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BOOK REVIEW

Flora of Australia. Volume 12: Mimosaceae (excluding *Acacia*) Caesalpiniaceae pp. 192, figs. 96, maps 188. $A69.95 (hardback); $A54.95 (paperback).

This is the first of the volumes to deal with the legumes and the blurb says it provides descriptions of 38 genera, 153 species and 16 'form taxa' of which more below. It is thus one of the smaller volumes to-date and follows the format already established. There are a number of attractive colour plates, particularly the striking fruits of some of the tropical species less well known to southern taxonomists. Seven authors provide the text and one wonders if it was hurried at times. There is no mention of *Prosopis* occurring in South Australia despite a dozen sheets in the State Herbarium and its inclusion in the Flora of South Australia. Nor can I see why *Paraserianthes lophantha* requires two maps—one for Western Australia, the second for eastern Australia.

Many of the genera are small and with the exception of *Senna* only *Caesalpinea Chamaechrista* and *Labichea* have a dozen or more species, the latter having an intriguingly spare and attenuated distribution across Australia. Is it a relic of earlier happier days when Australia was wetter? The reduced anthers with their poricidal slits suggest specialised pollinators.

Of the 19 species included, about 37 are considered aliens—i.e. approximately 22%.

Attention is likely to be centered on *Senna*. Not only is it the most widespread genus (all States except Tasmania) but also it has the most species and the most problems. The genus has had three accounts in modern times, Symon (1966), Randell (1988, 1989, 1990) and Randell & Barlow this volume. Their account starts with a three page essay giving the background to the problems. This is nice to find in a National Flora which will have wide distribution overseas.

My own conventional revision exposed biological problems that were studied by Randell for her Ph.D. She disclosed rampant hybridity, polyploidy and agamospermy in many taxa in arid Australia. The 1966 revision treated these at species rank and acknowledged much diversity in some taxa, the cause of which was not then understood.

Randell's studies showed that the problems were confined to Section Psilorhegma ser. Subverrucosae of *Senna* and her account incorporated the new generic divisions proposed by Irwin & Barneby of *Cassia*, *Senna* and *Chamaecrista*.

Randell used standard taxonomic ranks and reduced the number of species by introducing a large number of subspecies under a few 'core' species as well as forms (informal) and some hybrid subsp. e.g. subsp. ×*coriacea*.

In this volume the use of subspecies is virtually abandoned. Many of Randell's subspecies become orthodox species or the decidedly non-orthodox form taxa (16 of them). The form taxa are not given a botanical authority but are all based on previously published names. These are not specifically cited as the type for the name though this might be implied. The authors state that 'form taxa' are "± recognisable entities which may not have genetic homogeneity or morphological continuity from population to population and which, therefore, lack predictiveness expected in a formal classification".

It will be interesting to hear how the various herbaria and databases cope with this new category.

After defining form taxa the authors make the decidedly odd statement: "This treatment is not intended to override Randell's taxonomic treatment of the genus which is still a valid formal resolution of the biological problem." Just what is meant? Follow Randell rather

than Randell & Barlow? If her treatment was a valid resolution of a biological problem why do we need yet another resolution—and one that makes many changes?

The earlier treatments were not wholly satisfactory as many of the subspecies were not subspecies in the normal sense of that word. Nor did the use of normal species and subspecies concepts alert the user to the complex problems of agamospermy.

Is there yet a satisfactory taxonomic way of coping with the innumerable products of agamospermy? Kalkman (1993) referring to *Rubus* says "The complex is taxonomically unsolvable ... because of facultative apogamy and easy hybridisation with stable progeny. It is possible to find the same 'taxa' year after year, to describe them, and to recognise differences with other neighbouring 'taxa'. Over a large area however it is impossible to reach a hierarchic classification with more or less equivalent taxa. Although batologists admit that their taxa are not comparable, they nevertheless try to classify them in the common scientific classification and with predictably poor results."

This account is an effort to get beyond that state but is not yet wholly satisfactory.

However one must be glad that the Editors of the Flora have been venturesome and allowed this foray into difficult territory.

For a further comment on these problems see my note in *Aust. Syst. Bot. Soc. Newsletter* 95(1998) p. 12 which was written before Vol. 12 was available to me. My own hand will be forced when *Rubus* is submitted and the authors for *Taraxacum* and *Poa* will also have to declare their philosophy, so this is a challenging treatment.

Many of the maps of distribution for *Senna*, particularly the form taxa, are presented as a black slab. They appear unsightly compared with all the other maps and seem to have an air of desperation about them as if the authors could not face, yet again, those myriad sheets of specimens whose placement anywhere is so difficult.

The volume is a welcome prelude to the volumes on fecund *Acacia* and our diverse array of papilionoid legumes yet to come.

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