REVIEWS

DAVID J. GIBSON: **Methods in Comparative Plant Population Ecology**. Oxford University Press, Oxford, UK, 2002. 344 pp., black-and-white illus. ISBN 0-19-850562-0. Price: GBP 26.99.

The increased interest in biodiversity assessment studies by plant taxonomists calls for thorough knowledge of ecological theory and experimental design. Many very good textbooks have been published on plant population ecology and my first impression was therefore, is there a need for yet another textbook? After careful reading my answer is 'yes'. The book is clearly setup with the idea 'how to set up your experiment', but it is certainly not a cooking book. After the introduction of theories and case studies from plant ecology the book focusses on the planning of a study. Many examples from the literature are used to provide the reader with more insight in ecological research. This part ends with the statistical design of experiments, written by Elizabeth John. Again many different tests are introduced, but John acknowledges the use of door stopping statistical textbooks when further planning your experiment. Both ANOVA and multivariate techniques are introduced and discussed, but as with many ecological textbooks the latter group of statistical tests is far from complete. This is a pity for biodiversity studies that so heavily rely on such tests. The third part describes the actual implementation of the study and how to measure biotic and abiotic treatments and conditions. The book ends with modelling and spatial analysis. Here Gibson is incomplete, since the part on analysis of transition matrices is clearly outdated and replaced by loop analysis. The fact that Gibson completely ignores this analysis, which was already published in the mid-90s, is a small stain on this comprehensive textbook.

'Methods in Comparative Plant Population Ecology' can become a standard book for undergraduate students in ecology doing their first experimental research. The book can assist senior scientists already working in the field as a mnemonic, and it will be of great value to teachers who are developing modules in population ecology. After reading the book, hopefully you will never pseudo-replicate your experiment!

RENÉ VERBURG

L.P.A. OYEN & R.H.M.J. LEMMENS (eds.): **Plant Resources of Tropical Africa. Precursor.** PROTA Programme, Wageningen, The Netherlands, 2002. 187 pp., illus. ISBN 90-77114-02-5. (Ibid.: Resources végétales de l'Afrique tropicale. Précurseur. ISBN 90-77114-03-3). Price: unknown.

C.H. BOSCH, J.S. SIEMONSMA, R.H.M.J. LEMMENS & L.P.A. ROYEN (eds.): **Plant Resources of Tropical Africa. Basic list of species and commodity grouping/Ressources végétales de l'Afrique tropicale. Liste de base des espèces et leurs groupes d'usage.** PROTA Programme, Wageningen, The Netherlands, 2002. 341 pp. ISBN 90-77114-01-7. Price: unknown.

As a successor to the highly successful series of PROSEA handbooks (Plant Resources of Tropical Asia programme) the Wageningen board of editors, together with African scientists, have started a similar programme for tropical Africa. One main difference to the PROSEA programme will be that the PROTA handbooks will be bilingual: both in English and French.

The first publication 'Precursor/Précurseur' gives detailed information about the PROTA programme, its database and the species description format. Furthermore, it gives an example of 37 species treatments covering most commodity groups. A reference list concludes this volume.

The second publication, 'Basic list of species and commodity grouping' gives a list of species to be treated in alphabetical order as well as sorted along commodity groups.

The volumes are produced along the clear lines of the PROSEA handbook layout.

We wish the editors and coordinators of the PROTA programme much luck and hope that the programme will be as successful as the PROSEA programme.

With tropical Asia covered and tropical Africa to be covered for plant resources one wonders if there ever will be similar efforts for Australia, South and Central America, and the various temperate zones.

FRITS ADEMA

N. RAVI & N. MOHANDAN: **Common tropical and subtropical sedges and grasses. An illustrated account.** Science Publishers, Enfield, USA; Plymouth, UK, 2002. xii, 219 pp., illus. ISBN 1-57808-227-7. Price: USD 68.

The grasses (Gramineae or Poaceae) form one of the largest families of flowering plants (with c. 10,000 species in c. 800 genera), and economically are the most important of all. Without grasses the world would look very different indeed, and human civilisation would be very different as well, if humans existed at all. It is believed that the origin of man was first greatly influenced by the grass savannahs of Africa and his culture more recently by the discovery, cultivation, and selection of cereals such as barley, maize, the various millets, rice, rye, sorghum, and wheat, sources of sugar (sugar cane) and oils (citronella, vetiver). No less of importance are the building materials (thatching and scaffolding, bamboos!), lawn grasses, ornamentals, and the various pasture grasses that feed livestock (and do not forget the birds and rodents!), with the simultaneous expansion of weedy species. As the authors say: "the uses of grasses are endless". Very similar and often confused with grasses are the sedges (Cyperaceae) with c. 115 genera and 4000 species.

Yet, because of the multitude of species, and the complex and often minute parts of their 'flowers', even trained taxonomists tend to shy away from these 'difficult' groups. Ravi & Mohandan here give an overview of about a hundred representative species more or less evenly distributed over the two families. Because of the authors' background, the examples are centred on taxa found in Kerala, S India, some not even so common there. Thus this guide doesn't have such a world-wide application as the title suggests. Otherwise, this is a very nicely executed work.

The introduction explains and compares the morphology of the spikelets. Keys are given to the genera and species. For the connoisseur synonymies and literature references of the taxa are provided. For the less experienced/interested users extensive descriptions and figures are given. A glossary explains the unavoidable technical terms.

As my experience is with grasses, I'll restrict my comments on those. The brief note on their classification (p. 94–95) is much outdated as the results of morphological and molecular analyses after 1986 are not mentioned at all, but this will hardly bother or disturb the starting student. Yet, for a book published in 2002, one would have liked some more recent information. In other instances, too, there is an appreciable lack of

contemporary literature. Only a single bamboo is mentioned, surely because of the ecological and economic importance of this group; more should have been included.

The species of *Braciaria* are to be included in *Urochloa*, and *B. miliiformis* is identical with *U. subquadripara*. *Cyrtococcum trigonum* is a rather rare species, the in SE Asia much more common *C. accrescens* and/or *C. patens* should have been included. For *Echinochloa* I missed the much more bad weed and polymorphous *E. crus-galli*. The correct name for *Eragrostis tenella* is *E. amabilis*, while *E. viscosa* is at most a form of that. The common species erroneously called *Eragrostis elongata* is not included. Plants generally identified as *Ischaemum indicum* belong to *I. ciliare*, while its type is the base for *Polytrias indica*, a lawn grass of some importance. *Paspalidium* has been reduced to *Setaria*, which might have been noted, even when the authors disagree with this taxonomical decision. *Rhynchelytrum* has been reduced to *Melinis*. *Setaria pumila* in the sense of SE Asian authors is *S. parviflora*. *Sporolobus indicus* var. *diander* should have been called var. *flaccidus*.

J.F. VELDKAMP

G.E. RUMPHIUS (E.M. Beekman, translation, ed.): **The Ambonese curiosity cabinet.** Yale University Press, London, 2001. 579 pp., illus. ISBN 0-3000-075340. Price: GBP 30.

Of the colonial powers in tropical Asia, it was perhaps the Dutch who pioneered the documenting of natural history: Hendrik van Reede tot Drakenstein's monumental Hortus indicus Malabaricus (1678–1703) in 12 folio volumes, dealing with the flora of southern India, and the works of Georg Eberhard Rumpf (Rumphius, 'Plinius Indicus'), poet, naturalist and ethnographer, with the natural history of what is now eastern Indonesia.

Rumpf was born in 1628 in Hesse, central Germany, and, when caught up in the devastating Thirty Years War, fled to "where the pepper grew". He was recruited by Dutch mercenaries and was to have gone to Brazil, but only got as far as Portugal where he stayed from 1646 until 1649. He was eventually sent by the Dutch East India Company (VOC) to the Indies the day after Christmas 1652 and reached Java in July 1653. Rumpf was sent to Ambon, a mere 386 square miles of tropical paradise, where he was to spend the rest of his life, dying there aged 74. The study of natural history had not been his reason to settle there, but it gave him the opportunity. Rumpf was no saint but an almost stereotypically direct Dutchman, with a bawdy sense of humour. He had three children by an Ambonese woman and later married a Dutch one. An earthquake killed the Ambonese woman and his youngest daughter; then Rumpf was struck blind at the age of 42. Incredibly all his surviving writings were prepared with the aid of others after these catastrophic events. Then his original drawings were all lost in a fire in 1687, as were most of his original manuscripts, botanical and zoological collections, though in 1682 he had sold his shell collection to the Grand Duke of Tuscany. One copy of his great work on plants, Herbarium Amboinense, was lost in a ship sunk by the French, but another copy eventually reached Europe.

Rumpf could speak Portuguese and German and wrote in Dutch, German, Malay and Latin. Prepared in the manner of Pliny's work, his d'Amboinsche Rariteitkamer, its first edition appeared in 1705, with later ones in 1740 and 1741, partial ones later, including one in English in 1764 but none of it has been reprinted since the 18th cen-

tury. It is clear that what is effectively the first natural history of tropical marine life called on Rumpf's immense scholarship and expertise in languages, as well as scientific disciplines. Here for the first time it is translated in its entirety in a most remarkable labour of love and scholarship by Beekman, professor of Germanic Languages at the University of Massachusetts, Amherst, who prefaces it with the most complete and accessible biography of Rumpf now available.

The work comprises three 'books', the first of 44 chapters with 16 plates covering crustaceans, echinoderms and coelenterates (though corals were covered by the Herbarium): of these Linnaeus named 23 after him. The second has 30 chapters and 33 plates and deals with some 339 species (151 genera) in today's reckoning, of molluscs. That book is of fundamental importance as Rumpf was the first to describe these as living animals, rather than just as shells. The third book has received less attention (83 chapters and 11 plates), but covers a wide range of 'stones' including calculi as well as metals, amber and so on, though it includes the first account of Indonesian fossils.

The Rumphius Biohistorical Expedition returned in 1990 with results allowing interpretation of the work: in the same way E.D. Merrill had a collector (who was murdered in the process) on Ambon, which enabled him to interpret the Herbarium, an interpretation published in 1917. The Herbarium remains untranslated into English, however, but for zoologists the richness and erudition of Rumpf's work is now revealed in its entirety. Using contemporary terms rather than modern ones, the translation rings true, the 375 pages of text followed by 190 of notes, bibliography and index. This is an extraordinarily important book and, at thirty pounds, this handsomely produced volume puts to shame Britain's home-grown university presses with their preposterously priced productions.

DAVID J. MABBERLEY

MICHAEL E. SOULÉ & GORDON H. ORIANS (eds.): **Conservation biology. Research priorities for the next decade.** Society for Conservation Biology/Island Press, Washington, Covelo, London, 2001. xvii + 307 pp. ISBN 1-55963-869-9 (pbk), 1-55963-868-0 (cloth). Price: USD 25 (pbk), USD 50 (cloth).

This book comprises 12 chapters by different authors dealing with a vast array of today's major topics concerning the science of conserving biodiversity. The titles of the chapters are: 1. Introduction; 2. Assessment and management of species at risk; 3. Human alteration of food webs; 4. Exotic species and conservation: research needs; 5. Habitat fragmentation: consequences, management and future research priorities; 6. Conservation priorities for soil and sediment invertebrates; 7. Oceans at risk: research priorities in marine conservation biology; 8. Conservation biology and the health sciences: defining the research priorities of conservation medicine; 9. Global environmental change; 10. Making smart conservation decisions; 11. Ecological restoration: a key to conservation; 12. Conservation biology research: its challenges and contexts. It is clear that many of the nowadays prevalent topics are covered, from global change to habitat fragmentation, from oceans to soils, and from medicines to food webs.

In 1986 the Society for Conservation Biology was formed, and a group of scientists developed a research agenda for this field (M.E. Soulé & K. Kohm. 1989. Research priorities for conservation biology). The present book, resulting from a workshop on these topics in 2000, is an update of this research agenda of 13 years ago as prioritised

by the participants. Such a state of the art of research priorities is most welcome in view of the urgent need for more conservation efforts and the biodiversity crisis. I for sure can recommend this to all biologists, resource managers and policy makers (the audience the book is aiming for). It will be extremely useful for everybody who is in the process of developing research plans. Nevertheless, I still want to make a few critical remarks. The selection of authors seems to be a fairly good representation of all scientific disciplines related to conservation issues, maybe with a slight bias towards zoological (vertebrate) organisms and US terrestrial habitats. But still, also invertebrates and oceans are covered in the various chapters. However, hardly anybody directly represents the conservationists in the field, the managers of protected areas, university affiliations predominate. I wonder whether the research agenda described fully covers the societal and practical demands. Furthermore, as far as I can judge systematic input is lacking. For systematists it is good to read that already in 1989 one of the high priority areas for research was identified: *Conduct a crash program of extensive surveys and mapping to identify areas which are critical for the protection of natural and genetic resources because of high biotic diversity, or high levels of endemism, or because of imminent destruction of critical or unusual habitats and/or biota.* In the Preface of the present book the situation regarding this task is discussed, and it appears although many surveys have been carried out in the meantime, this task has not been completed (rather an understatement!). In addition, it has been demonstrated that "surveys of limited taxonomic scope are often poor guides to the distribution of species in other taxonomic groups" (p. xiv). I read this as a plea for more basic systematic inventories, to enhance our understanding of patterns in biodiversity, both regarding taxa as well as distributions. This plea is well worded in the Introduction (p. 3) where it is clearly stated that the species diversity of our planet is poorly known, with special reference to the well-known list of notoriously understudied taxonomic groups and geographical areas. It is concluded that "practitioners could better deal with all of the issues discussed in this report if better taxonomic and ecological information was available". I am sure that we all wholeheartedly agree that a more complete inventory is urgently needed. However, in the subsequent chapters clear statements about research priorities relating to systematics are lacking. For instance, looking at ecological characteristics of invasive species can reveal much information, but comparisons between invasive species with its sistergroup and its closest relatives in the new host areas may give essential clues to frame the ecological observations. I would have liked to see specific discussions on the value of collection data as first attempts to develop working hypotheses by revealing basic patterns. This can be in the context of risk analyses of GMOs, or in the context of global change to seek correlations between distribution patterns and climatological factors. I would advocate that systematists contribute to these issues and try to incorporate systematic elements in the research agenda proposed.

MARCO ROOS