

BOOK REVIEWS

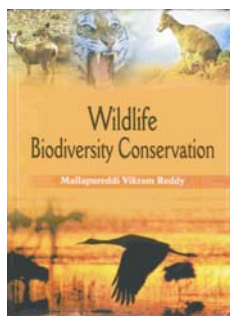
termed Khazan Lands for arbuscular mycorrhizal fungi have indicated that their colonization of plants provides alternative mechanisms to satisfy the nutritive requirements of the plants and maintain physiological status in stressed and disturbed habitats. *Fusarium* mycotoxins are a potential health hazard caused by ingestion of contaminated grains and a study of Fumonisin from maize infected with *Fusarium moniliforme* having cancer-promoting properties has been presented. Taxonomic study of diverse species of *Fusarium* colonizing sorghum during post-harvest storage and producing mycotoxins is important and the need for the development of modern diagnostic techniques for strain and toxin identification emphasized. Indoleacetic acid production by ectomycorrhizal fungi colonizing tree species has an important role in the early initiation of mycorrhizal association with tree roots. The potential of diverse endophytic fungi associated with various plant species needs to be explored to a greater extent for discovering novel secondary metabolites of value. The chapters on forest pathology in India and fungal infections in humans are in the nature of descriptive surveys of important diseases associated with forest trees and human beings respectively.

A survey of the contents of various chapters will leave the reader well informed on the scope and potential of the various interesting topics related to fungi which are discussed. The list of references cited at the end of each chapter would enable the serious student of mycology to study the original papers to acquire more details on the subject. As stated by the editor in his concluding remarks, 'more efforts need to be channeled to understand the diverse fungal resources, their functions in the ecosystem and judicious harnessing of their potentialities and metabolites'. One passing thought which occur in my mind is that the book would have become even more valuable for students of fungal biotechnology if the applications of fungal biodiversity to the discovery of novel secondary metabolites and industrial enzymes would have found detailed discussion in an independent chapter. Also, methodologies for selective isolation of diverse fungi including the rarer and slow growing forms and the *in vitro* conservation of fungal germplasm for biotechnological innovations would have been useful additions. The book can be

considered as a useful compilation of information particularly for those inclined to understand and take up serious investigations in areas related to fungal ecology and diversity.

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Wildlife Biodiversity Conservation. M. Vikram Reddy (ed.). Daya Publishing House, 1123/74, Deva Ram Park, Tri Nagar, Delhi 110 035. 2008. 390 pp. Price: Rs 1800. US\$ 90.

India is one of the mega biodiversity hotspots in the world with rich and varied wildlife. However, growing human population has led to habitat fragmentation and destruction, increased pollution, poaching and so on, causing threat to wildlife in recent years. Hence, efforts are made to protect wildlife through the Wildlife Protection Act, declaration of National Parks and Wildlife Sanctuaries. However, information on geographical distribution and status of fauna and flora is essential for evolving conservation strategies. The book under review is a compendium of Proceedings of a National Seminar on Wildlife Biodiversity Conservation held at Pondichery University (13–15 October 2006). The book is divided into three sections, viz. Introduction, Biodiversity Conservation of Wildlife (Animals), and Biodiversity Conservation of Endangered Wildlife (Plants). The first section has four chapters. The first chapter is based on the 'Keynote' address and is supposed to provide information on soil biodiversity but gives only little information on this aspect. Instead, it deals with biodiversity

in general, its depletion, threats to biodiversity and remedial measures. The chapter is poorly presented; it appears that at many places the 'power point presentations' (?) of the keynote address are perhaps incorporated without providing proper linkage to the succeeding lines. For instance, on page 4 'biodiversity vs cultural diversity' the lines under the sub-heading do not provide any link to subsequent matter. Tables 1.1 and 1.2 do not provide citations/references that would help readers to look for the original articles. The language is poor at many places. Chapter 2 highlights importance of taxonomy and taxonomists, financial support to programmes on biodiversity conservation and establishment of more institutes like Zoological/Botanical Survey of India. Mishra *et al.* (chapter 3) deal with protected areas with special reference to Kalakkad–Mundanthurai Tiger Reserve (KMTR) in southern Western Ghats in Tamil Nadu. The factors that promote or hamper meaningful participation by locals in biodiversity conservation are highlighted. Chapter 4 describes spatial distribution of wildlife with reference to habitat ecology.

Part 1 of the book has 5–21 chapters that deal with animal wild life. Chapter 5 gives a detailed account of the status and need for conservation of Indian ungulates (39 species with 23 genera). Viable population size of ungulates is important since the future of large carnivores depends upon them. Chapter 6 gives an account of mammalian diversity of Kerala while chapter 7 highlights seasonal pattern of crop damage by wild gaurs around Bhagavan Mahaveer Wildlife Sanctuary and Mollem National Park in Goa. The authors report a relationship between dry months and crop damage especially that of sugarcane by wild gaurs and the need to provide pastures of grasslands to these herbivores within the boundaries of protected areas. This would solve crop damage and provide a solution to human and wildlife conflict. Rajgopal and Archunan (chapter 8) give an account of communication through scent markings (urine, pellets, pre-orbital gland secretions, etc.) and scratch markings in blackbucks. They suggest an association between particular types of scent markings with feeding or resting or breeding sites. Also, dominant blackbucks leave a higher number of markings advertising their superiority in the area. Chapter 9 describes the need for conser-

vation of a highly threatened species of flying fox *Pteropus giganteus* and trees used for roosting and foraging. Chapter 10 gives a poor account on waterbirds at Vedanthangal Bird Sanctuary, TN. The authors propose that water pH and DO are critical for waterbirds. Chapters 11 and 12 describe diversity of birds in the Gulf of Mannar Marine Biosphere Reserve and Narayan Sarovar Sanctuary, respectively. Chapters 13–15 also deal with studies on avifauna. Gokula (chapter 13) describes the foraging pattern of birds during breeding season in the deciduous forest of Madhumalai Wildlife Sanctuary. Foraging strategies adopted by different species of birds are interesting and speak about harmony in community living. Sandilyan *et al.* (chapter 14) describe mud nest structure of wire tailed swallows and their nesting behaviour. I found chapter 15 interesting. It deals with avian biodiversity in paddy agroecosystem in relation to different crop stages, and conservation strategies. The chapter is well focused linking insects, birds and paddy crop maturational stages. Subramanian and Reddy (chapter 16) provide data on impact of land-use change on the population of the fan-throated lizard, *Sitana ponticeriana* and impact of vegetation on lizard population.

Chapters 17 to 20 deal with insect biodiversity. Chapter 17 provides butterfly abundance and diversity in an urban habitat of Kolkata and adjoining suburban areas of West Bengal during different seasons. Das *et al.* (chapter 18) describe interesting phenomenon of isolating bio-insecticides from striped butterfly and trace the same to its larvae which feed on plants with toxic alkaloids. The butterfly larvae are tolerant to plant alkaloids and develop warning colour advertising their non-palatability to predators. In chapter 19, Kaleeswaram *et al.* give an account of biodiversity and niches of ants (16 genera and 29 species) in Alagar Hills in TN. Chapter 20 describes migratory pattern of assassin bugs in Kerriperi Range of Agasthia Malai Biosphere. These bugs migrate to adjacent agroecosystem during summer months when forest turn dry.



Yudhira Kumar and Reddy present a detailed account of conservation of natural aquatic resources (lake ecosystems) and their biodiversity (chapter 21). Similarly chapter 22 gives an account of dynamics of aquatic animal diversity of Chambal River (Madhya Pradesh). In this chapter Taigor *et al.* also highlight degradation of aquatic system due to sand mining. Chapter 23 reports a case study showing an association between relative abundance of three commonly occurring macro algal species and diversity of polychaetes while chapter 24 deals with conservation of endangered earthworms. Sammaiah *et al.* (chapter 25) report on the Gothikoyas, primitive tribal groups living in the forest of Eturnagaram Wildlife Sanctuary who hunt mammals for their use. In order to prevent wildlife depletion, the authors emphasize the need to take remedial measures.

Part II of the book consists of 13 chapters that deal with biodiversity and conservation of endangered wildlife (plants). Kiruba *et al.* (chapter 26) report an association between 40 species of medicinal plants and about 25 species of butterflies. They stress the need to prevent overexploitation of these medicinal plants for preservation of butterflies. Chapter 27 by Ayyanar and Ignacimuthu present a report on plants of ethnomedical importance from the Hills of Tirunelveli, TN. Patnaik and Reddy (chapter 28) report 77 plant species belonging to 46 families, known for their therapeutic use against 43 diseases from Debrigarh Wildlife Sanctuary, Orissa and stress the need for their conservation. Chapters 29 and 30 describe the methods for *in vitro* propagation of medicinal plants. While chapter 31 gives an overview of conservation strategy and status of 81 species of trees in TN, chapter 32 presents a brief but holistic approach to biodiversity conservation based on the case studies of tropical wet and dry evergreen forests and chapter 33 reports diversity and distribution of diptocarps in Andaman islands.

Mangroves form unique ecosystem and serve as 'coastguards'. Pradhan (chapter 34) provides a glimpse of mangroves of Orissa coast in Bhitarkanika and Mahanadi delta. He stresses the need to conserve mangroves not only by reducing exploitation but also through *in situ* and *ex situ* techniques of propagation. Chapter 35 by Swain is unique in the sense that it brings in the importance

of ecotourism development and conservation of biodiversity in protected areas. This chapter highlights the importance of a joint programme in conservation of biodiversity and promotion of ecotourism in a sustainable way. Chapter 36 gives an account of biodiversity and eco-conservation related to North-East Himalayan region, one of the hotspots of biodiversity in the world. Chapter 37 provides data on the extent of environmental degradation and other factors (for instance, increased population, livestock, tourism) responsible for lowering the carrying capacity of Andaman and Nicobar Islands (ANI). Even the utilization of forests has a great influence on the very existence of ANI tribes or aboriginals. The author also presents several models for development and eco-conservation of ANI and suggests certain immediate measures (like check on immigration, rain water harvesting and proper town planning with sewage-treatment plants) to be put to action. The final chapter in the series is a tribute to Jim Corbett and Kenneth Anderson who thoroughly enjoyed Indian wilderness and were emotionally attached to people in the villages they visited. Shivakrishnan rightly points out the need for preservation and conservation of wildlife which not only needs strategic planning but requires a sense of belonging to wilderness. He also elegantly describes the evolution of the concept of deep ecology interspersed with passages from writings of Jim Corbett and Anderson. Indeed, such jungle narratives not only evoke man's excitement and adventure towards game but are also sincere documents of appeal for preservation of India's rich wilderness. In brief, the book provides information of varied wildlife encompassing invertebrates to vertebrates and medicinal flora from different parts of India. The editor should have been more critical in editing the book for linguistic errors and uniform style. Nonetheless, the book can serve as reference book for persons interested in wildlife conservation.

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