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THE BLACK SNAKEHEAD, *CHANNA MELASOMA* (BLEEKER, 1851) (CHANNIDAE): FIRST RECORD FROM SINGAPORE

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ABSTRACT. - The Black Snakehead, *Channa melasoma* (Bleeker) (Channidae) is recorded from Singapore for the first time. Observations of its ecology and biology are also provided. This brings to five the number of *Channa* species now known from Singapore.

In December 1989, the authors encountered a dark-coloured snakehead in a secondary forest stream in the Nee Soon swamp forest area, ca. 1°23'28"N, 103°48'42"E, Singapore. The size, form and colour of the body suggested *Channa melasoma* (Bleeker, 1851) (type locality Sambas, Kalimantan), a species which occurs in Thailand, Sumatra, Borneo, Peninsular Malaysia and Palawan. The senior author has collected specimens of this species from Selangor and Johore (Peninsular Malaysia), and maintained them in aquaria for many months. There are however, no known records of this species from Singapore.

Tweedie (1950) in recording the species of *Channa* Scopoli, 1777 in the then Raffles Museum (present Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore), did not mention *C. melasoma* from Singapore. Alfred (1966), in his review and revision of the primary freshwater fishes of Singapore recorded only four species (in the genus *Ophicephalus* Bloch, 1794), viz. *Channa striata* (Bloch, 1793), *C. micropeltes* (Cuvier, 1831), *C. lucius* (Cuvier, 1831) and *C. orientalis* Bloch & Schneider, 1831. Malaysian and Singapore specimens previously referred to *C. orientalis* are now recognised as *C. gachua* (Hamilton, 1822) (see Ng & Lim, 1989). *Channa gachua* was believed to be extinct in Singapore (Alfred, 1966) but Ng & Lim (1989) found a small population in the Nee Soon area. *Channa melasoma* was not mentioned by either Johnson (1973) or Lim & Ng (1990).

Károli (1882) reported *Ophiocephalus affinis* Günther, 1861 (= *Ophicephalus punctatus* Bloch, 1793, see Weber & de Beaufort, 1922) from Singapore. Weber & de Beaufort (1922) argued that *C. punctatus* is an Indian species which has never been reliably recorded elsewhere and must be excluded from the Indo-Australian fauna. Alfred (1966) agreed and discussed this species in his section on doubtful and erroneous records from Singapore.

Specimens of the unknown Nee Soon *Channa* were eventually collected on three separate occasions between March and April 1990. They proved to belong to *C. melas-*

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oma, and the present note is the first record of this species from Singapore. The standard lengths of the six preserved specimens (ZRC 11111, 11633, 11667, 11675, 11676 and 11677) were between 7.9 and 21 cm. Three other specimens (including one large male and one large female) are being kept alive for further studies.

Searching the shelves of the ZRC, we found a specimen (ZRC 1158) of *C. melasoma* which had been collected from Sungai Seletar, north of Seletar Reservoir, Singapore, by E. Alfred on 4 April 1963. It had been labelled and listed by Alfred (1966: 57) as *Channa striata*.

Channa melasoma resembles *C. striata* superficially on first appearance, but adults can be easily separated by several characters. Foremost is the live or freshly preserved colouration. The dorsal part of the body of *C. melasoma* varies from dark or brownish-grey to almost black when freshly preserved. In aquarium acclimatised specimens, the dorsal parts have broad, saddle-like patches of dull grey on a very dark brown or almost black background (Fig. A). often appears marbled with pale blue and white streaks in acclimatised aquarium or freshly preserved specimens. The dorsal fin is dull grey to brown, being greenish towards the distal parts. In smaller specimens, the distal-most edge has a black spot resembling an ocellus. In larger specimens, the margin of the distal part is distinctly fringed with dull yellow or white. The caudal fin is very dark green to greyish-blue, sometimes with a metallic sheen, with a distinct narrow fringe of white or dull yellow. The anal fin is dark green to greyish-blue with a narrow but distinct white or dull yellow fringe. The dull yellow or white fringe becomes pale white on preservation, disappearing after a few weeks. The live colouration of *C. striata* differs significantly in being drabber, the dorsal parts being brown, with narrow vertical to oblique streaks, the ventral surfaces having scattered brown spots. The anal fins may however, have a thin white margin. Other then colouration, the body of *C. melasoma*, when compared to *C. striata*, is proportionately more slender and longer, the head broader and more rounded (Figs. D, E, F, G.), the head to pectoral fin ratio proportionately shorter, the ventral scales between head and pelvic fins smoother, and the canine-like teeth on the lower jaw much smaller. These differences are less obvious when the specimens are small. Several small preserved specimens collected from Nee Soon and adjacent areas without colour notes cannot be identified to *C. striata* or *C. melasoma* with any confidence. Small specimens of *C. melasoma* collected by the authors (e.g. ZRC 11677, 7.9 cm) were referred to this species mainly on their distinctive colour patterns observed before preservation.

The habitat of *C. melasoma* appears to be well shaded, slow flowing streams with clear water. Large specimens were collected among submerged fibrous tree roots on a soft muddy substrate. When disturbed, the animals dig into the roots and mud, making capture extremely difficult. Smaller specimens inhabit very shallow waters with leaf-strewn mud substrates. The pH of the acid water varied between 5 and 5.3. The species appears to be wholly nocturnal and has never been observed during the day. Most of the specimens were collected at night between 2000 and 2200 hours, after they had been spotted and coaxed into the nets. Only two specimens were obtained by random sampling in the evening at about 1800 hours.

A specimen with young was observed and some of the fry collected. The parent (sex not determined) was among some submerged roots (about a metre depth at its deepest point) while the fry swarmed in the very shallow water (three to eight cm depth) next to

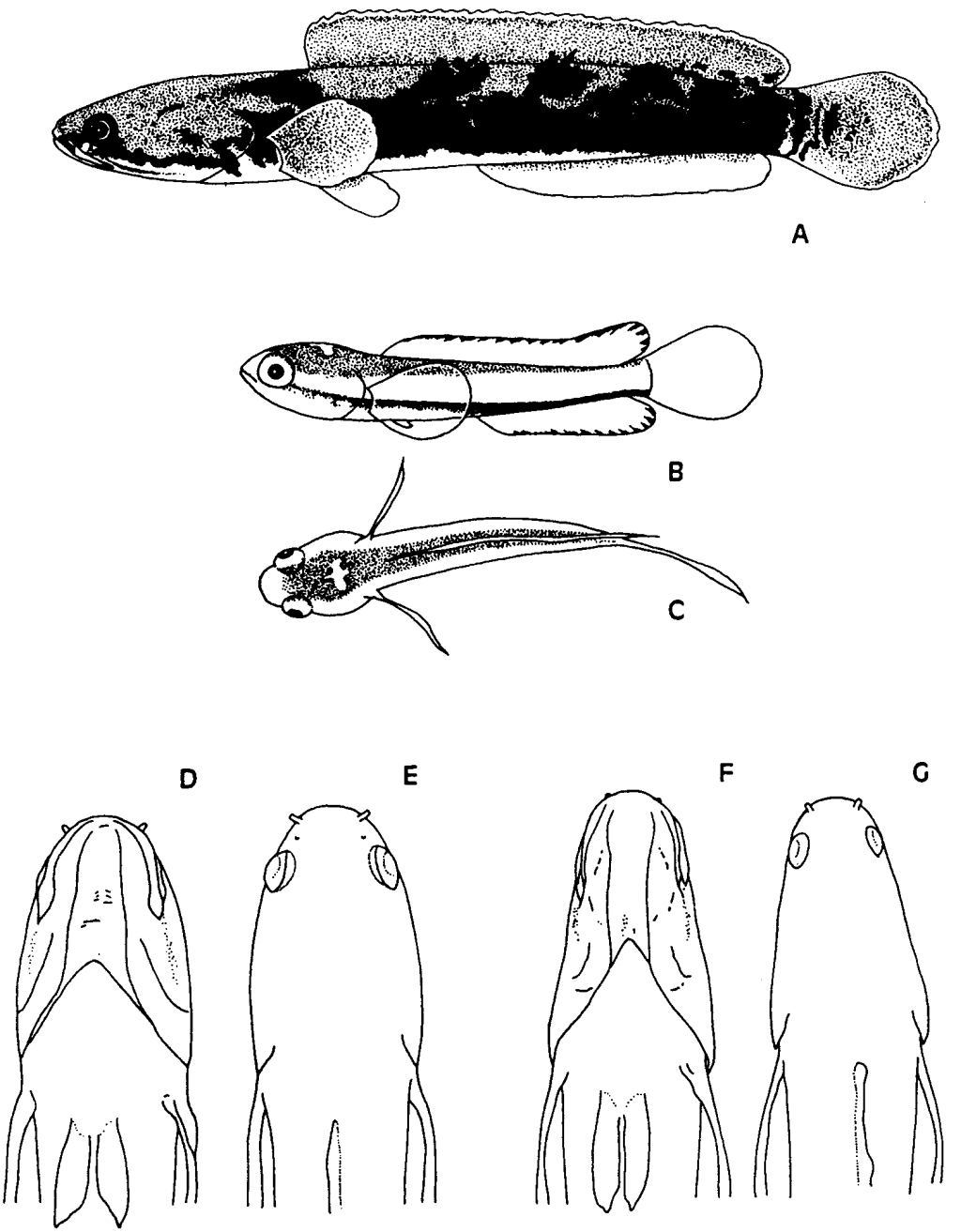

Fig. A. *Channa melasoma*, specimen showing characteristic patterning; B, C, *Channa melasoma* fry, ca. 0.7cm; D, E, *Channa melasoma*; F, G, *Channa striata*.

the bank. The fry of *C. melasoma* (specimens first obtained were about 0.7 cm in total length) resemble those of *C. lucius*, with two black horizontal stripes on each side of their body, the other areas being yellow (Figs. B, C). The fry of *C. melasoma* however, have less tapered and more rounded heads, and the pineal eye spot is very distinctive. Several fry were collected and maintained in the aquaria to ascertain changes in their colouration as they grow. The fry are easy to maintain, feeding on tubifex worms. At about 1.2 cm total length, their heads become more rounded, the body more elongated, the upper black line disappears, and the lower one becomes paler. At about 2.0 cm total length, the lower black line becomes obscure and a deep orange horizontal median line which starts near the beginning of the anal fin and ends at the caudal peduncle becomes evident. From about 3.0 to 3.5 cm total length, the characteristic colour of the adults becomes apparent. The distinctive body colour pattern and yellowish-white margins of the dorsal, anal and caudal fins can be discerned. The dorsal and anal fins however, have several ocellus-like markings throughout its length, the last on the dorsal being the largest and most distinctive. The midaxial orange line becomes fainter and less distinctive. From between 4.0 to 4.5 cm total length, the ocellus-like markings on the anal fin fade away completely, with those on the dorsal fin (with the exception of the distal-most marking) becoming fainter. The midaxial orange line is now absent.

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LITERATURE CITED

Alfred, E., 1966. The freshwater fishes of Singapore. *Zool. Verh.*, Leiden, **78**: 1-68, Pls. 1-8.

Johnson, D. S., 1973. Freshwater Life. In: *Animal Life and Nature in Singapore*. Pp. 103-127. Ed. S. H. Chuang, Singapore University Press.

Károli, J., 1882. Prodromus Piscium Asiae orientalis a domine Joanne Xanthus annis 1868. 70 collectorum. *Termesz. Fuzetek Budapest*, **5**: 147-187.

Lim, K. K. P. & P. K. L. Ng, 1990. *A Guide to the Freshwater Fishes of Singapore*. Singapore Science Centre, Singapore, 160 pp.

Ng, P. K. L. & K. K. P. Lim, 1989. Rediscovery of the Dwarf Snakehead, *Channa gachua* (Hamilton, 1822) (Channidae) in Singapore. *Raffles Bull. Zool.*, Singapore, **37**(1 & 2): 172-174.

Tweedie, M. W. F., 1950. Notes on Malayan Fresh Water fishes. 2. The species of *Channa* Scopoli (= *Ophicephalus*) in the collection of the Raffles Museum. *Bull. Raffles Mus.*, **21**: 99-105.

Weber, M. & L. F. de Beaufort, 1922. *The Fishes of the Indo-Australian Archipelago*. **4**: i-xii, 1-410.