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Biodiversity Record: Aggressive conspecific interactions of two species of mangrove gobies

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Subjects: Ring-tailed brackish goby, *Eugnathogobius polylepis* (Teleostei: Gobiiformes: Oxudercidae);
Yellowspot fat-nosed goby, *Pseudogobius fulvicaudus* (Teleostei: Gobiiformes: Oxudercidae).

Subjects identified by: Lumin Ong Jun Xiang and Jiayuan Lin.

Location, date and time: Singapore Island, Pasir Ris Park; 6 November 2024 at around 1611 hrs and 1702 hrs.

Habitat: Estuarine. Tide pools with mud substrate in mangrove forest during low tide.

Observer: Lumin Ong Jun Xiang.

Observations: Individuals of two species were observed behaving in aggressive manner with conspecifics.

Eugnathogobius polylepis — At around 1611 hrs, a male of about 3 cm (total length) in breeding colouration was seen approaching a few leaves in between some mangrove pencil roots, holding his fins erect while doing so. He then charged under the leaves, revealing a conspecific of similar size and colouration. Both individuals darted out after an initial skirmish (Fig. 1). The two fish flared their fins for a moment before attacking each other again, with one biting the other on the left side of the head (Fig. 2) and holding on for about a minute before letting go. The bitten fish immediately darted away, only briefly pursued by the other.

Fig.1. Dorsal view of the two male *Eugnathogobius polylepis* after the initial skirmish. The individual on the lower left is partially obscured by light reflections on the water. Fig.2. The individual on the right biting the left side of the head of the other male for about one minute (Photographs by: Lumin Ong Jun Xiang).

Pseudogobius fulvicaudus — At around 1702 hrs, one example of about 1.5 cm (total length) was sighted among several smaller gobies. It erected its fins (Fig. 3) and chased the other fish upon catching sight of them. Although it cannot be confirmed, the other fish are assumed to be conspecific. They have vaguely similar black markings on their first dorsal fins, but lack the bright yellow marks on the dorsal and caudal fins.

Remarks: The featured observation implies that the adult male *Eugnathogobius polylepis* is highly territorial and has no tolerance of another conspecific of the same sex. In this case, both males had intended to fight each other, because otherwise one of them would have immediately fled upon catching sight of the other. This may be the first record of

violent antagonistic behaviour of this rarely seen species in the wild. *Eugnathogobius polylepis* displays distinct sexual dichromatism with adult male being significantly more colourful (Larson et al., 2008). In an earlier observation at Sungei Buloh that involved several individuals, only one male was in breeding colouration (Ong, 2024). The others, identified by the black ring on their caudal fins, without the bright yellow markings, could be females. It was not specified if the male was in the same space as the others, but no hostile behaviour towards other fish was reported.

The featured *Pseudogobius fulvicaudus* has two black horizontal bands on its first dorsal fin characteristic of the species (Larson & Hammer, 2021; Ong & Tay, 2024). Although its bright colouration and apparently aggressive behaviour suggest that it is a male, it is not clear if the species exhibits sexual dichromatism. It cannot be confirmed if the other gobies being chased by that one *Pseudogobius fulvicaudus* are in fact conspecifics as they lack the yellow markings and the dorsal fin markings could not be seen clearly. An example observed at Sungei Buloh seemed indifferent to a *Pseudogobius verticalis* right next to it (Ong & Tay, 2024). Apart from showing of territorial aggression to perceived intruding conspecifics, it is also possible that the individual flaring its fins and pursuing similar fish around it could be a male in breeding colouration attempting to court female conspecifics.

Fig.3. Dorso-lateral view of a *Pseudogobius fulvicaudus* of about 1.5 cm total length at bottom left corner with its fins erect, apparently displaying to the smaller individual (indicated by arrow) at the top right (Photograph by: Lumin Ong Jun Xiang).

Literature cited:

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