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NEW LOCALITIES FOR THE WEDGE-SPOT DAMSELFISH, *POMACENTRUS CUNEATUS* ALLEN, 1991 (TELEOSTEI: POMACENTRIDAE) IN SOUTHEAST ASIA

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ABSTRACT. - The wedge-spot damselfish, *Pomacentrus cuneatus* Allen, 1991, previously known only from Ambon, Indonesia, is here reported from the Seribu Islands off Java; Manado, Sulawesi; Singapore; West Malaysia; the Gulf of Thailand; and Luzon. It is the most common of 28 species of pomacentrid fishes known from the coral reefs of Singapore. Specimens from earlier studies had been misidentified as *P. albimaculus, P. brachialis* and *P. tripunctatus*. The species occurs on natural reefs of Singapore to depths of 15m and is evenly distributed in the depth range of 3-10m. The juvenile stage is illustrated in colour for the first time.

INTRODUCTION

A total of 198 species of coral-reef fishes have been identified on the reefs of Singapore (Low & Chou, in press a). Visual monitoring of reef fish populations in Singapore, conducted during the ASEAN-Australia Marine Science Project: Living Coastal Resources, showed that the Pomacentridae, popularly known as the damselfishes, is the most diverse coral reef fish family in Singapore. This is not surprising, since the family is among the most speciose of the Indo-Pacific; Allen (1991) recorded 268 species from the region. Also, these fishes were the most abundant in the transects of Singapore reefs.

The most common pomacentrid fish on the inshore reefs of Singapore has long been misidentified as *Pomacentrus albimaculus* Allen, *P. brachialis* Cuvier, or *P. tripunctatus* Cuvier. We here report that the correct name for this fish is *P. cuneatus* Allen, 1991, previously known only from Ambon, Indonesia. We also extend its range to two other Indonesian localities, as well as Peninsular Malaysia, Gulf of Thailand and the Philippines. We provide first illustration and description of the life colour of the juvenile of the species.

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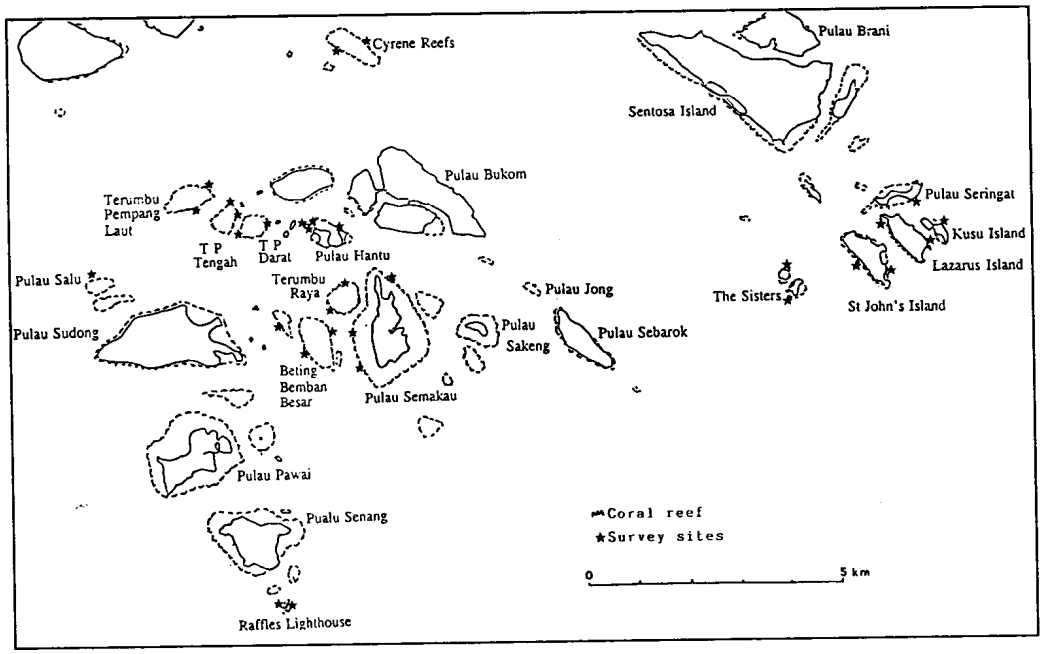

Fig. 1. Map of the southern islands of Singapore, showing occurrence of *Pomacentrus cuneatus*.

MATERIALS AND METHODS

Specimens for identification were collected by spear at Hantu West patch reef and at Terumbu Pempang Tengah in the southern islands of Singapore in 1994. Several were sent to Dr. G. R. Allen of the Western Australian Museum for identification, and others were deposited at the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore. Specimens previously deposited in the ZRC were examined, as well as material at the Bernice P. Bishop Museum, Honolulu (BPBM), collected from the Gulf of Thailand and Luzon, Philippines.

Data on the distribution of *P. cuneatus* in Singapore were extracted from visual assessments of coral-reef fishes along 150m x 6m x 3m transects at 3m and 10m depths (from the reef crest) at 30 sites between 1987 and 1994 (Fig. 1). The data were pooled and analysed using the general linear model of the statistical package SAS (Statistical Analysis System), to determine if distribution was correlated with depth. In addition, temporal data for P. cuneatus were derived from surveys conducted between 1988 and 1994 at Terumbu Pempang Tengah (Fig. 1). Data from fish visual census of two artificial reef sites near P. Hantu, at 14m and 15m depths, were also utilised.

The abbreviation SL is used for standard length.

TAXONOMY

FAMILY POMACENTRIDAE

Pomacentrus cuneatus Allen, 1991
(Fig. 2)

Material examined. - **Singapore**: 1 ex. (ZRC 2211), 50 mm SL, Sungei Seletar, A. Drahman, 22 Feb.1966. — 2 ex. (ZRC 10492-10493), 45-64 mm SL, Sungei Punggol, A. Drahman, 28 Mar.1967.— 6 ex. (ZRC 10591-10596), 67-74 mm SL, Sungei Punggol, A. Rahman, 1 Aug.1964. — 1 ex., juvenile (ZRC 29500), 14 mm SL, Pulau Semakau reef flat, P.K.L Ng, 27 Oct.1992. — 1 ex. (ZRC 38016), 48 mm SL, Terumbu Pempang Tengah, J.K.Y. Low, 29 Jul.1992. — 2 ex. (ZRC 38063), 69-73 mm SL, Sungei Punggol, 8 Nov.1963. — 1 ex. (ZRC 38109), 58 mm SL, Hantu West patch reef, J.K.Y. Low, 13 Aug.1993. — 110 ex. (ZRC 38295-38296), 45-81 mm SL, Pulau Salu, S.S.W. Tay. 1977. — 1 ex. (ZRC 38300), 73 mm SL, St. John's Island, P. Sweet & P.G. Lee, 26 Nov.1990. — 7 ex. (ZRC 38301), 54-70 mm SL, Pulau Salu, S.S.W. Tay. — 9 ex. (ZRC 38302), 56-61 mm SL, Pulau Salu, S.S.W. Tay, 19 Nov.1976. — 2 ex. (ZRC 38303), 53-56 mm SL, Hantu West patch reef, J.K.Y. Low & D.G.B. Chia, 12 Jun.1992. — 11 ex. (ZRC 38304), 53-80 mm SL, Pulau Salu, S.S.W. Tay, 25 Jan.1977. — 1 ex. (ZRC 30305), 55 mm SL, Pulau Salu, S.S.W. Tay, 17 Aug.1977. — 6 ex. (ZRC 38306), 54-64 mm SL, Pulau Salu, S.S.W. Tay, 25 Dec.1976. — 10 ex. (ZRC 38307), 30-60 mm SL, Pulau Salu, S.S.W. Tay, 31 Jul.1976. — 5 ex. (ZRC 38308), 54-79 mm SL, Pulau Salu, S.S.W. Tay, 18 Nov.1977. **Peninsular Malaysia:** — 1 ex. (ZRC 38062), 77 mm SL, Pulau Gelok, J.K.Y. Low et al., 24 Jun.1992. **Philippines:** — 1 ex. (BPBM 25057), 61 mm SL, Luzon, Subic Bay, Col. R. May, 8 Apr.1990. **Gulf of Thailand:** — 1 ex. (BPBM 36205), 24 mm SL, Ko Manvichai, J.E Randall, 27 Nov.1993.

Diagnosis. - Meristic data of all specimens fit closely the description of the holotype and paratypes given for *P. cuneatus* by Allen (1991). The counts for the specimens sampled are as follows (values for holoytype in parentheses): dorsal rays XIII, 14 or 15 (14); anal rays II,14 or 15 (15); pectoral rays16 to18 (17); lateral-line scales17 (17); gill rakers 19 to 20 (19); vertical scale rows from upper edge of gill cover to caudal-fin base 27-28 (28); horizontal scale rows from base of dorsal fin to last lateral-line scale (not including dorsal-fin sheath scales) 1 1/2; from lateral line to anal-fin origin 9; predorsal scales extending to level of nostrils; pre- & suborbital naked; snout tip, lips and chin naked; scales finely ctenoid; preopercle scale rows 2 or 3, with additional scales on inferior limb. Margin of preopercle, suborbital and preorbital serrate, with notch between pre- and suborbital. Body depth 2.0 to 2.1 (1.9) in standard length; head length 3.1 to 3.5 (3.1) in standard length; snout 3.6 to 4.2 (4.2) in head length; eye 2.6 to 3.1 (3.0) in head length; bony inter-orbital width 3.0 to 3.6 (3.5) in head length; least depth of caudal peduncle 2.0 to 2.3 (2.1) in head length, length of caudal peduncle 3.0 to 3.8 (3.1) in head length. Teeth biserial, slightly spatulate with flattened edges, 34 to 38 in outer row, inner row of small buttress teeth in spaces between outer row of teeth. Colour in alcohol medium to light brown with darker brown scale margins; median fins and pelvic fins dark grey (pelvic fins dusky brown in holotype), dorsal-fin margin blackish; pectoral fins tan withh a wedge-shaped blackish mark on upper half of base; a black spot on the dorsal edge of the operculur plate. Juvenile (ZRC 29500) yellowish, with an ocellus between 10th dorsal spine and 5th dorsal ray.

Live adult individuals can be distinguished from other dark pomacentrids by their uniform greyish brown colouration, a black spot on the dorsal edge of the operculur plate, and the characteristic wedge-shaped spot at the pectoral-fin base. The margins of the dorsal and anal fins are black, edged in bright blue (Fig. 2A). Live juveniles (Fig. 2C) are yellowish with bright blue stripes running from the snout to the posterior part of the body. A blue-edged black ocellus is present at the posterior end of the dorsal fin; it disappears as the fish matures.

A

B

C

Fig. 2. *Pomacentrus cuneatus*. A, adult, Ambon (type locality), estimated 85 mm SL; B, sub-adult, Manado, Sulawesi, Indonesia, estimated 65 mm SL; C, juvenile, northern Gulf of Thailand, estimated 30 mm SL.

Remarks. - Allen (1991) described *Pomacentrus cuneatus* from 21 specimens, 24-71 mm SL, collected at Ambon, Molucca Islands, Indonesia in the depth range of 2-6 m. No further records of the species have been published. We have found this species to be the most common pomacentrid on the southern reefs of Singapore (Fig. 1). These reefs are not exposed to heavy wave action and are sediment-stressed. *Pomacentrus cuneatus* also colonised concrete and tyre artificial reefs off Terumbu Pempang Tengah, though not in the abundance as seen on the natural reefs. The fish occurs to depths of 15 m, but was observed to be most common at depths of 3-10 m on the reef slope. No distinct zonation was observed within this depth range ($p < 0.05$).

Pomacentrus cuneatus was misidentified as *P. albimaculus* or *P. brachialis* in previous surveys of Singapore reefs (Khoo & Tay, 1990; Lim et al., 1990; Leng, 1990; Lim & Chou, 1991a, b; Low & Chou, 1992). No specimens were collected during these surveys; the studies were based on visual assessment of the fishes of the reef community. Specimens of *P. cuneatus* were found in the old fish collections of the ZRC, supposedly collected from Sungei Seletar and Sungei Punggol (Sungei = river) and had been misidentified as *P. tripunctatus*. However, it is doubtful if these specimens were collected from the rivers or estuarine areas bordering them, or if they were in fact collected from the patchy coral reefs further offshore. If they were indeed collected from the rivers or estuaries, it would hint at the tolerance of this species to waters with low or fluctuating salinities.

Courtship and spawning behaviour in the species was observed by Leng (1990) in Singapore. Leng (1990) identified the adult *P. cuneatus* (as *P. albimaculus*) and the juvenile as "Species A" juvenile. In his observations, one of the pair (designated as the male) performed a "dance", darting back and forth between the reef and its counterpart, each time performing a wriggle over the substratum. The colouration of the "male" would turn dark grey, with 5-6 dark blotches along the dorsal margin of the body. Spawning occurred when the pair, led by the "male" disappeared into a crevice on the reef. The paler "female" departs after approximately 2 minutes, leaving the now highly territorial "male" to guard the eggs. Eggs uncovered from the crevice were found adhering to the coral surface.

In correspondence with Dr. G. R. Allen, we also learned that he had observed *P. cuneatus* on inshore reefs of the Seribu Islands off the northwestern coast of Java; these reefs are comparable in habitat to those of Singapore (the second author has dived on both). In addition, the range is here extended to Manado, Sulawesi where the species was photographed by the second author, to the northern Gulf of Thailand where collected and photographed by the second author, and to Subic Bay, Luzon where collected by Colonel Richard May.

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