*THE RAFFLES BULLETIN OF ZOOLOGY* 1999 **47**(2): 541-548


# THE *AKYSIS* OF MYANMAR: A REVIEW (TELEOSTEI: AKYSIDAE)

**Ng Heok Hee**
*Department of Biological Sciences, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260.*

***ABSTRACT.*** - Two species of catfishes of the genus *Akysis* have been described from Myanmar, viz. *A. pictus* Günther, 1883, and *A. prashadi* Hora, 1936. They are redescribed and the differences with Indochinese congeners are discussed.

***KEY WORDS.*** - *Akysis*, Myanmar, catfish, redescription.

## INTRODUCTION

Members of the Asian catfish genus *Akysis* are small cryptically-coloured fishes that have been poorly studied due to the paucity of material. It is only recently that more material has been made available for in-depth studies (Ng, 1996; Ng & Kottelat, 1996; 1998). At present, the greatest diversity of *Akysis* is known from the Indochinese peninsula (11 species out of the 19 described) of which two species are known from Myanmar: *A. pictus* Günther, 1883, and *A. prashadi* Hora, 1936.

As part of a gradual revision of the genus, the two species of *Akysis* from Myanmar are redescribed from the types and fresh specimens below.

## 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 itself and measurements of body parts are given as proportions of standard length (SL).

Measurements follow those of Ng & Kottelat (1998) and fin ray counts were obtained under transmitted light using a binocular dissecting microscope, using the terminology of Hubbs

Received 15 Feb 1999 Accepted 12 Apr 1999

& Lagler (1947). Gill raker counts were made using the method and terminology of Roberts (1992). Vertebral counts were taken from radiographs using the method and terminology of Roberts (1994). Numbers in parentheses following a particular count are the numbers of examined specimens with that count.

Drawings of the specimens were made with a Nikon SMZ-10 microscopic camera lucida. The specimens examined for the present study are in the Natural History Museum, London (BMNH), California Academy of Sciences, San Francisco (CAS), Naturhistoriska Riksmuseet, Stockholm (NRM) and Zoological Survey of India, Calcutta (ZSI). The reader is referred to Ng & Kottelat (1998) for a list of comparative material.

## *Akysis pictus* Günther, 1883

(Fig. 1)

*Akysis pictus*: Günther, 1883: 138; Day, 1888: 806; 1889: 193; Misra, 1976: 5; Jayaram, 1977: 31; 1981: 230; Talwar & Jhingran, 1991: 617.

***Material examined.*** - Syntypes, BMNH 1880.12.1:25-26, 2 ex., 37.7-42.4 mm SL; Myanmar: Tenasserim; J. Wood-Mason, ca. 1880.

***Diagnosis.*** - *Akysis pictus* is readily distinguished from its Indochinese congeners by a combination of the lack of serrations on the posterior edge of the pectoral spine and the body with a single dark yellow patch (consisting of two smaller coalescent patches) covering the dorsum from the origin of the adipose fin to the end of the caudal peduncle. It can be further differentiated from all other congeners by the following combination of characters: head length 24.4-24.5 %SL, length of adipose-fin base 22.0-23.6 %SL, interorbital distance 34-39 %HL, eye diameter 8-10 %HL, length of nasal barbel 54-57 %HL, and 3+3 gill rakers on first gill arch.

***Description.*** - Head depressed and broad, body moderately compressed, relatively shorter. Mouth terminal or slightly subterminal; tip of snout not or only slightly protruding beyond apex of lower jaw. Dorsal profile rising evenly from tip of snout to origin of dorsal fin, then sloping gently ventrally from there 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. Posterior and anterior nostrils relatively smaller and located further apart with a distance between base of

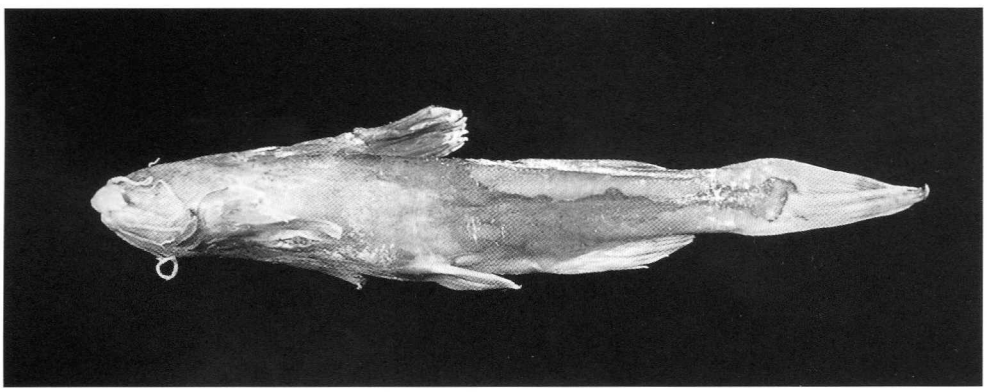

Fig. 1. *Akysis pictus*, syntype, BMNH 1880.12.1:26, 42.4 mm SL.

nasal barbel and anterior nostril. Anterior nostril located at tip of short tube. Median fontanel not reaching base of occipital process. Occipital process narrow, its tip tapering and reaching predorsal plate. Premaxillary toothband not exposed when mouth is closed. In % SL: head length 24.4, 24.5, head width 24.4, 22.4, predorsal distance 34.7, 35.8, preanal length 66.6, 66.5, prepelvic length 50.4, 49.8, prepectoral length 21.2, body depth at anus 13.8, 15.3, length of caudal peduncle 17.8, 21.7, depth of caudal peduncle 7.7, 8.5, pectoral-spine length 18.6, 19.1, pectoral-fin length 21.8, 22.2, length of dorsal-fin base 14.6, 12.5, pelvic-fin length 13.3-14.1, length of anal-fin base 14.9, 15.1, caudal-fin length 21.8, 22.4, length of adipose-fin base 22.0, 23.6; in % HL: snout length 42, 37, interorbital distance 39, 34, eye diameter 8, 10, length of nasal barbel 54, 57, length of maxillary barbel 96, 129, length of inner mandibular barbel 44, 55, length of outer mandibular barbel 67, 88. Branchiostegal rays 5 (2). Gill rakers 3+3 (1). Vertebrae 16+17=33 (1) or 16+18=34 (1).

Fin ray counts: dorsal I,4,i (2); pectoral I,7 (1) or I,7,i (1); pelvic i,5 (2); anal ii,6,i (1) or iv,4,i (1); caudal 7/7 (2). Dorsal-fin origin nearer tip of snout than caudal flexure. Pectoral spine stout, without serrae posteriorly (Fig. 2a). Anal-fin origin slightly posterior to adipose-fin origin. Depressed dorsal fin not reaching adipose fin. Caudal fin deeply emarginate. *Colour in alcohol.* - Dorsal surface and sides of head dark yellow with fine brown spots; sides of body brown. Belly, chest and ventral surface of head light yellow. Occipital region with one irregular brown patch; an irregular dark yellow patch consisting of two smaller coalescent patches over dorsal surface of body posterior to dorsal fin and extending to caudal flexure. Dorsal marking laterally narrowly separated from a similar marking extending dorsally from base of last anal-fin ray to caudal flexure. Adipose fin dark-yellow. Basal two-thirds of dorsal fin brown, remaining one-third with transverse bars consisting of brown spots. Pectoral, pelvic, anal and caudal fins with brown spots. Barbels and pectoral spines transversely barred with brown rings.

***Distribution.*** - Presently only known from the Tenasserim province in southern Myanmar (Fig. 3).

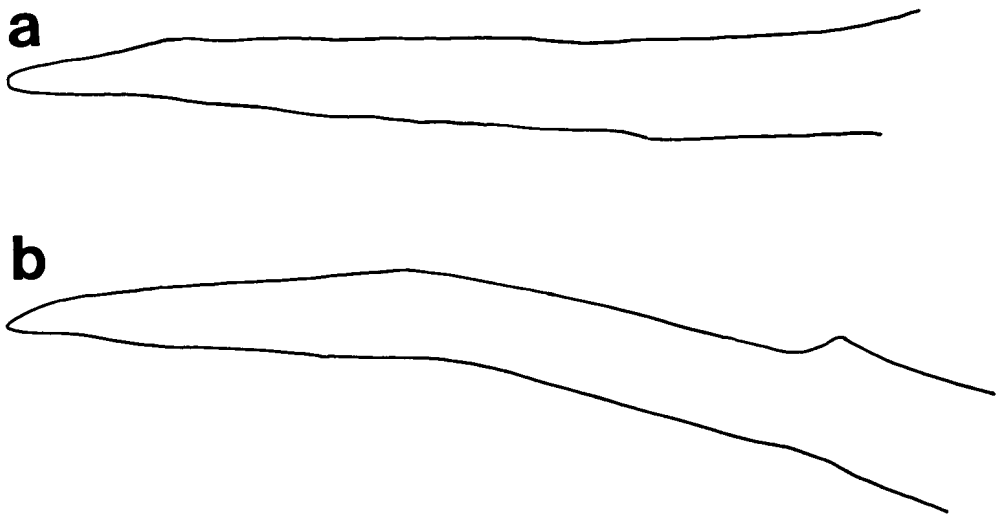


Fig. 2. Pectoral spines of: a. *Akysis pictus*, BMNH 1880.12.1:26, syntype, 42.4 mm SL; b. *A. prashadi*, CAS 98616, 44.1 mm SL.

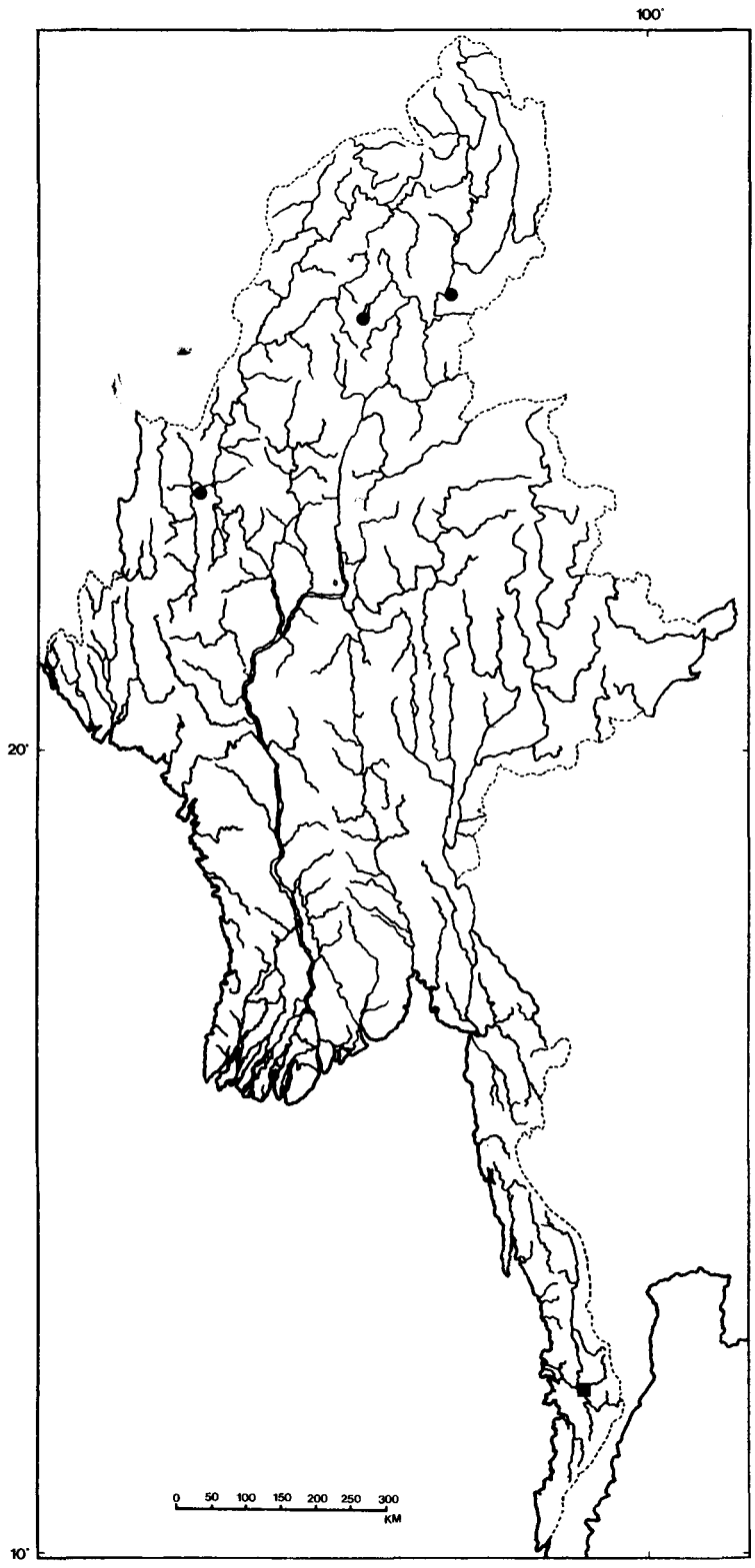


Fig. 3. Map showing distribution of *Akysis pictus* (■) and *A. prashadi* (●).

***Remarks.*** - Both *Akysis pictus* and *A. prashadi* belong to the *A. variegatus* species-group as defined by Ng & Kottelat (1998) in having a terminal mouth, anterior nostril at the tip of a short tube and separated from the base of the nasal barbel by a distance, and an emarginate caudal fin.

Both *A. pictus* and *A. prashadi* can be differentiated from all other members of the *A. variegatus* species-group (except *A. varius*) in having no serrations (vs. with 1-6 serrations) on the posterior edge of the pectoral spine. *Akysis pictus* can be further differentiated from all other members of the *A. variegatus* species-group in having 3+3 gill rakers (vs. 1+3-6) on the first gill arch. *Akysis pictus* can be differentiated from *A. prashadi* in having a longer head (head length 24.4-24.5 %SL vs. 20.6-23.8) and shorter nasal barbels (54-57 %HL vs. 63-86), and from *A. varius* in having a deeply emarginate (vs. truncate) caudal fin, shorter adipose-fin base (22.0-23.6 %SL vs. 25.6-29.5), and smaller eyes (eye diameter 8-10 %HL vs. 13-20) that are set closer together (interorbital distance 34-39 %HL vs. 42-46).

The colour pattern of *Akysis* sp. 1 reported by Taki (1974) from the Mekong drainage in Laos is similar to that of *A. pictus*, but Taki's species has a deeper body than that of *A. pictus* (body depth at anus 21.7 %SL (measured from Taki, 1974: fig. 77) vs. 13.8-15.3), and possesses two short and weak serrations on the posterior edge of the pectoral spine.

### *Akysis prashadi* Hora, 1936
(Fig. 4)

*Akysis variegatus variegatus* (secondary junior homonym of *Pimelodus variegatus* Bleeker, 1846): Prashad & Mukerji, 1929: 180, pl.8, figs. 1-2; Menon & Yazdani, 1968: 126.
*Akysis prashadi*: Hora, 1936: 200, figs. 1, 2b-c; Misra, 1976: 6, pl. 1 figs. 1-2; Jayaram, 1977: 31, fig. 16; 1981: 230, fig. 119; Talwar & Jhingran, 1991: 617, fig. 202.

***Material examined.*** - Holotype, ZSI F10873/1, 1 ex., 38.3 mm SL; Myanmar: Myitkyina district, south end of Indawgyi Lake and along west shore near Lonton village; B. N. Chopra, date unknown. - CAS 98615, 1 ex., 62.1 mm SL; Myanmar: Sagaing Division, Kalemyo markets (reportedly from Myit-tha river and nearby hill streams of Myit-tha drainage); C. J. Ferraris & U Myint Pe, 12 Nov.1996. - CAS 98616, 3 ex., 20.8-50.4 mm SL; Myanmar: Kachin State, Ayeyarwaddy River, just south of Myitkyina; local fishermen, 7-8 Nov.1997. - NRM 41051, 1 ex., 45.5 mm SL; Myanmar: Kachin State, Ayeryawaddy River drainage, Nant Yen Khan Chang, effluent of Lake Indawgyi, upstream of road near Lonton village; S. O. Kullander & R. Britz, 1 Apr.1998.

***Diagnosis.*** - *Akysis prashadi* is distinguished from its Indochinese congeners in having a combination of the lack of serrations on the posterior edge of the pectoral spine and 2+8 gill rakers on the first gill arch. It can be further differentiated from all other congeners in having the following combination of characters: head length 20.6-23.8 %SL, head width 21.4-25.1 %SL, interorbital distance 35-37 %HL, length of nasal barbels 63-86 %HL, and deeply emarginate caudal fin.

***Description.*** - Head depressed and broad, body moderately compressed, relatively shorter. Mouth terminal or slightly subterminal; tip of snout not or only slightly protruding beyond apex of lower jaw. Dorsal profile rising evenly from tip of snout to origin of dorsal fin, then sloping gently ventrally from there 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. Posterior and anterior nostrils relatively smaller and located further apart with a distance between base of

nasal barbel and anterior nostril. Anterior nostril located at tip of short tube. Median fontanel not reaching base of occipital process. Occipital process narrow, its tip tapering and reaching predorsal plate. Premaxillary toothband not exposed when mouth is closed. In % SL: head length 20.6-23.8, head width 21.4-25.1, predorsal distance 33.6-38.9, preanal length 64.9-70.5, prepelvic length 45.8-49.1, prepectoral length 18.8-24.7, body depth at anus 12.3-16.9, length of caudal peduncle 16.5-18.4, depth of caudal peduncle 7.7-9.8, pectoral-spine length 15.6-19.6, pectoral-fin length 20.8-23.1, length of dorsal-fin base 11.1-15.9, pelvic-fin length 13.4-15.2, length of anal-fin base 15.6-21.1, caudal-fin length 20.0-22.0, length of adipose-fin base 22.5-24.6; in % HL: snout length 36-39, interorbital distance 35-37, eye diameter 8-12, length of nasal barbel 63-86, length of maxillary barbel 137-166, length of inner mandibular barbel 63-87, length of outer mandibular barbel 109-128. Branchiostegal rays 5 (1) or 6 (1). Gill rakers 2+8 (1). Vertebrae 16+18=34 (2), 17+17=34 (1) or 17+18=35 (1).

Fin ray counts: dorsal I,4,i (3) or I,5 (1); pectoral I,7 (2) or I,8 (2); pelvic i,5 (4); anal ii,7 (1), iii,7 (2) or iv,7 (1); caudal 7/6 (2) or 7/7 (2). Dorsal-fin origin nearer tip of snout than caudal flexure. Pectoral spine stout, without serrae posteriorly (Fig. 2b). Anal-fin origin slightly posterior to adipose-fin origin. Depressed dorsal fin not reaching adipose fin. Caudal fin deeply emarginate.

***Colour in alcohol.*** - Dorsal surface and sides of head and body brown. Belly, chest and ventral surface of head light yellow with fine brown spots. Three irregular light-yellow patches over top and sides: one on occipital region, another posterior to dorsal fin and contiguous with adipose fin and the third from posterior end of adipose base to immediately anterior to caudal flexure. Latter two markings are contiguous with, or laterally narrowly separated from similar markings extending dorsally from surroundings of anal fin. Two to three light-yellow spots ventral to dorsal fin on both sides of body. Adipose fin brown, except for light-yellow at origin and along edge. Basal two-thirds of dorsal fin brown, the remaining one-third with brown spots. Pectoral, pelvic, anal and caudal fins with brown spots. Barbels and pectoral spines transversely barred with brown rings.

***Distribution.*** - Presently only known from Indawgyi Lake and the northern part of the Ayeyarwaddy drainage (Fig. 3).

***Remarks.*** - Prashad & Mukerji (1929) described a new subspecies of *A. variegatus*, which they named *A. variegatus variegatus*, from Lake Indawgyi in Myanmar. Due to the lack of comparative material, they were unsure of the status of their new taxon (i.e. whether it

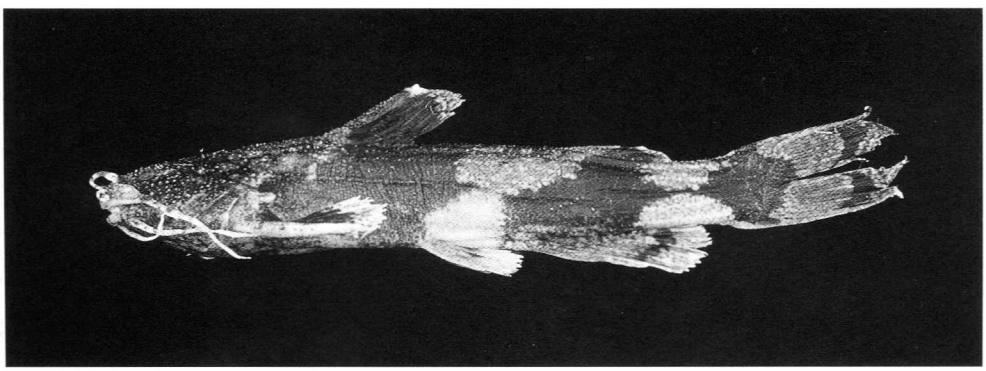

Fig. 4. *Akysis prashadi*, CAS 98616, 44.1 mm SL.

was a species or a subspecies). Hora (1936) subsequently reappraised the status of *A. variegatus variegatus* and considered it to be a valid species, which he renamed *A. prashadi*. It should be noted that the name given by Prashad & Mukerji (1929) contravenes Article 46a of the International Code of Zoological Nomenclature and is a secondary junior homonym of *Pimelodus variegatus* Bleeker, 1846.

*Akysis prashadi* can be further differentiated from all other members of the *A. variegatus* species-group in having 2+8 gill rakers (vs. 3+3 or 1+3-6) on the first gill arch. *Akysis prashadi* can be differentiated from *A. varius* in having a shorter adipose fin (22.5-24.6 %SL vs. 25.6-29.5), smaller eyes (eye diameter 8-12 %HL vs. 13-20) that are set closer together (interorbital distance 35-37 %HL vs. 42-46), and longer maxillary barbels (137-166 %HL vs. 86-127).

Adult *Akysis prashadi* superficially resembles *A. hendricksoni* in having a similar colour pattern, but can be differentiated from it in having no serrations (vs. 4-6) on the posterior edge of the pectoral spine, a narrower head (head width 21.4-25.1 %SL vs. 25.4-28.7) more closely-set eyes (interorbital distance 35-37 %HL vs. 43-64).

Juvenile specimens of *A. prashadi* resemble both *A. heterurus* and *A. recavus* in having a colour pattern of alternating yellow and brown bands, but they can be differentiated by their tail shape (deeply emarginate in *A. prashadi* vs. truncate in *A. heterurus* and *A. recavus*) and the number of serrations on the posterior edge of the pectoral spine (none in *A. prashadi* vs. 3-6 in *A. heterurus* and *A. recavus*).

*Akysis prashadi* is a relatively large species, with specimens reaching up to 60 mm SL (only *A. sinensis* and *A. pseudobagarius* are known to be as large).

## ACKNOWLEDGMENTS

I am grateful to the following for permission to examine specimens under their care: Darrell Siebert (BMNH), Carl Ferraris (CAS), Sven Kullander (NRM) and A. K. Karmakar (ZSI). I also thank Maurice Kottelat and Carl Ferraris for reviewing the manuscript, Tan Heok Hui for taking the photographs and Mario de Pinna for help in obtaining some of the data. This study has been supported by research grant RP 960314 from the National University of Singapore to Peter K. L. Ng.

## LITERATURE CITED

Bleeker, P., 1846. Overzigt der siluroïden, welke te Batavia voorkommen. *Natuur. Geneesk. Arch. Neerl.-Ind.*, **3**: 135-184.

Day, F., 1889. *The Fauna of British India, including Ceylon and Burma. Fishes. Vol. 2.* Taylor & Francis, London. xiv+509 pp.

Günther, A., 1883. Notes on some Indian fishes in the collection of the British Museum. *Ann. Mag. Nat. Hist., Ser. 5*, **11**: 137-140.

Hora, S. L., 1936. Siluroid fishes of India, Burma and Ceylon. II. Fishes of the genus *Akysis* Bleeker. *Rec. Indian Mus.*, **38**: 199-202.

Hubbs, C. L. & K. F. Lagler, 1947. Fishes of the Great Lakes region. *Bull. Cranbrook Inst. Sci.*, **26**: 1-186.

Jayaram, K. C., 1977. Aid to the identification of the siluroid fishes of India, Burma, Sri Lanka, Pakistan and Bangladesh 2. Siluridae, Schilbeidae, Pangasidae, Amblycipitidae, Akysidae. *Rec. Zool. Surv. India*, Miscellaneous Publication, Occasional Paper No. 10. 33 pp.

Jayaram, K. C., 1981. *The Freshwater Fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka - a Handbook.* Zoological Survey of India, Calcutta. viii+ 475 pp.

Menon, A. G. K. & G. M. Yazdani, 1968. Catalogue of type-specimens in the Zoological Survey of India, part 2. - Fishes. *Rec. Zool. Surv. India,* **61**: 91-190.

Misra, K. S., 1976. *The Fauna of India and the Adjacent Countries. Pisces Vol. 3. Teleostomi: Cypriniformes, Siluri.* xxi+367 pp., 15 pls.

Ng, H. H., 1996. *Akysis heterurus*, a new species of catfish (Teleostei: Akysidae) from eastern Sumatra, with notes on *Akysis hendricksoni*. *Raffles Bull. Zool.,* **44**: 3-10.

Ng, H. H. & M. Kottelat, 1996. *Akysis fuscus*, a new species of catfish (Teleostei: Akysidae) from the Kapuas basin, Borneo. *Ichthyol. Explor. Freshwaters,* **7**: 19-26.

Ng, H. H. & M. Kottelat, 1998. The catfish genus *Akysis* Bleeker (Teleostei: Akysidae) in Indochina, with descriptions of six new species. *J. Nat. Hist.,* **32**: 1057-1097.

Prashad, B. & D. D. Mukerji, 1929. The fish of the Indawgyi Lake and the streams of the Myitkyina District (Upper Burma). *Rec. Indian Mus.,* **31**: 161-223, pls. 7-10.

Roberts, T. R., 1992. Revision of the striped catfishes of Thailand misidentified as *Mystus vittatus*, with descriptions of two new species (Pisces: Bagridae). *Ichthyol. Explor. Freshwaters,* **3**: 77-88.

Roberts, T. R., 1994. Systematic revision of Asian bagrid catfishes of the genus *Mystus* sensu stricto, with a new species from Thailand and Cambodia). *Ichthyol. Explor. Freshwaters,* **5**: 241-256.

Taki, Y., 1974. *Fishes of the Lao Mekong basin.* United States Agency for International Development Mission to Laos Agriculture Division, 232 pp.