

Report of the Committee for Spermatophyta: 55. Proposal 1584 on *Acacia*

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The previous report of this committee appeared in *Taxon* 53: 811–823 (2004). Those voting on proposals in this report were R. K. Brummitt (Kew, Secretary), G. Davidse (St. Louis), T. V. Egorova (St. Petersburg), E. S. Fernando (Los Baños), T. S. Filgueiras (Brasilia), I. Friis (Copenhagen, Chairman), K. Gandhi (Cambridge, Mass.), C. E. Jarvis (London), H.-W. Lack (Berlin), G. Moore (Brooklyn), D. H. Nicolson (Washington, D.C.), H. Ohashi (Sendai), G. Perry (Perth, W.A.), M. Thulin (Uppsala) and P. Vorster (Stellenbosch). A minimum of nine votes is required for recommendation by this committee that a proposal for conservation or rejection of a name be accepted or rejected.

Prop. 1584. To conserve *Acacia* Mill. with a conserved type [*A. penninervis* Sieber ex DC.] (*Leguminosae–Mimosoideae*). Proposed by A. E. Orchard & B. R. Maslin in *Taxon* 52: 362–363 (2003). Votes: 9. Recommended.

Traditionally *Acacia* has been treated as a huge genus of about 1350 species, pantropical in distribution but with a massive explosion of species in Australia. It is of great importance ecologically, economically and in public perception throughout its area. The type of the name *Acacia* is currently cited as *A. scorpioides* (L.) W. Wight which is universally regarded as a taxonomic synonym of *A. nilotica* (L.) Delile, a species widely distributed in Africa and eastwards to India. Recent taxonomic

work has suggested that the broad genus should be split into at least five genera. With the type as it is at present, this would mean that *Acacia* would in the future be a pantropical genus of 161 species, of which 60 are in the New World, 73 in Africa, 36 in Asia and 7 in Australia, while some 960 species (but see Note under Table 1) largely confined to Australia and surrounding territories would be known as *Racosperma* Mart. The proposal is to conserve *Acacia* with a new type, that of the name of an Australian species, thus keeping *Acacia* for the group of 960 species centred in Australia, the pantropical group including *A. nilotica* being then referred to as *Vachellia* Wight & Arn. Table 1 gives a break-down of the five genera by continents.

This proposal has been the most high-profile and most extensively and vigorously debated case in the history of this committee, not surprisingly since *Acacia* in the broad sense is such a huge, widespread and important genus. It has been realised in the committee from the start that whatever outcome is recommended, some people are going to be very unhappy at having to change the names of important species. While this is regrettable, there is nothing that this committee can do to avoid it. Because it is a choice between the name of an African species and an Australian species as type of the generic name, the argument has sometimes seemed to be a dispute between those two continents, but the committee has borne in mind that people in the New World and in tropical Asia will also be affected. The committee has

Table 1. Numbers of species, continent by continent, recognised as referable to the segregate genera at the time of submission of the proposal (see also point 13 below for further comment). The five proposed genera are given in the five rows across. Names in *italic* would apply if the proposal were not accepted, those in **bold will apply once the proposal is accepted, and those in normal type remain the same whether the proposal is accepted or not.**

Americas	Africa	Tropical Asia	Australia + Pacific Islands
60 <i>Acacia</i> or <i>Vachellia</i>	73 <i>Acacia</i> or <i>Vachellia</i> 1 <i>Racosperma</i> or Acacia in Réunion and Mauritius	36 <i>Acacia</i> or <i>Vachellia</i> 10 <i>Racosperma</i> or Acacia	7 <i>Acacia</i> or <i>Vachellia</i> 955 <i>Racosperma</i> or Acacia (948 in Australia) ¹
97 Senegalia	69 Senegalia	43 Senegalia	2 Senegalia
15 Acaciella			
13 new genus			

¹Note. After the vote was taken, the attention of the committee was drawn to the website www.worldwidewattle.com/infogallery/species where at the time of preparation of this report the total number of species in the *Acacia/Racosperma* group is revised to 987, of which 975 are native to Australia, the latter figure rising to 1005 if undescribed species are included.

reminded itself that it has an obligation to take a global view that best serves the interests of nomenclatural stability. Extensive submissions both for and against the proposal have been received from bodies of interested people and from individuals over a period of some eight months and have been circulated to the whole committee before a vote has been taken. Articles that have appeared in scientific journals and the popular press have also been circulated, together with an unpublished paper by the authors of the proposal (B. R. Maslin and A. E. Orchard) and J. G. West giving considerably more detail than the formal proposal published in *Taxon*. This may be found at <http://www.worldwidewattle.com/infogallery/taxonomy/>. As usual, members' own comments have also been exchanged. The committee has given careful consideration to all points of view.

A number of general arguments have been put forward concerning the importance of the genus (in the broad sense) in different continents. Taken all together, these have been found to more or less balance evenly between Africa and Australia. However, two points seem to have tipped the balance strongly in favour of the proposal to conserve the type as that of the name of an Australian species, at least in the opinion of a majority of those voting. Firstly, the number of species is vastly greater in the Australian group (960) than in any of the segregates in other continents or indeed in all other continents together (*Senegalia* 203, genus including *A. nilotica* 161, two New World genera 15 and 13). The pie chart below illustrates the sizes of the five segregates on a global basis with type faces as in the table above.

To accept the proposal would keep the name *Acacia* for 948 species in Australia, whereas rejecting the proposal would keep the name for only 73 species in Africa and smaller numbers in the New World and Asia. The

affected Australian species outnumber the affected African species by a massive ratio of 13 to 1, and those of the other continents by an even higher proportion. The second major consideration is that nearly half the African species (also many more than half of those in the New World and slightly more than half in Asia) are going to have to change from *Acacia* to *Senegalia* irrespective of any recommendation made on the type. A negative vote therefore cannot be seen as resolving the problem for those who work in Africa or the other continents, and could even be disadvantageous (see note 9 below). Many of those who have opposed the proposal and favoured keeping the type as the name of an African species have consistently ignored this point and have argued as though rejection of the proposal would result in all the African species remaining in *Acacia*, which is not the case.

In view of the contentious nature of the debate and the importance of the recommendation, a brief note is made below of each of the various points that have been argued in the discussion, often comparing the African perspective with that of Australia. Some of the lesser points here may also have influenced the vote.

1. It has been argued that the public perception of *Acacia* is of the thorn trees of Africa, as portrayed in the postcards and films showing them outlined in front of the setting evening sun. However, this simply ignores the point of view in Australia, where an *Acacia* is the official floral emblem of the country. Even in the narrower revised concept, this huge Australian group constitutes the largest genus of flowering plants on that continent, considerably exceeding *Eucalyptus* in number of species. There is a very active *Acacia* Study Group in Australia, producing a *Newsletter* of which the 90th part has recently been circulated to this committee. There have been recent articles in the popular and national press, and the

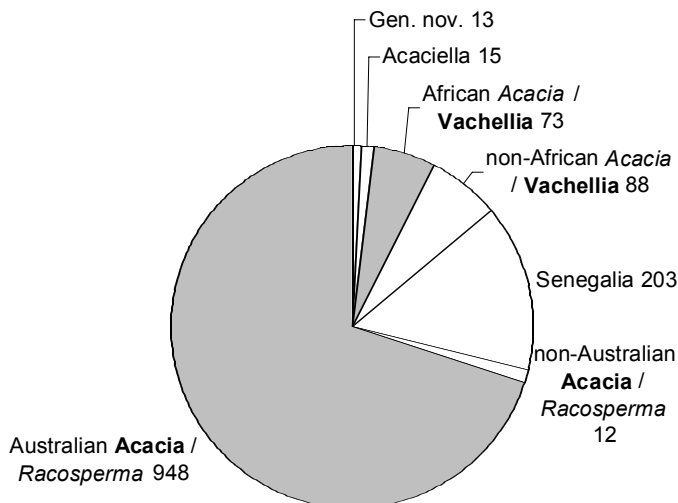


Fig. 1. Pie chart showing sizes of five proposed segregate genera, as given in Table 1, with species affected by the committee's recommendation indicated by shading. Chart by N.A. Brummitt.

proposal seems to have caught the attention of the general public much more in Australia than elsewhere. *Acacia* woodland is certainly a very important vegetation type in Africa, but it is equally so in Australia, and Africa does not have a sole claim to the name.

2. The ecological significance is enormous in both Africa and Australia.

3. Economic importance has been emphasised on both sides, and there is no doubt that many species are utilised by man throughout the range. In Africa, and no doubt elsewhere, many species are of vital importance in the local economy, and a very considerable literature on this exists. In Australia there is a growing agroforestry industry based on the native species, and many of these are now grown in commercial plantations in Brazil, Africa, Asia, etc., as well as Australia for use as timber or for pulp, firewood, tannin, soil conservation, fodder, human food, perfumes, etc. Some are used also in horticulture in temperate regions. On the negative side, some Australian species have escaped from cultivation in other regions, such as South Africa, where they persist as serious weeds. The paper by Maslin, Orchard & West on the website cited above documents that in the last ten years 157 of the Australian species have been exported to 71 countries around the world, including many in Africa. For further information, see the very recently published book *AcaciaSearch* by B. R. Maslin & M. W. McDonald (Rural Industries Research and Development Corporation, Canberra, 2004). Certainly some African species are also cultivated for commercial purposes, but it is unlikely that as many species as in Australia are used or that their distribution is so wide. And although it has been noted that some of the best known economic species, such as *A. senegal* and *A. seyal*, the sources of gum arabic with a market value of over US\$100,000,000 per year, are from Africa, not Australia, it must be remembered that *A. senegal* cannot remain in *Acacia* and will be transferred to *Senegalia* anyway. While the claims for economic importance in Africa are very considerable, they seem to be at least matched by those for the Australian group.

4. The Australian group has been the subject of interest from applied biologists outside the taxonomic field. Two workers in forest pathology, J. Walker & J. Simpson, have published a paper (which had previously been circulated to this committee) in the *Australian Systematic Botany Society Newsletter* 117: 17–21 (2004) opposing the proposal. A reply from one of the proposers, B. R. Maslin, was published in the same Newsletter 118: 15–19 (2004) responding to their criticisms of the proposal. In contrast with the Walker & Simpson paper, the committee received a submission from the CSIRO Entomology group in Canberra, drawing attention to their major publication then in press

(now published as *Evolution of Ecological and Behavioural Bioversity: Australian Acacia Thrips as Model Organisms*, by B. J. Crespi, D. C. Morris & L. A. Mound, CSIRO, Canberra, 2004) on 30 genera and 250 species of thrips associated solely with Australian *Acacia*. Naturally, they hoped that the name *Acacia* would be retained for the Australian genus.

5. It has been claimed that the number of Floras using the name *Acacia* is greater outside Australia than in that continent and the committee should take this into consideration. That may perhaps be true. But there are many state and local Floras in Australia, and the number of people using them there is considerable. Since the Australian species are widely naturalised in many countries, they will appear in many of these Floras outside Australia. More importantly, well over half of the species names used in the Floras of the New World, Africa and Asia must be incorrect under the new taxonomy whatever recommendation is made on the nomenclatural proposal. It is not possible for this committee to make all these names used in Floras outside Australia correct.

6. Surprisingly, around 800 new combinations in *Racosperma* for the Australian species were made in one paper in December 2003 in the middle of the committee's deliberations (L. Pedley in *Austrobaileya* 3: 445–496, 2003). One comment in the committee has been that now this has been done, we might as well just accept the situation and recommend taking up *Racosperma*. Others do not see the formal publication of these names as a critical factor, the effects of their adoption in the future being much more important. The *Flora of Australia* account published in 2001 with all relevant details of the species will be very much more significant, and there the name *Acacia* was used for all 955 species of the broad genus.

7. Since *Racosperma* was first proposed for the main Australian group as long as 15 years ago (when only a selection of new combinations was published), some criticism has been levelled at the proposers for not having either taken up that name earlier or made the conservation proposal earlier. They have, however, been cautious about taking major steps before the taxonomic and nomenclatural facts have been ascertained. Their cautious approach and resistance to rushing into publishing large numbers of new names has perhaps been justified, since these considerations have only reached a reasonable level of acceptance in very recent times. In a paper by leading taxonomists of the *Mimosoideae* (M. Luckow & al. in *Advances in Legume Systematics* 10: 197–220, 2003), it is said (p. 216) that “Support in part of the cladogram is weak, so it is still possible that the *Acacia* subg. *Phyllodineae* clade [the *Racosperma* group] may be related somehow to a paraphyletic subg. *Aculeiferum* [the *Senegalia* group]” and “there exist significant gaps

in our knowledge of other species groups. Denser sampling of both taxa and characters will be necessary to resolve these relationships". When the consequences are so enormous, it may be difficult to know when the correct moment arrives to take the plunge and make or resist the nomenclatural decisions. Even now, the taxonomy may still be in a state of flux (note 13 below).

8. The committee has been told that acceptance of the proposal would destabilise our method of naming taxa, erode the integrity of the type method, and set a precedent for a flood of similar proposals in the future. This committee is always conscious of the danger of setting precedents in this way. However, in the entire history of the committee it has never before been asked to stabilise the names of nearly a thousand species in one vote. There is no prospect of such a proposal ever occurring in the future. This is a unique situation, and the vote should certainly not be seen as creating a precedent for others to follow.

9. Some members have found that the number of species concerned in Australia, where it is the largest flowering plant genus on the continent, presents an overwhelming case in favour of the proposal, especially bearing in mind the need for nomenclatural stability. Others have been more cautious but have still voted for the proposal, while some consider the proposal inappropriate for various reasons. The significant additional factor has been the fact that considerably more than half the species outside Australia will have to change their names anyway. This would mean that in future in the New World, Africa and Asia the name *Acacia* would become ambiguous. The name already exists very extensively in the literature and in ecological notes on herbarium labels, and would inevitably continue to be used for a long time, if only as a vernacular name. It may reasonably be asked whether it will not be better for workers in Africa to change the genus of all their native species rather than end up with half in *Acacia* and half not. They would at least then know more clearly in the future how things stand. If the proposal is not accepted and half the African species remain in *Acacia*, how will anyone know in future whether use of this name refers to the restricted new concept or is an outdated use of the broader concept? Confusion may be less if all the native species are referred to different generic names, when any usage of *Acacia* for the non-Australian species will be seen to be in the former broad sense.

10. A comparison has been made between this case and the splitting of *Cassia* into three genera in recent years, with a comment that nobody seems to be unhappy with the current application of that name to the smallest of the three genera. No conservation proposal was made in that case.

11. It has been pointed out that a switch to use of

Racosperma for the Australian group would not be a simple matter of changing the generic name because that name is neuter (like most generic names ending in *-ma*) while *Acacia* is feminine, and most of the 960 specific epithets and those of their infraspecific taxa have a different termination under *Racosperma*.

12. There has been some suggestion to the committee that the Australian proposers are being excessively chauvinistic in proposing that they should retain the name for their species. However, it might be argued that their African opponents are being very much more chauvinistic in wanting to keep the name for a very much smaller number of species in their continent, and for only half their species at best. Again, there are two ways of seeing this. The committee insists it has taken a global view and not deliberately favoured one continent. Four of the committee have spent most of their professional life working on African plants.

13. Late in the discussions there have been suggestions made to the committee that further splitting may be required in the extra-Australian genera which would result in the genus including the present type, *A. nilotica*, becoming even smaller than the first suggestions indicated. It seems much less likely that the mostly phyllodinous group of species in Australia will be subject to further generic splitting. This has not been a major point in the arguments, but it will be interesting to see how the taxonomic position resolves itself in the near future. If the extra-Australian groups should prove taxonomically unstable, there will be an advantage in having the type of the name of an Australian species as the type of the name *Acacia*.

14. Finally, the committee knows that whatever it recommends, name changes to very important plants will be required in the light of its recommendation. It emphasises that these nomenclatural adjustments are necessitated by taxonomic change and not by nomenclatural dabbling. It is confidently hoped that the blame, if blame there be, for the changes will not be laid at the door of those who attend to nomenclatural matters in general or of this committee in particular. The committee's very carefully considered opinion has been based on the wish to reduce nomenclatural change and inconvenience to a minimum, and it is hoped that all parties will accept this recommendation. Never before has the committee had the opportunity to stabilise the names of nearly a thousand species in one vote, and it is never likely to be asked to do so again.