

## Field observations on the Ladakh Toad and new locality records from Spiti Valley, Himachal Pradesh

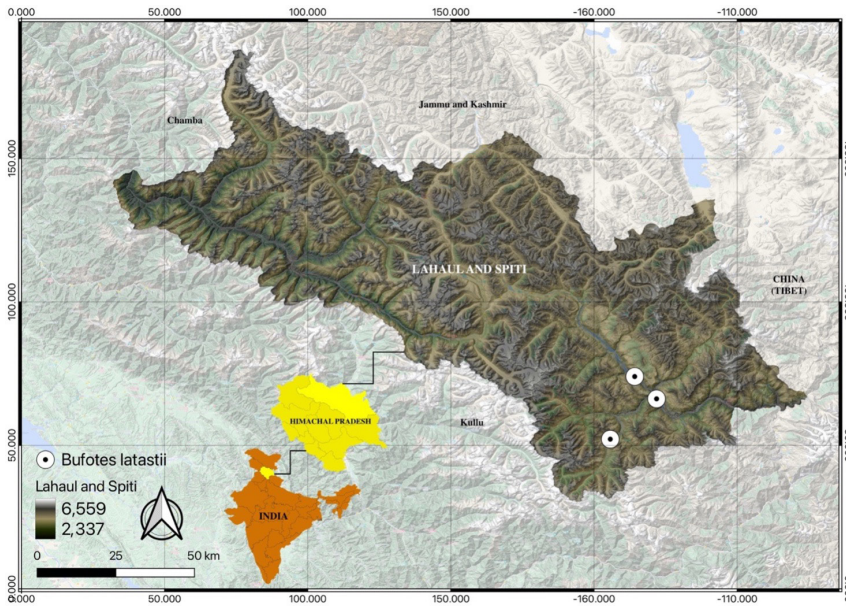
The Ladakh Toad, *Bufo latastii* (Boulenger, 1882), is a species of toad in the Bufonidae family. The species is known for its patchy distribution and preference for rocky habitats, woodlands, and scrublands. It typically lives at elevations between 800 and 2,200 m. Adult toads are most active during the breeding season, which typically lasts from April to June. The species is closely associated with running water and adult toads are found to be more common in areas with a higher percentage of rocky habitats and lower percentage of shrub cover. *Bufo latastii* is only confined to the western Himalaya, which stretches from northern Pakistan to Kashmir Valley and Ladakh in India (peripherally east of the Karakoram). *Bufo pseudoraddei*, *B. baturae*, *B. zamdaensis*, *Duttaphrynus stomaticus*, *D. melanostictus*, and *D. himalayanus* are the other six toad species found in the western Himalaya, where this species is allopatric (Litvinchuk et al. 2018).



The Ladakh Toad *Bufo latastii* dorsal (A) and lateral (B). © Abdus Shakur.

Asian toads in the Trans-Himalayan region have developed distinctive coping mechanisms to endure the harsh winter climates within their habitat, such as

delaying hibernation until the first snowfall of the year. However, the impact of a delay in snowfall on the timing of hibernation in these toads is not well understood.



Map indicating locations of *Bufoles latastii* close to Pin Valley National Park, Lahaul and Spiti, Himachal Pradesh, India.

78.0362°E close to Pin Valley National Park at 1400 h; 1640 h; and 2125 h, respectively. This observation could indicate a change in the species behaviour and natural rhythms, and may be caused by various factors such as changes in temperature, food availability, or other environmental conditions. It is important to report such events to relevant authorities to help understand the underlying causes of the postponement and develop appropriate methods to understand the species and its habitat. Our observation aims to raise awareness of this phenomenon and contribute to the knowledge base on this toad species.

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The timing of first snowfall has a substantial impact on how long the toads remain active before hibernating, which was evident from the research conducted on the Asiatic Toad *Bufo gargarizans* in the Trans-Himalayan region of China (Wang et al. 2015), which suggests that delaying hibernation may be an adaptive strategy. Also, it allows these toads to take advantage of availability of food resources and insulating properties of snow, which help them from the bitter cold and protect their hibernacula from freezing. However, along with the above mentioned factors that delay hibernation among toads, other equally important factors are temperature,

photoperiod, and body conditions, where toads in better condition delay their hibernation until later in the season. Significant research has been conducted which found that the timing of hibernation has an impact on the survival and reproductive success of the toads (Ashpole et al. 2021).

Here we report the postponement of hibernation in the Ladakh Toad *Bufoles latastii*, which is a notable phenomenon with potential implications for the ecosystem. On 12 January 2023, around eight individuals were observed at three different locations 32.0904°N, 78.1911°E; 32.1648°N, 78.1179°E; and 31.9558°N,



## References

Ashpole, I.P., H.W. Steinmetz, A.A. Cunningham, A. Barbon, M.F. Stidworthy, G. Garcia, C.R. Sangster & J. López (2021). A retrospective review of post-metamorphic mountain chicken frog (*Leptodactylus fallax*) necropsy findings from European Zoological Collections. 1998 to 2018. *Journal of Zoo and Wildlife Medicine* 52(1): 133–144.

Litvinchuk, S.N., D.V. Skorinov, G.O. Mazepa & L.J. Borkin (2018). Distribution of *Bufoes latastii* (Boulenger, 1882), endemic to the Western Himalaya. *Alytes* 36(1–4): 314–327.

Wang, M., L. Chai, H. Zhao, M. Wu & H. Wang (2015). Effects of nitrate on metamorphosis, thyroid and

iodothyronine deiodinases expression in *Bufo gargarizans* larvae. *Chemosphere* 139: 402–409.

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