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Forest snakeheads attacking Malayan forest softshell turtle

Subjects: Forest snakehead, *Channa lucius* (Teleostei: Channidae);
Malayan forest softshell turtle, *Dogania subplana* (Reptilia: Testudines: Trionychidae).

Subjects identified by: Contributor.

Location, date and time: Singapore Island, Central Catchment Nature Reserve, MacRitchie forest at Bukit Kalang; 16 October 2016; 1045 hrs.

Habitat: Freshwater stream in mature secondary forest.

Observer: Contributor.

Observations: Two adult forest snakeheads of about 20 cm total length were observed in shallow water. One of them was surrounded by fry (Fig. 1). Both individuals were chasing other fish, such as saddle barb (*Barbodes banksi*) and spanner barb (*Barbodes lateristriga*), that approached them.

When a Malayan forest softshell turtle of about 20 cm carapace length swam into the vicinity, it was confronted and attacked by the adult snakeheads. The snakehead in front of the turtle confronted the intruder by flaring its gill covers (Fig. 2). The other snakehead behind the turtle (Fig. 2) eventually chased the turtle away with a nip on the turtle's rear end. A video of the interaction can be viewed at: https://youtu.be/FDi4v9IbKLI

Remarks: Snakeheads (fishes of the family Channidae) are known to invest in parental care of their eggs and fry (Courtenay & Williams, 2004). In *Channa lucius*, both the male and female guard their young (Lee & Ng, 1994; Ng & Lim, 1990).

The forest snakehead has a distinct black blotch on each operculum, and it is known to flare its opercula to face an intruder as a form of defence (Ng & Lim, 1990). When the fish is viewed from the front, the black blotch on each of the two flared gill covers resembles an eye-spot. A pair of these may function in a similar manner to eye-spots on some lepidopterans which are used to intimidate predators (Mukherjee & Kodandaramaiah, 2015). The behaviour performed by the adult fish in front of the turtle (Fig. 2; see video at 0:06–0:08, and less clearly at 0:10–0:13) appears to support this suggestion.

References:
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Fig. 1. Adult forest snakehead, *Channa lucius* with its brood of striped fry. Photograph by Marcus A. H. Chua

Fig. 2. Adult forest snakeheads confront Malayan forest softshell turtle. Left picture - Note one fish in pursuit behind the turtle at the top left corner of the picture, and the other facing the head of the turtle with flared opercula at the lower right corner. Right picture - One of the pair of snakeheads facing the head of the turtle with flared opercula (indicated by arrow). Images extracted from a video by Marcus A. H. Chua