

as it tells the composition of the stars even when we can never go there.

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Megadiversity Conservation: Flora, Fauna and Medicinal Plants of India's Hotspots. A. B. Chaudhuri and D. D. Sarkar. Daya Publishing House, 1123/74, Deva Ram Park, Tri Nagar, Delhi 110 035. 2003. 300 pp. Price: Rs 695.

The estimated 8,000,000 to 10,000,000 species, the hundreds of biological communities that they are part of and the various ecosystems that sustain earth's biological diversity are not uniformly distributed. Some parts of the world are extremely rich in species, communities and ecosystems as against others that are biologically impoverished. Such a pattern of distribution of biological diversity (or biodiversity) has drawn the attention of early explorers and naturalists, including Charles Darwin and Alfred Russell Wallace, that a number of theories have been put forth to explain this natural phenomenon. Although in the past it was popular to divide the world into broad biogeographic realms based on the patterns of distribution of biodiversity, the need to recognize the magnitude of biodiversity within socio-political limits has been the recent emphasis – in fact, the UN Convention on Biological Diversity treats biodiversity as 'national assets'. As a result, countries that support the largest share of the earth's biodiversity have been categorized as 'megadiversity' countries. And India is one of the 12 megadiversity countries originally identified.

The concept of *biodiversity hot spots* became popular probably in the late 1980s. Biodiversity hot spots are regions of the earth that are biologically rich, sheltering a large number of endemic species yet threatened by human development pressures. Sir Norman Myers who first proposed this concept identified 18 biodiversity hot spots throughout the

world to start with and subsequently added a few more taking the total number to 25. The Eastern Himalayas and Western Ghats in India are amongst the earth's biodiversity hot spots. Interestingly, while many megadiversity countries also encompass biodiversity hot spots, as a rule, these two are not coincident. Biodiversity hot spots have been identified in countries such as Sri Lanka, Kenya and Tanzania that are not megadiversity countries.

It is important to popularize the concepts of megadiversity and biodiversity hot spots so that the countries that are identified do get the required national and international recognition and support. The book under review is an attempt in this regard. It has been written by two retired foresters with many years of experience in managing Indian forests. Although the title seems broad, the authors confess that the contents are more focused on the northeastern parts of India comprising the Eastern Himalayan biodiversity hot spot. The book has an introductory section followed by seven chapters, a brief bibliography, maps and an index.

The book is unique in some respects. First, it has an exclusive acknowledgement section although not a single person or institution has been specifically acknowledged. Second, it has an index without page numbers for most part. It is likely that the authors in attempting to be novel (as they have claimed) put together what would qualify for an appendix along with that of an index. Third, despite the emphasis on northeastern India, the cover is illustrated with the pictures of the Indian gooseberry, Asiatic lion, salt-water crocodile (as it appears to me), a swan, showy asteraceae flowers, pomegranates and a nondescript species of ranid frog – none of which are typical of the region in focus.

What is most disappointing however is the content of the book. It is rather evident that the book has been written with a perverse disregard for India's biodiversity, its scientific community and the northeastern region. The first three chapters say virtually little about the northeast. The rest of the book is shabbily peppered with data on the northeast. Considering the fact that the authors have attempted a book in a 'couple of months', as the preface suggests, it should not surprise the readers that the book contains a lot of trash!

First of all, the authors are not clear about the concepts of megadiversity and biodiversity hot spots. They do not even know that lizards are also reptiles, as throughout the text these two are treated separately. They are confused about the term 'systematics' as is evident from chart 6 on page 34.

Second, that 'there is no information on megadiversity and biodiversity hot spots' of India suggests only the ignorance of the authors. They are not aware of the efforts of the Ministry of Environment and Forests (the senior author has served this Government of India agency) including the recently concluded, countrywide, highly publicized effort to draft the National Biodiversity Strategy and Action Plan. They do not know that northeast India received a lot of attention in this process. Most Government of India initiatives that have been cited in the book are based on press releases in *The Times of India* and *The Telegraph*.

Third, the data contained in the book are all far outdated and completely misleading. For example, in table 7, the number of protected areas in India has been provided as 393 (as against the more than 500 in place) covering an area of 14312 hectares (= 143 square kilometers; less than 0.1% of the country's protected area)! Details of the size of protected areas provided in page 19 rarely match with the real figures. The numbers of species of Indian vertebrates provided in table 2 are entirely misleading; mammals 316 (more than 400 in reality), birds 926 (as against 1230), reptiles 390 (vs approximately 500), amphibians 209 (vs 228) and fishes 748 (vs 750 freshwater species alone). Data provided in the tables do not match each other and that in the text.

Fourth, the spellings are atrocious. For instance, some Indian mammals listed include 'black duck, mask deer and perumpur', birds include 'tellow nape ixulus' and reptiles, viz., 'eccentric tree snake (*Hydrophis obscurus*)'. The Food and Agriculture Organisation is abbreviated as 'FAG'. These are but a few examples.

Finally, there are some hilarious section and sub-section titles: 'algal biodiversity vis-à-vis biotal nutrition – algal micro-organism biotechnology and ecology in north-east Indian water' (p. 97), 'realistic' (p. 198) and 'Bist observes' (p. 262). In summary, the book under review is a clear product of conceit that some retired officers exemplify. And as the

authors have suggested 'looks' as an attribute to evaluate and quantify biodiversity (chart 3, page 31), it is my sincere wish that this brief review will serve as an attribute to caution all readers not to go anywhere near the book.

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Arbuscular Mycorrhizae: Interactions in plants, rhizosphere and soils. A. K. Sharma and B. N. Johri (eds). Oxford and IBH Publishing Co. Pvt. Ltd., 66, Janpath Road, New Delhi 110 001. 2002. 311 pp. Price not stated.

Mycorrhiza literally means 'fungus root', and by far the most common mycorrhizal association is the arbuscular type. The prodigious research made in the last three decades clearly established that arbuscular mycorrhizal (AM) fungi improve plant growth. The growth improvement was attributed to enhanced mineral uptake (especially P, Zn and Cu), biological

control of root pathogens, synergistic interaction with beneficial soil microorganisms, hormone production and drought resistance of the various microorganisms colonizing the rhizosphere. AM fungi occupy a unique ecological position as they are partly inside the host and partly outside the host, i.e.; in the rhizosphere and soil. Thus the title of the book 'Arbuscular mycorrhizae: Interactions in plants, rhizosphere and soils' is very appropriate.

The book has three sections and each section comprises 4 chapters. The first section deals with interactions of AM fungi in the rhizosphere. The four chapters in this section contributed by different authors bring out the interaction between AM fungi and beneficial organisms occurring in rhizosphere. This section brings out clearly the complex nature of mycorrhizosphere and the possibility of modifying it through judicious combinations of microorganisms interacting with AM fungi in order to enhance plant growth.

Section 2 deals with interactions of AM fungi in soil. The chapters in this section deal with the effect of environment on AM fungi, the importance of these fungi in facilitating plant growth under adverse soil conditions, and their role in improving soil structure especially in disturbed soils such as fallows, drains, mined and eroded soils.

Section 3 deals with interactions of AM fungi with plants. The first and second

chapters deal with the molecular basis of symbiosis between plants and AM fungi. The third chapter brings out the up-to-date information on the specificity and compatibility between the two symbionts and the last chapter deals with the physiology of nutrient uptake by AM fungi.

The authors of various chapters have covered the subject comprehensively with current information. References given at the end of each chapter add to the value of the book. The efforts made by the editors to add 'Section Summary' before each section is commendable. Chapter 8 and 9 do not give conclusions, though chapter 8 provides it as 'Future thrust'. However, this does not detract from the value of the book except in not maintaining uniformity in the presentation.

All the authors and the editors must be congratulated for bringing out an extremely useful publication. This book should be a-must to students, teachers and researchers in the disciplines of Microbiology, Plant Pathology, Soil Science, Environmental Science and Agronomy. It will be an asset to all libraries of universities, colleges and research institutions.

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