

A Cyan-Blue Bamboo Pitviper (*Trimeresurus stejnegeri stejnegeri*) in Taiwan

Kuang-Ting Chen^{1,2,3}, You-Jia Tu^{1,4}, Kin-Onn Chan⁵, and Eng-Wah Teo⁶

¹Taichung Wildlife Conservation Group, Taichung, Taiwan

²Department of Chinese Medicine, Chang Bing Show Chwan Memorial Hospital, Changhua, Taiwan

³Graduate Institute of Biomedical Sciences, China Medical University, Taichung, Taiwan

⁴Minshiang Environmental & Ecological Research Company, Taichung, Taiwan

⁵Lee Kong Chian Natural History Museum, National University of Singapore, 2 Conservatory Drive, 117377 Singapore, Singapore (https://orcid.org/0000-0001-6270-0983)

⁶Sports Centre, University of Malaya, 50603, Kuala Lumpur, Malaysia (tim20060803@gmail.com; https://orcid.org/0000-0002-1451-1720)

The Bamboo Pitviper, *Trimeresurus stejnegeri stejnegeri* (Schmidt 1925), also known as the Green Tree Pitviper or the Red-tailed Bamboo Viper, is distributed across Taiwan, southern China, northern Thailand, and northern Vietnam (Castellano et al. 1994). Dorsal coloration can be variable but typically is some shade of green (lime green, ivy green, or chartreuse) with a white ventrolateral stripe, which usually has red

margins in most males; however, some individuals have dark green bands or white spots all over the dorsum (Norval et al. 2015). Bamboo Pitvipers occur in a variety of habitats in low-land to montane forests, often near water (Norval et al. 2015).

At about 2030 h on 23 January 2023 (temperature 15 °C), we encountered a cyan-blue Bamboo Pitviper (total length ~45 cm) (Fig. 1) among short grass near a small stream



Figure 1. Comparisons of a cyan-blue morph (left) from central Taiwan and typical green Bamboo Pitvipers (*Trimeresurus stejnegeri*) (right) from Taichung City, Taiwan: (A & B) dorsum, and (C & D) venter. Photographs by Kuang-Ting Chen (A) and You-Jia Tu (B–D).



Figure 1 (continued). Comparisons of a cyan-blue morph (left) from central Taiwan and typical green Bamboo Pitvipers (*Trimeresurus stejnegeri*) (right) from Taichung City and Nantou County, Taiwan: (E & F) lateral view of the head, and (G & H) tail. Photographs by You-Jia Tu.

in the lowland forest of central Taiwan (24.2441, 120.8719; elev. 450 m asl). In Taiwan, low-elevation forest patches frequently accommodate a variety of small-scale agricultural activities. The site where we encountered this snake was surrounded by a bamboo farm, a pear orchard, and broadleaf secondary forest. This specimen had a cyan-blue dorsum with dark crossbands along the entire body and mottled green and blue spots on its face and venter. The white ventrolateral stripe was continuous but the red border was intermittent.

Color variation is common in many species of *Trimeresurus*, including *T. purpureomaculatus* (Chan et al. 2022) and *T. insularis*, in which blue individuals tend to be uniformly colored and lack green altogether (Jones et al. 2019). However, color variation in *T. s. stejnegeri* has not been adequately characterized. In Taiwan, white (albino), yellow, blue, and brown individuals have been observed (Norval et al. 2015), whereas the snake described was predominantly cyan-blue but, unlike blue *T. insularis*, had completely or par-

tially green scales on the face and venter. This record adds to a growing body of literature documenting the vast color variation in Asian pitvipers.

Literature Cited

Castellano, S., A. Malhotra, and R.S. Thorpe. 1994. Within-island geographic variation of the dangerous Taiwanese snake, *Trimeresurus stejnegeri*, in relation to ecology. *Biological Journal of the Linnean Society* 52: 365–375. https://doi.org/10.1111/j.1095-8312.1994.tb00998.x.

Chan, K.O., L.I. Sind, L.I. Thong, S. Ananthanarayanan, S. Rasu, A. Aowphol, A. Rujirawan, S. Anuar, D. Mulcahy, J.L. Grismer, and L.L. Grismer. 2022. Phylogeography of mangrove pit vipers (Viperidae, *Trimeresurus erythrurus-purpureomaculatus* complex). *Zoologica Scripta* 51: 664–75.

Jones, B.K., A.J. Saviola, S.B. Reilly, A.L. Stubbs, E. Arida, D.T. Iskandar, J.A. McGuire, J.R. Yates III, and S.P. Mackessy. 2019. Venom composition in a phenotypically variable pit viper (*Trimeresurus insularis*) across the Lesser Sunda Archipelago. *Journal of Proteome Research* 18: 2206–2220. https://doi.org/10.1021/acs.jproteome.9b00077.

Norval, G., C.H. Lin and J.J. Mao. 2015. Two atypically colored Bamboo Vipers (*Trimeresurus stejnegeri stejnegeri* Schmidt, 1925) found in suburban areas of Taiwan. *Reptiles & Amphibians* 22: 34–35. https://doi.org/10.17161/randa.v22i1.14034.