Building evidence for conservation globally

Journal of Threatened Taxa

Open Access
New country record of *Trimeresurus uetzi* Vogel, Nguyen & David, 2023
(Reptilia: Squamata: Viperidae) from India

Lal Biakzuala1, Lal Muansanga2, Fanai Malsawmdawngliana3, Lalrinnunga Hmar4, & Hmar Tlawmte Lalremsanga5

1,2,3,5 Developmental Biology and Herpetology Laboratory, Department of Zoology, Mizoram University, Aizawl, Mizoram 796004, India.
4 Department of History, Mizoram University, Aizawl, Mizoram 796004, India.

1 bzachawngthu123@gmail.com, 2 muanapunte16@gmail.com, 3 sawmattryx@gmail.com, 4 nungahmar@gmail.com, 5 htlrsa@yahoo.co.in (corresponding author)

The systematics of the White-lipped Pit Viper *Trimeresurus albolabris* Gray, 1842 group has been reviewed by several workers, and a subspecies level taxonomy was historically proposed (Kramer 1977; Regenass & Kramer 1981). However, the original members of this group—*T. insularis* Kramer, 1977 and *T. septentrionalis* Kramer, 1977—were eventually elevated to species status by Giannasi et al. (2001). Later, genetic studies also showed the paraphyly of *T. albolabris* group (Malhotra & Thorpe 1997, 2000; Zhu et al. 2016), and the distribution range of *T. albolabris* sensu stricto was subsequently restricted to southeastern China and northeastern Vietnam (Chen et al. 2021). Several new species were described from the *T. albolabris* group during recent years, such as, *T. caudornatus* Chen, Yu, Vogel, Shi, Song, Tang, Yang, Ding & Chen, 2020; *T. davidi* Chandramouli, Campbell & Vogel, 2020; *T. guoi* Chen, Shi, Gao, Vogel, Song, Ding & Dai, 2021; *T. salazar* Mirza, Bhosale, Phansalkar, Sawant, Gowande & Patel, 2020; and most recently, *T. uetzi* Vogel, Nguyen & David, 2023 (see also Vogel et al. 2023).

In this study, we examined specimens of *Trimeresurus* species housed in the collection of Departmental Museum of Zoology, Mizoram University (MZMU). Head measurements were taken using Mitutoyo dial vernier caliper (Model 505–730) to the nearest 0.01 mm, while the snout-vent length (SVL) and tail length (TaL) were taken using measuring tape. Ventrals (Ve) and mid dorsal scales row (MSR) were counted following Dowling (1951), and the terminal scute is excluded while counting subcaudals (Sc). Dorsal scales were counted at one head length just behind the head, at mid body, and one head...
length just before the vent.

Morphologically, one adult male of the examined museum specimens collected from Mizoram University campus (23.7384°N; 92.6642°E; 822 m; Figure 1) did not match with the taxonomic features of other Trimeresurus species, which were already confirmed from Mizoram State and adjacent regions. MZMU 3333 differs from regional congeners in having Ven 165 versus 159–164 in male T. caudornatus Chen, Ding, Vogel and Shi, 2020, MSR 21 vs 23 (24, 25) in male T. erythrurus (Cantor 1839); ventrolateral stripes and a postocular stripe present vs absent, iris copper vs firebrick-red or deep red in males T. guoi Chen, Shi, Vogel & Shi, 2021; ventrolateral stripe white vs stripe bicolor (red and white), Ven 165 vs 157–162, and Sc 69 vs 54–67 in males T. mayaae Rathee, Purkayastha, Lalremsanga, Dalal, Biakzuala, Muansanga & Mirza, 2022, and 10 cephalic scales feebly keeled between the supraoculars vs 11–13, iris copper coloured vs red to deep red, and ventrolateral stripes and a postocular stripe present vs absent in males of T. popeiorum Smith, 1937 (see also Mathew 2007; Lalremsanga et al. 2011; Mirza et al. 2023; Vogel et al. 2023; Idiiatullina et al. 2024). Instead, it is in agreement with the diagnostic features of the recently described T. uetzi as provided in the original description (Vogel et al. 2023): presence of white postocular stripe in males; first supralabial not fused with nasal scale; 10 cephalic scales feebly keeled (range 9–10); Ven 165 (range 154–171) in males; Sc 69 (range 50–71 in males); dorsal scale rows 21:21:15 (Images 1 & 2). Other morphological data of MZMU 3333 are provided in Table 1. The live snake depicted in Image 2, is not the Aizawl voucher specimen, but an uncollected male, sighted in Reiek Community Reserve Forest, some 5 km aerial distance west of Mizoram University campus – the collection site of MZMU 3333. We also attribute this individual to T. uetzi, as it possesses 21 dorsal mid body scale rows, green gold colored iris; a grass green
New country record of *Trimeresurus uetzi* from India

Biakzuala et al.

Image 1. Male specimen of *Trimeresurus uetzi* (MZMU 3333) from Mizoram University Campus, Aizawl, Mizoram, India. Scale bar = 10 mm. © Lal Muansanga.

Image 2. Uncollected live male individual of *Trimeresurus uetzi* from Reiek Community Reserve Forest, Mizoram, India. © Lal Muansanga.
Table 1. Morphometric (in mm) and meristic data of *Trimeresurus uetzi* from Mizoram, northeastern India. The general data for the species were adopted from Vogel et al. (2023).

<table>
<thead>
<tr>
<th>Sources</th>
<th>This study</th>
<th>General data from Vogel et al. (2023)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Museum voucher</td>
<td>MZMU 3333</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>male</td>
<td>males females</td>
</tr>
<tr>
<td>Snout-vent length (mm)</td>
<td>485</td>
<td>251–472 242–689</td>
</tr>
<tr>
<td>Tail length (mm)</td>
<td>127</td>
<td>48–119 53–122</td>
</tr>
<tr>
<td>Tail length/Total length</td>
<td>20.8%</td>
<td>16%–22% 14%–16%</td>
</tr>
<tr>
<td>Head length (mm)</td>
<td>25.84</td>
<td>-</td>
</tr>
<tr>
<td>Head width (mm)</td>
<td>14.71</td>
<td>-</td>
</tr>
<tr>
<td>Horizontal eye diameter (mm)</td>
<td>3.79</td>
<td>-</td>
</tr>
<tr>
<td>Eye to nostril distance (mm)</td>
<td>5.79</td>
<td>-</td>
</tr>
<tr>
<td>Snout tip to anterior eye distance (mm)</td>
<td>7.98</td>
<td>-</td>
</tr>
<tr>
<td>Snout width (mm)</td>
<td>5.70</td>
<td>-</td>
</tr>
<tr>
<td>Interorbital distance (mm)</td>
<td>11.34</td>
<td>-</td>
</tr>
<tr>
<td>Internarial distance (mm)</td>
<td>5.04</td>
<td>-</td>
</tr>
<tr>
<td>Ventrals (mm)</td>
<td>165</td>
<td>154–172 157–171</td>
</tr>
<tr>
<td>Preventral</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Subcaudals</td>
<td>69</td>
<td>60–71 50–55</td>
</tr>
<tr>
<td>Supralabials</td>
<td>10/11</td>
<td>10–12/10–12 9–12/9–11</td>
</tr>
<tr>
<td>Infralabials</td>
<td>12/13</td>
<td>10–14/11–13 11–14/11–14</td>
</tr>
<tr>
<td>Anal scale</td>
<td>undivided</td>
<td>-</td>
</tr>
<tr>
<td>Cephalic scales</td>
<td>10</td>
<td>9–10 9–10</td>
</tr>
</tbody>
</table>

dorsum and yellowish-green venter; a white postocular streak from the anterior margin of the nasal scale that connects posteriorly to the white dorsolateral stripe at the corner of the mouth, plus lack of red stripes on facial and ventrolateral regions. *Trimeresurus uetzi* is a species so far known from central and southern Myanmar but unrecorded from India (Vogel et al. 2023). The present specimen MZMU 3333 from Aizawl, thus represents the longest male recorded so far, 612 mm in total length against the existing maximum total length 591 mm (Holotype; CAS 243024) (see Vogel et al. 2023) and forms the first record of this species from within Indian boundary.

Unfortunately, we were unable to generate DNA data from the MZMU 3333 due to preservation of the specimen in formalin. We recommend obtaining more specimens and genetic data from a fresh sample to corroborate the present report and to further investigate putative cryptic diversity especially among green pit-vipers in northeastern India. However, this work represents a new country record of the species from India and a range extension of the species by ca. 215 km aerial distance northwestern from the type locality at Mauk Village, Gangaw Township, Pakhokku District, Magway Region, Myanmar which is also the nearest known locality from our record (see Vogel et al. 2023). Considering the refinement of the range of the previously confused species, *T. septentrionalis* sensu stricto (now restricted to the western and central Himalayan regions of Nepal and northern India), there is high probability that the population of *T. septentrionalis* in Bangladesh as also doubted by Vogel et al. (2022) might actually be *T. uetzi* or *T. salazar*, considering that records of the later species are closer to Bangladesh which will require further reassessment. Apart from the criteria of geographical range, we discriminated our male specimen of *T. uetzi* by its lower total number of ventral and subcaudal scales, i.e., 234 vs. 241.67±7.76 in male *T. septentrionalis*; white postocular stripe wide and conspicuous covering 1–2 scales vs. usually absent or thin and pale, covering 1 scale in *T. septentrionalis* (fide Vogel et al. 2023).

We also opine that the Indian population may not be unheard of, but just that the recent description of *T. uetzi* by Vogel et al. (2023) enabled us to recognize it as a species. Although several workers have recently described new *Trimeresurus* species particularly from the Indo-Burma region (e.g., Mirza et al. 2020; Rathee et al. 2022; Chan et al. 2023; Vogel et al. 2023), the systematics of many *Trimeresurus* species from this region need further reassessment through integrated taxonomic approaches (Vogel et al. 2023). Limited sampling bolstered by intricate phenotypic variations and phylogenetic uncertainty are seemingly attributable to the systematics challenges for this group in the Indo-Burma region (see Malhotra & Thorpe 2000; Chandramouli et al. 2020; Chen et al. 2020; Mallik et al. 2021; Vogel et al. 2022, 2023).

References


The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at wwwthreatenedtaxa.org. All articles published in JoTT are registered under Creative Commons Attribution 4.0 International License unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

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

May 2024 | Vol. 16 | No. 5 | Pages: 25119–25282
Date of Publication: 26 May 2024 (Online & Print)
DOI: 10.11609/jott.2024.16.5.25119-25282

www.threatenedtaxa.org

Articles

Tree architecture model of Sumatran Orangutan Pongo abelii Lesson, 1827 (Mammalia: Primates: Hominoidea) nests at Soraya Research Station, Leuser Ecosystem, Indonesia
– Anugrah Gilang Permama Lubis & Nursahara Pasaribu, Pp. 25119–25128

Diet of Rusty-spotted Cat Prionailurus rubiginosus (L. Geoffroy Saint-Hilaire, 1831) (Mammalia: Carnivora: Felidae) in Sanjay Gandhi National Park, Mumbai, India
– Shomita Mukherjee, Arati Ramdas Gawari, Kartik Pillai, Pankaj Kopaed, P.V. Karunakaran & Nayan Khanolkar, Pp. 25129–25136

An avifaunal checklist of the Bani Wildlife Sanctuary, Jammu & Kashmir, India
– Iyaz Quyoom, Bilal A. Bhat, Wasim Sajad Malik, Taslima Sheikh & Arif Nabi Lone, Pp. 25137–25146

Traditional harvesting practices employed for freshwater turtles by the indigenous communities along Shilabati River, West Bengal, India
– Prasun Mandal, Pathik Kumar Jana, Priyanka Halder Mallick, Shailendra Singh & Tanmay Bhattacharya, Pp. 25147–25156

Diversity and abundance of mayflies (Insecta: Ephemeroptera) in Achenkovi River, southern Western Ghats, Kerala, India

Legumes (Angiosperm: Fabaceae) of Birbhum District, West Bengal, India
– Shamim Alam & Adani Lokho, Pp. 25166–25187

Floristic diversity of mangroves and mangrove associate species of Kali River Estuary, Karwar, Karnataka, India
– Amruta G. Hondappanavar, Shivanand S. Bhat & Praveen Kumar Verma, Pp. 25188–25197

Reproductive biology of Senna spectabilis (DC.) H.S.Irwin & Barneby (Fabaceae) - an invasive tree species in the tropical forests of the Western Ghats, India

Communications

Diversity and status of butterfly fauna at Kurukshetra University campus, Haryana, India
– Vidisha Gupta & Parmesh Kumar, Pp. 25209–25219

First report of Lutevula hortensia (Distant) (Heteroptera: Reduviidae: Reduviinae) from India
– Vijay Anand Ismavel & Hemant V. Ghate, Pp. 25220–25226

Diversity of mosses (Bryophyta) in Pangi valley (Himalachal Pradesh, India): an unexplored domain of northwestern Himalaya
– Anshul Dhyani, Kumar Shantanu, Rajender Kumar Sharma & Prem Lal Uniyal, Pp. 25227–25234

Morphological characterization and distribution of four corticioid fungi species (Basidiomycota) in India

Taxonomy and molecular systematics of marasmioid fungi occurring (Basidiomycetes: Agaricales: Marasmiaceae) in Puducherry, India
– Yuvarani Krishnan, Thokur Sreepathy Murali, Gunasekaran Senthilarasu & Vadivelu Kumaressen, Pp. 25243–25251

Short Communications

First photo evidence of Siberian Weasel Mustela sibirica Pallas, 1773 (Mammalia: Carnivora: Mustelidae) in Gaurishankar Conservation Area, Nepal
– Madhu Chettri, Purna Bahadur Ale & Morten Odden, Pp. 25252–25255

Post-tsunami status, distribution, and way forward for the conservation of Andaman Tea Anos albogularis Hume, 1873 (Aves: Anatidae) in the Andaman Islands
– Anoop Raj Singh, Gaurav Sirola, Sipu Kumar & Nehru Prabakara, Pp. 25256–25260

A preliminary checklist of Copepoda in the mangrove areas of Munroe Island, adjacent to Ashtamudi estuary, Kerala, India
– M.S. Arya, A. Biju & Dani Benjamin, Pp. 25261–25264

Notes

First photographic record of Asiatic Brush-tailed Porcupine Atherurus macrourus Linnaeus, 1758 from Sonai Rupai Wildlife Sanctuary, Assam, India
– B. Prasooddan, Asish Immanuel Baglary & Bibhuti Mazumder, Pp. 25265–25267

New country record of Trimeresurus utzii Vogel, Nguyen & David, 2023 (Reptilia: Squamata: Viperidae) from India

New record of Giant Redeye Gangara thyrsis thyrsis (Fabricius, 1775) (Lepidoptera: Hesperiidae) from Garhwal region of western Himalaya, India
– Ankit Singh Saijan & Arun Pratap Singh, Pp. 25273–25275

Strobilanthes khosyana (Acanthaceae): an addition to the flora of Nagaland, India
– Pfüchüpe-ü Mero, Kazhuhrii Eshuo & Neizo Puro, Pp. 25276–25278

Sonera konkanensis Resmi & Nampy (Melastomataceae)
– an addition to the flora of Karnataka, India
– Prashant Karadakatti & Siddappa B. Kakkalameli, Pp. 25279–25282

Publisher & Host

WILD zoo Outreach Organization

Threatened Taxa