REVIEWS

WALTER S. JUDD, CHRISTOPHER S. CAMPBELL, ELIZABETH A. KELLOGG, PETER F. STEVENS & MICHAEL J. DONOGHUE: **Plant Systematics: A Phylogenetic Approach. 2nd ed.** Sinauer Associates, Inc., Sunderland, Mass., USA, 2002. xvi, 576 pp., illus., CD-ROM. ISBN 0-87893-403-0. Price: USD 89.95.

In the last two decades we have witnessed an enormous increase in our knowledge of the evolutionary history of vascular plants. Mainly thanks to the advent of the use of molecular data in phylogeny reconstruction, we now have a fairly good idea about the evolutionary relationships between most families and higher taxa of flowering plants. This improved hypothesis of the phylogeny of vascular plants allowed for revisions of their classification. 'Plant Systematics: a phylogenetic approach' presents an updated phylogenetic classification of vascular plant families, illustrated with introductory chapters on the field of plant systematics.

The first edition of 'Plant Systematics' was awarded with the Engler Silver Medal for the best publication in the area of plant systematics in 1999. In the second edition, the authors have updated their classification of flowering plant families, following APG 1998 and incorporated revised placements for some families according to APG II. In addition to the chapters in the first edition, the second edition contains a new chapter that gives an overview of the green plant phylogeny and a glossary of terminology.

The book consists of two parts: an introduction in plant systematics and a taxonomic survey of the diversity of vascular plants. The first two chapters start with explaining the basics of biological systematics. Using both hypothetical and empirical data, the authors outline the process of determining the evolutionary relationships between taxa and how to use this information for constructing a classification. The historical background of classifying plants is the topic of Chapter 3. Nowadays, plant classifications are based on the results of phylogenetic analyses. Chapters 4 and 5 are practical discussions of the use of different sources of characters (morphology, chromosomes and molecules) in performing these analyses. The evolution of plant diversity is the topic of Chapter 6. The introductory part of 'Plant Systematics' is completed with a chapter discussing the origin and evolution of green plants. The introduction lays the foundation for the second part of the book. Chapter 8 is a taxonomic survey of the lycophytes, ferns and their allies, and the extant gymnosperms, and in Chapter 9 the phylogenetic relationships of the angiosperms are discussed. Following the phylogenetic approach to systematics, the families of flowering plants are classified according to their evolutionary relationships. The phylogenetic position of each plant family is well illustrated with cladograms on which synapomorphic characters are plotted. In addition to this, the authors give an excellent discussion and overview of the recent literature concerning the phylogeny of each family and its position in the classification. Concise descriptions of the families are provided together with black-and-white illustrations in the book and full colour photographs on the accompanying CD-ROM.

Although 'Plant Systematics: a phylogenetic approach' was intended to be a textbook for undergraduate students, it is much more than that. This book not only serves as a guide into many aspects of systematic botany, but is also a complete updated overview of the diversity of vascular plants and their evolutionary relationships.

PIETER PELSER

RUPERT LENZENWEGER: **Desmidiaceenflora von Österreich. Teil 4. Ergänzungen zur österreichischen Desmidiaceenflora, die Mesotaeniaceen Österreichs und eine Zusammenfassung der bisher in Österreich gefundenen Desmidiaceen.** Bibliotheca Phycologica 111. J. Cramer, Berlin-Stuttgart, 2003. 87 pp., 11 plates, many figures in the text. ISBN 3-443-60038-7. Price: EUR 36.

Although it has been the intention of the author to publish the Desmidiaceenflora von Österreich in three parts, nevertheless a fourth part came out. The first reason for this was that the Mesotaeniaceae, although no real desmids, could be treated. Furthermore, it was now possible to publish on 51 taxa of Desmidiaceae that had been detected since the publication of the three earlier parts of this flora and finally also (as Chapter 4) a full alphabetical list of all Desmidiaceae (but not the Mesotaeniaceae) found in Austria is published.

The taxonomic part contains short descriptions of desmids and Mesotaeniaceae, as well as data on the occurrence of these taxa; for the desmids often both in Austria as well as outside that country, but for the Mesotaeniaceae restricted to Austria. References are given and for all 51 of desmids and the 32 taxa of Mesotaeniaceae figures have been carefully drawn by the author. It is a pity that no full list of the references is given, these have to be found in Teil 3. There is, however, a short but complete list of 'Zusätzliche Literatur' for references that are not included in the former parts as well as another paragraph on 'Literatur' in Chapter 4.

All libraries of phycologists, limnologists and of authorities on water quality are recommended to purchase this nicely illustrated series of books.

WILLEM F. PRUD'HOMME VAN REINE

H. STREIMANN: **The Mosses of Norfolk Island**. Flora of Australia Supplementary Series No. 16, Australian Biological Resources Study, Canberra, 2002. vi + 178 pp., 32 colour photographs, 70 line drawings and distribution maps. (Edited by P. McCarthy, assisted by K. Mallett and T. Orchard.) ISBN 0-642-56821 (pbk). Price AUD 48 (incl. handling and surface mail, Australian residents should add 10% GST); available from ABRS, GPO Box 787, Canberra ACT; e-mail: abrs@ea.gov.au.

The Territory of Norfolk Island consists of an isolated group of subtropical islands located on the Norfolk Island Ridge in the SW Pacific between New Zealand and New Caledonia. It is an external Australian Territory which is not included in the Flora of Australia project. Hence, Heinar Streimann, a bryologist with a clear interest in offshore islands close to Australia, wrote a separate Moss Flora for this Territory, for which he collected a large number of mosses in the 1980s and 1990s. Streimann based his Flora largely on these collections with additional study of literature, type specimens (from NY), and collections, including types, from other herbaria (i.e. BM, MEL, W, and WELT). The Mosses of Norfolk Island is a posthumous publication, which was published more than a year after the author's death.

The Territory of Norfolk Island includes three small main islands and a number of much smaller, sparsely vegetated islands and sea-stacks. Norfolk (35 km^2) and Philip Islands (190 ha) are erosianal remnants of volcanoes that were active 2.3–3.0 million years ago; Nepean (4 ha) consists of coral sandstone. The island vegetation can be described as severely disturbed subtropical rainforest. The area of remaining natural

forest is very small. The diversity of the Norfolk Island moss flora is low, which is primarily due to the low elevation of the islands (up to 316 m) and the absence of stable rock outcrops. The Norfolk Island moss flora consists of 69 extant moss species and infraspecific taxa and shows strong affinities with, in particular, the Australian and New Zealand moss flora with, respectively, 63 and 46 species in common. *Calomnion lillianae* and *Splachnobryum crassinervum* are the only two endemic moss species in the Territory and are only known from the type localities.

The Mosses of Norfolk Island gives a detailed taxonomic treatment of the moss species and infraspecific taxa in the Territory. The first chapter gives a short, but clear, introduction to the islands and the history of bryological activity. The following chapters include a useful identification key to the genera of Norfolk Island mosses and treatments of the 26 families that occur there. Where more than one representative of the family is present, a family treatment consists a family description, generic descriptions, and identification keys to the species or infraspecific taxa. Each treatment of a species or infraspecific taxon includes a nomenclature section giving the correct name and frequently used synonyms, a detailed and synoptic description, information on ecology and local (and global) distribution. It is completed by relevant notes on, especially, fertility and morphology, specimen citations, habit drawings (of variable quality) and anatomical line drawings (of usually good quality), and distribution maps. The taxonomic treatment of the mosses of Norfolk Island includes two unidentified *Philonotis* species of which only a few sterile collections are known; two sterile collections of an *Anombryum* and a *Brachymenium* species could not be identified with certainty. The book is completed by a useful list of excluded taxa (although it is incomplete for Hypopterygiaceae) and a glossary. Beautiful and good quality colour photographs (made by Heino Lepp) are included for 30 species.

Overall, The Mosses of Norfolk Island is a beautiful book. It is recommended for anyone who is interested in Austral and Australasian bryophytes.

HANS KRUIJER