studies, collections, notes on local names (vernacular, Sanskrit, Hindi, English) habit, habitat, plant size, colour of the flowers, phenology, pollen characters, general availability, ecology, phytogeography, etc. The author has recorded the traditional ethnobotanical knowledge of the Garhwalis spread over 3580 small and medium-sized villages.

The introduction gives a concise account of the geographic features, climate and inhabitants, including people and wildlife. The vegetation types of Garhwal have been classified on the basis of altitudinal zonation. The common standard abbreviations used in the text and of authors' names have been listed. A glossary of palynological terms is provided (although it is not clear from which sources these are taken). The identification of the plants has been confirmed and nomenclatural changes introduced. All the specimens collected have been deposited at the Herbarium, HNB Garhwal University, Srinagar (GUH), Garhwal.

Artificial keys have been provided for the identification of the species described. Although macroscopic features such as habit and floral parts are easily discernible, presence or absence of cambium and features of pollen require a thorough botanical background.

A statistical synopsis of the flora indicates that it contains 2150 species belonging to 1032 genera and 189 families of seed plants. Of these, gymnosperms are represented only by 10 species (8 genera and 4 families). The dominant families of flowering plants of Garhwal district are Leguminosae (228 spp.), Poaceae (193 spp.), Asteraceae (146 spp.), Lamiaceae (71 spp.), Cyperaceae (62 spp.), Orchidaceae (53 spp.), Scrophulariaceae (50 spp.), Rosaceae, (45 spp.), Euphobiaceae (43 spp.) and Rubiaceae (43 spp.).

Besides wild plants, cultigens and aliens (including weeds) have been included in the flora. Of special value to a user are the concise notes on ethnobotanical uses, valuable to practitioners of traditional systems of medicine and social forestry programmes. The study area includes 211 threatened taxa, of which 46 are endangered and the remaining rare. It is not clear whether this information is based on the *Red Data Books* issued by the Botanical Survey of India or quantitative data collected by the author, using revised IUCN criteria. The reviewer has a few points which need attention by the author. For example, *Cynodon dactylon* is an important pasture and lawn grass, but also occurs in cultivated fields all over India. It has been listed in this flora as a weed of the rainy season as well as of winter and spring. It is difficult to define a weed although the term is loosely applied to a wild plant growing where it is not wanted. The generally accepted functional definition of a weed is a plant which seriously interferes in one or another activity of humans. In many Indian scientific publications spinach (*Spinacea oleracea*) has been used as synonymous with palak. Many experts think that what we consume as palak is actually *Beta vulgaris* var. *cicla* Linn. The cultivated beets fall into two groups (i) the cicla group, including leafy vegetables and (ii) the crassa group, including those grown for roots (garden beet, sugar beet, etc.). This needs verification. Also *Melia azadirach* should read *M. azedarach*.

This monumental work could have been elevated to the rank of a classic had the publishers availed the services of a critical copy editor and a competent proof reader. There are several mistakes in Latin names of plants and a few avoidable flaws in the language. The scientific names of birds listed could have been checked by referring to a standard work like the *Book of Indian Birds* by Salim Ali (Twelfth revised and enlarged centenary edition, 1996).

The cover jacket is attractive. Unfortunately, there are no colour illustrations or line drawings inside. The book is priced at Rs 1600. Only libraries and overseas botanists can afford to buy it. Gaur was probably conscious that the cost would have gone up further if he had included some pictures from his marvellous collection. In the considered opinion of the reviewer, such works which provide the resource base for knowledge and rural development should be subsidised by a central funding agency. The author must have spent a good amount of his own money, besides time and energy in preparing the manuscript for the press. In the process he has earned something more enduring – fame. V. Puri the eminent nonagenarian botanist states in the foreward to this volume that four decades ago, Gaur, his student at Meerut College, was a simple, hard-working and intensely ambitious young man who belonged to Garhwal. After the publication of this voluminous flora that embodies hard and sustained work, Garhwal belongs to him. This is indeed a tribute to be treasured.

This admirable work produced through utter dedication by Gaur contains a wealth of information. It is recommended to any individual or organization interested in the biodiversity of Himalaya and in the sustained utilization of plant resources.

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Mountain Biodiversity, Land Use Dynamics, and Traditional Ecological Knowledge. P. S. Ramakrishnan *et al*. Oxford and IBH Publishing Co Pvt Ltd, 66 Janpath, New Delhi, India. 2000. 353 pp. Price not stated.

Among the challenges brought in by the 3rd millennium AD, integrating land use dynamics and people's traditional ecological knowledge for the sustainable management of biodiversity can be considered as the most urgent. Such an urgency is felt much more in a country like India whose human population has already crossed the one billion mark – it is also likely that within the next 5 to 10 years India's cattle population will reach similar magnitude! While many countries, which are reeling under terrific biotic pressure lack the expertise, manpower and financial resources for managing their biological resources in a sustainable manner, India certainly has the capacity to address these issues. In fact, the country has taken a lead in this regard and attempted to outline management strategies based on a number of case studies.

One major initiative that has directly addressed the issue of sustainable management of biodiversity by integrating land use dynamics and traditional ecological

knowledge is that of the Man and Biosphere Programme and UNESCO with the support of IHDP/DIVERSITAS and the Mac Arthur Foundation. The book under review is an attempt to synthesize the results/lessons learnt from this initiative.

The book deals with three case studies undertaken by different collaborating institutions covering the Western Ghats and the Himalayas – two of the globally recognized biodiversity hot-spots. The specific landscapes chosen for the studies include two protected areas, viz. Chinnar Wildlife Sanctuary in Kerala (Western Ghats) and the peripheral areas of the Nanda Devi Biosphere Reserve (Himalayas) and another intensely human-altered landscape in the Western Ghats, viz. Kodagu.

Kodagu is known for its biodiversity wealth. Nevertheless, intensive cultivation of coffee has been the single largest threat to the landscape's biodiversity. Coffee cultivation in Kodagu is an age-old practice. What is of concern is the current shift from cultivating shade-tolerant varieties to light-tolerant ones, and this is likely to have a greater bearing on the natural forests and biodiversity. Land tenure systems, since the Colonial period, which permit the planters to remove trees from their plantations, have contributed rather significantly to the loss of biodiversity in the landscape. Diversified agroforestry, including home gardening has been suggested as a future direction that the landscape development can adopt.

The situation in Chinnar is slightly different. It is largely to do with hill-tribes living within the sanctuary. The study has shown that the tribals are dependent on 140 species of plants for their livelihood. People living adjacent to the sanctuary have currently resorted to extracting lemon grass oil. While the cultivation of lemon grass has led to productive use of degraded lands, the extraction process itself is heavily dependent on locally available firewood. This has placed a lot of pressure on the forests in the landscape. One of the recommendations of the study is the adoption of agroforestry practices which enable better regeneration of locally available trees, so that the biomass requirement can be met sustainably.

In the buffer zone of the Nanda Devi Biosphere Reserve, the pastoral communities have heavily relied on their livestock. Grazing pressure has been severe due to the smaller extent of pasture made available since the Reserve was declared. While these pastoral communities have survived largely on a wool-based economy, they have also cultivated for their subsistence more than 30 species of food crops in a system of traditional agroforestry. Among other things, the study has suggested the improvement of livelihood of these communities through value-addition to agroforestry by encouraging the cultivation of medicinal plants.

In general, the outcome of the three studies points to the fact that for sustainable management of a landscape where human pressure is rather intense, diversified agroforestry could be one of the solutions. Such an inference can be heartening to planners and administrators of biodiversity.

However on the whole, unfortunately, the book lacks clarity since the rambling style of writing does not lead the reader to the crux of the issue. It carries with it a sixteen-page supplement titled, 'Executive Summary'. The scope of this summary is however not clear, since the same finds a place in the book itself. Further, the summary fails to synthesize the outputs of the three case studies.

The overall presentation of the case studies, which one would expect to be in-depth and analytical, is patchy, having adopted a list-mode (especially the Chinnar study) and sandwiched between two long essays written by the senior editor based on his vast past experience. Further, the three case studies are not balanced. While the case study of Kodagu is rather detailed, those of Nanda Devi and Chinnar have failed to adopt any logical flow in approach or presentation. The case study of Chinnar, in fact, seems to hang in time, without accounting for any historical events or processes that have contributed to the current state.

Also, some of the recommendations made for the sustainable development of these landscapes seem contradictory. For example, while it has been reported that potato growing has been singly responsible for loss of agrobiodiversity in Nanda Devi, value addition to potato by training the local communities in state-of-the-art post-harvest techniques is proposed. Similarly, in Chinnar it is recommended that trench digging be adopted as a forestry practice to encourage, amongst others, the proliferation of *Prosopis juliflora*! In all three case studies, there is little said about the relevance of traditional ecological knowledge.

As a general remark, it is quite disappointing that the book is too full of spelling and syntax errors, including many wrong common and scientific names of species (e.g. Brown Deer *Ursus arctos*, a Himalayan animal, p. 19). Also, certain statements have been repeated verbatim throughout the book as that on the last paragraphs of pages 17 and 18, and then on page 177 – clearly results of careless editing. While P. S. Ramakrishnan, the senior editor, needs to be lauded for launching and co-ordinating this mega-initiative, a humble request from all users would be 'please let us have carefully edited publications, whatever they are'!

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Press Tools – Design and Construction. Prakash H. Joshi. Wheeler Publishing, A Division of A.H. Wheeler & Co, Ltd, 411, Surya Kiran, 19, Kasturbha Gandhi Marg, New Delhi 110 001. 2000. Price: Rs 460.

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