

NOMENCLATURE

Edited by John McNeill, Anthony E. Orchard & John C. David

The controversy over the retyfication of *Acacia* Mill. with an Australian type: A pragmatic view

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Abstract The conservation of *Acacia* with an Australian type has been perhaps the most controversial issue to have been dealt with under the *International Code of Botanical Nomenclature* in many years. Before, during and since the vote on the matter at the Seventeenth International Botanical Congress in Vienna, strong opinions have been expressed in print, on the web and in the popular media. Opponents of the Vienna decision are currently focusing on details of the process by which the vote was conducted, rather than on the merits or otherwise of the original proposal. They have signalled an intention to challenge and to try to overturn the Vienna decision at the Melbourne Congress. We are a group of taxonomists, from a range of backgrounds and with a range of opinions on the original proposal, who believe that the Vienna process was fundamentally sound, and that continuance of this argument in its current form is damaging to the international nomenclatural consensus. We provide this paper as, we hope, an objective, non-partisan summary of the issue and conclude with the recommendation that the international taxonomic community should accept the retyfication of *Acacia* and move on.

Keywords *Acacia*; botanical nomenclature; conservation of names; International Botanical Congress; *International Code of Botanical Nomenclature*

■ INTRODUCTION

Typification of *Acacia* Mill. has become a controversial issue in recent years, and will almost certainly be discussed and debated at the Nomenclature Section of the forthcoming Eighteenth International Botanical Congress (IBC) in Melbourne in July 2011. A number of important papers (e.g., McNeill & Turland, 2010; Moore & al., 2010) have argued for alternative positions with respect to the retyfication of *Acacia* from an African to an Australian type as adopted at the Vienna Congress in 2005. The debate has many dimensions, some that extend beyond the *Acacia* issue itself. Positions have been stated which both challenge and support the legality and propriety of the Vienna decision. The issue is regarded by some as one of the most high profile, controversial and divisive nomenclatural issues ever.

This paper provides, we believe, an objective summary and assessment of the recent history and current status of the controversy. It is written principally for those members of the

botanical community who have not taken strong, entrenched positions in the debate. We recommend that all participants of the Nomenclature Section of the Melbourne IBC make themselves aware of this issue, as it is likely that votes will be taken there that will have important implications for nomenclature, the stability of the *Code* and the standing of taxonomy in the global community. None of the authors of this paper has been strongly involved in the controversy to date. We present what we believe to be a considered, non-partisan viewpoint.

■ THE HISTORY AND PHYLOGENETIC POSITION OF *ACACIA* S.L.

Acacia was described by Miller (1754) and typified by Britton & Brown (1913: 735) on *A. scorpioides* (L.) W. Wight (= *A. nilotica* (L.) Delile), a species widely distributed from southern Africa to India. In its traditional circumscription *Acacia* s.l. is the second largest genus in *Fabaceae*, with ca.

1540 living taxa (ILDIS, 2005). The principal centre of species diversity is Australia (ca. 1000 species), with secondary centres in the Americas (ca. 180 species), Africa (ca. 160 species) and Asia (ca. 100 species); a few species also occur on the islands of the Pacific.

Species of *Acacia* s.l. are ecologically, socially and economically important. For example, in Australia and Africa, many species are dominant components of drier vegetation, such as the thorn scrubs of southern Africa and the mulga woodlands of Australia. On both continents *Acacia* has important cultural and symbolic significance. A number of Australian species, most notably *A. mangium*, *A. mearnsii* and *A. saligna* are economically important and are widely planted globally for wood products, tannin, firewood and fodder. An African species, *A. senegal*, is the primary source of gum arabic which is commonly used in prepared food products and pharmaceuticals, while the Afro-Indian species *A. nilotica* is planted in India and elsewhere, as a source of wood and stock fodder. Africa and Australia have reciprocally exchanged weedy species, with e.g., *A. nilotica* subsp. *indica* and *A. saligna* serious weeds in Australia and South Africa respectively.

Since the 1980s, a growing body of phylogenetic evidence (e.g., Maslin & al., 2003; Brown & al., 2008; Bouchenak-Khelladi & al., 2010) has firmly established that *Acacia* s.l. is polyphyletic and comprises five distinct clades widely separated within the tribes *Ingeae* and *Mimoseae*. The clades correspond with previously established infra-generic groups, and have available generic names (see Table 1).

The five clades are widely disparate in size. The two smallest, corresponding to the genera *Acaciella* Britton & Rose (15 species) and *Mariosousa* Seigler & Ebinger (13 species), are confined to the Americas. Two clades of moderate size, corresponding to the genera *Vachellia* Wight & Arn. (163 species) and *Senegalia* Raf. (194 species) are pantropical. The largest clade, corresponding to *Acacia* following the Vienna decision, comprises 1021 species almost all of which are Australian.

■ THE CONSERVATION OF ACACIA MILL. WITH AN AUSTRALIAN TYPE

In the lead-up to the 2005 Vienna Congress, Orchard & Maslin (2003) proposed, under Art. 14 of the *International Code of Botanical Nomenclature*, that *Acacia* Mill. be conserved with a conserved type, that of *A. penninervis* Sieb. ex DC., the name of an Australian species. Article 14 allows conservation of names to avoid disadvantageous nomenclatural changes entailed by strict application of the rules of *Code*, especially of the principle of priority.

For readers unfamiliar with the processes for dealing with such conservation proposals under Art. 14, the established and agreed steps are as follows:

1. The proponents publish their proposal in *Taxon*, with arguments for and against conservation, and reasoning. Opponents of the published proposal may, of course, respond with counter arguments, in *Taxon* or elsewhere.

2. The relevant Permanent Nomenclature Committee¹ considers all arguments for and against the proposal, and after due deliberation votes whether or not to recommend the proposal. A 60% majority vote is required for the Committee to recommend a proposal or to turn one down.

3. The report and recommendation of the Permanent Nomenclature Committee is published in *Taxon* and considered by the General Committee, which then also votes (again with a requirement for a 60% majority) on the proposal. If the General Committee votes in favour of the proposal it is said to be approved and the name can then be used as proposed, subject to ratification at a later International Botanical Congress.

1 At the time of the *Acacia* proposal this was the Committee for Spermatophyta, since replaced (along with the Committee for Pteridophyta) by the Nomenclature Committee for Vascular Plants.

Table 1. Classification schemes for *Acacia* s.l. showing species numbers and major areas of occurrence. Numbers are sourced from World Wide Wattle (<http://www.worldwidewattle.com>, accessed Oct. 2010) and refer to accepted species only (not including infraspecific and informal taxa). Taxa in bold are the critical taxa that require name changes depending on which type is accepted.

Pre-Vienna names (<i>Acacia</i> treated as a single genus with <i>A. scorpioides</i> the type).	Post-Vienna names; <i>Acacia</i> s.l. treated as five genera					Total		
	With <i>A. penninervis</i> the type	With <i>A. scorpioides</i> the type	Species numbers and distribution					
			Americas	Africa ^a	Asia	Australia ^b		
<i>Acacia</i>								
subg. <i>Acacia</i>	<i>Vachellia</i>	<i>Acacia</i>	52	83	32	9	163	
subg. <i>Aculeiferum</i>								
sect. <i>Spiciflorae</i>	<i>Senegalia</i>	<i>Senegalia</i>	79	74	48	2	194	
sect. <i>Filicinae</i>	<i>Acaciella</i>	<i>Acaciella</i>	15	0	0	0	15	
<i>Acacia coulteri</i> group	<i>Mariosousa</i>	<i>Mariosousa</i>	13	0	0	0	13	
subg. <i>Phyllodineae</i>	<i>Acacia</i>	<i>Racosperma</i>	0	1	12	1017	1021	
			Total	161	158	92	1028	1406

^aIncluding Madagascar and the Mascarene Islands.

^bIncluding islands of the Pacific.

4. The General Committee reports to the Nomenclature Section of the following International Botanical Congress, presenting all decisions for ratification. Under normal circumstances, ratification of the General Committee's decisions is carried by show of hands and is usually unanimous or nearly so.

5. The decisions of the Nomenclature Section are presented for approval by a Resolution of the final Plenary Session of the IBC.

This process has been in place for decades, and is characterized by checks and balances to achieve and maintain nomenclatural stability and certainty. The two-step Committee process, with the requirement in both cases for a 60% supermajority vote to recommend or approve a proposal, is designed to "weed out" poor, frivolous or disadvantageous proposals. The two-step process for ratification at an IBC of the Committees' decisions is designed to provide international oversight of the Committees while acknowledging that the Committees' decisions are considered and regarded as authoritative.

The proposal to conserve *Acacia* with an Australian type was made on the grounds of nomenclatural stability, as required by the *Code*. The proponents argued, firstly, that conserving the genus name with an Australian type would result in, globally, many fewer names needing to change (of the 1352 *Acacia* species known at that time, 161 would change to *Vachellia* if the proposal succeeded while 960 would change to *Racosperma* if it failed)¹. Secondly, they argued that a number of Australian species of *Acacia* form the basis for significant, global and economically important industries in timber and other products and that these industries would be substantially disadvantaged by a name change in their literature and marketed products.

Following publication of the proposal, submissions were made to the Committee for Spermatophyta supporting or objecting to it. Opinions were also expressed in many articles in scientific journals and in the popular press (see World Wide Wattle, 2009; Moore & al., 2010).

The Committee, after studying the proposal and taking into account the submissions and published discussion, voted in June 2004, with the required 60% majority, to recommend the proposal. In his published report of the Committee's decision, Brummitt (2004) listed the 14 most important matters that the Committee considered in arriving at its decision and stated that two points "tipped the balance strongly in favour of the proposal." These were: (1) that the number of affected species in the Australian group was vastly greater than that in any other continent (by a factor of at least 13 to 1) and (2) that even if the proposal were rejected, half or more of the *Acacia* species in Africa (and on the other continents excluding Australia) would need to be recombined into other genera anyway (most into *Senegalia*, with smaller numbers into *Acaciella* and *Mariosousa*).

¹ Figures refer to species only (infraspecific taxa not included) and are based only on name changes from *Acacia* to *Vachellia* if the proposal succeeded and from *Acacia* to *Racosperma* if it failed. Other necessary combinations, e.g., from *Acacia* to *Senegalia*, are not included as they are required in either case.

Subsequently, in 2005, the General Committee voted on the proposal. It agreed with the recommendation of the Committee for Spermatophyta, and hence approved the proposal (Barrie, 2006). Ahead of the IBC meeting in Vienna, summaries of the opposing views were published by Orchard & Maslin (2005) and Luckow & al. (2005).

■ THE NOMENCLATURE SECTION MEETING OF THE XVII INTERNATIONAL BOTANICAL CONGRESS IN VIENNA, JULY 2005

In almost all cases, ratification of the General Committee decisions at the IBC is relatively straightforward and non-controversial. In the case of *Acacia*, however, what happened at the Vienna IBC has become a source of much debate (see Moore & al., 2010; McNeill & Turland, 2010 for a more detailed discussion of the issues).

In essence, on the final day of the week-long Nomenclature Section meeting of the Vienna Congress delegates were asked to vote, as required, to accept or reject the General Committee's decision that the name *Acacia* be conserved with an Australian type. At the beginning of the Session, prior to the presentation of the reports of the Permanent Committees, the President had proposed, and the meeting accepted, that if a vote was required on a particular item a 60% majority would be required to overturn any Committee's recommendation (in practice only those of the General Committee). When the *Acacia* decision was voted on, 54% of votes were cast to reject the General Committee's decision; as this was less than the required 60% majority, the Committee's decision was not rejected.

Subsequently, at the final plenary session of the Congress, the decisions of the Nomenclature Section, including the decision on *Acacia*, were accepted, as required and by a large majority, and *Acacia* was listed as conserved with *A. penninervis* as the conserved type in the *Vienna Code*.

■ THE CONTROVERSY SINCE VIENNA

Argument and controversy on the retyfication of *Acacia* has not diminished since the Vienna Congress. Indeed, objectors to the retyfication have intensified their opposition, both in print and on the web. The case has also triggered broader criticisms: Smith & al. (2010), for example, have called into question core processes for deciding nomenclatural issues, while Applequist & al. (2010) have defended these processes.

We summarise the arguments of those opposed to the Vienna outcome (following Moore & al., 2010) as follows:

1. Retyfication should not proceed because *Acacia* is an iconic genus in Africa.
2. The fact that a majority (54%) of votes cast at the Nomenclature Section rejected the General Committee's decision should have been sufficient to overturn it.

3. There was confusion at the time of the vote at the Nomenclature Section, rendering the vote invalid.

4. The voting procedure at Vienna was flawed and did not conform with established international principles for the conduct of a meeting.

Supporters of the Vienna decision counter these arguments (following McNeill & Turland, 2010) as follows:

1. Both Africa and Australia have valid claims to *Acacia* as an iconic genus, as on both continents the genus is ecologically, socially and economically important.

2. A simple majority of votes at the Nomenclature Section should not be able to overturn a required 60% majority vote of the two Committees specially constituted to consider proposals in depth and with due deliberation.

3. There was no confusion at the Section by the time the vote was taken, and it was made clear to delegates which way to vote if they favoured an Australian or African type for *Acacia*.

4. The voting procedure was clearly explained and agreed to by the Section meeting, thereby conforming to established international practice.

They further note that the two principal arguments accepted by the Committee for Spermatophyta as important factors in their decision (the considerably smaller number of name changes required, and the minimization of disruptive consequences to a global, economically important industry), still stand and have not been countered by the opponents.

■ THE ACACIA ISSUE AT THE MELBOURNE CONGRESS

Opponents of the Vienna decision have indicated their intention to challenge it at the Melbourne International Botanical Congress in July 2011, and to attempt to declare the Vienna *Acacia* vote null and void (Moore & al., 2010).

It is established practice at the beginning of each Congress that a vote be taken to accept the current *Code*, in its entirety, as the basis for discussion and deliberation. The opponents have signalled that they plan to propose that the *Vienna Code* be accepted with the *Acacia* conservation provision excised. The decisions of the Committee for Spermatophyta and of the General Committee, which clearly still stand, will then presumably be re-contested and an attempt made to overturn them. If the attempt is successful, the type of *Acacia* will then be reconfirmed as the African *Acacia scorpioides*.

Supporters of the Vienna decision have indicated that they will defend it and will vote to accept the *Vienna Code* in its entirety including the *Acacia* provision.

■ A PRAGMATIC VIEW OF THE CONTROVERSY

None of the co-authors of this paper has held strong or partisan views on this issue either before, during, or following

the Vienna Congress. Some of us supported the proposal and voted to accept the Committee recommendations while others did not support it and voted to reject them. We all, however, remain of the view that a decision either way, to accept or reject the conservation of *Acacia* with an Australian type, would have been broadly acceptable, and that the global taxonomic community could adapt to, and accept, either outcome.

However, since the Vienna meeting we have become dismayed by the ongoing bitter and rancorous argument, and feel that taxonomy and nomenclature are being done a disservice by its continuance.

We note that the original proposal to conserve *Acacia* with a new type was well within the provisions of Art. 14 of the *Code*. Conservation of names under Art. 14 has been used many times to avoid a large number of disadvantageous name changes (see, e.g., Hughes, 1997; Choi & Ohashi, 1998; Greuter & al., 2001; Ross 2004). In every case, the decision to support conservation was made principally using the weight-of-numbers and global nomenclatural stability arguments that clearly apply in the *Acacia* case.

We note also that at least some taxonomists around the world, whatever their view at the time, accepted the Vienna outcome and have moved on. Approximately 230 new combinations have been published in *Acacia* s.l. since the Vienna decision, including 87 combinations into *Vachellia*, the genus that includes *Acacia scorpioides* (= *A. nilotica*) (World Wide Wattle, <http://www.worldwidewattle.com>, accessed Oct. 2010). Most of these combinations have been published by workers who held no strong views either way. These moves are proper, and indicate an acceptance of the primacy of the *Code* in the workings of the global nomenclatural community. Such work will be thrown into confusion if the Vienna decision is overturned.

We recognize that because of the large size, importance and global distribution of *Acacia*, any decision that requires changes to species names will cause concern for some people. Unfortunately, species name changes are required whichever decision is accepted, given the polyphyly of the traditionally circumscribed *Acacia*. We also accept the rights of strong opponents of the decision to express their disappointment, and indeed to challenge the retypification. We believe, however, that this should be done by working within established practice and principles. McNeill & Turland (2010) suggested that the opponents of the *Acacia* retypification should prepare, in time for the Melbourne Congress, a formal proposal to conserve *Acacia* with another type, supported by arguments to justify such a move in the interests of nomenclatural stability. We support this suggestion.

However, the opponents of the Vienna decision appear to have no intention to do this, and have chosen instead to attack established process. We regard their contention, that the Vienna decision was flawed, to itself be flawed. Arcane arguments concerning complex technicalities of the voting process notwithstanding, we believe that:

1. the acceptance by the Nomenclature Section in Vienna that a 60% supermajority would be required to overturn the

considered decision of the Committees established expressly to rule on matters pertaining to the *Code* was appropriate, and helps maintain the stability of the *Code*;

2. the rules under which voting on the *Acacia* issue were conducted were made clear to delegates before the vote was taken;

3. the Africa versus Australia and vice versa stance of parts of this debate, and the highly emotive flavour of much of it, both at the time of the vote and since, is unfortunate, and should play no part in these matters; and

4. the proper basis for objective consideration of this issue should be the simple matter of what best serves the interests of global nomenclatural stability, with the relative numbers of name changes required by the alternative options the prime determining factor.

In view of these points we believe that a pragmatic position is that the decision of the Vienna Congress should stand, and that the international botanical community should move on from this issue. We feel that the continuing attacks on the integrity of the process and of some people involved are counterproductive to nomenclatural harmony, to the global nomenclatural consensus, and to the standing of taxonomy in the community. We recognize that this issue has been distressing to many people. But the fact that work on the taxonomy and nomenclature of *Acacia* s.l. has continued, around the world, in the five years since Vienna and that the decision has been accommodated in this work with no difficulties, is encouraging. We believe that reversing the decision except through standard processes would set a dangerous precedent and would, in the long term, encourage nomenclature by pressure group rather than nomenclature by due process.

Note that if the decision by the Committees and the Congress had been to reject the original proposal, and the proponents and supporters of an Australian type had continued the debate in the same manner that we see today, we would take the same position—that the decision should stand and the world should move on.

We believe, finally, that all those concerned with this issue at the International Botanical Congress should acquaint themselves with its context and implications and should vote carefully and with due deliberation, should the issue arise at the Melbourne Congress. We provide this paper in the spirit of a dispassionate summary of the issue, and invite any readers who wish to know more to read the references below for more detailed arguments on both sides.

■ ACKNOWLEDGMENTS

We thank many colleagues for reading and commenting on the manuscript and for useful and at times spirited discussions on the *Acacia* issue, particularly Bill Barker, Robyn Barker, Barbara Briggs, Dick Brummitt, Mike Crisp, Charlie Jarvis, Steve Hopper, Bruce Maslin,

Hidetoshi Nagamasu, Gillian Perry, Tony Orchard, Tod Stuessy and Karen Wilson. Note that these colleagues have varying views on this matter and some disagree with the conclusion reached here; all, however, are concerned that the *Code* does not fall into disrepute.

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