

**LARGE FLORA TREATMENTS AND MONOGRAPHIC STUDIES
WHERE ARE THE BOUNDARIES?**

Does the system – one specialist for many floras – work well?

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INTRODUCTION

There is no doubt that in this matter the ideal is the productive, competent monographer who steadily revises a group worldwide and who contributes as required to Floras. For large taxa, there must be some doubt, however, whether such a person exists.

As with so many matters of systematics and Flora production, there are various aspects to this topic and often no clear or unanimously acceptable solutions. Only if one writes a Flora single-handed does one have the luxury of all matters of detail, style, format etc. being to one's personal satisfaction – and the days of doing so for a large Flora are over.

The boundaries between large Flora treatments and monographic studies depend to a large extent on the concept of the Flora – whether a concise work, a monographic work, or somewhere between. If the Flora itself is to be monographic then its planners and producers must expect it to make many years to complete, if indeed it ever is completed. Such timescales are rarely acceptable, especially politically if continuation depends on productivity.

If the Flora is to be concise, the decision must be taken whether it will be a compendium of existing knowledge or based upon revisionary studies. The latter will take even longer than the monographic Flora, since the monographs must be completed first and then adapted for the Flora.

It is perhaps more practical to consider the pros and cons of monographic, or even standard revisionary, studies and how they may be incorporated into the production of large Floras.

There is still a need for floristic works, as was generally agreed at the Flora of North America Workshop in 1988 (Morin et al. 1989). They are also needed in published book form, although there will be an increasing tendency to make them available in electronically-accessible form and to link them with databases. Large Floras are now co-operative projects that require extensive planning and compromise. They also need the dedication of the production team and contributors if they are to proceed at a satisfactory pace and be completed.

The following are some of the matters that should be discussed at the workshop. They are suggestions for consideration and are not in any order or priority.

ADVANTAGES OF ONE SPECIALIST FOR SEVERAL FLORAS

- a. This should (but may not!) lead to consistency of taxonomic concepts through the various works. There could be refinement of concepts as research is extended through more countries.
- b. It should lead to consistency of terminology. Provision of a well-prepared glossary can assist in reaching this goal, but my experience is that there are varied interpretations of even common terms among taxonomists. This seems to derive in part from the definitions as taught, and in part from the practice at the employing institution.
- c. Where taxa are common to more than one country, much time will be saved when one specialist prepares all treatments, e. g. in literature searches.

DISADVANTAGES AND DIFFICULTIES

- a. There may well be an imbalance if taxa of one country are studied in more detail than those of another, e. g. due to constraints of time, costs of travel, difficulty in obtaining local knowledge and literature. At this stage of research on the world's flora, however, a modern synthesis without full revision will be an advance on the previous literature, especially for the non-expert, and will provide a basis for the next round of research.
- b. There could be language problems, both when consulting foreign literature and when contributing to a foreign publication.
- c. It is often difficult to learn the geography of foreign countries and to interpret handwritten herbarium labels, especially on old collections where place names may have been changed. It takes time for an editor to check the accuracy of geographical data.
- d. An editor may have less influence or control over a contributor in another country, especially if that person is contributing to several works.
- e. Adhering to format is a recurring problem for most taxonomists, and this will be compounded if one contributes to Floras from different countries. It does require concentration to reach the correct format, but every effort should be made to do so. The time needed to correct format is a major cause of delay in a number of Floras.
- f. Different family classifications may cause difficulties, owing to the different generic content. One Flora may adopt Engler, another Hutchinson, a third Cronquist. It can be accommodated, as is done in the *Flora of Australia*, with appropriate notes under the family.
- g. Time factors.
 - i. A world monograph can take many years, and Flora publishers may be unable to wait.
 - ii. Borrowing, studying, annotating and returning large numbers of specimens are very time consuming activities, and often for the lending institutions in particular.

- iii. Time is needed for correspondence, submission of manuscripts, editing, refereeing, checking proofs etc., aspects that botanists often do not consider when estimating the length of a project. These problems will lessen as communication becomes easier.
- iv. Reducing a monograph or revision to the more concise format usually required for a Flora often takes more time than estimated and can cause delays.

OTHER POTENTIAL PROBLEMS

- a. Who judges the quality of the taxonomy? Some Floras have contributions refereed, but usually within the country and not always by someone with an understanding of the group. Invariably there is a wide range of quality in the contributions to large Floras. Errors and poor taxonomical/nomenclatural decisions may be perpetuated, and of course there can be more than one equally well argued taxonomy.
- b. The aspirations and/or research goals of an individual may differ from those of their employing institution, leading to conflict of interest, e.g. in allocating resources including time. A specialist may wish to contribute to another country's Flora but this may be outside the institution's program.
- c. There is an almost universal tendency to underestimate the time needed for taxonomic projects, leading to problems of scheduling for both contributor and editor. Many taxonomists accept too many commitments.
- d. Taxonomists vary greatly in productivity. Some wish to investigate every last problem, others take a practical approach and accept that it is more useful to publish a treatment that solves 95% of the problems and makes the results available; rather try to solve that last 5% and so delay publication for a long period seems quite out of proportion to the small potential gain.

POSSIBLE SOLUTIONS

- a. The work could be shared, e.g. between a specialist and local taxonomists. This can be most productive, combining a world overview and great taxonomic expertise with local expert knowledge.
- b. The exchange of text, illustrations etc. between Floras should be pursued. There may well be editing needed, e.g. to revise format, but the savings in time could be significant. Such an improvement in international co-operation is to be encouraged.

The above aspects should be considered by participants at the Workshop with the special objective of finding ways to accelerate the rate of production of large Floras. While many of the above disadvantages and problems are real, nonetheless there are either solutions or compromises that should be sought on an international scale.

For various reasons (set out above) it will rarely be practical or feasible for one specialist to contribute a large family or genus to all the major Floras unless he/she is in the situation of having adequate resources and support to work full time on the group *and* is a good producer. It may be desirable for a Flora to include a status quo treatment and then in a later edition incorporate the monographer's results. This approach has been adopted for the *Flora of Australia* since, in many families, there has been no national treatment for over a century, there is a limited number of workers, and hence even bringing together all available information is very useful.

At this stage of the progress of world taxonomy we are, in most countries, still resolving the basic questions: 'What plants do we have and where do they occur?' Before sophisticated studies are undertaken we need to be much closer to completing the basic taxonomy (including that of the non-vascular flora). We should be prepared to exchange data where the same taxon occurs in more than one country: a description written by one person can be used, with due permission and acknowledgement, with modification if necessary and substitution of geographical and ecological data etc., in several Floras, whether or not the original author is the same for each work. Most text these days is stored on computer and can be relatively easily updated and refined for use in other situations. The bibliographic and type data will remain constant.

Illustrations may also be re-used, again with due permission and acknowledgement, for preparation of new ones for each work is both time-consuming and costly.

How such an international scheme might operate could be discussed at the Workshop. To some extent it depends upon:

- monographers being willing to have their work adapted for multiple publications (surely a feather in their cap if done well);
- the organisers of a Flora knowing what is available and being prepared to accept it;
- the contributors being prepared to incorporate others' work.

Copyright is unlikely to be a problem.

Ideally there should be an inventory of modern monographs and Floras from which text may be extracted. Ideas along these lines are already being discussed and can be addressed at the Workshop.

There is another aspect to monographs that should be borne in mind by all considering such work and by the managers of taxonomic institutions. Is it the most effective use of resources? While detailed studies can be useful in resolving difficult taxa, determining relationships etc., much of the data are useful to or used by few people, maybe only by the next monographer who is likely to repeat it all anyway. A sound taxonomy and nomenclature and practical keys are the most used parts of taxonomist's work. If there is a difficult problem, consider whether it is cost- and time-effective to study it. It could well be better to publish a revision and highlight the few remaining problems rather than spend great time and expense for relatively little return. Those scarce resources may be better directed towards another taxonomic group desperately in need of

revision. Consider also whether all the data gathered should be published – that also is expensive and time-consuming – or whether a large proportion such as lists of collections examined could be made available by other means to the few who may need them. There is personal satisfaction in a massive publication but the benefit to users may be only in the essential parts of the text.

There is obviously no definitive answer to the question posed by this topic. It must be considered and resolved according to the situation of the individual and the particular Flora involved.

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LITERATURE

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