

## BOOK REVIEW

**Tree Flora of Sabah and Sarawak. Volume 8.** Edited by E Soepadmo, LG Saw, RCK Chung & R Kiew. Forest Research Institute Malaysia, Kepong. 248 pp. ISBN 978-967-0622-11-8. RM120/USD72.

Floras are often seen as old-fashioned, cumbersome and a drain on resources. They are all of these things: the basic format and purpose have not changed much over the last century; they are cumbersome by their nature, dealing with thousands of plant species; and because of their size they are usually multi-volume series, involving numerous authors, editors, illustrators, all basing themselves on hundreds of thousands of specimens, collected over many years and housed and curated in that other old-fashioned institute, the herbarium. All this, of course, is a long-term drain on institutional resources, and that is why flora projects are difficult to fund; which often results in flora projects running out of steam.

Surprisingly (to many people) floras are also at the cutting edge of science and they are a vital tool for conservation. They are at the cutting edge because we still do not know all the plants occurring in the high plant diversity areas of this world, the tropics; we do not know about all the interrelationships and how to distinguish the many species from one another—and this is exactly what a good flora addresses. During the writing of the flora treatments new species are also discovered on a regular basis. Finally, the data produced for the floras give us information on the distribution and habitat of the various species, which is a vital tool for conservation: if you don't know the distribution, you cannot assess either rarity of the species, and if you don't know the habitat, you cannot assess the threats. Floras enable.

The Tree Flora of Sabah and Sarawak is a much-respected flora, established in the early 1990s and still going strong. This makes it a bit of a rarity for a tropical flora because many of these run out of steam after the initial funds have run out. This is due to the enthusiasm and dedication of the editors, and especially Dr Soepadmo, who has been involved with the project from the

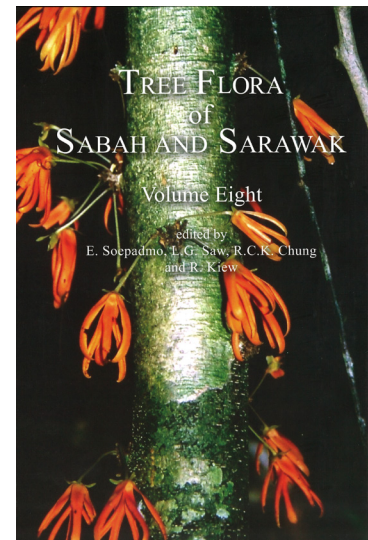
very start. FRIM and the Forestry Departments of Sabah and Sarawak are to be

congratulated with their continued support for this important project, which produces a regular output in the form of the volumes of the Flora.

An estimated 3000 species of trees occur in Sabah and Sarawak (out of a total of maybe 10,000 vascular plants for the area), and this volume deals with 165 species in 32 genera, in the families Annonaceae, Buxaceae and Opiliaceae. As usual, the generic keys include lianas (that is, woody climbers and scandent shrubs) and such species are dealt with briefly. The introductions to the various families give notes on general distribution, ecology, uses and some general taxonomy.

The core of this volume, though, and the part that most users will concentrate on, is the taxonomic treatment: that is, the descriptions of the individual tree species, the keys that allow the user to distinguish these species from one another, and the notes with the descriptions; notes on distribution and ecology, as well as the synonymy and a bibliography of the most important publications that have dealt with these trees before. Notes on uses show that many of the species are used either as timber or in traditional medicine. At least one species per genus is illustrated with a full-page line drawing. At the end of the book there are another 10 plates of colour photographs, representing 28 species, including some spectacular photos of the cauliflorous *Goniothalamus ridleyi*.

Not all species have long lists of previous publications: twenty-four species of Annonaceae in this volume have only been described very recently. Such a high percentage of new species (almost 15%) is caused by more than 50% of the species in these families being endemic to



Volume	Published	Number of families	Number of species	New species	Endemism (to Borneo)
1	1995	31	304	No data	No data
2	1996	23	246	39	No data
3	2000	4	431	28	40% (10% hyper-endemic)
4	2002	4	321	45	No data
5	2004	4	373	7	57%
6	2007	4	180	22	40%
7	2011	3	313	58	53%
8	2014	3	165	24	55%

Borneo! And such high levels of endemism show the use of this flora series for conservation, as well.

The Annonaceae have been written up by Ian Turner, with *Mitrephora* (10 species) co-authored by A. Weerasoriya and R. Saunders, and *Popowia* (4 species) written by S. Ganesan. Molecular phylogenetic studies have contributed to an up-to-date taxonomy, with a redefinition of *Polyalthia* and four genera formerly included in that genus. *Buxaceae* was written by Avelinah Julius and is represented by one species of *Buxus*, formerly only known from Palawan. *Opiliaceae* was written by Syahida Emiza and has four widespread tree species in four genera.

Volume 1 of this great flora appeared in 1995, and the volumes have been appearing steadily and regularly ever since. The original plan was to publish a volume almost every year, covering the total of 3000 tree species in 10 years; but as is usual with *any* flora, reality got in the way. As there does not seem to be an overview of published taxa anywhere, I have tabulated current volumes.

Total, so far: 76 families, 2333 species. All volumes are also available electronically but are not interactive.

The true measure of a flora is how well it works: will users be able to identify the plants that are treated and does the documentation provide the information the users look for? The Tree Flora of Sabah and Sarawak has an excellent record in this field. I believe volume 8 is up to the high standards of its predecessors: the bibliographies are exhaustive, the descriptions precise and detailed, the illustrations detailed and representative. The parts of the identification keys I have tested work well due to clear contrasting couplets and unambiguous language. Though I would have liked to see a bit more on the altitude range of many species and possibly some notes on the rarity of species, overall this is all a user could wish for. The working life of a good flora is half a century or more and I think this volume will stand the test of time.

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