REPTILES & AMPHIBIANS

Construction Affects the Numbers and Sizes of Common Bamboo Pitvipers, *Craspedocephalus gramineus* (Shaw 1802), at the Matheran Hill Station in Maharashtra, India

Reyhan Motiwala[1], Mandar Sawant[2], and Pramod Aher[3]

[1]Kalyan, Maharashtra, India (iamreyhan@gmail.com [corresponding author])
[2]Ambernath, Maharashtra, India (sawantmandar4812@gmail.com)
[3]Kalyan, Maharashtra, India (prehaher4276@gmail.com)

The Matheran Hill Station was declared an Eco Sensitive Zone (ESZ) by the Ministry of Environment, Forest, and Climate Change (MOEF) in 2003. Despite that status, we have observed a considerable increase in construction activities in the area, much of them involving the erection of permanent and temporary structures to accommodate the growing influx of tourists. Although herpetological studies have been conducted at Matheran (e.g., Gharat et al. 2021), none have addressed the impact of ongoing construction on the resident herpetofauna. Herein we describe a reduced number of Common Bamboo Pitvipers (*Craspedocephalus gramineus*) exploiting habitats modified by human activities.

Matheran, the smallest hill station in India, is situated on the outskirts of Neral, Karjat Tehshil, Raigad District, Maharashtra (18.9866°N, 73.2679°E; elev. 800 m asl), where average temperatures ranges from 13 to 32 °C. We conducted weekly nocturnal (2100–0700 h) surveys from June to December 2021. We identified snakes using keys and descriptions in Daniel (2002), Khaire (2014), and Whitaker and Captain (2015).

Common Bamboo Pitvipers (*Craspedocephalus gramineus*) are nocturnal and usually found on low bushes, where they rely on camouflage while waiting for passing prey for up to two months (Whitaker and Captain 2015). However, during the past year, local snake enthusiasts and residents have noted that sightings of these snakes on bushes had declined, and they instead were seeing increasing numbers on newly constructed fences (Fig. 1). Similarly, until recently, we had always encountered Common Bamboo Pitvipers on bushes, but in the past few months, we encountered these snakes in different locations, including one easily visible on a recently constructed fence (Fig. 2), and another, just a few meters from the previous sighting, but in an area with no construction, on natural vegetation (Fig. 3). The latter observations triggered additional surveys to determine if these habitat alterations had any effect on the number and location of snakes.

Our observations led us to conclude that sightings had dwindled in areas where natural habitat had been replaced by fences, and the few snakes that we encountered were using the fences. However, the numbers of individuals found in

Fig. 1. A Common Bamboo Pitviper (*Craspedocephalus gramineus*) in an ambush foraging position on a chainlink fence at the Matheran Hill Station, Maharashtra, India. Photograph by Pramod Aher.

Reptiles & Amphibians ISSN 2332-4961
https://doi.org/10.17161/randa.v29i1.16206

Fig. 2. A Common Bamboo Pitviper (*Craspedocephalus gramineus*) easily visible on a recently constructed chainlink fence at the Matheran Hill Station, Maharashtra, India. Photograph by Mandar Sawant.

Fig. 3. A Common Bamboo Pitviper (*Craspedocephalus gramineus*) on natural vegetation just a few meters from the individual in Fig. 2 — but outside a construction zone. Photograph by Mandar Sawant.

remaining areas with minimal or no construction were equal to those prior to the clearing of vegetation for development. Although largely anecdotal, we suggest that populations of Common Bamboo Vipers are declining in altered habitats but cannot say whether increased predation or dispersal caused by a decline in the available prey base is responsible. Further conversations with local snake enthusiasts and residents indicated that not only the number but the size of snakes was declining in construction zones, suggesting that larger snakes are leaving such areas, which might not be able to sustain a large population of adult individuals. However, snakes remaining in modified habitats have adjusted to some degree by using artificial perches (i.e., fences) in lieu of natural vegetation as ambush sites.

Acknowledgements

We thank Mr. Nariman Vazifdar for his guidance, Wild Animal and Reptile Rescue Foundation and Nature's Eye Organizations for their constant valuable support, and those who encouraged us to write this paper.

Literature Cited

Daniel, J.C. 2002. *The Book of Indian Reptiles and Amphibians*. Bombay Natural Bombay Society, Mumbai, India.

Gharat, G., A. Nashirabadkar, A. Kulkarni, and P. Samruddha. 2021. Snakes of the Matheran Hill Station in Maharashtra, India, with notes on natural history. *Reptiles & Amphibians* 28: 47–51. https://doi.org/10.17161/randa.v28i1.15307.

Khaire, N. 2014. *Indian Snakes. A Field Guide*. Jyotsna Prakashan, Pune, India.

Whitaker, R. and A. Captain. 2015. *Snakes of India. The Field Guide*. Drako Books, New Delhi, India.