

## Observations on predation by *Mimophis mahfalensis* (Grandidier, 1867) in Andranomena Special Reserve, Madagascar

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The colubroid snakes are represented by the families Psammophiidae and Pseudoxyrhophiidae in Madagascar (Zaher et al., 2019; Cadle et al., 2022). The family Psammophiidae is widely distributed across Africa and southern Eurasia. Of the eight known genera, only the genus *Mimophis* reaches Madagascar, where two species exist: *M. mahfalensis* and *M. occultus* (Ruane et al., 2017). *Mimophis mahfalensis* is widespread in the Central Highlands and in western and southern regions of Madagascar, whereas *M. occultus* is distributed in the northern part of the island (Ruane et al., 2017; Cadle et al., 2022). The diet of *M. mahfalensis* includes frogs, other snakes, skinks, lizards, and chameleons (Glaw and Vences, 2007; Jenkins et al., 2009; Rosa et al., 2016b; Cove et al., 2017; Lobón-Rovira et al., 2020).

During our field research in Andranomena Special Reserve in western Madagascar, we observed two predation events involving *M. mahfalensis*. On 23 February 2020 at 08:25 h, an adult female *M. mahfalensis* ingested a juvenile *Furcifer oustaleti* (Mocquard, 1894). This observation took place within the reserve (20.1747°S, 44.4312°E, elevation 13 m). The snake was about to swallow the head of the chameleon, which was already dead (Fig. 1A). The snake twisted its head to position the prey into its mouth. After only a few minutes, the snake was able to swallow almost the entire body of the prey, reaching the hind legs (Fig. 1B). The snake continued to ingest the body including the tail (Fig. 1C). The entire process lasted 32 min (Fig. 1D). This chameleon was

previously reported as prey of other snakes, such as *Ithycyphus oursi* Domergue, 1986 (Crottini et al. 2010). Both *I. oursi* and *M. mahfalensis* are diurnal species, as is *F. oustaleti*. This observation is the first to confirm predation of *F. oustaleti* by *M. mahfalensis*.

This species is known to prey on other chameleons, including *F. willsii* (Günther, 1890) and *F. major* (Brygoo, 1971) (Rosa et al., 2016; Lobón-Rovira et al., 2020). *Mimophis mahfalensis* is a terrestrial snake, but it is also occasionally observed climbing trees. On the other hand, *F. oustaleti* is an arboreal species, but it is often observed on the ground during the day to prey on grasshoppers and other invertebrates (A.P. Raselimanana, pers. obs.) or to move to another tree. Our observation took place in the morning, when both species were probably at the beginning of their daily activities, and we surmise that the predation likely took place on a tree and that both animals fell from the perch during the fight.

The second observation involves an adult male of *M. mahfalensis* and an adult gerrhosaurid lizard (probably *Tracheloptychus madagascariensis* Peters, 1854, but we were unable to verify species identity), and took place on 11 April 2022, in the same protected area (20.1847°S, 44.4928°E; elevation 31 m). When we came across the event, the snake had already wrapped the lizard, which was still alive, in its coils (Fig. 2A). The fight continued for several minutes, after which the snake started to position the prey for ingestion (Fig. 2B) and started to swallow it head-first (Fig. 2C). The ingestion took 39 min (Fig. 2D).

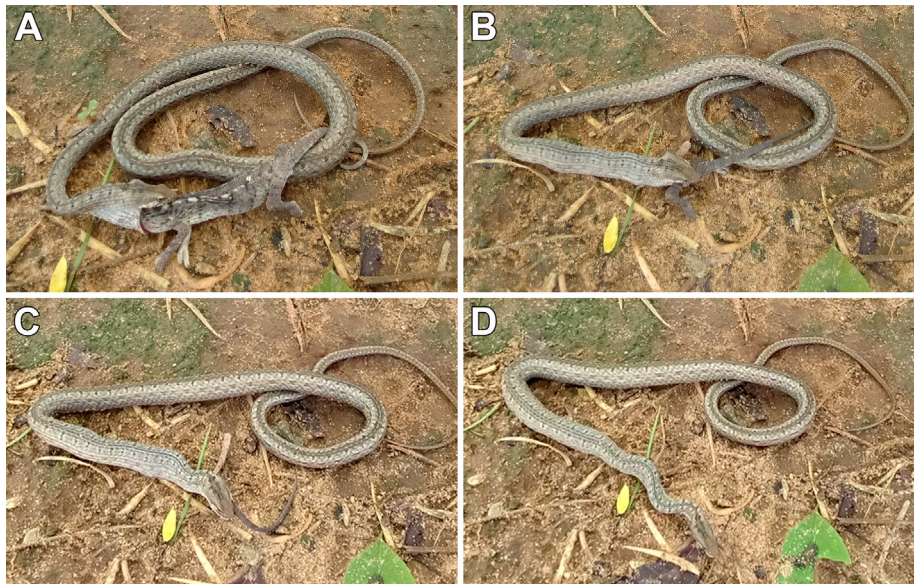
This observation enriches the knowledge on the diet and eating behaviour of *Mimophis mahfalensis*, which seems to be a generalist species with respect to its feeding ecology. These findings also illustrate the capacity of this species to hunt both on the ground and on trees.

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**Figure 1.** Predation of the chameleon *Furcifer oustaleti* by the snake *Mimophis mahfalensis* in the Andranomena Special Reserve, western Madagascar, illustrated by ingestion stages. (A) The snake begins to swallow the chameleon. (B) The snake has swallowed the chameleon down to its hind legs. (C) The snake has almost finished swallowing the chameleon. (D) The snake has finished swallowing the chameleon. Photos by Nirindrainiarivony P.H. Djadagna-Ahy.



**Figure 2.** Predation of an unidentified gerrhosaurid lizard by *Mimophis mahfalensis* in Andranomena Special Reserve, western Madagascar. (A) The snake has wrapped itself around the lizard and (B) bites it. (C) The snake begins to swallow the prey. (D) The snake finishes ingestion. Photos by Nirindrainiarivony P. H. Djadagna-Ahy.

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