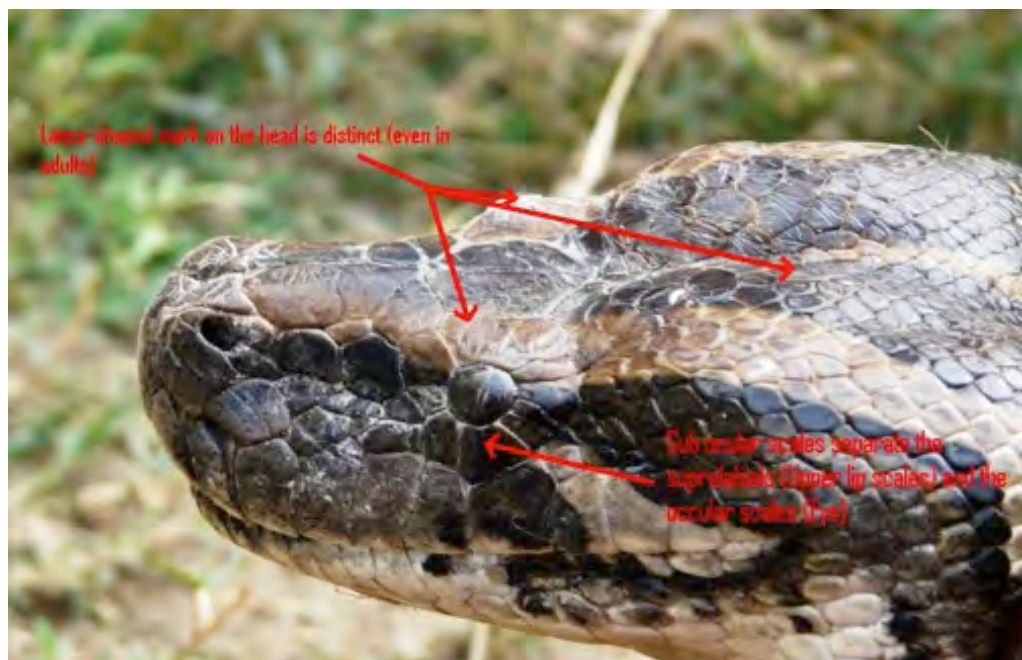


BURMESE PYTHON

Python bivittatus: An addition to the reptiles of Hastinapur Wildlife Sanctuary, Uttar Pradesh, India



IUCN Red List:
Global –
Vulnerable A2acc
(Stuart et al. 2012)

Identification feature of Burmese Python, *Python bivittatus*

Reptilia
[Class of Reptiles]

Squamata
[Order of Scaled reptiles]

Pythonidae
[Family of Pythons]

Python bivittatus
[Burmese Python]

Species described by
Kuhl in 1820

Pythons are the large non-venomous snakes belonging to family Pythonidae. These ambush predators are found in sub-Saharan Africa, South-east Asia and Australia (McDiarmid et al. 1999). Thirty one python species are found worldwide, of which three i.e. Reticulated Python (*Malayopython reticulatus*), Indian Rock Python (*Python molurus*), and Burmese Python (*Python bivittatus*) are found in India. Earlier, the Burmese Python was considered as Indian Rock Python (Whitaker and Captain 2004) however now both are considered as distinct species (Jacobs et al. 2009).

Morphologically, both species can easily be differentiated through the position of labial scales, head markings and colour of their bifurcated tongue. Indian Rock Python is distinguished with sixth/seventh labial touched the eye, having unclear lance-shaped mark on the top of the head and pink tongue in adults. While in Burmese Python, the labials are separated from the eye

by sub-oculars, lance-shaped mark on the head is clear and darker tongue i.e. blue-black in colour (Smith 1943; Daniel 2002; Whitaker and Captain 2004).

Burmese pythons are found throughout Southern and Southeast Asia, including eastern India, Nepal, western Bhutan, south-eastern Bangladesh, Myanmar, Thailand, Laos, Cambodia, Vietnam, northern continental Malaysia, Southern China (Barker and Barker 2010), Hong Kong, and



Location map of Hastinapur Wildlife Sanctuary, Uttar Pradesh, India

Indonesia (Barker and Barker 2008). An introduced population of Burmese Pythons has also survived in South Florida since the late 1990s (Pyron et al. 2008) where it has had detrimental impacts on native fauna, and has recently been blamed for localized declines of up to 99% in encounter rates of several common native mammal species since 2000 in some parts of the Everglades National Park, as well as the apparent loss of introduced rabbits and foxes from these sites (Dorcas et al. 2012). Three isolated sub-populations have been reported from India i.e. (1) Corbett-Rajaji subpopulation in Uttarakhand (Bhupathy 1995; Joshi and Singh 2015), (2) North-east subpopulation along Brahmaputra (Barker and Barker 2008), and (3) Eastern subpopulation in Kolkata and Bhitarkanika National Park (Barker and Barker 2008).

The species is predominantly associated with rivers and lakes (Goodyear, 1994) found in tropical lowland forest, mangroves, rain forests, wet grasslands and coastal plains habitat in its distribution range (Barker and Barker 2008). There is evidence of extensive and widespread population declines of the Burmese Python throughout its range of distribution (Stuart et al. 2012). According to an estimate its population have been declined by at least 30% over the past ten years across its global range as a result of over-harvesting for a variety of uses, to some extent compounded by the effects of habitat loss, and with the drivers of this decline not having ceased. The species is therefore classified as Vulnerable in IUCN RedList (Stuart et al. 2012).



Table 1. List of reptilian species encountered in the region of Hastinapur Wildlife Sanctuary
(Source: Management plan of Hastinapur Wildlife Sanctuary 2003 – 2012, Uttar Pradesh, India, Uttar Pradesh Forest Department. pg 283)

S.No.	Family	Species Name	Common Name	Conservation Status [IUCN; Srinivasulu et al. 2014']
1	Geoemydidae	<i>Geoclemys hamiltonii</i>	Spotted Pond Turtle	Vulnerable
2		<i>Batagur dhongoka</i>	Three-striped Roof Turtle	Endangered
3		<i>Batagur kachuga</i>	Red-crowned Roofed Turtle	Critically Endangered
4		<i>Pangshura tecta</i>	Indian Roofed Turtle	Least Concern
5		<i>Pangshura tentoria</i>	Indian Tent Turtle	Least Concern
6		<i>Melanochelys tricarinata</i>	Three-keeled Land Turtle	Vulnerable
7		<i>Morenia petersi</i>	Indian Eyed turtle	Vulnerable
8		<i>Pangshura smithii</i>	Brown Roofed Turtle	Near Threatened
9		<i>Melanochelys trijuga</i>	Indian Black Turtle	Near Threatened
10	Trionychidae	<i>Lissemys punctata</i>	Indian Flap-shell turtle	Least Concern
11		<i>Nilssonina gangetica</i>	Indian Softshell Turtle	Vulnerable
12		<i>Nilssonina hurum</i>	Indian Peacock Softshell Turtle	Vulnerable
13		<i>Chitra indica</i>	Indian Narrow-headed Softshell Turtle	Endangered
14	Varanidae	<i>Varanus bengalensis</i>	Bengal Monitor Lizard	Least Concern
15	Agamidae	<i>Calotes versicolor</i>	Oriental Garden Lizard	-
16	Gekkonidae	<i>Hemidactylus brookii</i>	Brooke's House Gecko	-
17		<i>Hemidactylus flaviviridis</i>	Yellow-bellied House Gecko	-
18	Scincidae	<i>Eutropis carinata</i>	Keeled Indian Mabuya	Least Concern
19	Pythonidae	<i>Python molurus</i>	Indian Rock Python	Near Threatened'
20		<i>Python bivittatus</i>	Burmese Python	Vulnerable
21	Colubridae	<i>Ptyas mucosa</i>	Indian Rat Snake	Least Concern'
22	Elapidae	<i>Naja naja</i>	Spectacled Cobra	Least Concern'
23		<i>Bungarus caeruleus</i>	Indian Krait	-
24		<i>Bungarus fasciatus</i>	Banded Krait	Least Concern
25	Viperidae	<i>Vipera russelli</i>	Russell's Viper	-
26		<i>Gloydius himalayanus</i>	Himalayan Pit Viper	-
27	Homalopsidae	<i>Enhydris enhydris</i>	Rainbow Water Snake	Least Concern
28	Tuphlopidae	<i>Typhlops vermicularis</i>	European Blind Snake	-
29	Boidae	<i>Eryx johnii</i>	Indian Sand Boa	Near Threatened'
30	Crocodylidae	<i>Crocodylus palustris</i>	Mugger Crocodile	Vulnerable
31	Gavialidae	<i>Gavialis gangeticus</i>	Gharial	Critically Endangered

While conducting a survey of Gharials *Gavialis gangeticus*, two consecutive observations of adult Burmese Python were made in the Hastinapur Wildlife Sanctuary (29°25' to 29°40'N & 78°05' to 79°05'E) in Uttar Pradesh, India in 2009. The sanctuary is spread over an area of 2,073 km² along the banks of River Ganges in western Uttar



Rescue of Burmese Python, *Python bivittatus*: a. at forest rest house and b. Sugarcane field

Pradesh. It was established in 1986 to conserve the fast vanishing, unique Gangetic grassland-wetland complex locally known as *Khadar* (Khan et al. 2003). It is unique in the sense that it presents a variety of landforms and habitat types that include wetland, marshes, dry sandy beds and gently sloping ravines (Khan et al. 2014). River Ganga and its old bed, locally called as *Boodhi* Ganga forms the drainage system of the Sanctuary. Due to extensive agriculture practices most of the Boodhi Ganga has drained out and converted into agriculture field. These discontinuous marshy patches of Boodhi Ganga with the profuse growth of vegetation like *Phragmites* sp., *Arundinella* sp. and *Typha* sp. etc. gives an ideal habitat and escape cover to the species. The first observation was made on November 14, 2009 in the sugarcane field in Hastinapur Range (29°04' 51.40"N, 78°03' 46.10"E), and the other was made on December 28, 2009 near the Forest rest house of Hastinapur Range (29°09' 16.73" N, 77°59' 58.44"E). Both the snakes were adults and all identification features were clear. The lengths of the snakes were 2.3m and 3.1m respectively. On both incidences, the photographs were taken using digital camera. The species was identified based on the identification features described by Smith (1943), Daniel (2002), and Whitaker & Captain (2004). This is the first reporting of this species from Hastinapur Wildlife Sanctuary. The present finding increased the number of reptilian's species found in Hastinapur Wildlife Sanctuary to 31 and now it includes 13 turtle species, four lizards/skinks, two crocodylians and 12 snakes (Table 1).

Globally, the species is under threat due to illegal trade; It has been heavily impacted by overexploitation for food and skins (CITES 2011). It is also export to supply the pet trade, and consumption in snake wine (Stuart et al. 2012). In India, there is baseline data on the conservation status and distribution of the species. Pythons also often become victims of human-animal conflict. Increasing developmental activities along its distribution range, habitat destruction, lack of awareness among locals about the species,



are some obvious threats to the species.

Acknowledgments

The authors are grateful to Mr. Ravi Singh (SG & CEO, WWF-India), Dr. Sejal Wohra (Programme Director, WWF-India), Mr. Suresh Babu (Director, RBWP, WWF-India) and field team (Hastinapur Field Office, WWF-India) for their constant support throughout the study. We are also thankful to Mr. Mukesh Kumar (CCF, Meerut), Mr. Lalit Verma (CF, Meerut) and Ms. Aditi Sharma (DFO, Meerut) for granting permissions and field support. Authors also thank Ms. Zarreen Syed (Programme Officer-The Corbett Foundation) for her valuable suggestions on the manuscript.

References

- Barker, D.G. & T.M. Barker (2008).** "The Distribution of the Burmese Python, *Python molurus bivittatus*". *Bulletin of the Chicago Herpetological Society*. 43(3): 33–38.
- Barker, D.G. & T.M. Barker (2010).** "The Distribution of the Burmese Python, *Python bivittatus*, in China". *Bulletin of the Chicago Herpetological Society*. 45(5): 86–88.
- Bhupathy, S. (1995).** Distribution of *Python molurus bivittatus* in India. *Cobra* 21: 2-5.
- CITES (2011).** Asian Snake Trade Workshop in China. https://cites.org/eng/news/pr/2011/20110418_snake_outcomes.php
- Daniel, J.C. (2002).** The Book of Indian Reptiles and Amphibians. Bombay Natural History Society, Oxford University Press, Mumbai.
- Dorcas, M.E., J.D. Wilson, R.N. Reed, R.W. Snow, M.R. Rochford, M.A. Miller, W.E. Mesheka Jr., P.T. Andreadis, F.J. Mazzotti, C.M. Romagosa & K.M. Hart (2012).** Severe mammal declines coincide with proliferation of invasive Burmese pythons in Everglades National Park. *Proceedings of the National Academy of Sciences* 109(7): 2418-2422.
- Jacobs, H.J., M. Auliya & W. Böhme (2009).** On the taxonomy of the Burmese Python, *Python molurus bivittatus* KUHL, 1820, specifically on the Sulawesi population. *Sauria* 31(3): 5-11.
- Joshi, R. & A. Singh (2015).** Range extension and geographic distribution records for the Burmese Python, *Python bivittatus* Kuhl 1820 (Reptilia: Pythonidae) in North-western India. *IRCF Reptiles & Amphibians*. 22(3): 102-105.
- Khan, M.S., N.K. Dimri, A. Nawab, O. Ilyas & P. Gautam (2014).** Habitat use and conservation status of Smooth-coated Otters *Lutrogale perspicillata* in Upper Gangetic Basin, India. *Animal Biodiversity Conservation* (37.1). 69-76.
- Khan, J.A., A. Khan, & A.A. Khan (2003).** Structure and composition of barasingha habitat in Hastinapur Wildlife Sanctuary. Technical Report. Wildlife Society of India, Aligarh Muslim University, Aligarh. 5-7.
- McDiarmid, R.W., J.A. Campbell & T. Touré (1999).** *Snake Species of the World: A Taxonomic and Geographic Reference*, vol. 1. Herpetologists' League. 511 pp.
- Pyron, R.A., F.T. Burbrink & T.J. Guiher (2008).** Claims of Potential Expansion throughout the U.S. by Invasive Python Species Are Contradicted by Ecological Niche Models. *PLoS ONE* 3(8): e2931. doi:10.1371/journal.pone.0002931
- Smith, M.A. (1943).** The Fauna of British India. Reptilia and Amphibia (Vol. III – Serpents). Today and Tomorrow's Printers and Publishers, New Delhi.
- Srinivasulu, C., B. Srinivasulu & S. Molur (Compilers) (2014).** The Status and Distribution of Reptiles in the Western Ghats, India. Conservation Assessment and Management Plan (CAMP). Wildlife Information Liaison Development Society, Coimbatore, Tamil Nadu.
- Stuart, B., T.Q. Nguyen, N. Thy, L. Grismer, T. Chan-Ard, D. Iskandar, E. Golynsky, & M.W.N. Lau (2012).** *Python bivittatus*. The IUCN Red List of Threatened Species 2012: e.T193451A2237271. <http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T193451A2237271.en>. Downloaded on 22 February 2017.
- Whitaker, R. & A. Captain (2004).** Snakes of India: The Field Guide. Draco Books, Chennai, India.

Sanjeev Kumar Yadav¹, Afifullah Khan² & Mohd Shahnawaz Khan³

^{1&3} Rivers, Wetlands and Water Policy, WWF-India, 172-B Lodi Estate, New Delhi - 110 003

² Department of Wildlife Science, Aligarh Muslim University, Aligarh - 202 002

Email: 'syadav@wwfindia.net (Corresponding author)

Citation: Yadav, S.K., A. Khan & M.S. Khan. (2017). Burmese Python: *Python bivittatus*: An addition to the reptiles of Hastinapur Wildlife Sanctuary, Uttar Pradesh, India. *Reptile Rap*#175. In: *Zoo's Print* 32(8): 25:29