

Growth in amphibian knowledge of Bhutan

Bhutan is a part of the Eastern Himalayan biodiversity hotspot harbouring ca. 200 species of mammals, 700 birds, 83 reptiles and 91 freshwater fish¹. However, despite several explorations in the country, amphibian fauna remain under-explored. Presently, a total of 40 species of amphibians have been recorded from Bhutan²⁻⁷. The global amphibian portal, AmphibiaWeb lists only seven species and needs to be updated. This includes all the living amphibian orders with 38 anurans, 1 salamander *Tylototriton himalayanus*, and 1 caecilian, *Ichthyophis sikimensis*³. Anurans are represented by seven families. Dicroglossidae is the most speciose, with 12 species under 4 genera followed by Ranidae (3 genera and 8 species) and Megophryidae (2 genera and 7 species), Rhacophoridae (2 genera and 5 species), Bufonidae (1 genera and 3 species), Microhylidae (2 genera and 2 species) and Hylidae (1 genera and 1 species). Interestingly, *Scutiger bhutanensis* is the only the endemic amphibian of Bhutan⁸. Bhutan has recorded 40 species of amphibian, while neighbouring Sikkim has 50 species⁹ and Nepal has 56 species¹⁰ showing the coefficient of biogeographic resemblance (i.e. $2C/N1 + N2$, where C = species common in two region, $N1$ = species in one region, $N2$ = species in second region) of 0.22 and 0.14 respectively. Bhutan's amphibian currently constitutes 9.61% of India's amphibian biodiversity (416)¹⁰.

Out of 20 districts in Bhutan, only 11 districts ($\leq 55\%$) were studied for amphibians. All the studies were conducted sporadically albeit in small; selected sites. Thus, extensive areas of the country remain unexplored ($\geq 45\%$). The amphibian species richness in the country peaks at 500 m amsl, where 15 out of 40 species were recorded. Although the lowest elevation zone has the highest species richness, middle elevation range (1000–2000 m) also has high species richness with range-restricted and unique species, such as *Megophrys* spp., *Amolops* spp., *Nanorana liebigii*, *Chiromantis vittatus*, *Raorchestes annandalii* and *T. himalayanus*, thus, it is important from conservation point of view. Currently, amphibian species are not listed as protected in Bhutan. In view of the rich and diverse faunal diversity in the country, it would be prudent to conduct a detailed study on amphibian fauna, so as to prepare a conservation plan for any imminent threats to the species. Among the recorded amphibian species, *Ingerana borealis* is the only 'Vulnerable' species according to IUCN's threat categories in the country and must be given the priority followed by an endemic *Scutiger bhutanensis* in future amphibian studies in Bhutan.

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DORJI NORBU

Forest Research Institute (Deemed)
University,
Indian Council of Forestry Research
and Education,
Dehradun 248 195, India
e-mail: dorji1234567@gmail.com