

## 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 fish<sup>1</sup>. However, despite several explorations in the country, amphibian fauna remain under-explored. Presently, a total of 40 species of amphibians have been recorded from Bhutan<sup>2-7</sup>. 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*<sup>3</sup>. 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, *Scutigera bhutanensis* is the only the endemic amphibian of Bhutan<sup>8</sup>. Bhutan has recorded 40 species of amphibian, while neighbouring Sikkim has 50 species<sup>9</sup> and Nepal has 56 species<sup>10</sup> 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)<sup>10</sup>.

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 *Scutigera bhutanensis* in future amphibian studies in Bhutan.

1. Bhutan Biodiversity Portal, <http://biodiversity.bt/bbp/theportal>.
2. Das, I. and Palden, J., *Herpetol. Rev.*, 2000, **31**, 256–258.

3. Wangyal, J. T. and Gurung, D. B., *J. Threat. Taxa*, 2012, **4**, 3218–3222.
4. Wangyal, J. T., *J. Threat. Taxa*, 2013, **5**, 4774–4783.
5. Wangyal, J. T., *J. Bhutan Ecol. Soc.*, 2014, **1**, 20–39.
6. Nidup, T., Gyeltshen, D., Penjor, Dorji, S. and Pearch, M. J., *Herpetol. Bull.*, 2016, **136**, 13–18.
7. Das, A., Sharma, P., Surendran, H., Nath, A., Ghosh, S. and Dutta, D., *Herpetol. Notes*, 2016, **9**, 261–278.
8. Ahmed, M. F., Das, A. and Dutta, S. K., *Amphibians and Reptiles of Northeast India: A Photographic Guide*, 2009.
9. Chettri, B., Acharya, B. K. and Bhupathy, S., *An Overview of the Herpetofauna of Sikkim with Emphasis on the Elevational Distribution Pattern and Threats and Conservation Issues*, 2011.
10. AmphibiWeb, <http://amphibiaweb.org>

ACKNOWLEDGEMENT. I thank Rufford Small Grants for Nature Conservation (United Kingdom) for funds, Dr Abhijit Das and Dr Amit Kumar (Wildlife Institute of India, Dehradun, Uttarakhand) for providing their resources and guidance, and Dr Mewa Singh (University of Mysore, Mysuru) for editing the manuscript.

DORJI NORBU

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

## Indian research institutions in the Government sector in SIR 2017

Unlike other ranking exercises, e.g. ARWU, QS, THE, LEIDEN, etc. which deal only with universities and higher educational institutions, the SCImago Institutions Rankings (SIR) also cover research-focused institutions in the Government and private sector.

The latest (2017) version of the SIR report has been released on-line<sup>1</sup>. SIR is a secondary evaluation exercise yielding a composite indicator that combines three different sets of indicators based on research performance (60% of the total weight, using primary bibliometric data

from SCOPUS), innovation outputs (20% of the total weight, based on PATSTAT) and societal impact measured by their web visibility (20% of the total weight based on Google and Ahrefs). Until 2015, as background data were also released, it was possible with the help of indirect surrogate performance indicators to observe the time evolution of progress of leading research-focused institutions over reasonably long windows<sup>2,3</sup> (e.g. a seven-year window 2009–2015 in Prathap<sup>2</sup>).

However, for the last two years SIR reports only ranks, and unlike earlier

years when we reported in these pages the progress of CSIR institutions in terms of composite performance indicators<sup>2,3</sup>, this year we can only show ranks within India and globally. Ranking is based on results generated each year from the data retrieved over a period of five years ending two years before the edition of the ranking. For instance, rankings for 2016 are based on results from the five-year period 2010–2014. The exception is the case of web indicators which have only been calculated for the last year. Institutions are included if they have published