

Book Reviews

Singh, J.S., Singh, S.P. and Gupta, S.R. 2006. *Ecology, Environment and Resource Conservation*. xxvii+688 pages. 18.2×24 cm, Soft Cover. Anamaya Publishers, New Delhi. Price InRs 850. ISBN: 81-88342-55-6

During the past fifty years since the publication of *Fundamentals of Ecology* (Odum 1953), which promoted the science of ecology worldwide, and particularly since its third edition 35 years ago (Odum 1971), numerous and significant changes have occurred in the Earth's environment. The concern for the rapidly degrading environment is no more academic but has become real as its consequences are being felt everywhere and the policy and decision makers, the industrialists and the corporate community have recognised the need for action for conservation. Sustainability of economic development based on the limited natural resources is the key to future of humans on the Earth. The need for education about environment, the causes of its degradation, and the mitigatory measures is more urgent than ever before. Ecology lies at the core of environmental management and resource conservation.

Perhaps keeping pace with the growth of environmental problems and proliferation of its dimensions, there has also been an exponential increase in the number of research publications and books on all aspects of ecology and environmental science. Vast majority of these books are authored by western scientists who invariably tend to emphasise upon the regional issues/ perspectives of their countries and rarely touch upon the ecosystems and their studies in the developing countries. There are many ecologists and environmental scientists of international stature in many developing countries but there has rarely been published an authoritative textbook for the students of developing countries, with examples from these regions. Most of the books on ecology and environment published for local use in various developing countries are either too sketchy or superficial.

In this context, it is most gratifying that three senior Indian and internationally acclaimed ecologists joined hands to author a comprehensive textbook that brings together a synthesis of ecological principles and their application to environmental issues and resource conservation. The book is divided into 30 chapters. The first chapter describes the scope and development of ecology from early biogeography to the present predictive science, its linkages with environmental issues such as resource conservation, global warming, ecosystem health and sustainable development. Next 4 chapters deal with environmental factors – light, temperature, water, soil and fire, and their relationships with organisms. The concept of tolerance ranges and adaptation of plants and

animals to different environments are described in the sixth chapter. Chapter 7 is devoted to biogeography and life zones, focusing on speciation and the biogeographic regions of India. Next two chapters cover population ecology- characteristics, growth and regulation of populations and various kinds of interactions between species (both intra- and interspecific). The structure and dynamics of communities and methods for the study of plant communities and succession are covered in the next three chapters. Further four chapters are devoted to ecosystem processes namely, primary production, energy transfer to higher trophic levels, secondary production and decomposition of organic matter, and nutrient cycles at ecosystem and global levels. Major terrestrial biomes, and freshwater and marine ecosystems are described in Chapter 18. The remaining 12 chapters deal with all major environmental issues of current concern – pollution of air, water and soil, noise pollution, ecotoxicology, global climate change and depletion of ozone layer, biological invasion, degradation and conservation of natural resources, biodiversity, ecological restoration, environmental impact assessment, sustainable development and ecological economics. The techniques and tools of remote sensing and GIS, which are being increasingly applied to the assessment and management of natural resources and monitoring of a variety of environmental problems, are described in a separate chapter. About 1050 references cited in the text are listed at the end along with a list of important web resources. In addition to an exhaustive list of contents, the book includes a comprehensive index.

The authors have covered a very wide range of topics and referred to most of the recent literature. There are more than 130 references to Indian studies of which about half are those contributed by the research groups of the three authors. The book is profusely illustrated and includes numerous tables. The production is of a high quality and printing errors are rather few. A book of this nature may have a few shortcomings which would be perceived differently according to the biases of the reviewer. In my view, the Indian and tropical studies should have received greater coverage. It would have also been useful to have greater inputs from the ecology of animals. I could not locate some recent topics of interest such as patch dynamics and intermediate disturbance hypothesis.

As stated in the Preface, the authors have aimed at a synthesis of the current understanding of ecology and environmental science and designed the book 'to familiarise the graduate students with the basic concepts'. The authors have several decades of teaching experience in three of the best known universities in India, and understandably they know very well the students' requirements. I have no doubt that the book will be most useful to the students pursuing

their master's programme in ecology and/or environmental science not only in India but also in the neighbouring countries and elsewhere in the developing world. The authors must be congratulated for their valuable contribution and service to the students as well as teachers of ecology and environmental science.

It is desirable that every student and researcher in ecology and/or environmental science must obtain a personal copy of the book. The price is of course relatively on the higher side for an average Indian student and may affect the wide circulation that it deserves. It is hoped that the book will soon be available in a cheaper edition.

Odum, E.P. 1953. *Fundamentals of Ecology*. First edition.

W.B. Saunders, Philadelphia, USA. 384 pages.

Odum, E.P. 1971. *Fundamentals of Ecology*. Third edition.

W.B. Saunders, Philadelphia, USA. 546 pages.

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