

New Record of Banded Krait *Bungarus fasciatus* (Schneider, 1801) from Ranchi (Jharkhand) with its Preying on Checkered Keel-Back Snake

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ABSTRACT: In India Banded Krait *Bungarus fasciatus* (Schneider, 1801) commonly occurs in north-eastern India (Arunachal Pradesh, Assam, Manipur, Mizoram, Meghalaya, Nagaland and Tripura) but becomes lesser towards north-west, west, south and south-east (Uttarakhand in north-west; Chhattisgarh and Madhya Pradesh in central India; Maharashtra in west; Karnataka, Kerala and Tamil Nadu in south and Andhra Pradesh and Odisha in south-east). In Jharkhand it was recorded from Bokaro and Hazaribagh districts but presently it has been found in Ranchi district also, preying on Checkered Keel-back Snake which is a new record and adds to its distribution in the state.

In present communication its synonymy, diagnostic features, altitudinal range, distribution, habitat, food & feeding, breeding, nature & behaviour, bite, venom & treatment, conservation status, threats and preying on Checkered Keel-back Snake are provided.

Keywords: New record of Banded Krait from Ranchi with its preying on Checkered Keel-back Snake.

INTRODUCTION

The records of distribution of *Bungarus fasciatus* (Schneider, 1801), the Banded Krait, in Jharkhand State have been from Bokaro and Hoshangabad districts only (Wikipedia; telegraphindia.com). During present study, a Banded Krait, preying on Checkered Keel-back snake (*Fowlea piscator*, Schneider, 1799), was sighted at Ormanjhi in Ranchi district which was found to be the new find from Ranchi and additional record for the state.

As regards preying nature on snakes, it may not be unusual for it as being partial to ophidian diet and has been recorded feeding on other snakes (buff-striped keelback, cat snake, checkered keel-back, cobra, krait, python, rat snakes, sunbeam snake, tree snake, trinket snakes, vine or whip snake, viper, water snake etc.), as per their availability, by various workers (Primrose, 1899; Wall, 1911; Daniel, 2002; Das, 2002; Whitaker & Captain, 2008; Srinivasulu *et al.*, 2009; Purkayastha, 2013; Knierim *et al.*, 2017).

***Bungarus fasciatus* (Schneider, 1801)**

Banded Krait

Synonymy: *Pseudoboa fasciata* Schneider, 1801. *Hist. Amph.*, 2: 283-284 (type-locality: Indien; restricted to Mansoor Cottah, Bengal, India (Ganjam, Orissa State, SE India, at present a seaport ca.24 km south of Ganjam, Odisha) vide Russell, 1796).

Boa fasciata, Shaw, 1802. In: Species 2000 & ITIS Catalogue of Life: 2019, Catalogue of Life; In: GBIF Secretariat (2019). GBIF Backbone Taxonomy.



Fig. 1. *Bungarus fasciatus*, the Banded Krait with prey (Courtesy: Mr. Arshad Khan, Dehra Dun).

Bungarus annularis Daudin, 1803. *Hist. Nat. Rept.*, 5: 265, pl. 5 (based on Russell's pl.); Dumeril & Bibron, 1854. *Erpetologie generale, ou, Histoire naturelle complete des reptiles*: 1269.

Bungarus fasciatus, Daudin, 1803. *Hist. Nat. Rept.*, 5: 263; Cantor, 1847; Fayper, 1874. *Thanotoph. Ind.*: 10, pl. 9; Boulenger, 1890. *Faun. Brit. India*: 388; Boulenger, 1896. *Cat. Sn. Brit. Mus.*, 3: 366; Boulenger, 1912. *Rept. Malay Pen.*: 198; Primrose, 1899. *J. Bombay nat. Hist. Soc.*, 12 (3): 589; Wall & Evans, 1900. *ibid.* 13 (2): 344; Evans, 1905. *ibid.*, 16 (3): 519-520; Wall, 1905. *ibid.*, 16 (2): 317; Wall, 1908. *ibid.*, 18 (4): 712-714; Wall, 1910. *ibid.*, 19 (4): 835; Wall, 1911. *ibid.*, 20 (4): 933, pl.; Wall, 1924. *ibid.*, 30 (1): 22; Wall, 1928. *Pois. Sn. Ind.*: 14; Smith (O. A.),

1911. *J. Bombay nat. Hist. Soc.*, 21 (1): 283; Kinnear, 1913, *ibid.*, 22 (3):635; Smith (M. A.), 1915. *J. Nat. Hist. Soc. Siam*, 1: 177, photo; Smith (M. A.), 1943. *Faun. Brit. India*, 3: 411; De Rooij, 1917. *Rept. Indo.Aust. Archipel.*: 243; Masson, 1930. *J. Bombay nat. Hist. Soc.*, 34 (1): 256; Pope, 1935. *Rept. China*: 332, pl. 15; Bourret, 1936. *Serp. Indochine*, 2: 385; Shaw *et al.*, 1942. *J. Bengal nat. Hist. Soc.*, 16: 116; Welch, 1994: 37; Husain & Ray, 1995. Reptilia. In: Fauna of Western Himalaya, Part 1, Uttar Pradesh. *Himalayan Ecosystem Series*: 165; Manthey & Grossmann, 1997. *Natur und Tier Verlag (Munster)*: 417; Cox *et al.*, 1998. *A Photographic Guide to Snakes and other Reptiles of Peninsular Malaysia, Singapore and Thailand*: 30; David *et al.*, 1999. *Les serpents venimeux du monde: systematique et repartition Dumerilia*, 3: 3-499; Daniel, 2002. *The Book of Indian Reptiles and Amphibians*: 134-135; Ziegler, 2002. *Natur und Tier Verlag (Munster)*: 268; Whitaker & Captain, 2008. *Snakes of India: The Field Guide*: 288, pl. on page 289; Srinivasulu *et al.*, 2009. *Journal of Threatened Taxa*, 1 (6): 353-354; Anwar, 2011. *Taprobanica*, 3 (2): 102-103; Thakur, 2011. *Reptile Rap*, No. 11: 4; Chandra *et al.*, 2013. *Rec. zool. Surv. India*, 113 (2): 77-80; Wallach *et al.*, 2014. *Snakes of the World: A Catalogue of Living and Extinct Species*: 128.

Aspidoclonion annulare, Wagler, 1830. In: Species 2000 & ITIS Catalogue of Life: 2019, Catalogue of Life; In: GBIF Secretariat (2019). GBIF Backbone Taxonomy.

Aspidoclonion schneideri Fitzinger, 1861. In: Wallach *et al.*, 2014. *Snakes of the World: A Catalogue of Living and Extinct Species*: 128).

Bungarus fasciatus bifasciatus Mell, 1930. *Sitz. Ges. nat. Fr. Berlin*: 325 (type-locality: Yao-shan, Kwangsi Prov., China); reptile-database.org.

Bungarus fasciatus insularis Mell, 1930. *Sitz. Ges. nat. Fr. Berlin*: 325 (type-locality: Inselindien, Malay Archipelag); reptile-database.org.

Bungarus fasciatus fasciatus, Mell, 1931 (vide reptile-database.org.).

Vernacular Names: *Bandphora*, *Gowala*, *Xokha*, *Xongkhosur* (Assamese), *Rajsap*, *Sankani*, *Shankhamooti Shaanp* (Bengali), *Ahiraaj Saamp*, *Raj Saamp* (Hindi), *Maipam*, *Rui-teron* (Karbi- NE India), *Balingkhung* (Kokborok- Tripura), *Manjavarayan*, *Vellikattam* (Malayalam), *Agya-maniyar*, *Patterimanyar*, *Sataranjya* (Marathi), *Chawnglei*, *Tiangsir* (Mizo), *Gangali*, *Gan-gwali*, *Raja-saap* (Nepali), *Rana* (Odia), *Kattu-viryam*, *Yennai-viryam*, *Yettadi-viryam*, (Tamil), *Bangaru-paamu*, *Katla-paamu*, *Kattu-paamu* (Telugu), *Kadambale* (Tulu- Karnataka and Kerala).

Etymology: Named on Kannada/Telugu word 'bangarum' meaning gold, referring to its yellow rings (Daniel. 2002).

Classification: Class Reptilia Laurenti, 1768, order Squamata Oppel, 1811, suborder Serpentes Linnaeus, 1758, infraorder Alethinophidia Nopcsa, 1923, superfamily Colubriodea, family Elapidae Boie, 1827, genus *Bungarus* Daudin, 1803.

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Sighting: Ormanjhi, Ranchi district, Jharkhand, 24.ix.2015, by Mr. Arshad Khan.

Diagnostic Features: Body moderately slender and triangular in cross section, vertebral line ridge pronounced; head triangular, slightly broader than neck and somewhat depressed, tail short; nostrils large; thick, blunt with slightly bulbous tip, about 1/10th of total body length (Boulenger, 1890).

Colouration: Equally spaced alternate yellow or white and black cross bands on body and tail (both above and below), head black with arrowhead-like yellow marking; snout black followed by narrow oblique streaks of yellow and on posterior side up to nape by black, lips, lores, chin and throat also yellow; eyes black, pupil round, not demarcated in live.

Scalation: Scales smooth and glossy, 8th dorsal scale on vertebral ridge largest than rest of dorsals and hexagonal; dorsals 15 / 17 : 15 : 15 rows, ventrals 200-236 / 200-234, anal entire, subcaudals 23-39 / 22-41, entire; preocular 1 (in contact with posterior nasal, hence loreal absent), postoculars 2 / 1-2, temporals 1 anterior and 2 posterior, supralabials 7 (3rd and 4th touching eye), infralabials 7.

Length: 1.8 m (Wall, 1911); adult 2.1 m / 6 ft 11 in and 2.125 m / 7 ft long (Smith, O. A., 1911); 2.25 m / 7 ft 5 in but normally 1.8 m / 5 ft 11 in; 2.02 m in total length, tail 15 cm from Thailand (Smith, M. A., 1943); juveniles measure 29.8-31.1 cm which become adult at an approximate length of 91.4 cm in 3rd year; hatchlings 32-34 cm (Evans, 1905; thainationalparks.org; Wikipedia); largest 1.74 m / 5 ft 9 in length, 14 cm / 5.6 in tail (Wall, 1905); Snout-vent 47 cm, tail 4.8 cm (Dasgupta & Raha, 2004); adult 1.5-2.25 m, juvenile 25-40 cm (Whitaker & Captain, 2008; indiansnakes.org); SVL 1.155 m, TL 13.5 cm (Agarwal *et al.*, 2010); about 1 m (Anwar, 2011); 1.7 m / 5.5 ft (Thakur, 2011); 1.5 m (Purkayastha, 2013); 2.1 m, 1.8-2.25 m (thainationalparks.com); adult length 1.20 m with a maximum of about 2.25 m (toxinology.com).

Altitudinal Range: 1,524 m / 5,000 ft in Myanmar (Smith, M. A., 1943; indiansnake.org); 1,500 m / 4,920 ft (Whitaker & Captain, 2008); 350 m (Agarwal *et al.*, 2010); 40-2,300 m (Barooah & Sarma, 2016; IUCN Red List); usually about 1,300 m and up to 2,300 m as per records (toxinology.com).

Distribution:

Jharkhand:

Present Record: Ormanjhi in Ranchi district (new record).

Earlier Records: Chalkari in Bokaro district (vide Wikipedia) and in Hazaribagh area (Jaipuria, 2010).

Rest of India: Andhra Pradesh (Narsamapet, about 187 km from Hyderabad and Eturnagaram Wildlife Sanctuary, Warangal dist.), Arunachal Pradesh (Chessa, Papum Pare dist.; Doimara, Eaglenest Wildlife Sanctuary, West Kameng dist.), Assam (Maruacherra basti, Barail Wildlife Sanctuary, Cachar dist.; Borjuri; Gayan Gaon; Udalguri), Bihar (Munguraha Valmiki Tiger Reserve Forest, Champaran dist.), Chhattisgarh (Bastar, Jashpur, Sarguja and Guru Ghasidas National

Park, Koriya dist.), Karnataka (Agumbe, Shimoga dist.; Hassan dist.; Hebri and Kundapur, Udupi dist.), Kerala (Kannur; Trivandrum), Madhya Pradesh (Mocha village, Kanha National Park), Maharashtra (Gadchiroli dist.), Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Sikkim, Tamil Nadu, Telangana, Tripura, Uttarakhand (Chamoli, Dehra Dun, Pauri, Tehri and Almora, Nanital dists., the western most limit- vide indiansnakes.org), Uttar Pradesh (Bahraich-Katarniaghat Wildlife Sanctuary, Gorakhpur, Kheri and Pilibhit (Mahof range) dists.) and West Bengal (Binnaguri, Jalpaiguri district; Birbhum dist.; Buxa Tiger Reserve, Buxa Wildlife Sanctuary, Buxa Forest, Alipurduar dist.).

Elsewhere: Bangladesh, Bhutan, Brunei, Cambodia, China, Indonesia, Laos, Macau, Malaysia, Myanmar, Nepal, Philippines, Singapore, Thailand and Viet Nam.

Habitat: Moist and wet open plains, base of hills, lowland dry open forests, agricultural fields, marshes, mangroves, rubber plantations, wood logs, termite mounds, rodent burrows/holes and rock piles close to water point, around human habitations both urban and villages.

Food and Feeding: Cannibalistic, preying mainly on other snakes and their eggs, also sometimes on fishes, frogs, skinks and rats. It preys swallow head first (as shown in figure), after rendering victim inactive by its venom.

Ophidian diet as per records (*op. cit.*):

Ahaetulla nasuta (Lacepede, 1789), the Common Vine Snake or Long-nosed Whip Snake; *Amphiesma stolatum* (Linnaeus, 1758), the Buff-striped Keel-back; *Boiga trigonata* (Schneider, 1802), the Common Cat Snake or Indian Gamma Snake ; *Coelognathus helena* (Daudin, 1803), the Common Trinket Snake; *Coelognathus radiatus* (Boie, 1827), the Copper-head Rat Snake, Copper-head Trinket Snake or Radiated Rat Snake; *Dendrelaphis tristis* (Daudin, 1803), the Common Bronze-back or Daudin's Bronze-back Tree Snake; *Fowlea piscator* (Schneider, 1799), the Asiatic Water Snake or Checkered Keel-back Snake / *Dendu Saamp* (in Hindi); *Ptyas korros* (Schlegel, 1837), the Chinese Rat Snake or Indo-Chinese Rat Snake; *Ptyas mucosa* (Linnaeus, 1758), the Indian Rat Snake or Oriental Rat Snake (Colubridae).

Bungarus caeruleus (Schneider, 1801), the common Krait; Indian Krait or Blue Krait and *Naja naja* (Linnaeus, 1758), the Spectacled or Binocellate Cobra (Elapidae).

Enhydris enhydris (Schneider, 1799), the Rainbow Water Snake (Homalopsidae).

Python molurus (Linnaeus, 1758), the Indian Python and may also be *Python bivittatus* (Kuhla, 1820), the Burmese Python: young or juveniles (Pythonidae).

Daboia russellii (Shaw & Nodder, 1797), the Chain Viper or Russell's Viper (Viperidae).

Xenopeltis unicolor Reinwardt, 1827, the Sunbeam snake (Xenopeltidae).

Breeding: Oviparous. Mating takes place from late winter to early summer months, afterwards female lays 8 eggs (Evans, 1905; thainationalparks.com;

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Wikipedia) / 4-14 eggs (Whitaker & Captain, 2008; indiabiobiodiversity.org) / 15 eggs (indiansnakes.org) in a clutch which hatch out in summer.

Nature and Behaviour: Terrestrial, semi-aquatic, nocturnal with an aversion to light as it coils itself loosely and hides head beneath, when sun light falls on it or gets disturbed. When defensive, it makes '8-shaped' loose coil with head under body and transversely inflates body with regular jerking to charge the enemy. It is slow-moving on dry land but creeps well on wet surface, good swimmer, cannibalistic, shy, inoffensive and strongly venomous with neurotoxins.

Bite, Venom and Treatment: It comes very rarely in contact with humans and hence the bite rate is also much less. The envenomation when bitten defensively is thought to be very low and can cause vomiting, abdominal pain, diarrhoea, dizziness etc. However its strong and deep bite, may be on persistent provocation or when in danger, can cause rapid respiratory failure at first and then death due to suffocation. The toxicity of venom is 7-14 times less than that of cobra venom (Wall, 1911). Engelmann & Obst (1981) listed the venom yield at 114 mg by (dry weight). The venom mainly contains neurotoxins. As per LD50 values, the average quantity of venom delivered per bite is 20 -114 mg (Sarkar *et al.*, 2018). Polyvalent anti-venoms are helpful for its treatment. The venom is also useful in production of Anti Venom Serum, used in treatment of its bites.

Conservation Status: Wildlife (Protection) Act, 1972-Schedule IV; IUCN Red List- Least Concern.

Threats: Killing for fear of bite, road kills, skin trade for its unique colouration and loss of habitat.

PREYING ON CHECKERED KEEL-BACK SNAKE

During present study, it was sighted preying on Checkered Keel-back Snake/*Dendu Samp* (*Fowlea piscator*, Schneider, 1799) at Ormanjhi in Ranchi district which is the first record of its preying on said snake from the area. Much before, Primrose (1899) also reported it feeding on this snake but may be elsewhere. It engulfs the prey from head side (as shown in figure), after rendering inactive by its venom.

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