

King cobra *Ophiophagus hannah* exhibiting breaching behaviour while swimming in response to a predation threat from a white-bellied sea eagle *Haliaeetus leucogaster*

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The king cobra *Ophiophagus hannah* is a predominantly terrestrial species (Rao et al., 2013) but it will take to water and is a capable swimmer. In Singapore, the species has been observed swimming in reservoirs and quarry lakes (Lim et al., 2011; Tan et al., 2020) and attacking conspecifics while swimming (Anathanarayanan & Harrick, 2019). However, swimming in open water bodies exposes them to threats from both above and below the water surface.

On 22 October 2018, 09:21 h, a king cobra (c. 1.5 m in length) was observed interacting with a sub-adult white-bellied sea eagle *Haliaeetus leucogaster* at Upper Peirce Reservoir, Singapore (1° 22'14.3" N, 103° 47'47.0" E). The eagle was first observed flying close to the water surface, seemingly to hunt for fish (Fig. 1A). The observers were approximately 350 m away. A closer observation, however, revealed that it was in fact approaching a king cobra (Fig. 1B). The snake raised its head towards the approaching eagle (Fig. 1C). The eagle retreated, but circled back again, making two more dives at the snake. Each approach of the eagle elicited the same response, with the snake breaching an estimated maximum of 1 m above the water surface at its highest (Fig. 1D). The event lasted for about a minute, after which the eagle flew away.

It seems likely that the white-bellied sea eagle was attempting to predate the king cobra (Corbett & Hertog, 2011), which, in response, breached to deter the eagle; this upright posture is similar to the king cobra's defensive display in a terrestrial environment (Jones, 2017). The olive sea snake *Aipysurus laevis* has also been photographed breaching in Australia (Thomas, 2021). The behaviours demonstrated by these snakes suggests that the ability to breach in aquatic environments may be important either in deterring predators and/or in enabling a better view of their surroundings. Such sightings present novel information about the king cobra's possible responses to threats in aquatic environments and add to the current knowledge of its behaviours.

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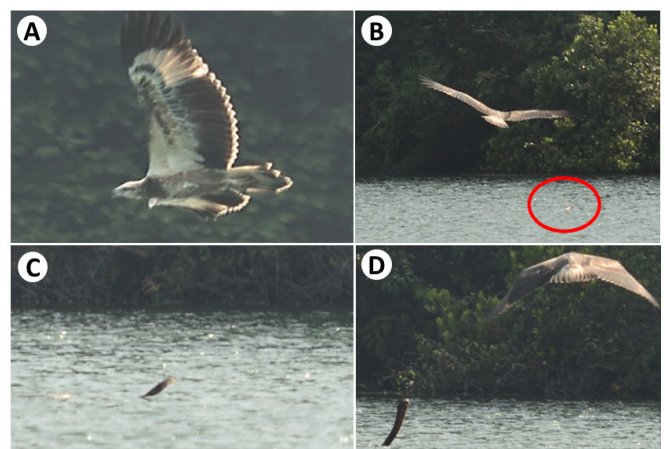


Figure 1. Stages of interaction between the king cobra (circled in red for Fig. 1B) and white-bellied sea eagle

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