HERPETOFAUNAL DIVERSITY IN THE BILIGIRI RANGASWAMY TEMPLE WILDLIFE SANTUARY, KARNATAKA, INDIA

M.A.A.B. DILHAN, V.A.M.P.K. SAMARAWICKRAMA[1], K.B. RANAWANA[1], I.A.U.N. GUNATILLEKE, C.V.S. GUNATILLEKE AND D.M.D.YAKANDAWALA

Department of Botany, Faculty of Science, University of Peradeniya
[1]Department of Zoology, Faculty of Science, University of Peradeniya

The abundance, diversity and habitat use patterns of the herpetofauna in India's Billigiri Rangaswamy Wildlife Sanctuary (540 sq. km in extent) were studied during June 2004. This study has been carried out as a part of the training program conducted by Ashok Trust Research, Education and Environment (ATREE) in India. Four different forest types, *viz.*, shola forest (SF), dry deciduous forest (DDF), moist deciduous forest (MDF) and evergreen forest (EF) in this reserve were studied. The herpetofauna in each site was quantitatively sampled using 5 m × 5 m plots, five plots were sampled for each site. A total of 28 species, including two endemics: *Calotes rouxii* and *Cnemaspis nairi*, belonging to 20 genera and 12 families comprising 6 spp. in Gekkonidae; 5 each in Scincidae and Ranidae; 2 each in Agamidae, Rhacophoridae and Typhlopidae; 1 species each in Bufonidae, Colubridae, Ichthyophiidae, Microhylidae, Uropeltidae and Viperidae were recorded. Among them were 10 amphibians and 18 reptiles. The proportional abundance of frogs and toads (43%) was highest, followed by geckoes (26 %), skinks (20 %), snakes (6 %), cecilians (3%) and lizards (2%).

Comparison of diversity, using the indices of Fisher's alpha (α), Hill (H_1) and Simpson (D), showed that SF had the highest diversity, followed in decreasing order by DDF, EF and MDF, (α = 7.7, 7.5, 5.7 and 5.2; H_1= 31, 26, 27 and 17; D = 7.7, 5.9, 6.7 and 5.7 respectively), with one exception. The closed canopy, high humidity and micro-habitat diversity in the SF favoured the movement of animals into this forest from other open canopy forest types, when their day time temperatures were high. The MDF was much degraded due to fire damage. Where the damage was severe, herbaceous grass replaced tree vegetation. In the grassy patches the diurnal fluctuations in temperature and humidity were higher. These factors, among others, contribute to diversity ranking observed among the different forest types.

The relationship of the species associations among sites was examined by canonical corresponding analyses. Four distinguishable clusters of species were identified. Three species of amphibians inhabiting water puddles were restricted to one of these groups that separated much apart from the rest. Three reptile species, *Lycodon striatus*, *Geckoella collegalensis* and *Hemidactylus maculatus* living beneath rocks separated as a second group. The third group, the largest of them all, included 10 species that lived under logs, small bushes and/or tree trunks. In the fourth group species mainly occurring in the evergreen forest with high altitude were associated with both leaf litter and/or stream banks. Twenty species of herpetofauna have been recorded from this reserve prior to this study. During our investigations 28 were identified. Of these three species, *Typhlops* sp.1, *Typhlops* sp. 2 and *Cnemaspis* sp. are believed to be new records from India and hence Indian scientists are in the process of describing them.

ATREE is acknowledged for inviting the first two authors to participate in the Conservation Biology Training Program.