

Study of Amphibian Communities in the Rainforests of the Karnataka Western Ghats Region

Abstract

Tropical rainforests are rapidly declining across the world. In India, tropical rainforests are found only in the Western Ghats and the Andaman and Nicobar Islands. The Western Ghats are amongst the 25 biodiversity hotspots that have been globally recognised. The range of climate, vegetation and topography encompassed by the Western Ghats provide great variety of environmental conditions and habitats which have led to a highly diverse fauna and flora in Southwest India. However, very little information is available on the ecology of communities of lesser vertebrates. The amphibians are amongst the little known of vertebrates. Biologically, the amphibians are considered unique animals due to their bimodal life and sensitive physiology which are easily upset by changes in the local environment. Amphibians, often playing the role as top carnivores in small communities, constitute an important link in the food chain. They are natural population regulators of the thousands of invertebrate species that they feed on, have made them more susceptible to adverse changes in the environment than the other groups of vertebrates. Hence amphibians are also considered to be important indicators of environmental health.

The Western Ghats are considered to be the richest in amphibian species in the entire tropical Asia. The Western Ghats are home to not less than 125 species of Amphibians. It is also remarkable that majority of these (<90) species are endemic to this narrow biogeographic province of India. The species of amphibians in the Western Ghats tend to be localised with certain areas having a very diverse fauna while others tend to be poorer. The state of Karnataka is one of the richest areas with regards amphibian species in the Western Ghats. About 50% of all species known from the Western Ghats are known from the Western parts of the state.

With this background, present study gains importance. Four localities, i.e. Kudremukh National Park, Agumbe forest, Someshwara Wildlife Sanctuary, Addoor, were identified for the present study such that they represented the broad vegetation types of the landscape and the human impacts. The sites were all located within the low elevation zone of the Western Ghats, at the same time representative of the coastal plain and the Western slope vegetation types that are known for their high plant diversity.

Field data collection was spread over three seasons and three consecutive years starting with the year 2000. Amphibian community structure in these localities was studied using abundance, dominance, richness, seasonal variations, diversity, similarity and overlap. In all, the study resulted in recording 38 species of Amphibians of which 27 are those that are endemic to the Western Ghats. Five species viz., *Bufo melanostictus*, *Microhyla ornata*, *Fejervarya limnocharis*, *Philautus wynaadensis* and *Polypedates maculatus* were observed in all the six sites/habitats. Of these, with the exception of the species of *Philautus* that is endemic to the Western Ghats, the others are common species with a wide habitat choice and geographical range in the country.

Key words: Amphibians, Diversity, Karnataka, Rain forests, Western Ghats

Signature of the Candidate
(Surya Narayana Rao Addoor)

Research Guide
Prof. Dr M. Abdul Rahiman