REVIEWS

S. BODEGOM, P.B. PELSER & P.J.A. KEßLER: **Seedlings of secondary forest tree species of East Kalimantan, Indonesia / Semai-semai pohon hutan sekunder di Kalimantan Timur, Indonesia.** Tropenbos-Kalimantan Series 1. The International MOFEC-Tropenbos-Kalimantan Project. 1999. 376 pp., illus. ISBN 90-5113-037-6. Price: NLG 75.

Sustainable forest management is more than limiting harvesting volume of timber in tall forest areas. Reclamation and restoration of depleted forest areas is gaining importance as areas of remaining tall forest are diminishing. Irrespective of the causal factors be it unsustainable logging, mining or forest fires, secondary forest resulting from these activities deserve special attention. In East Kalimantan a wide variety of trees has been used for reforestation of areas affected by the devastating fires of 1982-1983. These attempts involved exotic as well as indigenous species, and results varied considerably. The 1998 fires that raged through the area sadly destroyed most of the successful trials. Gradually emphasis of reforestation has shifted towards the use of indigenous species, which are obviously well adapted to the often very harsh conditions of secondary scrub vegetation. The problem is to find and identify these good alternatives.

Identifying seedlings is often very difficult, as they may differ conspicuously in their general morphology from the adult stages and many distinguishing characters are often not yet present (e.g. characters of flowers and fruits). In this manual a selection of the secondary forest tree species as encountered in various areas of East Kalimantan is presented. Circumstances resulting from the 1998 forest fires prevented a traditional approach of collecting seed from mother trees and raising seedlings under nursery conditions. Instead wildings were collected in various secondary habitats. Fruiting trees were relatively rare at the time of this study, which explains the absence of certain, less regularly fruiting, species in the book. However, this may well be considered a first selection concerning availability of planting material for reforestation purposes. Information on habitat and ecology is briefly mentioned, to give a first indication of suitability in reforestation. In December 1999 I had the opportunity to very quickly test the manual in the field in East Kalimantan. Grabbing seedlings along a roadside in badly depleted forest resulted in successful identification of the plants in over 90 percent of the material. Whereas the manual is intended for seedlings up to 6 months, identification of older plants worked remarkably well.

Troup (1921), Burger (1972), De Vogel (1980), and Ng (1991-1992) describe and discuss many seedlings of the Malesian area, but these authors offer no general identification keys. This manual provides descriptions and identification keys for seedlings of 113 taxa of secondary forest trees (representing 40 plant families), as well as drawings, colour photographs of almost all species and an extensive glossary. The data are presented in a user-friendly bilingual field guide (English/Indonesian) and will enable people without a thorough botanical background to identify many of the common secondary forest tree species of East Kalimantan. This manual is yet another tool from the Tropenbos Wanariset Herbarium to gradually fill a still largely empty toolbox to remedy the strongly depleted forest areas in East Kalimantan.

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References:

Burger, D. 1972. Seedlings of some tropical trees and shrubs mainly of South East Asia. Wageningen.
De Vogel, E.F. 1980. Seedlings of dicotyledons. Structure, development, types. Descriptions of 150 woody Malesian taxa. Wageningen.
Ng, F.S.P. 1991-1992. Manual of forest fruits, seeds and seedlings. 2 volumes. Malayan Forest Record No 34. Kepong.
Troup, R.S. 1921. Silviculture of Indian trees. 3 volumes. Oxford.

M.D. DASSANYAKE & W.D. CLAYTON: **A Revised Handbook to the Flora of Ceylon. Volume XIII.** 1999. 284 pp. A.A. Balkema, Rotterdam. ISBN 90-5410-791-X. Price: EUR 76.50 (NLG 170).

This new volume of the revised handbook of the Flora of Ceylon contains treatments of 31 families, including an addition to the treatment of the Euphorbiaceae in Volume XI. As in the earlier volumes it contains full descriptions of families, genera, and species, and keys when necessary. The descriptions include synonymy, notes on distribution and ecology, and lists of examined specimens.

The treatments seem mostly correct and up to date, although in some cases a more extensive reference to recent literature and volumes of Flora Malesiana would be appropriate. Several new taxa and new combinations are published in this volume.

For those with an interest in the flora of Sri Lanka the volume is a useful addition to the existing literature.

FRITS ADEMA

C.C. DE GUZMAN & J.S. SIEMONSMA (eds.): **Plant Resources of South East Asia. No. 13. Spices.** Backhuys Publishers, Leiden, The Netherlands, 1999. 400 pp., illus. ISBN 90-5782-046-3. Price: NLG 225 (hardcover). [A paperback edition (NLG 90) will be available in 2001. For developing countries a paperback edition (ISBN 979-9316-34-7; price c. USD 15) can be ordered from the PROSEA office at Bogor, Indonesia.]

The PROSEA project has reached another milestone with the publication of volume 13 on spices.

In a long introductory chapter the following topics are discussed: definition of spices, choice of taxa, biological, economic and other aspects, planting, harvesting, literature. This is followed by an extensive treatment of 50 selected taxa; sequence is alphabetical by genus name. The treatments give detailed information on vernacular names, origin, distribution, production, properties, description, propagation, diseases, breeding, and literature. Minor spices are not treated in full, but are listed in a following chapter. This list includes also spice plants with other primary uses. Some species of this category could as well be treated in the present volume. Examples: *Capsicum* and *Allium* (vol. 8, Vegetables), *Cymbopogon* (vol. 19, Essential oils), *Kaempferia* (vol. 12, Medicinal plants), *Tamarindus* (vol. 2, Fruits and nuts). A few rather widely used spice plants are not mentioned at all: *Averrhoa bilimbi, Garcinia atroviridis, Sarcotheca* species.

As we have come to expect from PROSEA publications, printing is excellent. Treatment of various taxa, although by a large number of authors, is remarkably consistent, which is a compliment to the editors. As usual there is a cheap edition for developing countries.

M.M.J. VAN BALGOOY

F. KLÖTZLI & G.-R. WALTHER (eds.): **Conference on Recent Shifts in Vegetation Boundaries of Deciduous Forests, Especially Due to General Global Warming.** Birkhäuser Verlag, Basel, Boston, Berlin, 1999. 342 pp., illus. ISBN 3-7643-6086-0 (Basel), ISBN 0-8176-6086-0 (Boston). Price: CHF 168, DEM 198, ATS 1446 (hardcover).

This book treats recent shifts in vegetation boundaries in the actual and potential distribution area of Laurisilvae as a result of global warming. It covers the subject for the Insubrian Alps, Colchis (Georgië), Hungary, Ireland, China, Japan, Eastern North America, Brazil, and Chili. Nearly all the contributions deal with a process called 'laurophyllisation': The spontaneous spreading and expanding of evergreen broadleaved (laurophyllus) species into areas where up to then deciduous forest was the prevailing or climax vegetation. This process can be partly related to global warming, but human influences (disturbance, changes in land use, forest management and occurrence of fire) are also of importance. In areas with no indigenous laurophyllous species, new niches are created, which may lead to the escape and expansion of exotic ornamental species from parks and gardens. This may form a threat to the original flora and vegetation. Laurophyllisation is demonstrated with a large amount of vegetation releves and descriptions, with climatic data and also palynological research.

A.J.J. LEMAIRE

W. LACK & D.J. MABBERLEY: **The Flora Graeca story. Sibthorp, Bauer, and Hawkins in the Levant.** Oxford University Press, Oxford, New York, Tokyo, 1999. xxxvi + 327 pp., illus. ISBN 0-19-854897-4. Price: GBP 250.

This is the story of two young English gentlemen, John Sibthorp and John Hawkins, amateur scientists, who because of wealthy parents and immense inheritances could permit themselves to make the then customary Grand Tour to the Continent. Contrary to the usual Tour they decided to include the then barely visited Ottoman Empire and for altogether about six and a half years visited more or less remote places in Greece, western Turkey, and Crete. Sibthorp was the botanist and Hawkins the geologist and antiquarian. Hawkins' collections were never worked up, as he went into managing his estates, and most have disappeared over time, while Sibthorp died of diseases contracted after having returned to the mother country. However, the latter left a will stipulating that his botanical collections should be published in a grandiose project, a Flora Graeca in 10 volumes with a hundred coloured prints each, after which(!) Oxford would get a professorship paid for by the estate. Because of the latter stipulation the famous, equally rich James E. Smith, best known for his acquisition of the Linnean collections and library, and founder and life-long President of the Linnean Society, London, spent 29 years of his life that could have been used for better purposes to achieve this. He found the collections to be in great disarray and without any indication of provenance, date, or notes, and had to go by the scanty data in Sibthorp's diaries and letters, and his instincts to make some sense of them. After his death (1828) the work was continued, very reluctantly, by Robert Brown and, more energetically, by John Lindley.

The combined efforts of Bauer, Sowerby, and Smith produced one of the most sumptuous, and rare, floras ever published: 10 volumes with 30 copies over 24 years of labour. To prepare a complete set cost GBP 620, but the subscription was 'only'

GBP 254, the difference paid from the Sibthorp estates. Forty copies were reprinted in 1847 for GBP 63. All were in private hands and it is to be wondered whether the publication was actually 'effective' in the sense of the Code, Art. 29.1: 'accessible to botanists generally'.

The most monumental part were the plates prepared by Ferdinand Bauer, the 'most perfect plant illustrator of all times', and the only real professional of the entourage, but treated as a mere servant by Sibthorp. The plates were executed by the famous engraver James Sowerby and his collaborators, who took care of the 966 plates, i.e. 28,980 illustrations, each individually coloured by hand! The result was superb indeed.

Biographies of Bauer, Hawkins, and Sibthorp, and of many persons they met on the journey or who were involved in the Flora Graeca are given in sometimes exhaustive detail. More than half the book is dedicated to the description of the tours, in great particulars, extensively citing from the diaries. Travelling was most uncomfortable in those times, fraught with dismal lodgings (if any), corrupt officials, diseases, danger of shipwrecks, pirates, earthquakes, etc. It's a bit like reading Xenophon, though, but perhaps for those interested in the comments by these refined Englishmen on these foreign countries with the remarkable, strange habits and customs of the curious inhabitants, human, botanical or zoological of 200 years ago it makes enthralling reading.

The price is entirely in line with its subject, and, again, Bauer's plates are the best part of it.

J.F. VELDKAMP

A.E. ORCHARD & H.S. THOMPSON (eds.): **Flora of Australia. Volume 1. Introduction. 2nd Edition.** Australian Biological Resources Study, CSIRO Publishing, 1999. 692 pp., (colour) illus. ISBN 0-643-05965-2. Price: USD 79.95 (hard back).
K.R. THIELE & L.G. ADAMS (eds.): **Families of Flowering Plants of Australia CD-ROM: An Interactive Identification Guide.** CSIRO Publishing, 1999. CD-ROM, colour illus. ISBN 0-643-06452-4. Price: USD 69.95.

The first publication contains the long awaited second edition of the introduction to the Flora of Australia. Fifteen chapters in five sections deal with all aspects of the Australian flora and the Flora Project.

Section 1: Bibliography and classification, deals with the history of systematic botany in Australia (A.E. Orchard), the Flora Project (A.S. George), the classification and phylogeny of Australian plants (A. Kanis, M.D. Crisp & A.E. Orchard). It also includes an annotated bibliography (A.E. Orchard & A.S. George). Section 2: The environment, discusses Australia as an environment for plants (L.A. Frakes) and present-day influences on this environment (M.D. Fox). Section 3: The Flora, deals with the fossil evidence for evolution (R.S. Hill, E.M. Truswell, S. McLoughlin & M.E. Dellman), the biogeography of Australian landplants (M.D. Crisp) and the aquatic flora [Wetlands and waterplants (S.W.L. Jacobs), Mangroves (P. Bridgewater), Sea plants (D.I. Walker)]. Section 4: Management, deals with uses (A.E. Orchard & A.J.G. Wilson), images (H.J. Hewson) and conservation (I.D. Cresswell). Section 5: Key and Glossary, gives a classical key to the families of flowering plants (A.E. Orchard) and a glossary (A. McCusk). A list of abbreviations and contractions and an index concludes the volume.

The book is well written and beautifully illustrated. This very informative volume should find its way to the desks of all people interested in the flora of Australia. The editors and authors are congratulated with this well executed book.

In parallel to this new introductory volume a CD-ROM with an interactive key to the families of flowering plants of the Australian flora is published. The CD-ROM uses the LUCID-program. As far as can be seen from a few tests the identification is easy and leads to correct family names.

FRITS ADEMA

A.E. ORCHARD, H.S. THOMPSON, P.M. MCCARTHY (eds.) & A. WILSON (vol. ed.): **Flora of Australia, Volume 17B, Proteaceae 3, Hakea to Dryandra.** Australian Biological Resources Study & CSIRO Publishing, Canberra, 1999. xviii + 416 pp., illus. ISBN 0-643-6455-9 (softcover). Price: USD 89.95.

The Proteaceae are a large, important, typical Australian family. This new volume of the Flora of Australia, the third one discussing the Proteaceae, deals with *Hakea* of the tribe Grevilleae and all genera of the tribe Banksieae. In total 5 genera and 322 species are treated. The volume includes several informative chapters on various aspects of *Hakea*, including biogeography and cladistics, to bring the knowledge of that genus on the same level as that of *Grevillea* and *Banksia*.

The volume is produced along the fine standards of the Flora of Australia and beautifully illustrated with black and white drawings, distribution maps and scores of superb colour photographs. A very useful addition to our knowledge of the Proteaceae. A must for all with interest in this family and in the flora of Australia.

FRITS ADEMA