

## BOOK REVIEWS

**Seeds of Amazonian Plants.** Fernando Cornejo & John Janovec. Princeton & Oxford: Princeton University Press. 2010. xxviii + 158 pp., 750 colour illustrations. ISBN 978 0 691 11929 8 (hardback). ISBN 978 0 691 14647 8, £35 (paperback).  
doi:10.1017/S0960428611000163

Published as a Princeton Field Guide, this book is an extremely interesting contribution to the study of the immense biodiversity of the Amazon rainforest. Although there are a few previous publications dealing with seeds of the neotropics (e.g. van Roosmalen, 1985; Stevenson *et al.*, 2000; Lentz & Dickau, 2005; Lobova *et al.*, 2009), *Seeds of Amazonian Plants* is unique in that it represents the first field guide for identifying neotropical plants by their seeds to genus level. The product of more than two decades of botanical and ecological field work in the Peruvian Amazon, this book contains 750 seed images representing 543 genera in 131 families. The main body of the text is divided into two parts. After an introductory *Aid to Identification of Amazonian Seeds* which includes a key based on characters such as the presence/absence of wings or hairs assisting wind dispersal followed by seed size, colour, shape and surface patterns, the *Family and Genus Descriptions* rely much more on images than on lengthy verbal descriptions to provide an easy-to-use identification aid. The seed images (mostly colour photographs, a few SEMs) are arranged in alphabetical order, first by family and then by genus, and supported by brief botanical descriptions of the respective families and genera, including notes on the distribution of each genus and information about some of their known uses in the Amazon. The quality of the images varies but is generally very good. Usually, one species per genus is shown but of the largest and most diverse genera, several species are illustrated. A brief illustrated glossary explaining botanical terms is also provided, at the back of the book.

Without attempting to diminish the value of this publication, there are some points of criticism I feel I should mention. First of all, rather than applying the current classification of the Angiosperm Phylogeny Group (APG), the authors decided to follow a 'modified' Cronquist classification system, pointing out that they 'found this to be the most well-documented system for us to complete this book, as well as for others who will be using this book to identify seeds in the Amazon and beyond'. I fail to understand this reasoning and rather feel that a point has been missed, for example, in maintaining the Flacourtiaceae (now distributed over the Achariaceae and Salicaceae) or the Euphorbiaceae *sensu lato*, still including the now widely recognised family Phyllanthaceae. Secondly, I would have found it much more informative if the very short captions to the photographs had not only mentioned family, genus and seed size but also given the name of the very species shown as well as the nature of the diaspore illustrated (e.g. seed, stone, whole fruit,

etc.). Apropos diaspore ... the authors define the term, which simply means 'dispersal unit' (and, as such, may refer to a seed, fruit, fruit fragment, or even a whole plant), so as to exclude seeds from the definition; this is not how the term is commonly defined and used. Other errors include the incorrect use of the term 'aril' when, in reality, a sarcotesta (fleshy seed coat) is present, for example in the seeds of *Jacaratia* (p. 36), *Richeria* (p. 57) and *Inga* (p. 65). For such a prestigious publisher as Princeton University Press, I would have expected the editor not only to have applied stricter scientific rigour to the manuscript but also to have been thorough enough to spot other irritating errors. For example, there are several references with discrepancies between the text and the reference list, and some are missing from the list altogether.

Fortunately, these shortcomings do not really reduce the practical application of the book and, considering the strong interest researchers have developed over the last decade in seed dispersal, seedling establishment and seedling identification in the tropics, *Seeds of Amazonian Plants* is an extremely important piece of work. It not only helps to fill a gap in the botanical literature on neotropical plants, but is also an excellent complement to recent works published on the morphology of tropical seedlings such as Nancy Garwood's (2009) monumental treatment *Seedlings of Barro Colorado Island and the Neotropics* and the both authoritative and beautifully produced volume on Amazonian fruits, seeds and seedlings by Camargo *et al.* (2008).

As a field guide, *Seeds of Amazonian Plants* provides a new and exciting tool that will, for the first time, allow access to the bewildering plant diversity of the Amazon rainforest via seeds and other diaspores, an approach that hitherto has only been possible – if at all – by using herbarium specimens or carpological collections. A major advantage of using diaspores for identification is that they can simply be picked up from the ground rather than having to be harvested from the canopy like leaves and flowers.

With an estimated 78,800 flowering plant species in the neotropics belonging to 284 families, this field guide can, inevitably, cover only part of the enormous diversity one encounters in the Amazon rainforest and the neotropical region. Nevertheless, even with its limited scope, *Seeds of Amazonian Plants* is a major contribution to tropical botany, being the only practical tool currently available to help with the identification of Amazonian plants by their seeds. It will be an extremely important reference for anybody interested in tropical botany, including botanists, ecologists, horticulturists and nature enthusiasts, and offers an exciting new window on this most charismatic of ecosystems.

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**Flora Malesiana, Series I. Volume 19. Cucurbitaceae.** W. J. J. O. de Wilde & B. E. E. Duyfjes. Leiden: Nationaal Herbarium Nederland. 2010. iv + 342 pp. CD-ROM with keys constructed in LUCID PHOENIX by H. P. Nooteboom. ISBN 978 90 71236 72 3 (NUR 941). €75 (paperback).

doi:10.1017/S0960428611000175

The latest volume of *Flora Malesiana, Series I – Seed Plants* is a revision of the Cucurbitaceae, including the cultivated and naturalised species along with the 121 native ones.

As expected, de Wilde and Duyfjes have written an excellent account which will allow easy determination of cucurbit material, both in the field and in the herbarium. Most of the characters used in the keys are macroscopic and can be observed without difficulty on good specimens. By carefully reading the introduction (pp. 1–15), plant collectors will learn how important it is to make complete collections which, at the very least, means not breaking the tendrils by dragging the plant out of the vegetation it climbs in.

The same two authors revised the Cucurbitaceae in the *Flora of Thailand* (vol. 9(4), 2008) and it is interesting to compare the two revisions. When a genus, such as *Gomphogyne*, occurs in both floras, the generic descriptions have been carefully adjusted to account for variation in the region being treated. Species accounts have also been edited, sometimes to follow the format of each flora, sometimes to describe features more clearly. For example, this *Flora Malesiana* revision distinguishes the margin from the edge of the seed in a way that improves understanding of the structures and allows more accurate usage in keys. The format of *Flora Malesiana* permits considerably more synonymy to be reported than that of the *Flora of Thailand*.

The book contains 98 elegant and informative line drawings, 97 of them made by J. H. van Os and the other by Ruth van Crevel. These drawings are the same as those in the *Flora of Thailand*, when the species is found in both regions, but more finely printed. The 32 colour plates show representative species of almost all the genera of Malesia, revealing the beauty of plants which can sometimes look rather scrappy by the time they reach the herbarium.