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Cover: Digital illustration of *Impatiens chamchumroonii* in Krita by Dupati Poojitha.

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NOTE

Hump-nosed Pit Viper *Hypnale hypnale* feeding on an Allapalli Skink *Eutropis allapallensis* in Karwar, India

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Snakes are known to possess characteristically unique feeding systems (Moon et al. 2019) and documenting their food habits is vital to understanding their natural history, ecosystem functions, and evolutionary history (Kalki & Weiss 2020). Pit-vipers belong to the subfamily Crotalinae of the Viperidae family and are characterised by presence of infrared radiation sensing loreal pits, that are located below the mid-line connecting the eye and nostril (Alencar et al. 2018). Here, we report our observation on a case of the hunting and feeding of Hump-nosed Pit Viper based on wild, in situ observation from India.

Field surveys reported here, were undertaken with due approvals and accompaniment of the Karnataka Forest Department. The case reported was video-recorded using point and shoot digital cameras (Nikon P900 & Canon SX 70 HS). The images are given here as vouchers and the video recording is available on YouTube <https://youtu.be/ZrpJmW3967U> (Video 1).

Hump-nosed Pit Viper *Hypnale hypnale*, a common species known to inhabit evergreen, moist, and dry deciduous forests, and human modified areas such as plantations in the Western Ghats – Sri Lanka biodiversity hotspot (Gunawardene et al. 2007). It is a fairly small-sized (< 0.6 m), terrestrial species, with a flat, triangular head that is broader than the neck, and back covered with alternating black/ brown specks and large dark triangular spots on each side. It is known to feed on small mammals like rodents and lizards, geckos, skinks, & frogs (Wall 1906, 1919, 1921; Smith 1943; Das 2002; Whitaker & Captain 2004; Das & DeSilva 2005; Maduwage et al. 2009). Young ones lure skinks within striking range by enticing them with colourful tail tips (Henry 1925; Smith 1943; Daniel 2002). Despite being known to science for over two centuries, and being a common species to the region, there seems to be a lacuna in the knowledge of its ecology, with only a few ecological studies available on its fine-scale distribution and abundance (Ganesh et al. 2010; Sawant et al. 2010a,b).

Soon after the first rains in Karwar forests, Uttara Kannada District, Karnataka, on the night of 23 May 2024, at around 2200 h, we observed a small snake coiled in the leaf litter. Its pointed snout, distinctive yellow-white line separating the top and sides of the head, and large triangular spots on the sides helped us identify it as a Hump-nosed Pit Viper *H. hypnale*. The snake was about 25 cm long. It straightened its vertebrae, angled its head out and started to flick its tongue. The pit viper seemingly sensed its prey, an Allapalli Skink *Eutropis allapallensis* (Schmidt, 1926) of 10–12cm in length,

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which was foraging on the nearby rocks. The skink was identified by its dorso-lateral lines that run along the length of the body, fronto-parietal scale which is united, and keels on body scales (Image 1) (Deuti et al. 2020). It was surprising that the diurnal skink was seen moving on leaf litter at night; but ants were seen close by, suggesting the sleeping skink could have been disturbed by ants, causing the lizard to move out. The snake, stealthily observing the movements of the skink, bit it quickly when the skink ventured too close to the snake. While trying to dodge the attack, the skink slipped and fell down (approximately 25 cm) and eventually after getting bitten, the immobile skink was deduced to be dead out of the effects of venom in 40 s. The viper may have traced its prey using its chemosensory tongue, thermo-sensory labial pits between the nasal cavity, and its vision to identify the prey that had slipped down. By this time, the dead skink had already attracted the attention of the ants on the forest floor. Upon finding the skink, the snake thoroughly examined it from head to tail by flicking its tongue (approximately 147 times) at the dead skink. This thorough examination continued for over two minutes when the snake finally moved back to the head of the skink and started to swallow the skink slowly, using its fangs to hold the prey ventrally between the jaws. The prey was then pushed into the stomach by the movement of the jaws. While the snake was about to ingest the hind limbs of the skink, it gave a jerk reaction in response to the disturbing ant bite on its head. The feeding (from examining the dead prey to entirely swallowing it) lasted for 6 m 40 s and was achieved over 44 jaw-walks. The peristaltic movement took over the swallowing process after the hind limbs were consumed (Image 2). After fully consuming the skink, the viper continued resting on the rock.

Hump-nosed Pit Vipers have been observed to feed on skinks, frogs, and agamids in the wild in India (Wall 1906, 1919, 1921; Smith 1943; Daniel 2002; Das 2002; Whitaker & Captain 2004; Das & DeSilva 2005; Maduwage et al. 2009). Henry (1925) observed a captive

Image 1. Allapalli Skink *Eutropis allapallensis* approaching the Hump-nosed Pit Viper *Hypnale hypnale* lying in wait, in ambush, at night; note the ant near the skink.

Image 2. Hump-nosed Pit Viper *Hypnale hypnale* swallowing the dead Allapalli Skink *Eutropis allapallensis*; note the dead skink manoeuvred upside-down inside the mouth of the snake.

Hypnale sp. of Sri Lankan origin feeding on another conspecific individual. Wall (1919) reported the Rock Agama *Psammophilus drosalis* in the gut of a young one of this snake from Nilgiris, attesting that diurnal lizard as prey had earlier been reported. Literature from India, usually reported mice / small mammal in the gut of this snake (Inger et al. 1984; Wall 1919). Henry (1925), Daniel (2002) specifically mentioned skinks as being enticed by caudal luring exhibited by baby Hump-nosed Pit Vipers, another explicit indication associating a diurnal prey, with this nocturnal species (also see Smith 1943). Maduwage et al. (2009) recorded skinks and shrews in their gut content in Sri Lankan populations of *H. hypnale*.

Though the snake species itself is common in the Western Ghats, its behaviours are rarely documented in the wild (Inger et al. 1984; Wall 1919; Daniel 2002; Das 2002; Whitaker & Captain 2004; Ganesh et al. 2010; Sawant et al. 2010a,b). Our feeding observation reported, agrees with published information on *Hypnale* as summarised here, and also with the more voluminous body of scholarship generally on viper feedings. Many terrestrial vipers are known to rapidly release their prey once bitten (Cundall 2002). Swallowing action of the pit viper, in engulfing the skink was very similar to what is called pterygoid walk (Carrasco et al. 2023). To the best of our knowledge, this record is the first live recorded field observation of a Hump-nosed Pit Viper hunting and feeding on a skink, in the wild.

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