

**Bioresources of the Eastern Ghats: Their Conservation and Management.**

K. V. Krishnamurthy, R. Murugan and K. Ravikumar. Bishen Singh Mahendra Pal Singh, Dehra Dun 248 001, India, 2014. 824 pp. Price not mentioned. ISBN: 978-81-211-0886-7.

*Bioresources of the Eastern Ghats* reminded me of M. S. Mani's *Ecology and Biogeography in India*<sup>1</sup>. Remembering Mani – that remarkable and wholesome Indian biologist, whose understanding and vision of Indian animals and plants and their geography remain unchallenged even today – was pleasant and I pay my homage to this stalwart.

The Eastern Ghats is an incredible constituent of the Indian peninsula. The natural elements in this remarkable, discontinuous stretch of hills, running nearly parallel to the Coromandel coast from the lower segments of West Bengal through Odisha and Andhra Pradesh to Tamil Nadu – occasionally extending into Karnataka – had attracted the attention of many inquisitive investigators from the Colony days. A peep into a random issue of the *Madras Journal of Literature and Science* (1840, XII) reveals a variety of professional articles on the physical strengths and biological wealth of the Eastern Ghats and associated plains – freshwater fishes (T. C. Jerdon), minerals (T. J. Newbold), fossiliferous beds (C. T. Kaye), Cucurbitaceae (R. Wight). This undulating range of hills is enriched by major rivers, such as the Mahānadi, Krishnā, Godāvāri and Kāvēri. By geological age, we know that the Eastern Ghats is older than the Western Ghats and has a more complex geological history than the Western Ghats, which runs rather continuously along the

Malabar coast in the west. The geomorphology of the Eastern Ghats is unique, made of varied minerals, such as the granite gneiss, khondalites, metamorphic gneisses, and quartzite rock, further to a liberal dose of limestone, bauxite and iron ore. The notable material in the Eastern Ghats rock face is 'charnockite' (named after Job Charnock, the founder of Calcutta), also known as the Pallavaram gneiss, which has a characteristically profuse exposure of quartz–feldspar hypersthene rock, illustrated by varied pyroxene facies of metamorphism<sup>2,3</sup>. Equally fascinating is the biotic complement of the Eastern Ghats<sup>1</sup>. In spite of such unique features, the level of effort made by us to unravel the mysteries of the Eastern Ghats has not been as brilliant compared to that of the Western Ghats. The reasons for such a glaring disparity could be several. In such a context, Krishnamurthy *et al.* have filled a conspicuous gap with this massive tome of 800-odd pages, which is indeed gratifying.

The book under review consists of 11 chapters (pp. 1–470) followed by 44 appendices (pp. 551–824). The details incorporated into the appendices are stunning and indeed are not only useful, but also current. The chapters and appendices are interspersed by the list of references (pp. 472–480). Chapters 1 and 2 refer to the physiognomy and physiography of the Eastern Ghats, chapter 3 to vegetation types and land-use patterns, chapter 4 to plant resources, chapter 5 to animal resources, chapter 6 to indigenous people and traditional knowledge, chapter 7 to microbial resources, chapter 8 to biogeography, chapter 9 to the damage committed to the landscape, chapter 10 to conservation and management, and chapter 11 to the future of this region. The appendices list the hills that make the Eastern Ghats natural and artificial wetlands, plants (both useful and unexplored) of different kinds, animals, and microbes. The appendices towards the end include lists of threatened and endangered plants and animals of this landscape. Appendix XXXIX particularly refers to the introduced and invasive species that occur here.

Chapter 11 entitled 'The future of Eastern Ghats', provides a convincing and thorough conclusion. It starts with a discussion on the physical environment which anchors the biological environment. Suggestions offered are, of course,

doable provided a commitment from both people and administrators (politicians included) can be ensured. Krishnamurthy *et al.* refer to the preservation of the topsoil, which is the most imperative requirement. Erosion is one major damaging factor. Re-building topsoil is as critical as conservation of the lower soil. Biological management of these would be more sustaining, stable and versatile than any structural-engineering management effort. Krishnamurthy *et al.* reinforce the role of the newly created National Biodiversity Authority of India in policing the damage to and loss of germplasm as well as in conserving the endangered taxa. Humans need to validate their role in the larger scheme of things in the Eastern Ghats 'biosphere'. Modernization in the name of development has cost us immensely in the context of indigenous knowledge and cultural diversity. These call for tolerance and mutual respect. According to the 'Alliance of civilizations', a UN document on intercultural dialogue: 'Equitable exchange and dialogue among civilizations, cultures and peoples, based on mutual understanding and respect and the equal dignity of all cultures is the essential prerequisite for constructing social cohesion, reconciliation among peoples and peace among nations', which is worthwhile for us to reflect on and consider translating into action seriously.

Looking at the breadth of details incorporated into this book, I could imagine the patience and perseverance of Krishnamurthy *et al.* in carrying out this stupendous task. I felt overwhelmed. They deserve our congratulations for executing this volume and our thanks for pulling together a staggering quantity of information and data into an encyclopaedic book. It will be near to impossibility for me to delve into every microdetail presented in this volume, either applauding or criticizing, given the limitation of space. By and large, I am happy that the text presented is easy to read and lucid, although a few typesetting flaws manifest occasionally (see p. 302, caption of Section 2). Translating technical terms into plain English is difficult. To a large measure, Krishnamurthy *et al.* have achieved this task honourably. The element that impressed me most was while providing scientific details in plain English, they have supplemented relevant technical details wherever necessary, thus making the book useful to both

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professionals and amateurs alike. Under 'amateurs' I will include postgraduate students of sciences (e.g. biology and ecology, geography, environmental sciences), and of humanities as well. I am confident that postgraduate students pursuing humanities will find chapters 6 (Tribals and traditional knowledge resources), 9 (Degradation of environment and loss of biodiversity), and 10 (Conservation and management) useful. The book includes several helpful illustrations, some in colour. The line sketches are neat, which talk well.

Krishnamurthy *et al.* refer to the Borra Caves near Hyderabad. These stalagmite-stalactite caves are a fabulous gift of nature to us. Have we been able to embellish this natural gift in such a way that these caves could be both recreation and learning sites? I am not sure. Governmental and non-governmental agencies may immediately think of launching a revenue-generating development programme of the Borra and other similar sites. Development of natural environments needs to be understood, extrapolated and executed with utmost caution, so that both learners and tourists have the opportunity to enjoy such natural gifts realizing their objectives – either tourism or learning – and at the same time enabling such environments to maintain their original flavour and colour for posterity. Krishnamurthy *et al.* bring several such similar and unique endowments of the Eastern Ghats to light in this book.

In chapter 6 under subsection 7 (pp. 318–331), Krishnamurthy *et al.* talk of traditional agrobiodiversity, ethnomedical, ethnozoological, and ethnobotanical knowledge. The section that follows (pp. 331–340) refers to conservation measures of natural wealth by tribals, who are labelled by us as 'primitive', whose minds overflow with kindness, generosity and affability, compared with most of us, the so-called 'civilized' urbanites, in whom, generally, the above humane traits present only faintly.

In short, and in general, I am convinced that this book is a mine of rich information. The readable text includes reliable and relevant knowledge in the context of understanding and appreciating both biological and nonbiological materials (which the economists would call 'resources') of India in general and the Eastern Ghats in particular and making efforts to preserve them for future. The appendices, I am highly confident,

will be useful to any scientist interested in the physical and biological aspects of the magnificent Eastern Ghats of India.

At the UN Conference on Sustainable Development (Rio+20), Rio de Janeiro, Brazil, the people of Bolivia submitted a white paper 'Harmony with nature', which includes the following poignant words: 'Nature is not just a set of resources that can be exploited, modified, altered, privatized, commercialized and transformed without any consequences. Earth is the only home we have. The Earth does not belong to us; we belong to the Earth. The Earth is a living system. It is an indivisible, interdependent and interrelated community made of human beings, nature, the atmosphere, the hydrosphere, and the geosphere. Any substantive alteration of one of its components can affect other areas and the entire system. The Earth is the source of life. It is a system that coordinates physical, chemical, biological and ecological elements in a manner that makes life possible. Through the term *Mother Earth*, we express this relationship of belonging to a system and respect for our home'.

I find these words inspirational. The question is, 'are we correct in calling these natural endowments, some of which are to be "used" and not "exploited" by us, humans, as resources?'. Value addition to natural materials and 'branding' them as resources and treating them as critical for certain groups of *Homo sapiens* is not only unreasonable, but also unethical.

Aristotle's (384–322 BC) 'nature makes nothing incomplete and nothing in vain' (*Politics*), 'if one way is better than another, that what one is sure is nature's way' (*Nicomachean Ethics*), 'there is more both of beauty and of *raison d'être* in the works of nature than in those of art' (*de Partibus Animalium*) reverberated in me as I read through the pages of this book. With apologies to George Santayana, I take the liberty to ask ourselves, can we hear the music – played delicately yet brilliantly and charmingly – by the Earth? Do we have that level of sensitivity?

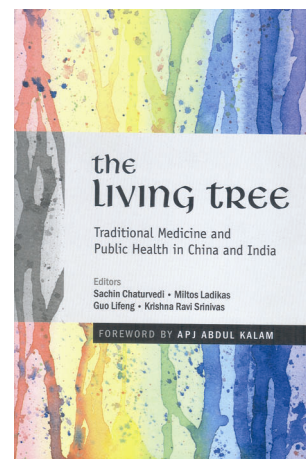
1. Mani, M. S. (ed.), *Ecology and Biogeography in India*, W. Junk Publishers, The Hague, 1974, p. 773.
2. Thurston, E., *The Madras Presidency with Mysore, Coorg, and the Associated States*,

The University Press, Cambridge, 1913, p. 293.

3. Rajagopalan, C., *Proc. Indian Acad. Sci., Sect. A.*, 1947, **26**, 237–260.

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**The Living Tree: Traditional Medicine and Public Health in China and India.** Sachin Chaturvedi, Miltos Ladikas, Guo Lifeng and Krishna Ravi Srinivas (eds). Academic Foundation, 4772-73/23, Bharat Ram Road, Daryaganj, New Delhi 110 002, 2014. 364 pp. Price: Rs 1195.

While the last few decades have witnessed substantial advances in modern medicine, there are many unmet needs. The costs of treatments are going beyond the reach of not only the poor, but also a majority of the global population. Many countries are facing challenges regarding accessibility, affordability and availability of medicine. As a result most people, especially in the developing world, continue to rely on knowledge of traditional medicine to treat illnesses and common diseases. There are serious concerns over research investments and the role of pharmaceutical industry in neglected diseases. The value of traditional medicine in providing affordable healthcare has been recognized by the World Health Organization. A study commissioned by the Commission on Intellectual Property and Public Health of the World Health Organization has indicated enough evidence for the use of traditional medicines