

Scientists were surprised by their discovery of twice as many Diminutive Horned Frog species in Northeast India, revealing overlooked evolutionary diversification of Megophryinae within the Himalayas that was coincident with mountain rise and intensification of the Asian monsoon system.

A team of Indian and American scientists from University of Delhi and Harvard University has discovered five new frog species belonging to the genus *Jingophrys*, commonly known as Diminutive Horned Frogs. This find is a result of five years of extensive explorations in the Northeast Region of India that encompasses the Himalaya global biodiversity hotspot.

Their study published in the latest issue of the ***Royal Society London Open Science*** formally describes five new species, in addition to revealing two new country records for India and additional unnamed populations that represent distinct new species. These findings were confirmed based on multiple sources, including DNA sequence-based molecular phylogenetic studies, detailed comparison of external morphology, as well as unique mating calls produced by male frogs to communicate with females of their own species.

All the five new species were discovered in the Himalayan state of Arunachal Pradesh, India. Three of these new species are named in honor of the local communities, their language, and the region where they were discovered. The Tanii Horned Frog (*Jingophrys taniitatii*) honors the Tanii tribe of Arunachal Pradesh who live in the Ziro Valley region and the Apatani language, by combining the tribe's name 'tanii' with the local word 'tatii' for frogs and toads. The authors recognize the tremendous field support and guidance received from members of the tribal community during their studies.

Another new species, *Jingophrys tanogogo*, is named for the surprising discovery of whole land snail shells inside the gut of the new species, as revealed through sophisticated 3D micro-CT imaging of frog specimens. The word 'tanogogo' for 'snails' is also adopted from the Apatani tribal language that is spoken in the region where this new species was discovered; hence giving it the common name Snail-eating Horned Frog. This species is the first snail-eating frog known from India and constitutes the first report of snail-eating for the family Megophryidae.

The Siang Horned Frog (*Jingophrys siangensis*) is named for Siang region of Arunachal Pradesh. Another two species, *Jingophrys hrdy* (Hrdy's Horned Frog) and *Jingophrys wularsoni* (Wu-Larson's Horned Frog), are named in appreciation of long-time supporters of herpetological field research and conservation biology at Harvard University, where authors conducted this study.

The new species and country records increase the diversity of Diminutive Horned Frogs known from India by seven-fold and constitute a more than two-fold increase for the genus *Jingophrys* overall. *Jingophrys* is a poorly known group of frogs found in a small region encompassing Northeast India and Southern China. It belongs to a large frog family, Megophryidae (commonly, Asian Horned Frogs), that is distributed widely across Asia and understood as having its major center of diversity in the Southeastern parts of Asia. The new study, however, reveals previously overlooked species richness and regional endemism in the Himalayas that delineate the family's western geographic limits.

DNA-based evolutionary analyses at the wider subfamily-level reveal historical patterns of exclusive and rapid diversifications of horned frogs within the Eastern Himalayas. On a geological time scale spanning millions of years, these coincide with the timings of active rise of the young Himalayan mountain ranges and the resulting formation of the South Asian monsoon system, which to this day remains central to the geography as well as economy of the Indian subcontinent. Similarly, these key events played a dramatic role in shaping the entire animal and plant diversity currently housed in the Himalayas — an important hotspot of global biodiversity.

Past biogeographic studies often regarded Northeast India simply as a historical gateway for faunal exchange between the Indian subcontinent and the rest of mainland Asia. The new study reinforces the status of Northeast India as a critical amphibian hotspot hosting its own species-rich, distinct, and hidden biodiversity, needing more dedicated research and conservation efforts. Arunachal Pradesh is a truly understudied region of India hiding rich and endemic frog fauna. Some of the new species are extremely secretive and found in remote forests only during a short breeding season. The new species require further studies to better understand their biology and conservation needs.

The study, titled "Two-fold hidden diversity of diminutive horned frogs (Megophryinae: *Jingophrys*) highlights overlooked *in situ* diversification in the Himalayas" by Sonali Garg, S. D. Biju, Tage Tajo, Radhakrishna Upadhyaya K, and James Hanken was published on 11 November 2026 in *Royal Society Open Science*, a peer-reviewed open access journal published by the Royal Society, London.

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