The genus *Theloderma* Tschudi 1838 (Bug-eyed Treefrogs) comprises 26 currently recognized species that are distributed in northeastern India, Myanmar, southern China, and throughout southeastern Asia (Frost 2021). Information on these frogs is very limited and species delineation for this group is quite challenging, largely due to morphological similarity but also because many species are poorly represented in museum collections, with some known only from a single or a few sampling sites (Nguyen et al. 2014, 2016). The Baibung Small Treefrog (*Theloderma baibungense*) is known from the type locality in Beibung, Medog County, Tibet, China, to northeastern India (Arunachal Pradesh, Assam, and Nagaland) and northeastern Bangladesh (Lawachara National Park) (Frost 2021). Members of the *T. asperum* species complex from southern Asia have been identified as either *T.

![Image of Baibung Small Treefrog](image_url)

**Fig. 1.** Baibung Small Treefrogs (*Theloderma baibungense*) from Mizoram, India. Photograph by H.T. Lalremsanga.

**Fig. 2.** Map showing distributional records of Baibung Small Treefrogs (*Theloderma baibungense*). 1. Type locality in Medog, China (red star); new records from Mizoram, India (red triangles): 2. Sihphir, 3. Muthi, 4. Reiek, 5. Dampa Tiger Reserve, 6. Situal, 7. Murlen National Park, 8. Samlukhai, 9. North Vanlaiphai, 10. Theiriat, 11. Palak National Wetland; and previously published records (red diamonds): 12. Dosdewa, 13. Lawachara, 14. Tura, 15. Kaziranga National Park, 16. Toulizie, 17. Sechu, 18. Dibang. Published records of the Burmese Camouflaged Frog (*Theloderma pyaukkya*) (green circles): 19–22.
asperum or T. albopunctatus (Liu and Hu 1962), but genetic evidence has revealed that frogs from central and northern Myanmar, Bangladesh, and northeastern India are T. bai-bungense (Hou et al. 2017; Poyarkov et al. 2018; Hakim et al. 2020). Moreover, these frogs are morphologically identical to the Burmese Camouflaged Frog (T. pyaukkya) (Dever 2017; Hakim et al. 2020) and have been considered conspecific with T. baibungense (Poyarkov et al. 2018; Hakim et al. 2020), although Poyarkov et al. (2018) suggested further taxonomic reassessment of the T. pyaukkya group because of the high genetic divergence between lineages. Nevertheless, T. baibungense is easily distinguished from sympatric rhacophorids by the splattered brown-and-white colored dorsum that resembles a tree fungus or bird droppings (Ahmed et al. 2009) and provides an effective camouflage in its forest habitats (Dever 2017). Herein we present updated distributional records in northeastern India and comment on morphology, conservation status, and phylogenetic placement of the northeastern Indian specimens.

During opportunistic surveys in 2016–2020, we collected 10 specimens of T. baibungense (Fig. 1) from 10 localities in Mizoram, India (Fig. 2). We extracted liver tissues for genetic analysis and fixed specimens in 10% buffered formalin before transferring them to 70% ethanol, depositing them in the Department Museum of Zoology, Mizoram University (MZMU), and measuring them as in Jiang et al. (2009). We amplified partial 16S rRNA genes using primers L02510 (Palumbi 1996) and H03063 (Rassmann 1997), and compared them to 23 congeneric sequences retrieved from the NCBI database. Using MEGA 7 (Kumar et al. 2016), we aligned sequences using the MUSCLE algorithm, estimated the Kimura 2 parameter (K2P) genetic distance, and constructed a maximum-likelihood phylogenetic tree with 1,000 bootstrap replicates using the model GTR+G based on the lowest Bayesian Information Criterion with the Mawblang Toad (Bufoides meghalayanus) as the out-group.

Frogs in this study were relatively large (SVLs = 28.3–31.3 mm) (Table 1), corresponding to the range of 28.3–31.5 mm in Ao et al. (2003), whereas SVLs in the type series were 15.00–16.20 mm (Jiang et al. 2009), which is more similar to the sizes of T. albopunctatum (Hou et al. 2017). Morphological data from the original descriptions suggested that T. asperum, T. albopunctatum, and T. baibungense were closely related. However, T. baibungense can be easily distinguished from the other two species by various morphological features: (1) Smooth dorsal skin without warts in T. baibungense vs. small...
warts in *T. albopunctatum*, (2) the absence of a vocal sac in *T. asperum* vs. a pair of inner vocal sacs in *T. albopunctatum* and *T. baibungense*, and (3) the tibiotarsal articulation reaching nearly the tip of the snout in *T. asperum* vs. reaching the eye in *T. albopunctatum* and *T. baibungense* (Fig. 3) (Hou et al. 2017). Consequently, we inferred that the small SVLs of *T. baibungense* in the type series probably was attributable to small sample size, as only two males were included.

The ML phylogenetic reconstruction (Fig. 4) clearly placed *T. baibungense* (OK474164–6) with *T. baibungense* (KU981089) from China by a well-supported node (bootstrap = 100), formed a distinct clade with respect to congeners, and was strongly clustered in a single clade deeply nested in the *Theloderma* clade. The genetic divergence (K2P) between our samples (*T. baibungense*) and type material from Tibet (China) was 1.00%, whereas the average interspecific K2P genetic distance was 10% (Table 2), confirming the presence of *T. baibungense* in Mizoram.

Fig. 4. Maximum-likelihood phylogram (16S rRNA) of the Baibung Small Treefrog (*Theloderma baibungense*) and related species. Numbers at nodes represent bootstrap support. The Mawblang Toad (*Bufoides meghalayanus*) (MZMU2091) was used as the outgroup.
Nevertheless, the present phylogenetic analysis of the genus clearly demonstrated that the phylogenetic position of specimens from northeastern India (Mizoram) is nested within *T. baibungense* (KU243080; KU981089) with a genetic distance of only 1.6–1.7%. This supports the opinions of Hou et al. (2017) and Poyarkov et al. (2018), who stated that reports of *T. asperum* or *T. albopunctatus* from northeastern India and central and northern Myanmar should be referred to *T. baibungense*. Also, the new records reported herein include the southernmost locality records for the species, which almost bridges the known range of *T. pyaukkya* in Chin State of southern Myanmar.

Our specimens, encountered at elevations of ca. 235–1,650 m asl, were collected from a road in front of Homestead Flower Garden, at the corner of an empty cement water tank, and along a forest trail on ground covered with leaf litter and twigs, in foliage, and on tree trunks. We found two individuals (MZMU 1291 and another escaped) inside a plastic container with an open lid filled with a small amount of water on 26 June 2018 in an abandoned farm house at the Sihphir locality in Mizoram; seven eggs (diameters = 1.2–1.4 mm) were stuck to the inside wall of the container and in nearby leaf litter.

The conservation status of *T. baibungense* is currently listed as Data Deficient (DD), reflecting uncertainties regarding the species’ extent of occurrence, population status, and ecological requirements (IUCN SSC Amphibian Specialist Group 2020). These frogs are rarely encountered and the main threat to the species presumably is the loss of forest habitat (Purkayastha 2021). The species has not been evaluated under the Wildlife Protection Act (1972) of India. Based on our experiences, we strongly suggest revising the conservation status of this cryptic frog from DD to Near Threatened (NT).

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