

BOOK REVIEW

PANDIT A.K.: FRESHWATER ECOSYSTEMS OF THE HIMALAYA. The Partheon Publishing Group, New York, London, 1999. x + 197 pp. ISBN 1-85070-782-0.

In the western Himalayas the picturesque, high altitude valley of Kashmir abounds in freshwater bodies. The ecology of this aquatic ecosystem received sparse attention until relatively recently as it was not until the 1960's that intensive studies were initiated. This book presents a broad-based critical assessment of these detailed studies, serves as a source of information, and should stimulate future interdisciplinary understanding and co-operation.

This book consists of 8 chapters. The introduction deals with the geography and climate of the Kashmir Valley. It is followed by chapters on wetland and lake ecosystems (description of study area, abiotic components, primary and secondary producers, and trophic structure of the wetlands). Special attention is paid to the ecology of the world-famous Dal Lake (elevation of 1584 m, total area of 11.5 km², maximum depth of 6.5 m) in an attempt to assess the ecological status of a lake subjected to eutrophication, which is believed to have occurred during the past 20–30 years. Possible conservation measures for the lake's use and management are suggested. This lake can be used as a model to characterise drainage, morphometry, catchment area, hydrology and siltation. To illustrate ecosystem processes, the author uses the macrophytes in the Dal Lake, which are a source of energy, green manure, indicators of water quality, sites for shelter and breeding of animals, a substrate for periphyton growth and a source of food. The last four chapters describe resource utilisation, and the factors that have affected the Kashmir freshwater ecosystems (denudation, changes in vegetation cover, weeds, drainage and filling of wetlands, construction of canals, human settlements and pollutants, angling, poaching and over-hunting of game birds, introduction of exotic species, and climatic vagaries). Management objectives and tools, for conservation are discussed.

The title of the book is rather broad, and does not correspond to the subject matter. Although the book is entitled "Freshwater ecosystems of the Himalaya", it deals only with a very small region of the mountains, the Vale of Kashmir, between the Lesser and Greater Himalayas. All the freshwater biotopes are

not covered; running water is omitted except for a very brief mention of lake tributaries and effluents. The author naturally studies the ecosystems as a whole. However, I think more attention could be devoted to secondary producers, especially insects, which undoubtedly have the greatest diversity at this trophic level. This is correctly documented e.g. on p. 34, where the very high average density and relatively high biomass of insects in six lakes is cited. On the other hand, the role of tertiary consumers and vertebrates, other than fish, seems to be overestimated. Proper determination of species is a weak point of most ecosystem studies and this study is no exception. This is so not only in insects but also in most macroinvertebrates and some groups of plankton, whereas higher plants are correctly identified.

The citation of numerous scientific names should have been carefully checked, there are numerous mistakes even in commonly used names of species and higher taxonomic groups. For instance, in a single diagram on p. 40 (Fig. 10) the names Aphididae, Rhagoniidae, Chironmidae, Hydrenidae, *Coraxia*, *Notonectus*, *Glossiphona*, and *Acheata* (sic) are used instead of Aphidae, Rhagionidae, Chironomidae, Hydraenidae, *Corixa*, *Notonecta*, *Gossiphonia*, and *Achaeta*, respectively. Although this is not a taxonomic monograph, some of the names in fact represent undesirable *nomina nuda* in the strict sense of the zoological nomenclature (ICZN).

The book is technically perfect except for the black and white photographs, which should be printed in some other way or deleted. Quick orientation is facilitated by a concise index including subjects mentioned mostly in the section on ecology. However, it lacks a more detailed register of generic and specific names of the animals and microorganisms.

Since our knowledge of tropical aquatic ecosystems is rather restricted, it is not necessary to emphasise how useful such a comprehensive treatment is for ecologists and limnologists. The book is also intended to make environmental managers, as well as legislators and administrators, more aware of recent research, which is important for securing the future of these important ecosystems.

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