First record of the Eastern Cat Snake *Boiga gocool* (Gray, 1835) (Squamata: Colubridae) from Tripura, India

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Northeastern India has a rich herpetofaunal diversity, with 102 species of snakes, represented by six families comprising 42 genera (Ahmed et al. 2009; Aengals et al. 2018) with some new snake genera and species recently discovered in, e.g., *Blythia hmuifang*, *Pareas modestus*, *Gongylosoma scriptum*, *Smithophis atemporalis*, *Hebius lacrema*, *Trimeresurus salazar*, *Trachischium aptei*, *Trimeresurus arunachalensis*, *Smithophis arunachalensis*, *Hebius pealli* (Vogel et al. 2017, 2020; Lalremsanga 2018; Bhosale et al. 2019; Captain 2019; Giri et al. 2019; Purkayastha & David 2019; Das et al. 2020; Mirza et al. 2020). Tripura is a landlocked, small, hilly state surrounded by Assam & Mizoram of India and Bangladesh on three sides (Image 1). So far, 21 species of snakes under 19 genera and six families have been reported from the state (Majumder 2012; Purkayastha et al. 2020). Earlier, only one species of the genus *Boiga*, *B. ochracea* was recorded from the state (Majumder et al. 2012; Purkayastha et al. 2020). Earlier, only one species of the genus *Boiga*, *B. ochracea* was recorded from the state (Majumder et al. 2012; Purkayastha et al. 2020).

*Boiga gocool* (Gray, 1835) is a nocturnal, arboreal, mildly venomous snake that occurs in tropical semi-evergreen and degraded forests, tall grasslands, and tea gardens at lower elevations of 50–1,000 m (Das et al. 2010; Wallach et al. 2014). It feeds mainly on lizards but sometimes also on small birds and mammals. *Boiga gocool* is poorly known, has a narrow distribution, and is thus rarely reported in regional inventory reports with only a few preserved specimens in scientific collections (Das et al. 2010). This is a southern Asian species having definite distribution records from northern and eastern India, Bangladesh, and Bhutan (Ahsan et al. 2015; Das et al. 2016). Of late, a few records of this species were reported from many other places. In India, *B. gocool* is reported from Assam- Manas National Park, Guwahati (Purkayastha et al. 2011), Kaziranga National Park (Das et al. 2007), Arunachal Pradesh, Manipur, Meghalaya, Nagaland (Das et al. 2007; Bhupathy et al. 2013), Sikkim (Chettri et al. 2011), West Bengal (Das et al. 2007), northern Odisha (Molahik et al. 2020), and Uttar Pradesh (Choure et al. 2020). It has been listed as Schedule IV species under the Indian Wildlife (Protection) Act, 1972 (Ahmed et al. 2009) whereas under IUCN Red List category, it stands as ‘Not Evaluated’.

In this note, we report our sighting of *B. gocool* in Tripura state. The current survey site is situated within the Khowai district of Tripura (24.064N & 91.596E;...
129m), the forest patch of the survey area was primarily mixed moist deciduous type (Choudhary et al. 2019) having tree species like Tectona grandis, Shorea robusta, Dalbergia sissoo, Bombax ceiba, Phyllanthus emblica, and Mangifera indica spread over an undulating terrain with moderate canopy cover.

The observation made by us was based on opportunistic sightings in the field. On 12 July 2020, during a field visit to Khowai, we noticed a snake passing by near the Khowai river bridge at evening 1539 h. The snake was restrained using a snake hook with utmost safety for making morphological observations and measurements. Photographs were taken using DSLR camera. The length of the individual from snout to vent (SVL) was measured 652 mm and tail length (TL) was 165 mm. Comparing the above data with the identification keys and descriptions specified in standard literature (Whitaker & Captain 2008; Ahmed et al. 2009; Das et al. 2010; Mohalik et al. 2020) the snake was positively identified as Boiga gocool.

Comparing the morphological characteristics between the known Boiga species in northeastern India, it is evident that the dorsolateral series of 45–50 dark brownish and whitish edged Y or T shaped marks, divided by distinct light vertebral scale row and a narrow black diamond or circular shaped nuchal dot, that never reaches to the sides of the body were major distinguishing characteristics of Boiga gocool (Table 1). In the past, much confusion existed regarding distinguishing characteristics of B. gocool and its closely related and one of the most widely distributed yet poorly studied congener in Indian subcontinent, B. t. trigonata (Das et al. 2010). Regardless, B. gocool has a lot in common with B. t. trigonata in terms of habits, body proportions, and skin colour, but gocool can be differentiated from trigonata by strongly enlarged vertebral scales and an entirely distinct head and dorsal body colour pattern, and dorsolateral series of 45–50 dark brownish and whitish edged Y-shaped marks which are prominently divided by a light vertebral scale row; whereas B. trigonata has yellow to whitish, dark edged, angular markings,
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Table 1. Morphological comparisons of body (dorsal and ventral), head and tail morphology between *B. gocool* and other congeneric species from the Indo-Burma hotspot.

<table>
<thead>
<tr>
<th>Species</th>
<th>Dorsal body</th>
<th>Ventral body</th>
<th>Head and tail</th>
<th>Distribution in Indo-Burma</th>
<th>References</th>
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<tbody>
<tr>
<td><em>gocool</em></td>
<td>Dorsal colour yellowish-brown; dorsolateral series of 45–50 dark brownish and whitish edged Y or T shaped marks.</td>
<td>Light yellowish-brown ventral colour with small dark brown margins or pattern less.</td>
<td>Head noticeably larger than neck; wide eye with vertical pupil, long tail.</td>
<td>Arunachal Pradesh, Assam, Nagaland, Manipur, Mizoram, Bhutan, and Bangladesh.</td>
<td>Das et al. 2010; Das et al. 2016; Lalremsanga &amp; Lalrionguna 2017; Whitaker &amp; Captain 2008</td>
</tr>
<tr>
<td><em>cyanea</em></td>
<td>Dorsal colour uniform green or greyish-or bluish-green; black interscale colour; same colour on the head and few dorsal scales.</td>
<td>Greenish- or yellowish-white belly; subcaudal scales are paired in a zig-zag pattern.</td>
<td>Head triangular with rounded tip, distinctly wider than body. Top of the head is normally same colour as the dorsal or has a brownish hue. Like other arboreal snakes, long thin tail with pointed tip.</td>
<td>Arunachal Pradesh, Assam, Meghalaya, Mizoram, Sikkim, Bangladesh, and Bhutan.</td>
<td>Das et al. 2010; Lalremsanga &amp; Lalrionguna 2017; Whitaker &amp; Captain 2008</td>
</tr>
<tr>
<td><em>multifasciata</em></td>
<td>Dorsal pattern made up of narrow black irregular transverse bands separated by reddish-brown vertebral scale lines.</td>
<td>Ventral surface greyish-to reddish-brown.</td>
<td>Head wider than neck; large eye has vertical pupil. Long tail. Two black lines run across the top of the head; another runs down the neck, a black stripe runs behind the eye.</td>
<td>Arunachal Pradesh and Sikkim.</td>
<td>Tshewang, &amp; Letro 2018; Das et al. 2010; Whitaker &amp; Captain 2008</td>
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<tr>
<td><em>multomaculata</em></td>
<td>Dorsal colour is greyish-brown with dark brown markings, black edges, and brown; double series of conspicuous spots present.</td>
<td>Ventral colour is greyish-brown or impure white, marked with brown spots.</td>
<td>Head noticeably larger than neck; eye with vertical pupil; long tail.</td>
<td>Arunachal Pradesh, Assam, Nagaland, and Bangladesh.</td>
<td>Das et al. 2010; Whitaker &amp; Captain 2008</td>
</tr>
<tr>
<td><em>ochracea</em></td>
<td>Dorsal body coral red, reddish- or yellowish-brown.</td>
<td>Scales on the anterior belly are yellow, while those on the mid-body and tail tip are light brown.</td>
<td>Head larger than neck; wide eye with vertical pupil; tail long and thin.</td>
<td>Sikkim, Assam, Tripura, Mizoram, Bhutan, and Bangladesh.</td>
<td>Das et al. 2010; Lalremsanga &amp; Lalrionguna 2017; Majumder et al. 2012; Lalremsanga &amp; Tshewang, &amp; Letro 2018</td>
</tr>
<tr>
<td><em>quincunciata</em></td>
<td>Fine dark brown spots and a dark brown vertebral series make up the dorsal pattern.</td>
<td>Outer edges of the ventral surface are yellowish-white with white or brown spots</td>
<td>Three longitudinal stripes on the nape; head and neck distinct; body slender and elongated; eyes wide with vertical pupil.</td>
<td>Arunachal Pradesh, Assam, Mizoram, and Bhutan.</td>
<td>Chaida et al. 2020; Das et al. 2010; Lalremsanga &amp; Lalrionguna 2017</td>
</tr>
<tr>
<td><em>siamensis</em></td>
<td>Dorsal body yellowish-brown; many large black or dark brown oblique bands or V-shaped markings.</td>
<td>Ventral surface yellowish- or greyish-brown, with small dark brown spots present sometimes.</td>
<td>Head wider than neck; large eye has vertical pupil; tail long.</td>
<td>Arunachal Pradesh, Assam, Mizoram, Meghalaya, Sikkim, Nagaland, and Bangladesh.</td>
<td>Das et al. 2010; Lalremsanga &amp; Lalrionguna 2017; Whitaker &amp; Captain 2008</td>
</tr>
<tr>
<td><em>trigonata</em></td>
<td>Dorsal colour brown or tan; darker zigzag markings that are possibly connected.</td>
<td>Underside of each belly scale white or tan, small black spots on the outer edges.</td>
<td>Head wider than neck; Large eye with vertical pupil; tail long; distinct pale Y-shaped mark appears on top of the head, which often black-edged.</td>
<td>Sikkim.</td>
<td>Das et al. 2010</td>
</tr>
</tbody>
</table>

with irregular branching across the vertebral scale row, often connected in a zigzag manner. The sole congener of *B. gocool* recorded from the state was *B. ochracea* (Majumder et al. 2012; Purkayastha et al. 2020) which can be readily distinguished without confusion from *B. gocool* by its patternless or indistinct dark transverse dorsolateral bands on coral red, reddish- or yellowish-brown dorsal body (Table 1).

With the centre of radiation of *B. gocool* lying in the plains and low hills of north and south of the Brahmaputra valley, Assam, (Das et al. 2010), recent records of *B. gocool* from Odisha (Mohalik et al. 2020) and Uttar Pradesh (Choure et al. 2020), extend its known distribution range further to the south and west, respectively. The current record of *B. gocool* from Tripura eventually fills the void in its northeastern Indian distribution. The present survey site is about 40 km north-east from Agartala, the state capital and about 35 km south to the...

Image 2. *Boiga gocool* with identification marks: a—Black Y-shaped vertical markings with white edges on either side separated from one another only by pale yellowish vertebral scale row; anterior most Y-shaped markings fused to form small black lines; dark brownish arrow-shaped mark covering the top of the head followed by a black, somewhat round-shaped spot on the nape | b—Black postocular stripe; white supralabials and infralabials with small black markings on their sutures; black pupil with yellow coloured iris; yellowish-white ventral with small black spots at the outer lateral edges. (© Sumit Nath).
nearest previously recorded locality for the species from Lawachara National Park, Sylhet District, Bangladesh (Rahman et al. 2013). The nearest occurrence of *B. gocool* from the present survey site, within northeastern India, is that of Mizoram (Lalremangsang & Lalronunga 2017; Choure et al. 2020). Despite being situated in the Indo-Burma biodiversity hotspot, Tripura is rather poorly studied from the herpetofauna assessment viewpoint. Most of the herpetofaunal studies were limited to a few taxa and locations of the state (Majumder et al. 2012; Purkayastha et al. 2020). Before the current record, only one species of the genus *Boiga* (*B. ochracea*) was reported from Tripura, whereas eight representatives of the genus have been reported and found to be occurring in northeastern India, partly sympatric with *B. gocool* (Table 1). Hence, the first record of *B. gocool* from this state will contribute towards updating the checklist of the herpetofauna of Tripura. Future studies on the genus *Boiga* and other snake species sympatric with *B. gocool* throughout the state is much needed.

References


Birds

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

September 2021 | Vol. 13 | No. 11 | Pages: 19431-19674
Date of Publication: 26 September 2021 (Online & Print)
DOI: 10.11609/jott.2021.13.11.19431-19674