

Snakes of Nilachal Hill, Assam, India

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Of the 4,145 currently recognized species of snakes (Uetz et al. 2024), over 300 occur in India (Aengals et al. 2018). We herein address the diversity of snakes in an isolated forest patch in the city of Guwahati, Assam, where anthropogenic activities like road construction, deforestation, and human encroachment have led to drastic declines in the wildlife populations.

Covering an area of about 2.6 km² that includes a stream, some caves, rocky terrain, and patches of dense forest, Nilachal Hill is in the Kamrup Metropolitan District of Assam, India (26.16750, 91.71110), on the southern bank of the Brahmaputra River. Fringe areas support a developing commercial hub, with lodges, restaurants, apartments, hostels, and hospitals. During 53 morning (0900–1230 h) and evening (1600–2030 h) visits (8 person-hours each) from November 2021 to August 2023, we used visual encounter surveys to document snakes, actively searching under stones, fallen logs, trees, garbage dumps, near loose soil, streams, and along random forest trails. Snakes encountered during the study were disturbed as little as possible and photographed in the field. For identification, we used existing literature (Smith 1935, 1943; Ahmed et al. 2009) and consulted the IUCN Red List database (IUCN 2024) to determine the conservation status of the species we encountered.

We recorded 21 species of snakes in eight families and 18 genera (Table 1; Figs. 1–2); 16 of those species were listed as being of Least Concern (LC), one species was Near Threatened (NT), one was Vulnerable (VU), and three species had yet to be evaluated (NE).

Nilachal Hill lies in the city of Guwahati, and the diversity of snakes in Guwahati has been the subject of previous work. Purkayastha et al. (2011) reported 23 species of snakes from the city; Saikia (2005) reported 13 and Sengupta et al. (2016) reported 19 species of snakes from Deepor Beel; Purkayastha (2018) reported 28 species of snakes from Guwahati, and Purkayastha et al. (2020) reported 23 species of snakes from the Aamchang Wildlife Sanctuary, located on the eastern fringe of Guwahati. However, none of them reported the occurrence of *Boiga siamensis*, which was recorded during the present study. This highlights the importance of the Nilachal

Table 1. Checklist of snakes of Nilachal Hill, Assam, India. IUCN Red List status: LC = Least Concern, NT = Near Threatened, VU = Vulnerable, and NE = Not Evaluated.

Species	IUCN Red List Status
Colubridae	
Green Catsnake (<i>Boiga cyanea</i>)	LC
Thai Catsnake (<i>Boiga siamensis</i>)	LC
Ornate Flying Snake (<i>Chrysopelea ornata</i>)	LC
Copper-headed Trinket Snake (<i>Coelognathus radiatus</i>)	LC
Painted Bronze-backed Snake (<i>Dendrelaphis proarchos</i>)	NE
Common Wolfsnake (<i>Lycodon aulicus</i>)	LC
White-barred Kukri (<i>Oligodon albocinctus</i>)	LC
Indo-Chinese Ratsnake (<i>Ptyas korros</i>)	NT
Oriental Ratsnake (<i>Ptyas mucosa</i>)	LC
Elapidae	
Banded Krait (<i>Bungarus fasciatus</i>)	LC
Lesser Black Krait (<i>Bungarus lividus</i>)	LC
Monocled Cobra (<i>Naja kaouthia</i>)	LC
Homalopsidae	
Rainbow Watersnake (<i>Enhydryis enhydryis</i>)	LC
Natricidae	
Buff-striped Keelback (<i>Amphiesma stolatum</i>)	LC
Checkered Keelback (<i>Fowlea piscator</i>)	LC
Heller's Red-necked Keelback (<i>Rhabdophis helleri</i>)	NE
Pseudaspidae	
Mock Viper (<i>Pssamodynastes pulverulentus</i>)	LC
Pythonidae	
Burmese Python (<i>Python bivittatus</i>)	VU
Typhlopidae	
Diard's Blindsnake (<i>Argyrophis diardii</i>)	LC
Brahminy Blindsnake (<i>Indotyphlops braminus</i>)	LC
Viperidae	
Salazar's Pitviper (<i>Trimeresurus salazar</i>)	NE

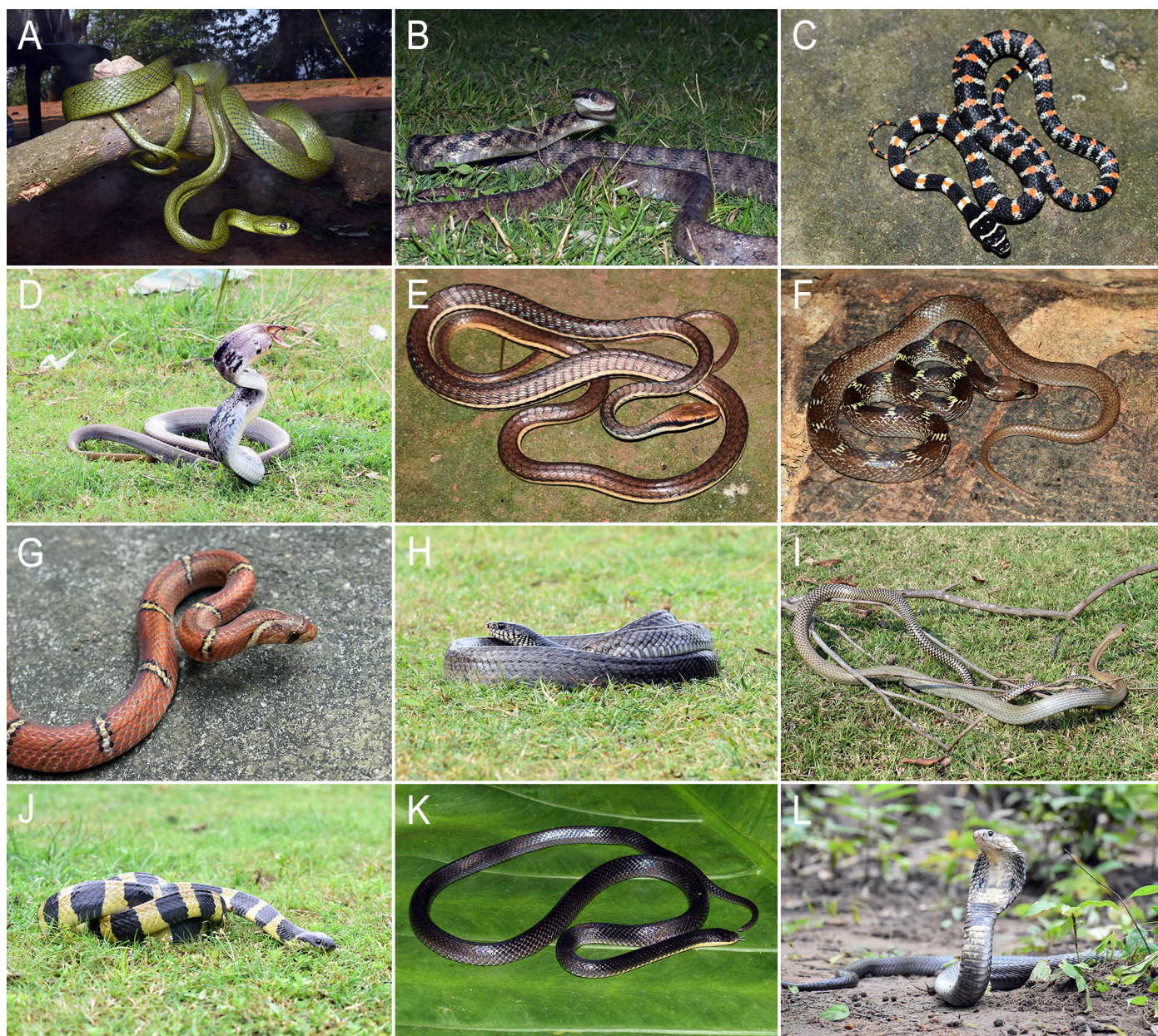


Figure 1. Snakes of Nilachal Hill, Assam, India: Green Catsnake (*Boiga cyanea*) (A); Thai Catsnake (*Boiga siamensis*) (B); Ornate Flying Snake (*Chrysopelea ornata*) (C); Copper-headed Trinket Snake (*Coelognathus radiatus*) (D); Painted Bronze-backed Snake (*Dendrelaphis proarchos*) (E); Common Wolfsnake (*Lycodon aulicus*) (F); White-barred Kukri (*Oligodon albocinctus*) (G); Oriental Ratsnake (*Ptyas mucosa*) (H); Indo-Chinese Ratsnake (*Ptyas korros*) (I); Banded Krait (*Bungarus fasciatus*) (J); Lesser Black Krait (*Bungarus lividus*) (K); Monocled Cobra (*Naja kaouthia*) (L). Photographs by Bijay Basfore.

Hill as habitat for snakes and suggests that the area provides suitable ecological conditions to support a diverse snake community, including uncommon species.

In the past few years, Nilachal Hill has seen a gradual decline in its vegetation as a result of human encroachment (Kar et al. 2012), but nevertheless harbors a unique habitat mosaic that is home to a wide variety of animals ranging from small arthropods like the Assam Tarantula (*Chilobrachys assamensis*) to large mammals like Leopards (*Panthera pardus*) (Bora et al. 2014). Many of these animals are in regular conflict with humans due to loss of breeding and foraging grounds. Our study underscores the significant snake

diversity on Nilachal Hill that, despite the pressures imposed by anthropogenic activities, continues to support a diverse ophidian fauna. This, in turn, highlights the necessity for conservation efforts to preserve remaining forest fragments not only for sustaining wildlife but also for mitigating human-wildlife conflicts in rapidly urbanizing regions.

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Figure 2. Snakes of Nilachal Hill, Assam, India (continued): Rainbow Watersnake (*Enhydryn enhydryn*) (M); Buff-striped Keelback (*Amphispma stolatum*) (N); Checkered Keelback (*Fowlea piscator*) (O); Heller's Red-necked Keelback (*Rhabdophis helleri*) (P); Mock Viper (*Pssamodynastes pulverulentus*) (Q); Burmese Python (*Python bivittatus*) (R); Diard's Blindsnake (*Argyrophis diardi*) (S); Brahminy Blindsnake (*Indotyphlops braminus*) (T); Salazar's Pitviper (*Trimeresurus salazar*) (U). Photographs by Bijay Basfore.

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Literature Cited

- Aengals, R., V.S. Kumar, M.J. Palot, and S.R. Ganesh. 2018. *A Checklist of Reptiles of India*. Zoological Survey of India, India.
- Ahmed, F., A. Das, and S.K. Dutta. 2009. *Amphibians and Reptiles of Northeast India—A Photographic Guide*. Aaranyak, Guwahati, India.
- Bora, M., S.N. Jelil, and P. Kalita. 2014. Studies on the distributional pattern and habitat utilization pattern by Indian Leopard (*Panthera pardus fusca*) in Nilachal Hill, Kamrup, Assam, India, pp. 222–226. In: Lalnuntluanga, J. Zothanzama, Lalramliana, Lalduhlthlana and H.T. Lalremsanga (eds.), *Issues and Trends of Wildlife Conservation in Northeast India*. Mizo Academy of Sciences, Aizawl, Mizoram, India.
- IUCN (International Union for Conservation of Nature and Natural Resources). 2024. *The IUCN Red List of Threatened Species*. Version 2024-2. <<https://www.iucnredlist.org>>.
- Kar, A., N.K. Goswami, and D. Saharia. 2012. Diversity of angiosperms in Nilachal Hills (Kamakhyia Hills) in Kamrup district of Assam and their uses. *Pleione* 6: 304–321.
- Purkayastha, J. 2018. Urban biodiversity: An insight into the terrestrial vertebrate diversity of Guwahati, India. *Journal of Threatened Taxa* 10: 12299–12316. <https://doi.org/10.11609/jott.3721.10.10.12299-12316>.
- Purkayastha, J., M. Das, and S. Sengupta. 2011. Urban herpetofauna: A case study in Guwahati City of Assam, India. *Herpetology Notes* 4: 195–202.
- Purkayastha, J., S. Roychoudhury, B.B. Biswa, M. Das, and S. Sengupta. 2020. Herpetofaunal diversity and conservation status in Amchang Wildlife Sanctuary of Assam, India, pp. 217–223. In: N. Roy, S. Roychoudhury, S. Nautiyal, S. Agarwal and S. Baksi (eds.), *Socio-economic and Eco-biological Dimensions in Resource Use and Conservation: Strategies for Sustainability*. Springer International Publishing, Cham, Switzerland.
- Saikia, P.K. 2005. *Qualitative and Quantitative Study of Lower and Higher Organisms and Their Functional Role in the Deepor Beel Ecosystem*. North Eastern Space Applications Centre (NESAC), Department of Space, Government of India, Umiam, Meghalaya, Shillong, Meghalaya, India.
- Sengupta, S., J. Purkayastha, M. Das, and B.K. Baruah. 2016. Herpetofaunal assemblage of Deeporbeel Ramsar Site of Assam, India. *Research Journal of Contemporary Concerns* 10: 52–57.
- Smith, M.A. 1935. *The Fauna of British India, including Ceylon and Burma. Reptilia and Amphibia. Vol. II—Sauria*. Taylor and Francis, London, UK.
- Smith, M.A. 1943. *The Fauna of British India, Ceylon and Burma, including the whole of the Indo-Chinese Sub-Region. Reptilia and Amphibia. 3 (Serpentes)*. Taylor and Francis, London, UK.
- Uetz, P., P. Freed, R. Aguilar, F. Reyes, J. Kudera, and J. Hošek (eds.). 2024. *The Reptile Database*. <<http://www.reptile-database.org>>.