

field survey, with an illustrative case study undertaken at Subausiri district of Arunachal Pradesh.

Rajendran reports the biodiversity status in Western Ghats of Karnataka with the help of biodiversity sample plots. This paper highlights the need for identifying 'hotspots within hotspots' in the Western Ghats in which there are areas rich in plant and animal diversity and degraded and threatened habitats, where revival of eco-system is a possibility.

A study reported by Sinha *et al.* on traditional homegardens at Parugram, Barak valley reveals that plant diversity richness has been maintained due to sustainable management practices of Bishnupriya Manipuri community, which highlights the role of traditional communities in maintaining biodiversity.

Kumar *et al.* present an analysis of various parameters to assess the forest fragmentation in Garo Hills Conservation Area (GCA) and have identified corridors of old tropical forests. Kumar and Kankane brief the efforts of the Zoological Survey of India (ZSI) as a nodal agency of GOI in disseminating information and biodiversity conservation. This chapter provides an excellent data on the faunal diversity.

The gist of the discussion so far, based on the chapters presented in this book highlights that the management of ecosystems requires inventory and monitoring of large areas of natural landscapes at fine scales. Increasingly, modelling is being used as a research and management tool to examine spatio-temporal processes such as land use conversion, natural disturbance, resource harvesting and species dynamics. In this regard, geographical information systems and remote sensing could help determine the rates, causes and scale of biodiversity loss. Information on deforestation and land-use change can be integrated with data on the distribution of biodiversity and existing information on soils, topography, climate, etc. to obtain a comprehensive picture. Maps can provide us not only important regional information about species and habitat distributions but also indicate precise location information about dynamic distribution patterns in relation to landscape features. Thus,

GIS could be a powerful tool in policy and landscape level planning for sustainable management of the natural resources.

This book addresses the exigency of the spatial and temporal analyses skills in addressing the problem of loss of biodiversity, and stimulates discussion on the potential use of GIS and RS for inventorying and mapping for conservation and management of biological diversity. This publication with excellent illustrations will be a useful reference for all researchers in the field of biodiversity and conservation. The problem we have noticed in this publication is the presence of a large number of typographical errors, which might irritate a serious reader!

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Annual Review of Microbiology 2001.

Nicholas Ornston, Albert Balows and Susan Gottesman (eds). Annual Reviews Inc., 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. vol. 55. 817 pp.

Reviewing this volume of *Annual Review* was a daunting task. Twenty-six reviews explore almost all major areas of intensive research. The good side of this volume is the availability of at least four reviews which are of direct interest to me, not counting on the review on 'Biological weapons – A primer for microbiologist'.

The review of Wayne and Sohaskey brings forth the dangers of lurking *M.*

tuberculosis in a suspended animation in the human body. They use a new term 'non-replicating persistence' (NRP) to describe this deadly deception. Hypoxic NRP could possibly give a handle to combat this pathogen with novel drugs.

The review on big bacteria is timely. *Thiomargarita* (= sulfur pearl) *namibiensis* could reach a whopping 700 µm length and is clearly visible to the naked eye. Another big bacteria *Epulopiscium fishelsoni* living in a protein soup of fish guts has more amount of DNA than a eukaryotic cell.

Phages of dairy bacteria show that there are still newer concepts in molecular biology to come from phage biology. A combination of λ-like paradigm, mycobacterial phage resemblance and totally new characteristics makes these phages useful models. The fungus-growing ants were once presumed to be better than microbiologists. They are reported to be growing a monoculture of a fungus. Recent reports showed that another deadly fungal pathogen *Escovopsis* could create havoc in these ant-fungus gardens. What is extraordinary is the presence of an actinomycetes that grows more abundantly on workers that tend the garden. These bacteria secrete antibiotics that keep the *Escovopsis* in check.

This tripartite mutualism is the topic reviewed by Currie who has done seminal work as well. What I found astonishing is that *Escovopsis* could not develop antibiotic resistance against the antibiotics produced by the ant garden actinomycete in spite of their age-old mutualism. However, the reckless use of antibiotics by humans led to the evolution of antibiotic resistance in bacteria in just sixty years. Horizontal gene transfer apparently is a phenomenon having a definitive contribution in the evolution of bacterial species. The review by Koonin *et al.*, shows how the microbial comparative genomics will open up new vistas to the initiated.

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