



A Westernmost Population of the Burmese Gliding Treefrog, *Zhangixalus burmanus* (Andersson 1939) (Anura: Rhacophoridae)

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Predictive distribution modeling of species contributes significantly to our knowledge about the probable distribution of species. The data generated can greatly increase the chances of finding populations of a given species within the predicted range of distribution and can contribute significantly toward the conservation of that species at the regional level (e.g., Boral and Moktan 2021). However, rarely are such predictive distribution models validated when new distributional data emerges.

Sengupta et al. (2017) ran a predictive distribution model for the Burmese Gliding Treefrog (*Zhangixalus burmanus*) based on then-known localities for the species, which was

known to occur from Yunnan in China, through northern Myanmar to Nagaland in India and possibly the Tsirang District in Bhutan (Frost 2021), but see below. In India, *Z. burmanus* has been reported from Nagaland by Ao et al. (2003), Manipur (Sengupta et al. 2017), and eastern Arunachal Pradesh (Roy et al. 2018). Herein we report a population of *Z. burmanus* from central Arunachal Pradesh, the westernmost confirmed locality, with a note on natural history.

In 2015, the second author collected three treefrogs from Pange in the Tale Wildlife Sanctuary, Lower Subansiri District, Arunachal Pradesh (27.5485°N, 93.8989°E; elev. 1,804 m asl) (Fig. 1). The specimens were deposited in the

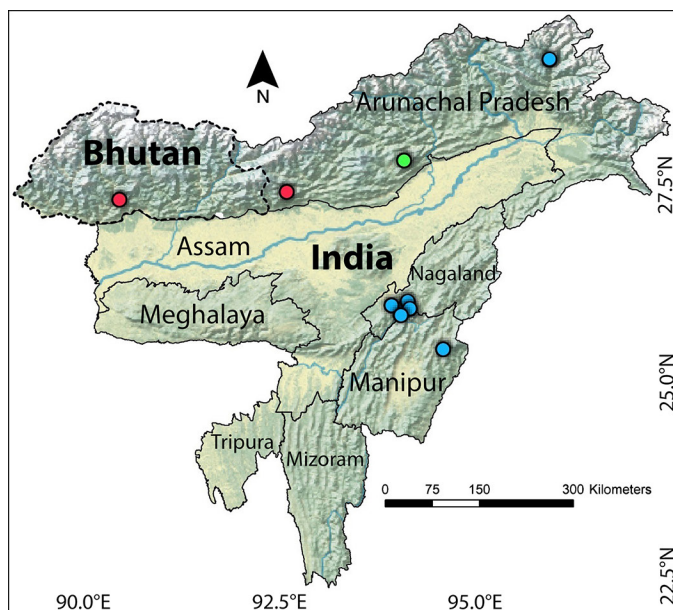


Fig. 1. Map showing localities recorded for the Burmese Gliding Treefrog (*Zhangixalus burmanus*) in northeastern India and Bhutan. The green dot marks the new locality described herein, blue dots indicate localities confirmed by specimens, and the red dots denote localities associated with unconfirmed photographic records.



Fig. 2. An amplexing pair of Burmese Gliding Treefrogs (*Zhangixalus burmanus*) from the Tale Wildlife Sanctuary, Arunachal Pradesh, India. Photograph by Bikramjit Sinha.

museum collections of the Zoological Survey of India (ZSI), Arunachal Pradesh Regional Centre (APRC), Itanagar (V/APRC/A-103 and 105). We tentatively identified these frogs as *Z. burmanus* based on the following morphological characters: A medium-sized, robust treefrog with head broader than long (Table 1); tympanum large and distinct; tibio-tarsal articulation reaches the eye when the hindlimb is adpressed along the body; toes fully webbed, except the distal phalanges of toe 4; inner metatarsal tubercles present; outer metatarsal tubercles absent; dorsal skin greenish (or variable) with scattered irregular brown spots; venter creamy (Ao et al. 2003; Ohler 2009; Sengupta et al. 2017; Roy et al. 2018). The identity of the specimens was verified by K.P. Dinesh, Zoological Survey of India (ZSI), Western Regional Centre (WRC), Pune.

One frog was collected from moist leaf litter (rain had fallen throughout the day) in addition to a pair in amplexus (Fig. 2) on the western edge of the Tale Wildlife Sanctuary at Pange in mixed tropical evergreen forest at dusk (1800–2000 h) on 12 April 2015. Sengupta et al. (2017) stated that *Z. burmanus* is an early breeder during the pre-monsoon period of March–May, with maximum breeding activity concentrated in the months of March and April. Breeding pairs often descend to the ground or woody shrubs, which also was noted by Roy et al. (2018).

Some of the associated herpetofauna we recorded in the same habitat were *Nasutixalus* sp., *Leptobranchium bompui*, *Rhacophorus rhodopus*, *Xenophrys* spp., *Sphenomorphus maculatus*, *Japalura* sp., and *Ptyas nigromarginata*.

Wangyal et al. (2020) recently reported *Z. burmanus* from Bhutan based on a photographic voucher, but the failure to specify the morphological characters used to identify the species renders confirmation of the record impossible. A simi-

lar photographic record of *Z. burmanus* from the Eaglenest Wildlife Sanctuary in western Arunachal Pradesh (Sheth 2010) also required verification (Sengupta et al. 2017). Ceríaco et al. (2016) were critical of photography-based taxonomy, which they referred to as inadequate, harmful, and promoting dissemination of unverifiable evidence. Consequently, our present report is the westernmost confirmed locality for this species. Also, the locality reported herein and that from eastern Arunachal Pradesh (Roy et al. 2016) are well within the probable distribution of this species predicted by Sengupta et al. (2017), reiterating that predictive distribution models can be reliable tools in bridging the so-called Wallacean shortfall in biodiversity inventories (Hortal et al. 2015).

Acknowledgements

We thank the Director, ZSI, Kolkata, for providing facilities, and K.P. Dinesh of ZSI, Pune, for confirming the species identity and making suggestions to improve the manuscript. BJS acknowledges the Arunachal Pradesh Forest Department for permission to carry out surveys and collections in Tale Wildlife Sanctuary under permit No. CWL/G/13(95)/2011-12/Pt./1048-49 dated 22 June 2015.

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Table 1. Morphometric measurements of three Burmese Gliding Treefrogs (*Zhangixalus burmanus*) from the Tale Wildlife Sanctuary, Lower Subansiri District, Arunachal Pradesh, India. Abbreviations: SVL = snout-vent length; HL = head length; HW = head width; SL = snout length; IN = internarial distance; IO = interorbital distance; EL = eye length; NS = distance from snout to tip of nostril; EN = distance from anterior eye corner to nostril. All measurements in mm.

Character	ZSI/APRC/103	ZSI/APRC/105	
	(n = 1)	(n = 2)	
SVL	45.4	59.9	60.4
HL	14.3	18.9	17.6
HW	15.6	22.9	22.2
SL	8.6	10.3	9.8
IN	4.9	6.7	6.7
IO	5.2	7.4	5.9
EL	5.3	6.8	5.9
NS	4.4	5.1	5.1
EN	4.4	5.1	5.1