan et al., 21-28 Nov.1996.

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