

SHORT COMMUNICATION

# First report of leucism in *Bungarus caeruleus* (Serpentes: Elapidae) from West Bengal, India

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**Palavras-chave:** albinismo, albinismo parcial, leucismo, serpente Krait-indiana.

*Bungarus caeruleus* (Schneider, 1801), commonly known as the Common Krait, is a medium-sized venomous snake, which is black or bluish black above with narrow, white cross bands that usually are arranged more or less distinctly in pairs (Figure 1); the venter is white and the vertebral scales hexagonal (Smith 1943, Das 2002). The snake is widespread in the plains, sparsely wooded forests, and agricultural fields and is quite common in and around human habitation. The range of *B. caeruleus* includes most of the Indian mainland up to 1700 m (Whitaker and Captain 2008), as well as Afghanistan, Pakistan, Nepal, and Sri Lanka (Das 2002). The diet of this nocturnal snake primarily consists of snakes, but mice, frogs, and lizards are eaten occasionally. Cannibalism also has been recorded (Das 2002).

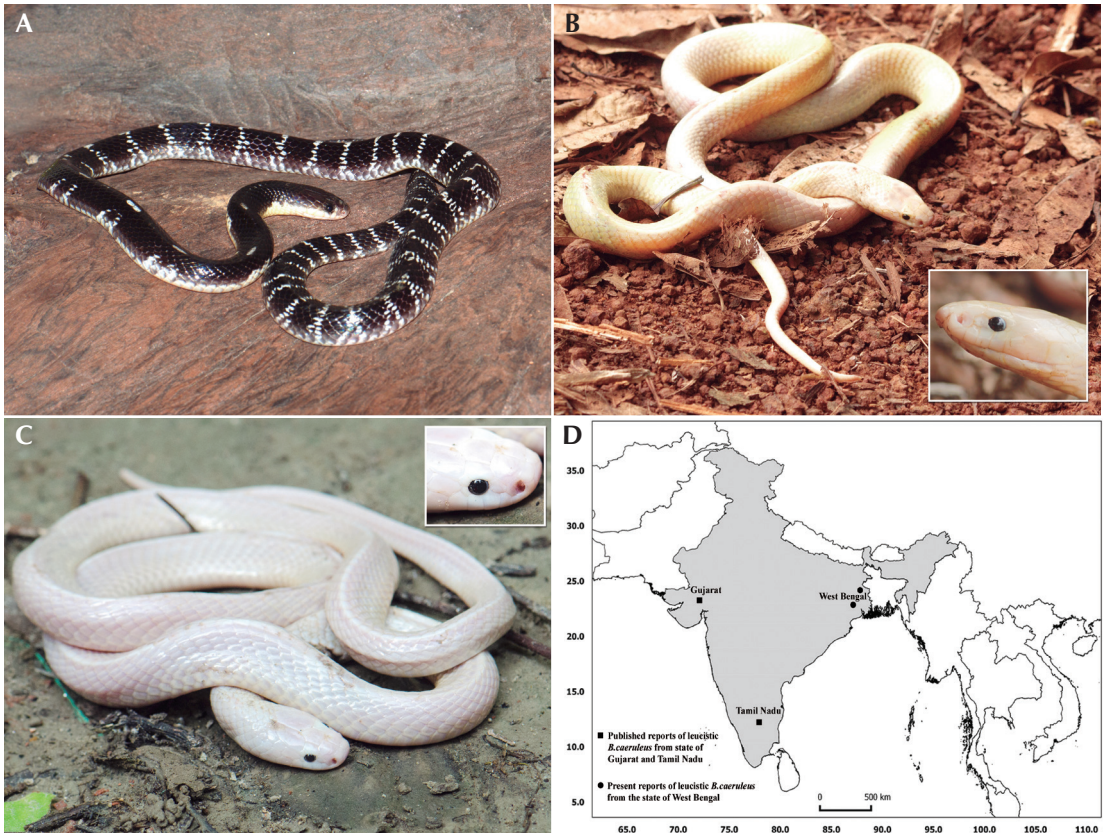
Leucism and partial albinism occur when an organism's body has reduced coloration owing

to a lack of melanin that is caused by a single recessive allele that affects melanin and pigment delivery (Owen and Skimmings 1992). Typically, the eyes, legs, and beaks are pigmented (Sage 1962). These inherited color defects are well-known phenomena in snakes (Bechtel 1995). Leucistic snakes usually are white and lack a body pattern because they have few iridophores, and few or no melanophores and xanthophores (Bechtel 1991); however, they have pigmented eyes that usually are black or blue (Wareham 2005). In contrast, total albino snakes have red eyes and a yellowish or pinkish coloring owing to the presence of xanthophores and eritrophores that usually form visible patterns on their bodies (Silvestre *et al.* 2009, Silva *et al.* 2010, Abegg *et al.* 2015). Leucism is inherited and may skip generations if the leucistic genes are recessive. The extent and pattern of pigmentation loss may vary individually (Lobo and Sreepada 2016).

Leucism in wild populations is uncommon (Walter 1938, Bechtel 1991, Krecsák 2008). Lacking melanophores and xanthophores, such snakes are unable to thermoregulate properly in nature (Kornilios 2014). A weak thermoregulatory

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**Figure 1.** (A) *Bungarus caeruleus*, showing typical coloration; (B) leucistic *B. caeruleus* from Sabang Village Block in West Midnapore District, West Bengal, India; (C) leucistic *B. caeruleus* from Baharu Village near Jaynagar, West Bengal, India; (D) map showing previous and present published reports of leucistic *B. caeruleus* from India.

system has a negative effect on locomotion and digestion in snakes (Stevenson *et al.* 1985). In addition, leucistic snakes cannot camouflage themselves; hence, they are easily detected by prey and predators. These factors doubtless affect the survival rate and fitness of the snakes (Kreicsák 2008).

Such unusual color morphs in *Bungarus caeruleus* have been reported from the states of Gujarat (Vyas 2009, 2014) and Tamil Nadu (Ganesh and Chandramouli 2011) in India. Here we report two more instances of leucism in *B. caeruleus* from the southern part of West Bengal, India.

On 09 September 2017, KC rescued a white *Bungarus caeruleus* (sex unknown) at 19:30 h from Sabang Village Block in West Midnapore District, West Bengal, India ( $22^{\circ}17'57.36''$  N,  $87^{\circ}59'75.17''$  E; 11 m a.s.l.) (Figure 1B). On 22 October 2017, AC rescued a white female *B. caeruleus* at 14:15 h from a village house in Baharu near Jaynagar, West Bengal, India ( $22^{\circ}20'58.19''$  N,  $88^{\circ}49'81.62''$  E; 4.8 m a.s.l.) (Figure 1C). Both individuals were measured and examined, and then handed over to personnel at range offices of the Department of Forest for release in their natural habitat.

The snakes were identified with keys provided by Whitaker and Captain (2008). Following the protocol of Whitaker and Captain (2008), the scalation of both individuals is as follows: dorsal rows 15:15:15; preoculars 1; postoculars 2; temporals 1 + 2; supralabials 7; loreal absent; anal undivided; subcaudals entire; vertebral scales hexagonal. In Specimen 1 (from Sabang Village Block in West Midnapore District, West Bengal, India), ventrals 209, subcaudals 43, total length 850 mm. In Specimen 2 (from Baharu near Jaynagar, West Bengal, India), ventrals 205, subcaudals 35, and total length 710 mm. All morphological parameters fall within the ranges described in Whitaker and Captain (2008). Both snakes were white with black eyes, and lacked any other pigmentation on their bodies, both dorsally and ventrally.

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## References

- Abegg, A. D., O. M. Entiauspe-Neto, and T. Lema. 2015. First record of albinism in the Elapomorhini tribe (Serpentes: Dipsadidae). *Herpetology Notes* 8: 503–505.
- Bechtel, H. B. 1991. Inherited color defects. Comparison between humans and snakes. *International Journal of Dermatology* 30: 243–246.
- Bechtel, H. B. 1995. *Reptile and Amphibians Variants: Colour, Patterns and Scales*. Malabar. Krieger Publishing. 224 pp.
- Das, I. 2002. *A Photographic Guide to Snakes and Other Reptiles of India*. London. New Holland Publishers LTD. 50 pp.
- Ganesh S. R. and S. R. Chandramouli. 2011. Report of some noteworthy specimens and species of herpetofauna from south-east India. *Taprobanica* 3: 5–10.
- Kornilios, P. 2014. First report of piebaldism in scolecophidians: a case of *Typhlops vermicularis* (Squamata: Typhlopidae). *Herpetology Notes* 7: 401–403.
- Krečsák, L. 2008. Albinism and leucism among European Viperinae: a review. *Russian Journal of Herpetology* 15: 97–102.
- Lobo, J. V. and K. S. Sreepada. 2016. First report of leucism in *Python molurus molurus* (Serpentes: Pythonidae) from Mangalore, Karnataka, India. *Phyllomedusa* 15: 199–200.
- Owen M. and P. Skimmings. 1992. The occurrence and performance of leucistic Barnacle Geese *Branta leucopsis*. *Ibis* 134: 22–26.
- Sage, B. L. 1962. Albinism and melanism in birds. *British Birds* 55: 201–225.
- Silva, F., C. Assis, and F. M. Quintela. 2010. Albinism in a *Liophis miliaris* (Linnaeus, 1758) (Serpentes: Dipsadidae) from Minas Gerais state, southern Brazil. *Herpetology Notes* 3: 171–172.
- Silvestre, A. M., J. Soler, J. M. Gener, M. García, and C. Martí. 2009. Albinismo total de *Coronella girondica* en la Península Ibérica. *Boletín de la Asociación Herpetologica Española* 20: 44–45.
- Smith, M. A. 1943. *The Fauna of British India, Ceylon, and Burma, Including the Whole of the Indo-Chinese Sub-region. Reptilia and Amphibia. Volume III, Serpentes*. London. Taylor and Francis. 413 pp.
- Stevenson, R. D., C. R. Peterson, and J. S. Tsuji. 1985. The thermal dependence of locomotion, tongue flicking, digestion, and oxygen consumption in the wandering garter snake. *Physiological Zoology* 58: 46–57.
- Vyas, R. 2009. Albinism in the common krait, *Bungarus caeruleus* (Schneider, 1801). *Sauria* 31: 57–58.
- Vyas, R. 2014. Report on some remarkable specimens with unusual color morph recorded from two species of snakes (Reptilia: Serpentes) from Gujarat, India. *Russian Journal of Herpetology* 21: 47–52.
- Walter, H. E. 1938. *Genetics: an Introduction to the Study of Hereditary*. 4<sup>th</sup> Edition. New York. Macmillan. 412 pp.
- Wareham, D. C. 2005. *Elsevier's Dictionary of Herpetological and Related Terminology*. Amsterdam. Elsevier. 240 pp.
- Whitaker, R. and A. Captain. 2008. *Snakes of India, The Field Guide*. Chennai. Draco Books. 290 pp.

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