



The Post-feeding Activity of an Indian Rock Python, *Python molurus* (Linnaeus 1758), in the Moyar River Valley, Southern India

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The Indian Rock Python (*Python molurus*), which is widely distributed across India to elevations of 2,000 m asl, also occurs in Pakistan, Nepal, Bhutan, Bangladesh, and Sri Lanka (Smith 1943; Das 2002; Whitaker and Captain 2008; Aengals et al. 2021). These snakes occur in a wide variety of habitats, including estuarine mangrove forests, arid scrub jungles, rainforests, wetlands, drylands, rainforests, and grasslands (Whitaker and Captain 2008; Kamalakannan 2009). With an average adult SVL of 6–8 m, *P. molurus* is a large, heavy-bodied, ambush predator (Bhupathy 1990). Prey consists mainly of homeotherms (Whitaker and Captain 2008), but they also feed occasionally on ectotherms (Bhupathy et al. 2014). Indian Rock Pythons can remain submerged in water for at least half an hour (Sharma 2003; Whitaker and Captain 2008). This species faces severe threats from anthropogenic activities such as habitat degradation and loss, and is listed as Near Threatened (NT) on the IUCN Red List (Aengals et al. 2021). The species is protected under Schedule-I of the Indian Wild Life (Protection) Act–1972 (Government of India Ministry of Law and Justice 1972) and is listed in CITES Appendix I (CITES 2023).

In determining the geographic distribution of ectotherms, temperature stands out as one essential abiotic factor (Cossins and Bowler 1987; Angilletta 2009). Preferred body temperatures of snakes is generally in the range of 25–30 °C (Slip and Shine 1988; Bedford and Christian 1998), and the average critical maximum for snakes is about 40 °C (Brattstrom 1965). Pythons are known to elevate their body temperatures above ambient by means of rapid whole-body shivering, facilitated by muscle twitches, at rates as high as 50/min (Harlow and Grigg 1984). Female Indian Rock Pythons can maintain body temperatures of 32.5 ± 0.78 °C during incubation despite ambient temperatures fluctuating between 9.7 °C above and 6.1 °C below body temperatures (Ramesh and Bhupathy 2010). Such thermoregulatory behaviors

are important for reptiles because of the known interaction between temperature and physiological and biochemical processes in ectothermic organisms (Pörtner 2002, 2010; Clark et al. 2013). Reptiles also are known to use water to thermoregulate and aid in digestion (Meek 1995).

We equipped a female Indian Rock Python with an AI-2 Holohills VHF transmitter (27 g) with an I-button, covered it with beeswax, and positioned the transmitter intraperitoneally in the coelomic cavity (Reinert and Cundall 1982; Ramesh et al. 2019). We observed a feeding event on 13 March 2019 in the Moyar River Valley, and subsequently monitored the individual until 29 March 2019. To understand how body temperature changed during digestion, we collected body temperatures (BT) at one-hour intervals between 1 March and 1 April 2019 and recorded ambient temperatures (AT) using a field-deployed Hobo temperature logger, also at one-hour intervals (Fig. 1).

At 1011 h on 13 March 2019, we found an adult female python that had consumed a large meal and was resting beneath dry brush (Fig. 2). The prey item presumably was a Spotted Deer (*Axis axis*), as we found identifiable pellets nearby. On 17 March 2019, the snake had moved under

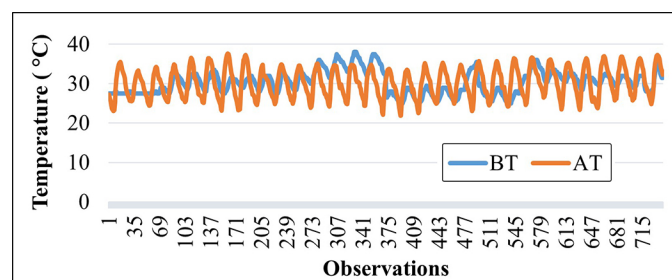


Figure 1. Temperature data of an adult female Indian Rock Python (*Python molurus*) at one-hour intervals from 1 March 2019 to 1 April 2019. Body temperature (BT) is shown in blue and ambient temperature (AT) in orange.



Figure 2. Post-feeding activity of an adult female Indian Rock Python (*Python molurus*): Feeding event recorded on 13 March 2019 (A); three days later on 16 March 2019 in the same area (B); left the area on 17 March 2019 (C); along the bank of the Moyar River on 17 March 2019 (D); again in the water on 21 March 2019 (E); returned to the area where the feeding event occurred on 22 March 2019 (F); again in the water on 23 March 2019 (G) and on 29 March 2019 (H). Photographs by Vishnu C.S.

a recently fallen tree in the middle of the Moyar River (11.57908°N, 76.9025°E). Following the feeding event, the python's body temperature exceeded ambient temperature (Fig. 1) and, during the post-feeding period, the python remained either in the river habitat or in adjacent dense brush. Mean pre-feeding body temperature was 27.56 ± 0.16 °C while mean ambient temperature was 29.52 ± 4.25 °C. Subsequent to ingesting the meal, mean body temperature increased to 35.5 ± 1.93 °C while mean ambient temperature was 30.17 ± 3.42 °C.

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