

## Book Reviews

### **Ausbreitungsbiologie der Pflanzen Mitteleuropas. Grundlagen und kulturbistorische Aspekte**

Susanne Bonn and Peter Poschlod.

Quelle & Meyer Verlag GmbH & Co., Wiesbaden, 1998. 404 pp.

Paperback DM48.00, ISBN 3-494-02242-9.

The authors start their book by referring to the classic works of Senander (1901), Ridley (1930), Müller-Schneider (1977), Van der Pijl (1982) and Luftensteiner (1982), and ask themselves what more could be said about plant dispersal. In my opinion the work of Susanne Bonn and Peter Poschlod can be added to the list of classics. The authors are not happy with the fact that most publications on dispersal only take into account the morphology of dispersal units such as plumes, hooks and awns, but do not include the processes of dispersal. Moreover, until now dispersal has been discussed as a potential without taking into account the need to find a safe site, and thence the possibilities of establishment. In the opinion of the authors, the issue of dispersal has been discussed too hypothetically until now; more experimental tests are needed. Two examples of what the authors mean by their criticism are: (i) calcareous grassland species found at ant hills are believed to be dispersed by ants – however, many of these species have no elaiosome, and such species have been recorded to be transported by ants; (ii) dispersal by water has been recorded for diaspores with a whole range of different morphological characteristics.

Theories and models are often derived from anemochory and ornithochory, but hardly ever from anthropogeneous dispersal, despite the fact that the landscape is completely dominated by human impact. Zoochory is supposed to have played an important role in the pristine post-glacial landscape. Again not dispersal *per se*, but it must have been important in combination with disturbances by the animals, thus creating gaps for the establishment of dispersed diaspores. In fact, these wild animals were supposed to be the predecessors of man, who played an overwhelming role by increasing agricultural activities in the dispersal of herbs and grasses in particular.

The authors make clear that 70% of the species of several grassland communities depend on zoochory, often by domestic livestock in low-intensity farming systems. This historical type of agricultural system is held responsible for major dispersal processes in the landscape by connecting grasslands, heathlands, arable fields, forests, villages and waters. The separation of these habitat types is the most important cause of fragmentation in the present landscape and

subsequent decrease of species richness in semi-natural landscapes. An important message of the book is that restoration attempts to increase the number of species by creating corridors will be of little help when many species have low dispersal capacity. Only re-establishment of flocks of domestic livestock, who will provide a moving ecological infrastructure, will contribute significantly to the increase of species richness.

The book should be read by everyone interested in dispersal and its implications for nature conservation. The only possible disadvantage for many readers will be the language: it is written in German. For an impression of the ideas behind the book, English readers are advised to turn to recent papers in the *Journal of Applied Ecology* (1996) 33, 1206–1222; *Acta Botanica Neerlandica* (1998) 47, 27–44 and *Applied Vegetation Science* (1998) 1, 75–90.

J.P. BAKKER

### **Molecular Embryology of Flowering Plants**

V. Raghavan.

Cambridge University Press, Cambridge, 1997.

Hardback, ISBN 0-521-55246-X.

*Molecular Embryology of Flowering Plants* is the first comprehensive and up-to-date textbook on that topic. It not only includes present molecular approaches and results, but also provides a description of various aspects of plant embryology and flower development. The list of cDNA clones, genes, protein products and mutants preceding the first chapter is extensive yet not complete, which is not surprising given the present rate of progression in this field. The first, introductory chapter, with its historic overview and survey of molecular and genetic approaches, is followed by 17 chapters, grouped in five sections, respectively: Gametogenesis, Pollination and Fertilization, Zygotic Embryogenesis, Adventive embryogenesis, and finally, Applications. Although the emphasis is meant to be on molecular approaches, the description of the developmental events is surprisingly detailed and extensive. The combination of molecular, cyto-histological and biochemical data is indeed the most attractive aspect of this book, and makes it an inevitable tool for students and scientists in the field of plant reproductive biology. The consulted literature is exhaustive and provides many entries into current literature of various parts and aspects of modern plant biology, even though specialists in particular fields might find an occasional flaw. For example, the role of calcium and cell walls in pollen tube growth and fertilization could have been described in more detail.

In general, cell biology seems somewhat under-represented. A separate chapter on ovarian development, corresponding to chapter 2, *Anther Developmental Biology*, might have been appropriate. A general flaw is the poor quality of many illustrations. For example, Figure 16.2 showing alfalfa embryos is much too dark, and Figure 14.13 could easily have been improved digitally if no other images were available. Sometimes fluorescence micrographs could have been replaced by more recent

material from the confocal laser scanning microscope. More attention to the half-tone images would have made this book even more attractive. However, these remain minor criticisms because this book fully meets its goal; namely, to describe and explain present molecular understanding of angiosperm reproduction. It is highly recommended.

J.W.M.DERKSEN

*The following books were sent to the editor, but have not been reviewed yet.*

**Biophysical Techniques in Photosynthesis**

Jan Ames and Arnold J. Hoff.  
Kluwer Academic Publishers, Dordrecht,  
20 June 1996; 411 pp.  
US\$355.00; UK159.00; ISBN 0-7923-3642-9.

**Statistical Methods of Plant Variety Evaluation; Plant Breeding Series 3**

R.A. Kempton, P.N. Fox (eds)  
Chapman & Hall, London, November 1996;  
191 pp.  
Hardback, 55.00; ISBN 412-547503.

**Phytochemical Diversity and Redundancy in Ecological Interaction. Recent Advances in Phytochemistry, Vol. 30.**

John T. Romeo, James A. Saunders, Pedro Barbosa (eds)  
Plenum Press, New York, 1996; 319 pp.  
Hardback, US\$89.50; ISBN 0-306-45500-5.

**Plant Genetic Conservation**

N. Maxted, B.V. Ford-Lloyd and J.G. Hawkes (eds)  
Chapman & Hall, London, February 1997;  
446 pp.  
Paperback, 27.50; ISBN 412-637308.

**Drought Tolerance in Higher Plants: Genetical, Physiological and Molecular Biological Analysis**

E. Belhassen (ed.)  
Kluwer Academic Publishers, Dordrecht, 1997;  
103 pp.  
Hardback, NLG 150.00; ISBN 0-7923-4123-6.

**UV-B and Biosphere**

J. Rozema, W.W.C. Gieskes, S.C. Van de Geijn, C. Nolan and H. De Boois (eds)  
Kluwer Academic Publishers, Dordrecht, 1997;  
319 pp.  
Hardback, NLG 250.00; ISBN 0-7923-4422-7.

**Biology and Biotechnology of the Plant Hormone Ethylene**

A.K. Kanellis, C. Chang, H. Kende and D. Grierson (eds)  
Kluwer Academic Publishers, Dordrecht, 1997;  
363 pp.  
Hardback, NLG 295.00; ISBN 0-7923-4587-8.

**Practical Applications of Plant Molecular Biology**

R.J. Henry  
Chapman & Hall, London, 1997; 258 pp.  
Paperback, 24.99; ISBN 0-412-73220-3.

**Quantitative and Ecological Aspects of Plant Breeding**

J. Hill, H.C. Becker and P.M.A. Tigerstedt  
Chapman & Hall, London, 1998; 275 pp.  
Hardback, 65.00; ISBN 0-412-75390-1.

**The Ecology and Evolution of Clonal Plants**

H. de Kroon and J. van Groenendael (eds)  
Backhuys Publishers, Leiden, 1997; 456 pp.  
Paperback, NLG 120.00/US\$67.00;  
ISBN 90-73348-73-0.

**Plant Molecular Biology: Essential Techniques**

P.G. Jones and J.M. Sutton (eds)  
John Wiley & Sons, Chichester, 1997; 214 pp.  
17.99; ISBN 0-471-97268-1.

**Medicinal Natural Products; A Biosynthetic Approach**

Paul M. Dewick  
John Wiley & Sons, Chichester, 1997; 466 pp.  
Paperback, 29.95; ISBN 0-471-97478-1.  
Hardback, 80.00; ISBN 0-471-97477-3.

**Modern Soil Microbiology**

Jan Derk van Elsas, Jack T. Trevors and Elizabeth M.H. Wellington (eds)  
Marcel Dekker, Inc., New York, 1997; 683 pp.  
Hardback; ISBN 0-8247-9436-2. US\$195.00.

**Phenology in Seasonal Climates. I**

H. Lieth and M.D. Schwartz (eds)  
Backhuys Publishers, Leiden, 1997; viii + 144 pp.  
Paperback, Dutch Guilders 76.00/US\$42.25;  
ISBN 90-73348-79-X.

**Plant Invasions: Studies from North America and Europe**

J.H. Brock, M. Wade, P. Pyšek and D. Green (eds)  
Backhuys Publishers, Leiden, 1997; viii + 224 pp.  
Paperback, NLG 95.00/US\$52.75;  
ISBN 90-73348-23-4.

**Perspectives in Plant Ecology, Evolution and Systematics**

Vol 1, Issue 1 (1998), pp. 1–135.  
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Publisher: Gustav Fischer, Germany.  
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