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First Occurrence Report of Rare Leucistic Spectacled Cobra, *Naja naja* (Linnaeus 1758) In Maharashtra India

Vivek Bawankule^{1,2}, Ashish Walthare^{1,2}, Sudhir Bhandarkar^{2,3*}

¹Field Biologist, Green friends Nature Conservation and Multipurpose Society Lakhani, Dist. Bhandara, Maharashtra, India

²Field Biologist, Aranyayatri Wildlife Foundation, Lakhani, Bhandara, Maharashtra, India

³Head, Department of Zoology, M. B. Patel College, Deori, Gondia, Maharashtra, India

*Corresponding author: sudhirsense@gmail.com

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ABSTRACT

A member of the genus *Naja* that is widely distributed throughout India is the spectacled cobra (*Naja naja*), often known as the Indian cobra. It is one among the "big four" poisonous snakes that are frequently seen in India. Geographical regions have a significant impact on the Spectacled Cobra's color (morph) and pattern. This species might be grey, yellow, tan, brown, reddish, or black in color. A hood mark with two circular motifs joined by a curving line and resembling glasses is seen on several specimens. The back of the Spectacled Cobra's hood is where this hood mark may be found. The striking hood of this species makes it simple to identify it. Albinism, axanthism, erythrism, hypomelanism, melanism, and piebaldism are few of the fundamental forms of color aberrations that have been identified in reptiles. 'Leucism' is another type of color alteration brought on by a complete absence of pigments. When a reptile is leucistic, its skin and scales are essentially white, blotchy, or pale. It may impact the reptile's complete body surface or just certain areas. In essence, the animal may have some white regions and other sections of its natural color on its body. In Maharashtra especially Bhandara, Gondia, Chandrapur and Gadchiroli Districts harbors significant biodiversity of reptiles, only few anecdotal as well as scientific information have been noticed about the occurrence of albino or merolepid morphs of genus of *Naja* but there was no scientific documentation found throughout the Maharashtra state regarding leucism in *Naja*. In the present report of occurrence of leucistic form of genus *Naja* is discussed for the first time in Maharashtra.

Key words: First Report, Leucism, Leucistic Spectacled Cobra, Bhandara, Maharashtra.

INTRODUCTION

The majority of white animals observed in the field are leucistic; they have abnormally white colouring, either completely or in part, and often have eyes with normal colors. On the other side, albinos are completely white yet have pink or red eyes. Albino animals are seldom found in the wild. They frequently have weak eyesight in addition to being noticeable to predators. However, both wild and domestic animal populations are rife with leucistic species. Among the abnormal color variations are albinism, leucism, melanism, and piebaldism (Abreu

et al. 2013; Lucati and López-Baucells 2017). Leucism, sometimes referred to as partial albinism, is a rare color defect in organisms caused by the lack of melanin in the skin; however, unlike true albinos, leucistic snakes have pigmented eyes (Bechtel 1991, 1995; Owen & Skimmings 1992; Chaudhuri et al., 2018). Body color is a multifunctional feature that frequently exhibits complex variation (Kemp et al. 2005; Bury et al. 2020). Because the essential roles of a particular color variation have been lost, discontinuous phenotypes are therefore widely believed to have fitness costs (Bury et al. 2020). Indian serpents have been reported to have aberrant

colorations more often in recent years, including albinism and leucism (Devkota et al., 2020; Deshmukh et al. 2020; Mukherjee & Mohan 2021). Although there is a significant diversity of reptiles in Maharashtra, the reptile fauna of the Bhandara and Gondia district region is yet not well understood. New species might appear in the Bhandara and Gondia districts, which are home to a diverse range of plants and animals. The Bhandara and Gondia area is highly known for its rice farming, historical sites, and freshwater fishing. Bawankule et al. 2021, Bhandarkar et al., 2012, Paliwal and Bhandarkar 2017a; 2017b, Bhandarkar & Paliwal 2021 are only a few of the research on herpetofauna from Bhandara and Gondia district that have been published. In Maharashtra, particularly in the districts of Bhandara, Gondia, Chandrapur, and Gadchiroli of Nagpur division, there are only a few anecdotal as well as general information was available about the existence of albino or merolepid morphs of the genus *Naja*, and there is no scientific document or report of

leucism in *Naja* anywhere in the state of Maharashtra. In the current study, it is revealed that Maharashtra has never before recorded the leucistic variety of the genus *Naja*.

METHODOLOGY

The observation was noted, recorded, and documented with photographic evidences during the general opportunistic survey conducted over a lengthy period of time for biodiversity research. The species was sited (Fig. 1) in the backyard of a villagers house of Gadegaon situated nearby dry agriculture land and forest buffer near Lakhani town in the Bhandara district of Maharashtra (21.0831812°N, 79.7954557°E). The organism was safely obtained by hand and released an hour later following data collection. With the help of the accessible Standard literatures, the description and mensural characteristics were captured.

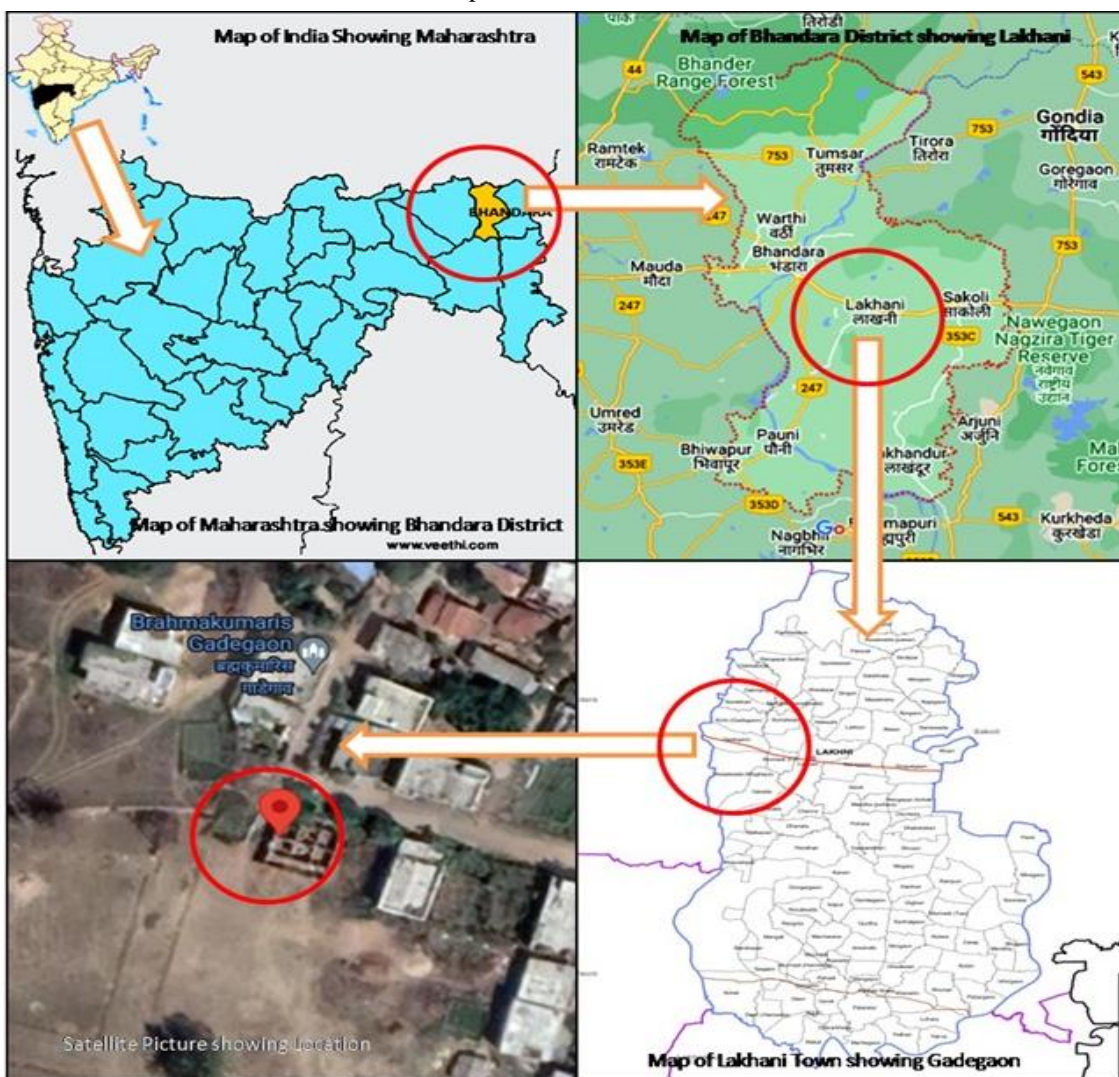


Fig. 1: The Map showing the location of occurrence of the Leucistic genus of *Naja*

RESULTS

Species Description

The presence of a hood and the distinct mark on the rear of the hood make it simple to recognize a *Naja naja*. The hood only spreads when the snake is agitated, and in some cases, the hood markings are also missing. Scales have an oval form and are smooth on the body. Yellow, all hues of brown, grey, reddish, black, or black blended with blue, purple, or red, among other colors, are examples of dorsal colors. Scales on the top of the dorsal region are thin and eventually become pointed, whilst side dorsal scales are wider and obviously oval-shaped. Regional geography has a big impact on color. The population of coastal states such as Maharashtra, South India as a whole, Andhra Pradesh, Orissa, West Bengal, etc., is mostly yellow and brown in tone. The posterior body occasionally possesses dark-colored obtuse bands. Conversely, the people of Central, Northern, and

Western India are distinguished by their dark brown or black skin tones. Many animals exhibit leucism, a condition in which a portion of the animal's typical coloring is lacking. Not just melanin but a variety of pigment types are lacking, which is the cause. In the present investigation, genus of *Naja*, the Leucistic form of *Naja* (♀) has identical characteristics with black eyes, revealing it as a Leucistic and not an albino. SVL-167 cm, TL-20 cm.

Distribution range: The genus *Naja* is widely distributed Asian continent and south Asian subcontinent, India, Afghanistan, Myanmar, Sri Lanka, Pakistan, Bangladesh, Nepal and Bhutan, Indomalayan and Palearctic Biogeographical realms. In India, it is distributed throughout most of the country, including Madhya Pradesh, Assam, Tamil Nadu, Punjab, Maharashtra, Kerala and Gujarat. It is placed under of Appendix II of CITES status, while the protection legal status is Schedule 2 under Wildlife Protection Act (1972).



Fig. 2: The Leucistic form of genus *Naja* (A-F) showing A. Complete body settled at the ground, B. Exhibiting Hood from Ventral side, C. Body with mode of movement, D. showing head region with Black (Pigmented) eye, E. the body texture, and F. the Hood Dorsum with no mark.

DISCUSSION

Facts about albino wild animal sightings were infrequently reported in newspapers across India; albinism and Leucism in snakes is exceptionally unusual compared to other species. In India, where human-snake interaction are fairly common, citizen-science projects that involve snake rescuers and examine data from snake rescues might give researchers valuable baseline information on a range of problems, including color discrepancies (Mukherjee and Mohan, 2021). During the present survey of herpetofauna in Bhandara and Gondia district of Maharashtra, rescue calls for conserving and rehabilitation of reptiles have been placed by the villagers. One of rescue call resulting in the finding of this investigation of genus *Naja*, it was single the Leucistic form of *Naja* (♀) found near the vicinity of one of house in Gadegaon village, situated in Lakhani Tahsil of District Bhandara, Maharashtra. The identification was done by its presence of hood. The said species has not regular pigmentation of the whole body, with milky white colour. Primarily it seems to be albino but confirms that it was Leucistic one because of it has identical characteristics with black eyes, revealing it as a Leucistic and not an albino. Adult (♀) SVL was 167 cm, TL was 20 cm. On the back of the hood, the majority of individuals have a visible pale double eye shaped marking (Spectacled); however in this Leucistic species lacks that marking. While leucistic organisms often have darkly pigmented eyes, albinos typically have pink eyes (Wareham 2005). A recessive gene causes Leucism, which is a partial lack of pigmentation (Owen and Skimmings 1992; Wareham 2005). Leucism and albinism in Indian snakes have been previously documented in the Indian Rock Python (*Python molurus*), Common Krait (*Bungarus caeruleus*), Russell's Viper (*Daboia russelli*), Checkered Keelback (*Fowlea piscator*), Common Trinket Snake (*Coelognathus helena helena*), Common Sandboa (*Eryx conicus*), Common Kukri Snake (*Oligodon arnensis*), Red Sandboa (*Eryx johnii*), Green Keelback (*Rhabdophis plumbicolor*), Lesser Black Krait (*Bungarus lividus*), Spectacled Cobra (*Naja naja*), and Indian Ratsnake (*Ptyas mucosa*) are some examples of snakes (Mukherjee and Mohan, 2021). Leucism can be identified by white skin or hair coloration, spots, patches, or splotches. Leucism may also be recognized from albinism due to the fact that it does not harm the pigment cells in the eyes. Previous research has shown that Indian reptiles in general and snakes in particular can exhibit leucism or albinism. This research includes work by Lahiri (1955), Whitaker (1971), Kumar (1988), Basu et al., (2003), Cyril (2009), Sayyed (2012), Vyas (2012, 2013), Vyas et al., (2012), Hoshing et al., (2013), Bhutkar and Mahabal (2014), Jadhav et al., (2014). A comprehensive assessment on the aberrant colors and patterns in the Indian herpetofauna was also

provided by Mahabal and Thakur (2014). There are very scientific reports available in Maharashtra, Deshmukh et al., (2020) reported 06 species of snakes albinism or leucism from Nagpur (Central India) Maharashtra; Common Sand Boa (*Eryx conicus*); Green Keelback (*Rhabdophis plumbicolor*); Checkered Keelback (*Fowlea piscator*); Indian Wolf Snake (*Lycodon aulicus*); Common Kukri Snake (*Oligodon arnensis*); Common Indian Krait (*Bungarus caeruleus*). Choure et al., (2021) reported Leucistic Indian rat snake (*Ptyas mucosa*) from Nagpur Maharashtra. The present paper reveals that, the occurrence of Leucistic spectacled cobra (*Naja naja*) in Bhandara District is the first report in the Maharashtra State of India.

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