

Biodiversity Record: Clouded monitors, *Varanus nebulosus*, group basking

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Subjects: Clouded monitor, *Varanus nebulosus* (Reptilia: Squamata: Varanidae).

Subjects identified by: Przemysław Zdunek.

Location, date and time: Singapore Island, Singapore Botanic Gardens; 8 March 2023; 0923–1220 hrs.

Habitat: Urban parkland. At the entrance of the Rainforest Trail with many trees.

Observer: Andy Chew.

Observation: A group of three young clouded monitors, each about 80 cm in total length, was spotted in a tall tree, about 10–15 m off the ground, basking close to each other at the entrance of a tree hole (Fig. 1) from which they had presumably emerged. A fourth individual was spotted coming out of another hole about a few metres higher up in the same tree (Figs. 2 & 3). The monitor lizards did not change their positions during the three hours of the observer's presence on site. The temperature at that time was around 30 degrees Celsius. It was generally cloudy with moderately strong winds.

Remarks: Adult clouded monitors lead a solitary life. They mainly frequent the ground, but also climb trees (Camina, 2019). Juveniles are more arboreal in habits and feed largely on insects (Eidenmüller, 2021). Auffenberg (1983) mentions the tendency of *Varanus bengalensis* (then including *Varanus nebulosus*) to cluster, especially as juveniles and recalls having caught 12 juveniles ‘undoubtedly all from the same clutch in two large adjacent trees in Pahang, Malaysia’. Although such gregarious behaviour appears to be supported by the featured observation, it is not known if the four lizards in the featured observation are siblings from the same clutch. As young individuals, living in a group could reduce the likelihood of being predated. In Singapore, *Varanus nebulosus* is known to fall prey to the reticulated python (Zdunek & Finlay, 2023) and the king cobra (Kurniawan et al., 2018).

In the featured observation, the clouded monitors basking around a tree hole and emerging from another suggest that they had spent the night within the tree hollows. In Thailand, *Varanus nebulosus* has been recorded using tree hollows for brumation (Goodyear et al., 2022). While the species is unlikely to undergo brumation in Singapore's equatorial climate, the use of such shelters imply that these afford some protection from nocturnal predators. This merits further exploration. The clouded monitor was first documented in the Singapore Botanic Gardens in 2013 (Thomas, 2013). Its monitoring is indicated in proportion to the size of the environment, and the number of potential hiding places/refugia when the lizards become adults. Even as a single event, the featured observation broadens the scope of information about the natural history and ecology of *Varanus nebulosus* in Singapore.

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Fig. 1. Three clouded monitors basking on a large tree next to their tree hole shelter. (Photograph by: Andy Chew).



Figs. 2 & 3. Frontal (Fig. 2) and lateral (Fig. 3) views of the fourth clouded monitor emerging from another hole higher up in the same tree. (Photographs by: Andy Chew).