

Biodiversity Record: An unexpected interaction between two species of mudskipper

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Subjects: Giant mudskipper, *Periophthalmodon schlosseri* (Teleostei: Gobiiformes: Oxudercidae);
Boddart's blue-spotted mudskipper, *Boleophthalmus boddarti* (Teleostei: Gobiiformes: Oxudercidae).

Subjects identified by: Ong Jun Xiang Lumin.

Location, date and time: Singapore Island, Sungei Buloh Wetland Reserve; 3 November 2025; 1715–1800 hrs.

Habitat: Estuarine mudflat exposed during low tide along the fringes of a mangrove forest.

Observer: Ong Jun Xiang Lumin.

Observation: Five Boddart's blue-spotted mudskippers, each around 10–12 cm in total length, were observed foraging on the mud at the outer fringes of the mangrove forest (Fig. 1). Around them were multiple large burrows with giant mudskippers in them. Three of the blue-spotted mudskippers followed the creek with one splitting off to explore a smaller hole right beside a large burrow (Fig. 2). A giant mudskipper, about 20 cm in total length, emerged shortly after, and the blue-spotted mudskipper started to move away from it with its dorsal fins erect (Figs. 3 & 4). The giant mudskipper proceeded to leave the burrow, seeming to approach the blue-spotted mudskipper, which was keeping its fins erect and hastily maneuvering out of the larger fish's way (Figs. 5 & 6). The giant mudskipper seemed to ignore the blue-spotted mudskipper and instead headed for the creek, where it caught a small crab before returning to its burrow. The blue-spotted mudskipper remained in the same area around the burrow and moved out of the larger mudskipper's return path, while still erecting its fins (Fig. 7). It continued foraging and finally left the area with a final erection of its dorsal fin after the giant mudskipper resurfaced from its burrow (Fig. 8).



Fig. 1. Two of the five observed Boddart's blue-spotted mudskippers foraging on the mudflat (Photograph by: Ong Jun Xiang Lumin).



Fig. 2. Blue-spotted mudskipper emerging from a small hole right beside the giant mudskipper's burrow. Fig.3. Blue-spotted mudskipper erecting its dorsal fins upon seeing the giant mudskipper's emergence. Fig. 4. Giant mudskipper emerging from its burrow, apparently towards the blue-spotted mudskipper. Fig. 5. Blue-spotted mudskipper erecting its fins at the approach of the giant mudskipper. Fig. 6. Blue-spotted mudskipper maneuvering out of the giant mudskipper's way (Photographs by: Ong Jun Xiang Lumin).



Fig. 7. Giant mudskipper returning to its burrow, with the same blue-spotted mudskipper in its path. Fig. 8. Blue-spotted mudskipper erecting its fins and moving away from the area upon the re-emergence of the giant mudskipper (Photographs by: Ong Jun Xiang Lumin).

Remarks: This observation records unexpected reactions by a *Boleophthalmus boddarti* (Boddart's blue-spotted mudskipper) and a *Periophthalmodon schlosseri* (giant mudskipper) to each other when in close proximity. *Periophthalmodon schlosseri* is one of the largest mudskippers in the world, reaching a maximum length of 24 cm. It is carnivorous, hunting and feeding on arthropods such as crabs, and small fish, including other mudskippers (Larson & Lim, 2005; Polgar, 2012; Clayton, 2017). *Boleophthalmus boddarti* averages at around 13.5 cm but is known to reach a maximum length of 22 cm. In contrast, this species is herbivorous. It feeds mainly on diatoms and algae which it scrapes from the surface of the mud (Polgar, 2013; Clayton, 2017). *Periophthalmodon schlosseri* has been observed preying on *Boleophthalmus boddarti* in Peninsular Malaysia (Polgar, 2012).

In the featured observation, the *Periophthalmodon schlosseri* was more than twice the size of the *Boleophthalmus schlosseri*, and seemed fully capable of overpowering the smaller fish. As they were in close proximity to each other, the observer had expected the former to attack and consume the latter, and the latter to flee. Instead, the *Boleophthalmus* stayed in the area, but repeatedly erected its dorsal fins and tried to maintain some distance from the *Periophthalmodon*. This display is an apparent signal to the *Periophthalmodon* that it was fully aware of its presence. Instead of pursuing the *Boleophthalmus*, the *Periophthalmodon* appeared to ignore that potential prey, and had its sights set on a crab further away in a creek. It is possible that the *Periophthalmodon* had perceived the crab as an easier target. The *Boleophthalmus*, already wary of the larger fish, and being on high alert, would likely be more difficult to catch. The departure of the *Boleophthalmus* during the re-emergence of the *Periophthalmodon* from its burrow (Fig. 8) suggests that it was not taking another chance being near to its potential predator.

References:

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