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Micromolluscs of the Western Ghats, India: Diversity, distribution and threats

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Abstract

The Western Ghats, India, is one of the 34 hotspots of biological diversity in India and harbour high levels of endemism in a variety of taxa. Research on the faunistic diversity of this hotspot have focused on higher taxa such as mammals and birds and lesser taxa such as land snails have not been studied. Given the rapid land transformation occurring in the Western Ghats, there is an urgent need to study the impact of land use change on poorly known taxa such as land snails. The first attempt was made here to assess the distribution patterns of the land snails of the Western Ghats in relation to land use and habitat disturbances. We assessed geographical distribution patterns of microgastropods along the Western Ghats on the basis of published literature and data from field studies and the impact of land use change and habitat disturbance on microgastropods in the wet forests of the central Western Ghats: a) approximately 40% of the total 269 species of land snails recorded from the Western Ghats were microgastropods, b) the southern Western Ghats harbours high species richness for both micromolluscs as well as macromolluscs compared to the central and northern Western Ghats, c) micromolluscs occur in very high densities compared to macrospecies and d) land use changes and habitat disturbances has led to 10% increase in macrogastropods over microgastropods. The present study clearly shows that land transformation and disturbance has had a severe impact on land snail diversity. Little effort is currently made in India to include lesser known taxa such as land snails in conservation programmes. This is mainly due to our lack of knowledge on the diversity and ecology of this cryptic group. There is, therefore, an urgent need to study the distribution and landscape ecology of land snails to ensure their effective conservation.

Keywords: Western Ghats, microgastropods, disturbance, geographical distribution

Introduction

In South Asia, as in many other human-dominated landscapes of the tropics, growing demands by humans greatly threaten forests and their resources (Hegde *et al*. 1996; Lugo 1995; Murali *et al*. 1996). Human dependence on forests for the collection of firewood and non-timber forest products (NTFPs), cattle and sheep grazing and legal and illegal logging is widespread in the forested landscapes of tropical countries such as India (Uma Shaanker *et al*. 2004). In India alone it is estimated that approximately 50 million people depend directly on forests for their livelihood (Hegde *et al*. 1996). The impact of these threats on forest ecosystems are usually determined indirect measures. For

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