

X. REVIEWS

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ANONYMUS. 1990. **World Plant Conservation Bibliography**. Compiled by the World Conservation Monitoring Centre and Royal Botanic Gardens, Kew. 645 pp. Royal Botanic Gardens, Kew. ISBN 0-947643-24-9. Price £ 15.00 (plus postage and packing: UK 15%, overseas surface 17.5%). Available from Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, U.K. or World Conservation Monitoring Centre, 219C Huntingdon Road, Cambridge CB3 0DL, U.K.

This volume includes over 10,000 citations to literature published during the last ten years about plant conservation at all levels, local, national, and international. Its scope ranges from highly specified papers on individual threatened plant species to more general papers tackling conservation strategy, policy, and law. Reference citations are grouped into three sections: General, Regional, and Country. Within each section references are arranged in alphabetical order of author and each entry is numbered. For a full list of countries and states, and commonly used synonyms, there is a Geographical Index. At the end of the book also indexes to Plant names and Families are included.

This book contains a wealth of information for all those who are concerned with conservation of plants. The conservation status of an individual species in a province or state, the conservation of an ecosystem in a continent, but also articles on phytogeography and evolution, expedition reports with lists of species, and many other subjects are covered. Therefore this bibliography will prove its worth also to scientists working in other fields than conservation.

As the compilers plan to produce supplements and future editions on a regular basis they would greatly welcome suggestions from our readers of new titles that might be included in future volumes. — H.P. Nooteboom.

BEER, J.H. DE & M.J. MCDERMOTT. 1989. **The economic values of non-timber forest products in Southeast Asia, with emphasis on Indonesia, Malaysia and Thailand**. 175 pp, 24 fig (some in colour), tabs, 4 app. Netherlands Committee for IUCN, Damrak 28-30, 1012 LJ Amsterdam, The Netherlands. Dfl. 25.00.

The term 'minor forest products' denotes all animals, plants, and things that a forest produces for the use of man besides timber. In tropical rain forests their number exploited by millions of people is incredibly large and together they are not so 'minor' at all. Their value may well outweigh the timber, especially when it is realized that timber is a one-shot operation, while the gathering of these products usually can be repeated indefinitely if not over-exploited and when the forest is left intact.

In this survey relevant data scattered over many sources are brought together and used in an assessment of the current economic value and how this is changing. Recommendations for general policy and management, as well as directions for further research are proposed. — J.F. Veldkamp.

BORRELL, O.W. 1989. **An annotated checklist of the flora of Kairiru Island, New Guinea**. 241 pp (illustrations pp 151-227, 32 col. pl., 34 b/w, 2 map). Private publication, c/o Mrs. J. Ryan, Marcellin College, 160 Bulleen Road, Bulleen (Vict.), 3105, Australia. ISBN 0-7316-4463-8. Austr\$ 21.75.

Brother William Borrell of the Marist Brothers has been a teacher at St. Xavier's High School on the Island of Kairiru, off the coast of Wewak in the East Sepik Province of Papua New Guinea. There he had the opportunity to observe the local flora, and, assisted by his pupils, to make considerable collections (now deposited in LAE). Encouraged by Mr. Henty of the Lae Herbarium he started to make a checklist, adding local names, brief diagnoses, photographs, and fine pen drawings. After many years of off and on elaboration the result has now been published. It is a good example of what a dedicated layman can do if he sets himself to it. The knowledge of the Malesian flora would progress much if there were many more missionaries like him making use of their opportunity and the local knowledge before the latter vanishes due to the modern ways of living. — J.F. Veldkamp.

FORMAN, L.L. & D. BRIDSON. 1989. **The herbarium handbook**. iv + 214 pp, 52 fig. Royal Botanic Gardens, Kew TW9 3AB, U.K. ISBN 0-947643-20-6. £ 12.00.

In 1987 and 1988 an 'International Diploma Course in Herbarium Techniques' has been given at the Royal Botanic Gardens, Kew. This has proved to be highly successful attended by participants from all over the world. Obviously there was a need for a manual containing the text of the various lectures and demonstrations.

Bound in a cover that simulates a plantpress it deals primarily with the technical aspects of herbarium work: the preparation, housing, preservation and organisation of herbarium collections, and associated subjects. For the science of taxonomy itself several aspects including nomenclature and typification have been treated briefly.

There are 39 chapters dealing with such diverse matters, sometimes very detailed, as to the why of an herbarium, and the how of it: how to install and maintain it, pests, materials to use, types of labels, the intricacies of paperwork and dealing with the specimens, essential literature and how to use it (incl. maps, gazetteers), the preparation of illustrations; some notes are given on dissecting floral parts and their preservation. Important subjects which might well be read by anybody going out to collect material are discussed in chapters 29–36, where advice is given of what is important to collect for certain groups or families, and how. Occasionally useful glossaries are given to explain the technical terms.

The manual clearly discusses the many aspects of the daily life in an herbarium taking well into account the problems encountered by small institutes run by a single or very few staff members. What I did miss was a more extensive elaboration on one very important part of any herbarium: its library. The necessity of written records in many forms is repeatedly displayed, but in view of all the detailed instructions, at least one chapter might have been devoted to the depository of the results of all these efforts. — J.F. Veldkamp.

(For more details on the course, see Chapter V.)

HOLM-NIELSEN, L.B., I.C. NIELSEN & H. BALSLEV (Eds.). 1989. **Tropical forests, botanical dynamics, speciation and diversity**. xv + 380 pp, illus. Academic Press Ltd., London, San Diego. ISBN 0-12--32355-6. £ 24.50 (hardcover).

These are the beautifully executed Proceedings of the Symposium on Tropical Forests, Aarhus, Denmark, 1988. Many of the subjects deal with aspects of neotropical botany, the theoretical ones may have applications to Malesian botany as well. There are four parts. The first deals with dynamics and is opened by R.A.A. Oldeman, who tries to provide a theoretical basis to link the various hypotheses.

G. Irion and J. Salo & M. Räsänen discuss the history and hierarchy of the landscape of the Amazon lowlands which may be compared to those of Malesia. Due to a turbulent

history present-day distribution patterns are extremely complex and no overall explanation can be given to unify them. An example of the tree distribution influenced by flood tolerance in Central Amazonia is given by W.J. Junk. It is curious to note that he does not mention the term 'rheophyte', nor refers to Van Steenis' manual on that subject, although he describes various aspects of the phenomenon.

Various authors show that the gap phase in canopies is the driving force in maintaining species diversity. I don't think that G.S. Hartshorn's conclusion that narrow strip clearcuts in primary forests simulating natural gaps enhances species diversity should be misinterpreted as if logging roads would be 'good' for the forest!

E.F. Brünig & Y.-W. Huang observed surprisingly consistent patterns and species richness in the heath- and peat swamp forests of Borneo and the rain forests of China. Richness is primarily controlled by site factors; the evenness of the mixture, however, is more closely species related.

D. Barthélémy, C. Edelin & F. Hallé summarize the architectural concepts which analyses plant development.

M.D. Swaine gives a summary of the current understanding of forest dynamics in terms of tree populations.

In the second part, speciation, A.H. Gentry tackles the question of why there are so many species in tropical forests. There is not a single answer to this, except that there is a rich array of speciation phenomena. For instance, hybridization may be much more wide spread and common than thought. Clearly tropical plants are not conservative but have a broad and diverse quiver of evolutionary strategies. The nice theory of refugia in South America has turned out to be artificial and probably only true in exceptional cases, just as Van Steenis has suggested (oral comm.). Of importance seems to be parapatric speciation, the interruption of gene flow on habitat gradients followed by disruptive selection. Many Amazonian species are apparently edaphic specialists. Whether this can be said of Malesian species is another thing.

R. Geesink & D.J. Kornet argue that species are 'individuals' in the philosophical sense rather than sets of similar specimens constituting classes of objects. They see species as self-organizing information systems, and the evolutionary process as an entropy increasing process. They then test these thoughts on some examples of *Leguminosae* mainly from Malesia.

Z.-Y. Chen briefly describes the evolutionary patterns in cytology and pollen structure of *Zingiberaceae* of tropical Asia, i.e. mainly Chinese, and suggests that active evolution is presently taking place.

K. Iwatsuki summarizes the present state of knowledge in the speciation of the *Asplenium unilaterale* complex, whereby it is suggested that sect. *Hymenasplenium* may constitute a distinct genus.

The mainly continental Southeast Asia species of *Justicia* and *Rungia* are redefined by B. Hansen, and many are reduced.

In the third part, diversity, P.S. Ashton again tackles the problem of the extraordinary richness of species in tropical rain forests. Tilman has hypothesized that this would be primarily determined by the abundance of physical environmental resources, enhanced by small-scale heterogeneity in those resources which are limiting to plant survival and growth. This is confirmed to a remarkable extent by dipterocarps, but not by other species, according to data from plots in Borneo. There is a strong correlation with soil magnesium and to a lesser extent with phosphorus. Of great importance again is canopy disturbance. It is inter-

esting to note that gap formation varies greatly with soils. On friable soils, fertile or not, large gaps are least frequent. On poorly structured soils, however, they are more frequent, and here, too, species richness is highest.

In the final part, a historical and ethnographical one, V.K.S. Shukla & I.C. Nielsen take the case of cocoa butter as an example of the possible application of the harvests of agroforestry. Because of the uncertainty of the production of this butter with prizes fluctuating wildly, industry has been looking around for alternatives. These are provided by oils of several species, most of which are wild crops not yet commercially in cultivation, e.g. *Butyrospermum parkii* (shea), *Madhuca latifolia* and *M. longifolia* (both 'mowrah'), *Shorea robusta* (sal), and ca. 20 species of *Shorea* from Borneo (illipe), e.g. *S. macrophylla*, *S. stenoptera* (fruiting annually in Java!). — J.F. Veldkamp.

JACOBS, M. 1988. **The tropical rain forest, a first encounter.** (Ed. R. Kruk). xvi, 295 pp, 157 fig, 8 pl. Springer Verlag, Berlin. ISBN 3-540-17996-8. DM 64.00.

Those who have read M. Jacobs' original version, "Het tropisch regenwoud, een eerste kennismaking", published in 1981, have wished that this excellent book would be translated into English [cf. Fl. Males. Bull. 34 (1981) 3574]. Jacobs had planned to do that, but his sudden death in 1983 left the English version unfinished. We must be grateful to his colleagues for taking over the task to complete his work.

An introductory chapter gives an impression of what a rain forest is and where this type of vegetation occurs.

Chapter 2 is useful for students, to give them an idea about the methods of field work and some important literature.

Chapters 3 and 4 present an overview on climate and soils in the rain forest. There is a small error in the text of fig. 3.3, p. 43: Khao Chong in South Thailand is not a monsoon forest as occurs in Sakaerat or Chiang Mai, but still evergreen rain forest. Its rainfall regime is similar to that of S.W. Sri Lanka.

Chapters 5 and 6 deal with tree structure and the life forms of the rain forest. This is a very recommendable text for students to learn about the differences between lianas, hemiepiphytes, parasites, etc.

Chapter 7 refers to the composition of rain forests and Chapter 8 to the forest successions and contain much material of the excellent book of Hallé et al. [Tropical trees and forests (1978)]. A lot of work has been done in recent years on that subject, but since 'few people feel happy in a rain forest', as Jacobs remarks in his preface, most studies have been done in montane or deciduous forests, where identification is less difficult, although still far from easy.

The following three Chapters are regional accounts on Tropical America (9, a new chapter by R.A.A. Oldeman), Malesia (10), and Tropical Africa (11).

Relationships between plants and animals (Chapter 12) is very important as a bridge to zoology, and gives interesting details of the complicated system of interactions while demonstrating that the whole system will suffer once substantial parts have been removed by man.

Chapter 13 (evolution) and 14 (How species are formed) are direct translations of the original Dutch version. Besides conservation evolution must have attracted the special interest of Marius Jacobs. Corner's Durian Theory and the development of rain forest species are discussed.

Chapter 15 (At the fringes of the rain forest) is important as it deals with all the other vegetation types which are often mixed up with the genuine tropical evergreen rain forest. 'Rain forest' today happens to be a synonym of 'Tropical forest' ('Tropenbos', 'Tropenwald', etc.), but people should learn to know that teak is not a tree of evergreen rain forest, but of deciduous forests with a different ecology.

It must be accepted that this book concentrates on tropical evergreen lowland rain forest as there is such a lot of material to deal with. To include the whole montane forest complex and the various types of deciduous rain forest would have made it too bulky and more expensive. Nevertheless, in a next edition the 19 pages of this chapter might be extended to give them a treatment equal to the other forest types.

Chapter 16 gives an overview on the different 'values of the rain forest', where supply of wood is only one aspect, but Chapter 17 has to deal with the influence of logging and shifting cultivation by 'damage and destruction' of that treasure.

Chapters 18 and 19 are devoted to 'protection' and 'forest and man' problems which always attracted Jacobs very much [see his list of publications in the Bibliography at the end, and *Blumea* 29 (1983)].

Jacobs was a real ecologist and conservationist and this book reflects his vast experience. The complicated network of life in a tropical rain forest is demonstrated, and those who read this book will understand why logging, incl. 'selective' logging, and other sorts of compromise are no intelligent way to make use of it. It is pointed out that the use of 'minor'/non-wood forest products offers a possibility to extract some of the wealth of the forest without disturbing it too much.

The quality of the illustrations is excellent, especially that of the original M.J. photographs.

This book should be printed in a cheaper English edition to make it available to Third World countries. Translations into French, German, Spanish, Portuguese, and – very important – Japanese should follow. The future editions should include an updated list of the most important publications on tropical rain forests since 1984.

This book helps to understand why tropical rain forest is so important. It may be regarded as Marius Jacobs' legacy. — W.L. Werner.

Malayan Naturalist 43/1 & 2: Conservation and utilization of Malaysian Palms. November 1989. Malayan Nature Society, P.O. Box 10750, 50724 Kuala Lumpur, Malaysia. Many black-and-white photographs. Price M\$ 4.00 for members; M\$ 10.00 for non-members.

The first three chapters deal with the conservation status of Malaysian palms in respectively Peninsular Malaysia (by R. Kiew), Sabah (by J. Dransfield & D. Johnson) and Sarawak (by K. Pearce).

Kiew gives a geographic description of the region, a very short account of the palm flora, a paragraph on threats to survival, and changes in the list of The Conservation Status of Peninsular Malaysian Indigenous Palms from 1987 by Kiew & Dransfield. In Appendix 1 a revised version of this list is given. Table 1 gives a list of endangered palms in Peninsular Malaya. Threatened palms occurring in protected places are dealt with in one general and some special sections. Also a list of Malaysian species cultivated in Botanic Gardens is given.

Dransfield & Johnson give, after a small introduction, a list of the Conservation Status of Palms in Sabah.

Pearce again starts with a geographic description of the region, followed by an account of the palm flora, a checklist of indigenous palms of Sarawak and their conservation status (also giving local names). Sections on threats to palms and the presence of threatened palms in botanic gardens, public parks, and private collections are included.

After the chapters on conservation status a nice chapter 'Nature Notes' is given by Kiew & G.W.H. Davison, with sections on epiphylls, epiphytes, litter trapping species, palm-ant relations, fungi, palms as source of food for animals, palms as living space for animals, and conclusions.

The last two chapters deal with the utilization of palms in Peninsular Malaysia (Kiew) and in Sarawak (Pearce). They give a wealth of information indeed, also on the economic aspects of the utilization. Palms are used for such different items as for making cigarette paper, sugar and alcohol, salt, building fish traps and bridges, weaving mats, hats, and baskets, and of some the fruits are eaten. The commercial value of rattans, which is by no means of little importance, is discussed. A sections of palms used in villages is added.

In the chapter of Pearce photographs are given of the many ways of using weaved rattan as baskets, chair seats, mats, hats, etc.

This issue of the *Malayan Naturalist* is a very useful source of knowledge of palms and their uses, as well as their conservation status in Malaysia. — H.P. Nooteboom.

POLUNIN, I. 1988. *Plants and flowers of Malaysia*. 160 pp. Times editions, Singapore. ISBN 981-204-021-8. Sing\$ 29.90.

This is the second and hopefully not the last of Polunin's *Plants & Flowers* productions. It follows the same format and style as his previous "Plants and flowers of Singapore" (see *Fl. Males. Bull.* 10 (2): 158). Polunin has been in Malaya and later in Singapore since 1948, where he was a medical doctor at the National University. He is now retired. He was able to travel widely in Southeast Asia in pursuit of his prime hobby: nature photography, a subject he excels in.

In contrast to other books about colourful flowers "Plants and Flowers of Malaysia" is based on a genuine and often personal knowledge plus a considerable amount of research, features which contribute to the superiority of Polunin's work. Furthermore, Malaysia, since it includes two distinct and botanically different areas (Peninsular Malaysia and parts of Borneo), has required more work to produce under the constraints of the publisher than the first book.

The introductory chapters clearly describe the aims and provide valuable information concerning the setting, climate, and vegetation, and some ecological relationships in the area. Short, succinct and well-illustrated chapters follow on coastal and marine (incl. mangrove) plants, freshwater habitats, rain forests, montane and limestone areas, secondary growth, agricultural crops, and ornamental plants. The second half contains colour pictures of some species representative for these subjects. Their captions include the botanical name, its family, common English and Malay names, and diagnoses with notes on phenology, particular morphological or unique features of the plant, ecology, uses, phytochemistry, etc. There is a code at the end of each entry indicating a reference where more information can be found. A glossary, bibliography, and index to botanical names are given at the end.

As much original and otherwise well-documented information is included in addition to accurate identifications, it is a valuable reference for anyone interested in the botany and vegetation of Malaysia. From the species selected and illustrated it is apparent that Peninsular Malaysia, Sarawak, and Sabah have been equally represented.

Polunin has finally realized that cauliflory is not 'advantageous' (p. 29) and that the sinister ability of figs to 'strangle' other trees (p. 32) is now a mortified myth – a figment of popular writing that has been perpetuated by the uninformed for many generations.

In his succinct discussion about the absence of a dormant seed stage in mangrove *Rhizophoraceae*, Polunin notes that in everwet conditions, e.g. mangroves, a "resting seed is disadvantageous." One must realize that other taxa which do indeed have dormant seeds are also successful components of mangroves: *Acanthus* (*Acanthaceae*), *Aegiceras* (*Combretaceae*), *Avicennia* (*Verbenaceae*), *Sonneratia* (*Sonneratiaceae*), *Xylocarpus* (*Meliaceae*), etc.

Some species of epiphytes can also be found on the ground or on rocks; they are here called geophytes or terrestrials, and epilithic plants, respectively. These technical terms are not clear from the text (p. 30). As in his first book Polunin insists on using the popular, but botanically incredible terms as 'flower head' for inflorescence and 'fruit head' for infructescences.

Some notes may be questioned. In several instances the number of species given by Ridley for Peninsular Malaysia are cited, but modern treatments have been neglected. *Cassia alata* is a treelet, not a shrub. Some taxonomy might have been updated: *Thismia* belongs to *Thismiaceae*, *Blechnum* to *Blechnaceae*, *Calophyllum* to *Guttiferae*, etc. *Achasma macrocheilos* is a synonym of *Etilingera punicea*, *Aglaia salicifolia* is *A. yzermannii*, *Manihot utilissima* (tapioca) is *M. esculenta*.

The terms 'hybrid' and 'cultivar' are often incorrectly used. Is *Dendrobium* 'Bangsen Beauty' stated to be a cultivar from the 'progeny of orchid hybrids' a cultivar or a hybrid? Large-flowered cultivars of *Spathoglottis plicata* are also questioned. *Acalypha wilkesiana*, a well-known cultivar with a wide range of leaf blade variation, also includes what is here illustrated as *A. godseffiana*.

Clerodendrum paniculatum is native to monsoonal areas in Southeast Asia, especially in the deciduous forests of northern Thailand and vicinity, but not to Peninsular Malaysia, where it does sometimes escape from cultivation.

It is to be noted that at least 43 of the photos plus the 2-page illustration of *Sonneratia caseolaris* are exactly the same as those in "Plants and flowers of Singapore." Although the text has been slightly altered for most of these, this duplication of the photos seems to me a lamentable and regrettable cost-saving ploy by the publisher, as I am sure Polunin has plenty of unpublished ones quite as good. — J.F. Maxwell.

REEVE, T.M. & P.J.B. WOODS. '1989', 1990. A revision of *Dendrobium* section *Oxyglossum*. Not. Roy. Bot. Gard. Edinburgh 46: 161–305.

In the past decennium we have witnessed the appearance of three revisions of sections of the huge genus *Dendrobium*: those of *Latouria* [Kew Bull. 38 (1983) 229–306] and *Spatulata* [Kew Bull. 41 (1986) 615–692] by P.J. Cribb, and that of the small section *Microphytanthe* by T.M. Reeve [The Orchadian 7 (1983) 203–206]. Now section *Oxyglossum* can be added to this list.

Reeve & Woods including section *Cuthbertsonia* distinguish 28 species of which 2 are new: *D. brassii* Reeve & Woods and *D. pachytrix* Reeve & Woods. Most of these orchids occur in New Guinea and about 16 species are endemic to that island. They are all very attractive small plants with brightly (and often multi-)coloured flowers and have great horticultural potential, though some of the most spectacular species grow at very high altitudes, which makes their successful cultivation rather problematical. No less than 111 species had been described in section *Oxyglossum*; the fact that only 26 of these have been retained

demonstrates the taxonomic chaos Reeve & Woods had to face when they commenced their study. I think they have succeeded admirably well in creating order out of this chaos.

This revision contains almost everything a good monograph is made of: accurate descriptions, clear illustrations, maps, an identification list and a key that really works. In addition, orchid amateurs will be pleased to find notes on the cultivation of these delightful plants, an item rarely found in taxonomic monographs. What I found lacking, however, was a discussion of the relationships between the species. They have been so arranged that similar species are placed together. This possibly reflects the authors' view on their affinities, but this view is not made explicit. *Oxyglossum* as understood by Reeve & Woods can hardly be called a natural group; there appears to be no character-state or combination of character-states which delimits all members of *Oxyglossum* against section *Pedilonum*. According to the key to the sections on page 178, *D. andreemillarae* Reeve, described in *Pedilonum*, could have been included in section *Oxyglossum*; alternatively *D. laevifolium* Stapf, here considered a member of *Oxyglossum*, may well belong in *Pedilonum*. It is apparent that *Oxyglossum* sensu Reeve & Woods cannot be characterized, except by enumerating its members.

A few other, minor, criticisms can be made. The quality of the colour plates is rather uneven; some pictures are out of focus or ill-exposed and should not have been included. I fail to understand why some species are divided into subspecies (such as *D. brevicaulis*), whereas others are divided into varieties (such as *D. vexillarius*). An occasional spelling error has crept in: *Meledictes* (p. 170) should be *Melidectes*, but this is a rare example. On page 170, where pollination is discussed, it could have been noted that *Oxyglossum* contains two species with fragrant flowers, which lack the bright red and orange of most of the other species. Whereas the latter are probably ornithophilous, *D. cyanocentrum* and *D. subuliferum* probably are not.

I do not want to leave the impression that I have in any way been disappointed by this revision. On the contrary, I find it a splendid and inspiring production; it has set a standard by which subsequent revisions will have to be judged. I am looking forward to see similar monographs of sections *Pedilonum* and *Calypstrochilus*. Or am I asking too much? — A. Schuiteman.

ZAKRI, A. H. (Ed.). 1989. **Genetic resources of under-utilized plants in Malaysia.** x + 179 pp. Malaysian National Committee on Plant Genetic Resources. Forest Research Institute Malaysia, Locked Bag 201, Jalan FRI, Kepong, 52109 Kuala Lumpur. ISBN 983-99550-2-0. Price unknown.

This publication is a collection of 10 papers presented as a workshop on plant genetic resources held on 23 November 1988 in Subang, Malaysia. "The workshop was designed to bring together scientists in Malaysia to examine various aspects of plant genetic resources of unutilized plants" (Zakri, in the preface).

Pièce de résistance is E. Soepadmo's lengthy paper on reproductive biology. The extraordinary diversity of the Malaysian rain forest [estimated at 9,000 species of seed plants on p. 2, and at 12,000 on p. 161] goes hand in hand with great diversity in breeding systems. These have until recently been virtually unknown and it is the merit of scientists of Malaysia and Aberdeen to have contributed to a better understanding of this field of botany. The significance of understanding reproductive biology in conservation and utilization of plant genetic resources is evident, e. g. for a maximal fruit production the continuous presence of pollination agents is essential (p. 31).

F.S.P. Ng stressed the fact that most indigenous fruit trees are found in lowland forest, which is most threatened. Even the montane flora is under threat now that there are plans to build a road linking the hill stations (p. 46).

A. Latiff pointed out that most medical plants are inhabitants of the forest, too. Other papers include discussions on rattans (N. Manokaran), vegetables (P.S. Saad & T.C. Yap), root and tubercrops (F.D. Ghani), ornamentals (H.F. Chin), fruit species (Z.A. Mohamed, S.H. Jamaluddin & Y.K. Chan), Citrus (D.T. Jones), and conservation strategies (A.H. Zakri, L.G. Saw & N. Rajanaidu).

Most speakers emphasized the need of in situ conservation of germplasm, although the idea is also made for in vitro conservation, "minimizing the need to conserve germplasm as living collections" (p. 175). Personally, I am not so optimistic about this form of conservation.

The editors are to be complimented for producing a useful reference work especially to be recommended for those involved in conservation. The only annoying flaw is the rather large number of printing errors. — M.M.J. van Balgooy.