XIV. REVIEWS

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BENZING, D.H. 1990. **Vascular epiphytes.** Cambridge University Press, Cambridge, etc. ISBN 0-521-26630-0. Price unknown (We in L paid Hfl. 156.00, which is roughly US$ 87.00).

A manual on the circa 25,000 species of vascular plants that have the peculiar habit of rooting in tree crowns rather than on the ground. Their importance should not be underrated: in some pluvial neotropical forests 30–50% of the vascular flora is composed of them! They create niches for myriads of other organisms, including the majority of the 30+ M species of insects. They thus form an important part of the biosphere and biodiversity, while their biomass and so influence on the atmosphere can rival, if not exceed that of 'normal' plants.

Study of epiphytes has long been neglected, partly because they are difficult to observe and collect, partly through sheer ignorance of their very existence. At least one well-known tropical town in Southeast Asia, whose name I will here not sing, claims to be a Green City and therefore has its road side and park trees regularly 'cleaned' of these 'ugly parasites'!

Fortunately, interest has picked recently up with better equipment for climbing (or even hoovering under a balloon!) and portable instruments for measuring data, resulting in an increasing flood of literature, and a number of special symposia. The state of the art has been compiled here.

Thoughtfully starting with a glossary and explanation of abbreviations, a general introduction is made to the subject outlining the history of research. The geological record is as to be expected from the very habitat very little, but epiphytism may be much older than Benzing suggests, after all, some Cretaceous reptiles and birds (that started already in the Upper Jura) surely lived in trees and must have liked succulent fruits. At least the Loranthaceae are supposed to have originated in the mid-Cretaceous and have berries with a very specialized bird-adapted dispersal mechanism. The pantropical distribution of families with epiphytes may reflect a greater age as well.

Some families are obviously better inclined to develop epiphytism than others, especially the Polypodiaceae (1023 out of 1100 species!), Araceae (1349/2500), Bromeliaceae (1144/2500), and Orchidaceae (13,951/19,128, give or take a few). The Neotropics have about 1.5 times as many epiphytes as the Palaeotropics. Why these and other curious facets may be so is explained in the chapters that focus in on the various aspects of epiphytism such as photosynthesis, water balance, mineral nutrition, reproduction and life history, ecology, and general occurrence.

A special chapter is dedicated to the mistletoes (Eremolepidaceae, Loranthaceae, Myzodendraceae, Santalaceae, Viscaceae), which are the only epiphytes that actually live at least partly in and off their hosts, not merely rooting *on* them as the other epiphytes do.

Fascinating reading with too many subjects to go into here. You would better read it yourself, anyway! — J.F. Veldkamp.

BRUMMITT, R.K. 1992. **Vascular plant families and genera.** 804 pp. Royal Botanic Gardens, Kew. ISBN 0-947643-43-5. Price unknown.

This is not an official List of Names in Current Use, but a list of families with their genera as currently accepted by the Kew Herbarium for arranging its material. The first part is an alphabetical list of these names and major synonyms. The second part lists families al-

phabetically with their genera cross-referring to eight different systems of classification: Bentham & Hooker, Dalla Torre & Harms, Melchior (= Engler), Thorne, Dahlgren, Young, Takhtajan, Cronquist, which are fully listed in Part 3. Very useful for herbarium maintenance, but all other users, e.g. flora writers and taxonomists, should beware that listing of a certain name does not necessarily mean that the genus really belongs to that family, or that the genus is taxonomically sound! There is a tendency in Kew to be conservative and maintain relatively large genera whereby rearranging is kept at a minimum. The names used here are most likely correct. I like Willis' Dictionary and Mabberley's The Plant-book better as there more information is given, e.g. on size and distribution. See also C.R. Gunn et al., 1992, for a similar attempt to stabilize nomenclature. I have not compared the two, but there are bound to be discrepancies, and then what? — J. F. Veldkamp.

COLLINS, N.M., J.A. SAYER & T.C. WHITMORE. 1991. **The conservation atlas of tropical forests: Asia and the Pacific.** 256 pp, illus. Macmillan, Basingstoke. ISBN 0-333-53992-3. UK£ 65.00.

N.B. This review was unfortunately omitted in the previous issue of the Flora Malesiana Bulletin, for which my excuses to the authors and the reviewer (Ed.).

This atlas is the first of a series of three intended to give a factual basis to the forest conservation debate and aims to present a rigorous scientific basis for the current debate about precious ecosystems. In Part I, the issues at stake are discussed with chapters on e.g. forest wildlife, people of the forest (the case of the forest people under threat is very sensibly discussed in this chapter), shifting cultivation, natural rain forest management, tropical timber trade, the protected areas system, etc. The chapters are written by many different authors, nicely illustrated with colour photographs, and maps and/or graphs where appropriate. At the end of each chapter references are given. This Part alone is already unique in the amount of relevant information. In Part II all countries are discussed, each chapter beginning with a table giving land area, population, population growth, area of tropical rain forest, gross national product, and details on timber production and export. Of each country the forests, deforestation, management, mangroves, where appropriate, biodiversity, and conservation areas are discussed in detail, with an ample amount of tables on areas of different kinds of forest, and of conservation areas. Separately, in a box, special issues related to forest are discussed, like the great forest fire of Borneo and Medicinal plants of Xishuangbanna. The chapters are accompanied by colour maps of the countries with their different kinds of forests and their conservation areas. The maps are made with G.I.S., compiled from satellite images. "But even with the latest advances of remote sensing it is not always possible to distinguish between undisturbed closed canopy rain forest and forests regenerating after shifting cultivation or logging", as Martin Holdgate states in his foreword. This certainly is true, as the maps in several cases seem much to optimistic. But generally this is corrected in the text, where an estimate is made of the real amount of destruction.

If there is any criticism, it would be that the text is not always congruent, being written by many different authors. It is obvious that a forester still has a different attitude on the possibility of sustainable logging in natural rain forest than an ecologist. In the chapter on shifting cultivation in Part I it is said that shifting cultivation may have its origin in the northern reaches of mainland Southeast Asia. But from the chapter in Part II on Papua New Guinea it appears that shifting cultivation there is about from the same age.

This book really is a unique guide to the precious resources of our tropical forests, as the press release says. It may serve as a reference book for all people involved, not only in conservation issues, but in a large variety of subjects related to the tropical forest, the countries where it occurs, and its peoples. — H.P. Nooteboom.

FORSTER, P.I., P.D. BOSTOCK, L.H. BIRD & A.R. BEAN. 1991. **Vineforest plant atlas for South-east Queensland.** Queensland Herbarium, Meiers Road, Indooroopilly (Qld.) - 4068, Australia. 502 pp. Au$ 36.00 + 10.00 (handling, postage).

Vine forests include a number of vegetation communities that are known by various names, including rain forest. In Southeast Queensland the communities are rapidly disappearing because of their rich soils, and many of the species are now rare and endangered. Surveys have been made to record the situation after 1980. As a result the distribution of 817 taxa of ferns, gymnosperms, and angiosperms over 232 extant localities of vine forest could be mapped alphabetically, while other localities are cited, and distribution outside the region is given rather roughly: e.g. PNG for Papua New Guinea, Mal for Malesia, incl. Irian Jaya (!). For a non-Queenslander it would have been informative if the family name had been given as well. I happen to know where *Austrosteenisia* or *Berberidopsis* belong, but do you?

The conservation status of each has been assessed, based on the number of sites in which it has been recorded, and the number of conservation reserves known to contain the species. Clear distribution maps for the area accompany the text: closed dots represent well-conserved sites (Parks and Scientific Areas), open dots are all other land tenures. Appendices include lists of sites surveyed with coded particulars, taxa covered and not covered, as they were not found in the sites, a list of taxa at each site, a list of endangered and rare taxa by site, an index to synonyms and alternate names, and a list of taxa with a significant distribution outside the surveyed area.

The information will be of use for conservation management planning and for those wishing to locate various taxa for other purposes such as medicinal and horticultural research. Let us hope it will be restricted to research and not induce medicinal and horticultural pirates to eradicate whole populations now that their hiding places have been handed to them on a platter.

The presentation is clear and pleasing and exemplary of such a basic database, which is why it has been reviewed here, because it is not a Malesian work in the strict sense. — J.F. Veldkamp.

JOHNSON, D. (Ed.). 1991. **Palms for human needs in Asia.** 258 pp, illus. A.A. Balkema, POB 1675, 3000 BR Rotterdam, The Netherlands, & Old Post Road, Brookfield, VT 05036, U.S.A. ISBN 90-6191-181-8. Hfl. 79.50 (incl. VAT).

This is a report of the WWF (no. 3325), subtitled 'Palm utilization and conservation in India, Indonesia, Malaysia and the Philippines'. The project was based on the thesis that of all tropical plant families the Palmae are widely regarded as being the most bountiful in providing many of the needs of local people, especially of the poorest among them, and also furnish an array of commercial products entering world trade. The equatorial rain forest is the center of those human civilizations based on palms, which provide food, drink, condiments, building, roofing and weaving materials, medicines and narcotics, and so found their way in cultural ceremonies. Coconut is the primary agricultural export of the Philip-

pines, the African oil palm is a major plantation crop in Malaysia and Sumatra, sago is the staple food in parts of the Moluccas and New Guinea, while betel chewing, a rather filthy habit, is widespread. As many species grow in primary forests conservation of palms may help to conserve their habitat, and one has to be realistic to see that conservation is best achieved if the people in power can be convinced that (their) economics are best served if these species are not being exterminated. A point in case was the attitude of the Indian government, which country because of administrative difficulties was never brought formally into the project. S.K. Basu therefore had to compile a report without any support providing vital information to complement the other accounts. In India 92 taxa appear to be present, half of which are rattans, and 30 endemic taxa. Extinction in the wild seems eminent for many. Fortunately there is now a Palm Society of India which may serve as an important pressure group.

For Indonesia J.P. Mogea accomplished the complex task. The country has the richest palm flora in the world with at least 447 species, about 60% of which are rattans, and 47% endemic. Only about 10% are utilized, so there is ample scope of research.

In Malaysia Dr. R. Kiew assumed overall responsibilities. In Peninsular Malaysia there are 194 taxa, c. 53% being rattans, with 42% endemics. Extensive notes are given on the many aspects of use and conservation, especially those concerning rattan are of interest.

Together with G.W.H. Davison she wrote a fascinating essay on the biological relationships between palms and other organisms.

K. Pierce completed a study for Sarawak, where there are at least 213 taxa, about 50% of which are rattans, and 26% are endemics.

Dr. J. Dransfield and D. Johnson compiled a summary for Sabah, as no field work could be carried out. There are 131 taxa, quite a number for such a relatively small area, 63% are rattans, and only about 10% are endemic taxa. The great number of rattans is possibly due to recent intensive study.

Dr. D.A. Madulid provided the treatment for the Philippines. There are 157 taxa, over 40% rattans, and not less than 69% endemics. In an appendix he lists the various uses, in another past and present research.

It is a pity that Thailand, a great exporter of rattan, had to be excluded.

The local species are accounted for, giving present distribution, conservation measures, if any, and uses. It is obvious that little is known about the status quo and additional field studies are highly necessary. Ex situ conservation measures are required in most instances and it would be a wonderful idea to have a great number of local palm arboreta for germplasm conservatories, serving simultaneously as public parks and centers of distribution both for the silvicultural industry and ornamental purposes.

Johnson summarized the papers and provided a regional action plan also applicable to other nations of the region. Support is proposed for in situ conservation of economic species, especially rattans, the most valuable non-timber forest product in Southeast Asia. The establishment of an Asian rattan conservation network is proposed to complement the Rattan Information Centre (RIC) at Kepong. The socio-economic potential of some species should be brought to the attention of international and bi-lateral development agencies to establish an applied research project. As more than 400 palms appear to be threatened a heightened awareness is advocated. Investigations in other countries of the area should be promoted. — J. F. Veldkamp.

KIEW, R. (Ed.). 1991. **The state of nature conservation in Malaysia.** 238 pp, illus. Malayan Nature Society. ISBN 983-9681-08-6. Price unknown.

Thirty-one articles by in total 38 authors deal with the state of nature conservation in Malaysia. The number of authors, most of them specialists in a group of animals or plants, or in a kind of ecosystem, guarantee that the subject is very comprehensively dealt with. A minor drawback is that the variety of authors gives a variety in approaches. But in all, this work is an example for many other countries. The State of Nature Conservation is discussed, very adequately, for systematic groups as Orchids of Sabah and Sarawak, Rafflesia, Palms, Terrestrial Molluscs in Peninsular Malaysia, Sea Turtles, but also for larger groups as Trees and Ferns and Fern Allies of Peninsular Malaysia, and many other groups. Ecosystems are discussed also, such as Mangroves, Lowland and Hill Forests, and Kerangas and Kerapah Forests of Sarawak. Chapters on Soil Conservation, Environmental Impact Assessment and Conservation, and the use of Geographical Information Systems (GIS) (illustrated with coloured maps) for Conservation give much useful information also for conservation in other countries. Most informative are the chapters on Geological features and Caves. Both are important for nature conservation, but only after reading its becomes clear how much.

Works like this should be written for many countries, and it is even an example for many if not most of the western countries. — H.P. Nooteboom.

RIJNBERG, T.F. 1992. **'s Lands Plantentuin, Buitenzorg. 1817–1992.** Kebun Raya Indonesia, Bogor. ix + 212 pp, illus. Boekhandel Broekhuis, Marktstraat 12, 7511 GD Enschede, The Netherlands. ISBN 979-8290-01-1. Hfl. 54.90 (incl. VAT, excl. mailing). (In Dutch, English summary).

The Botanic Garden of Buitenzorg, now Bogor, was founded on 18 May 1817 by C.G.C. Reinwardt, and under the vigorous management of its Directors, Hortulani, or Intendants of the Governor-General of the Dutch East Indies (1826–1867) it became one of the leading botanical establishments of Southeast Asia. Names famous in botany associated with it are for instance C.L. Blume, R.H.C.C. Scheffer, J.E. Teijsmann (who was employed for more than 50 years(!) and founded in 1842 the Bibliotheca Bogoriense, starting with 25 books, and in 1844 to have a building erected to house the Herbarium), J.C. Hasskarl, S. Binnendijk, and especially M. Treub, for whom and others brief biographies are given. As the author cites from personal letters the private thoughts and gossip illuminate the causes and results of history.

An attempt is made to unravel the extremely complicated organizatorial changes that took place after the Indonesian independence, with a rapid succession of responsible people, and I must say the reading made me dizzy, the more so as the text is interspersed with asides and discussions of activities that are in the context beside the point. They may be interesting and give background information, but with good editing the text would have been less woolly. For instance in the account of the changes in organization suddenly a survey is given of the budget of 1989/1990. This is apparently done on purpose (p. 128), but I find it very confusing.

It may be noted that the captions of figs. 108 and 110 have been interchanged, while figs. 19 and 75 are upside down.

Various maps show the changes over the years in the delimitation and arrangement of the garden. The one of 1867 taken from a Japanese guide is a copy of one drawn up by

J.C. Rappard and engraved by A. Bernecker in 1867, part of a small anonymous booklet ('Opgave der plantenfamilien ... te Buitenzorg') bound together with Witte's copy of Teijsmann & Binnendijk's Catalogus (1866) in the Library of the Rijksherbarium (the reference to this Catalogus is missing in the reference list in Rijnberg's book, although he refers to it on p. 43). On page 43, too, mention is made of 'Capelleniaceae', a non-existent family, not mentioned in the index. In fact, Teijsmann & Binnendijk when describing *Capellia*, emphatically stated that it was an Euphorbiaceae.

From page 181 on one is led on a guided tour through the Garden with extensive explanations of all the sights that can be seen. The author clearly has very much enjoyed his stay there and has an observant eye.

The book is marred by annoying hand-written corrections, misprints of scientific names, and a kind of paper that I fear will stick together easily in a humid climate. The rambling style, especially in the latter half, distracts the attention. Many facts have been brought together, but could have been arranged in a better order. It is to be hoped that an English edition will be prepared with a good editing, for the Garden needs its history to be more widely known. — J. F. Veldkamp.