

Apportionment of institutional votes for the Nomenclature Section: A rebuttal to Smith & al.

Wendy L. Applequist,¹ Martin W. Callmander,^{1,2} Gerrit Davidse,¹ Alexander Sennikov,³ Mats Thulin,⁴ Piet Vorster⁵ & George Yatskievych¹

¹ Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.

² Conservatoire et Jardin botaniques de la ville de Genève, ch. de l'Impératrice 1, 1292 Chambésy, Switzerland

³ Botanical Museum, Finnish Museum of Natural History, P.O. Box 7, 00014 University of Helsinki, Finland; and Herbarium, Komarov Botanical Institute of the Russian Academy of Sciences, Prof. Popov str. 2, 197376 St. Petersburg, Russia

⁴ Systematic Biology, EBC, Uppsala University, Norbyvägen 18D, 752 36 Uppsala, Sweden

⁵ Department of Botany & Zoology, University of Stellenbosch, Private Bag X1, 7602 Matieland, South Africa

Author for correspondence: Wendy L. Applequist, wendy.applequist@mobot.org

Abstract Smith & al. (2010) have suggested that the apportionment of institutional votes for the Nomenclature Section of the International Botanical Congress based upon taxonomic activity represents a “colonial legacy” that disadvantages developing nations, and that institutional votes should instead be distributed based at least in part upon a country’s human population and the size of its flora. While we agree that increasing participation by developing-country taxonomists is an important goal, we believe that Smith & al. fail to support their claim that the current practice of plant nomenclature is harmful to developing nations. No evidence has been offered of regional biases regarding proposals to change the wording of the *Code*, which represent the vast majority of the votes taken at any Nomenclature Section, nor has the current process of apportionment of institutional votes been shown to be biased. The reform measures proposed by Smith & al. would, as we show, introduce explicit discrimination based on nationality into the *International code of botanical nomenclature*, undermining the international cooperation among taxonomists that is necessary for the smooth functioning of a universally accepted system of nomenclature. Rather than making hasty and perhaps harmful changes to the current means of voting, we suggest that the international taxonomic community should consider carefully what measures will best facilitate participation without creating new sources of injustice.

Keywords *Acacia*; developing nations; institutions; International Botanical Congress; *International code of botanical nomenclature*; voting

■ INTRODUCTION

Proposals to amend the *International code of botanical nomenclature* (ICBN) are considered and voted upon by attendees of the Nomenclature Section of the International Botanical Congress (IBC). Votes cast by the attending individuals are of two types: individual votes and institutional votes, only the latter being assignable to proxies. Active herbaria that request institutional votes are awarded one to seven votes, depending upon the institution’s size and level of taxonomic activity, by the Bureau for Nomenclature. Smith & al. (2010) argue that this process of apportionment of institutional votes lacks transparency, and further, that it represents a systematic injustice (“minority rule”) to biodiverse developing countries that have few or no large herbaria. Rather than assigning institutional votes based upon the level of taxonomic activity at each institution, they suggest that putative “usage of the names” of a country’s plants, as measured by the number of plant species in its flora and its human population size, should weigh heavily in the total number of votes awarded to its institutions.

Taxonomists who work in developing countries are indeed inadequately represented at the Nomenclature Section, and this is an issue of fairness that the taxonomic community must do more to address. However, we believe that Smith & al. (2010)

both exaggerate the practical effects of that disparity and propose a cosmetic solution that would impose a more explicit and formal variety of injustice, with serious repercussions for international cooperation. Their solution implies that issues of plant nomenclature should be viewed as competitions for power between different regions whose scientific or public communities have fundamentally conflicting interests. We believe that, in reality, nomenclatural questions very rarely involve significant interregional conflict, and that the interests of stakeholders in developing countries are better respected than Smith & al. might acknowledge.

■ DOES PLANT NOMENCLATURE HURT POOR PEOPLE?

The current practice by which the international taxonomic community updates and applies the ICBN is not sacrosanct, and might well be improved upon. However, the sole example offered by Smith & al. (2010) of an actual injury inflicted upon developing countries via nomenclature is that of the controversial retypification of *Acacia* (Orchard & Maslin, 2003; Smith & al., 2006; Moore, 2007), which supposedly demonstrated that “developing nations ... have been left behind.” The implication is that the

greater number of countries possessing African *Acacia* species, or the greater number of humans occupying those countries, would in a less unjust system have been the controlling factor in a nomenclatural decision. However, if Smith & al.'s alternate criterion, by which those who have the largest floras should have the greatest power, had been narrowly applied to the number of *Acacia* species at issue, the Australians, with several times more species at issue, would appropriately have had the final say. More seriously, given the range of nationalities and geographic interests represented at the time on the Nomenclature Committee for Spermatophyta (now superseded by the Nomenclature Committee for Vascular Plants [NCVP]), it is not obviously plausible to presume that the outcome of the Committee's vote was determined by bias against Africa or in favor of Australia. While not all of us participated in that vote or agreed with its outcome, we are united in opposing the imputation of invidious motives to the participants, as arguments of that nature have the potential to poison international dialogue and undermine trust and cooperation within the botanical community.

Few nomenclatural decisions so difficult, in which considerable inconvenience to many users of nomenclature is inevitable, will ever occur (as demonstrated by the failure of Smith & al., 2010 to cite any other case of alleged harm done by nomenclature). More typically, proposals to retypify, conserve, or reject names are intended to reduce inconvenience to stakeholders in one region while causing little or none elsewhere, and the experience of those of us who have served on the NCVP has not been that inconvenience in developing countries is treated dismissively by committee members from wealthier nations. If anything, understanding that institutions in those countries have fewer staff and resources with which to follow nomenclatural changes and update collections, databases, and literature, committees may be particularly sympathetic to proposals intended to avoid disadvantageous nomenclatural changes for their floras. This is not to suggest that geographic diversity need not be represented on nomenclatural committees or at the Nomenclature Section itself; it is essential, both to maximize the available breadth of knowledge and as a matter of equity. However, we categorically reject any suggestion that committee members from Western institutions make a habit of voting according to national or cultural rather than scientific interests. We further observe that proposals dealing with specific taxa, being seldom controversial, are rarely voted on individually at a Nomenclature Section (indeed, the *Acacia* proposal may be unique in this regard). The vast majority of votes deal with proposals to change the wording of the *ICBN* proper, which should be even less likely to bring the interests of different regions into direct conflict, and indeed no example of exceptional bias regarding proposed changes to the *ICBN* has been offered.

■ REDISTRIBUTING VOTES: TO WHOM AND WITH WHAT CONSEQUENCES?

To begin with, we regard it as a fundamental principle that the rules of taxonomic nomenclature must be set by the practicing taxonomists who are the primary users of those rules

and who best understand the potential implications of proposed changes. Smith & al.'s (2010) suggestion that a nation's power to influence the *ICBN* should derive in part from its population rather than its taxonomists implies that nomenclatural decision-making should perhaps not just consider the needs of the public, but bow to their wishes. While it is true that scientific names may be "used by ... even the general public," this does not mean that the specifics of typification or orthography could be determined by a democratic vote of the public! Like all scientists, we as taxonomists have expertise in our own specialty that others, including stakeholders with legitimate interests in the products of that specialty, do not have; taxonomy would not benefit any more than medicine or climatology does from the pretense that everyone's opinion has equal weight.

A second fundamental principle, in our opinion, is that every taxonomist should have an equal right to participate in the international taxonomic community, regardless of his or her race, nationality, employing institution, or any other factor. Equality of rights can be narrowly viewed in legalistic terms (e.g., the individual vote of one taxonomist attending the Nomenclature Section should be weighted the same as the vote of any other taxonomist). However, Smith & al. (2010) remind us that equality of opportunity must also concern us. Botanists from developing nations have disproportionately been unable to attend Nomenclature Sections or gain appointment to committees, and more effective means of reducing that disparity must be found. Yet those means must not be such as to impose unequal rights on any subset of botanists. Such policies would encourage us to view one another as competitors in a zero-sum political game in which one group's empowerment is another group's disenfranchisement, a situation that could be devastating for international cooperation.

Based on these principles, we argue that "diversity of flora and human population size" (Smith & al., 2010) are unacceptable bases for the distribution of institutional votes. We must first consider the purpose of institutional voting. Arguably, large herbaria do have particularly strong institutional interests in the *ICBN*: for actively curated collections with millions of specimens, nomenclatural instability could represent a significant burden. However, it is unlikely that an institution could have an opinion regarding a specific proposed change to the *ICBN* that existed outside and beyond the opinions of its staff. Thus, institutional voting primarily serves to ensure that practicing taxonomists have an indirect or collective means of expressing their professional opinion on such issues even when, as is normally the case for most botanists from any country, they are unable to attend the Nomenclature Section. For that purpose, the size of the non-botanist population surrounding the institution is irrelevant, as the vast majority do not have an informed opinion (or indeed any opinion) on the *ICBN* and can play no role in shaping it. Likewise, the size of the flora of the political unit in which the institution is located is irrelevant, and a particularly strange criterion as well. Smith & al. note that there are only 1623 vascular plant species in the United Kingdom, but the botanists at the U.K.'s 19 voting herbaria certainly do not confine themselves solely to the study of those species! And further, the correlation of species diversity with "activity

of *usage* of the names” is untenable; the U.K. and Libya, for example, have similar flora sizes, but the extraordinary number of botanically themed books and journals published in the former country means that the scientific names of U.K. species must be much more frequently used.

Smith & al. (2010) have not attempted to propose a specific formula by which population and floristic diversity could be best used to distribute votes by nation or continental region, which makes quantification of the practical impact of their concept impossible. To set an upper limit for purposes of discussion, let us suppose that 50% of each country’s institutional votes were to be awarded based on population size and 50% based on flora size. Currently, South Africa and Poland each have nine voting herbaria, each receiving a total of 15 votes (McNeill & Turland, 2009). On the *Index herbariorum* website, the South African voting herbaria list a total of 50 staff (STE, which gets one vote, lists none, and the 130,000-specimen collection is said to have been transferred to NBG in 1996), while the Polish voting herbaria list a total of 101, after the deletion of one duplicate listed at both KRA and KRAM. (As a caveat, we do not know whether all workers performing research or curatorial tasks are similarly listed [or not] by institutions in both countries.) Poland has 38.2 million people and 2450 plant species, while South Africa has 49.3 million people (1.29 times as many) and 23,420 vascular plant species (9.56 times as many). Those numbers would lead to South Africa’s nine voting herbaria being assigned 5.4 times as many votes as Poland’s nine voting herbaria receive. Making the unrealistic assumption that all listed staff at an herbarium have a voice in the casting of that institution’s votes, the effect would be that the power of one South African worker to influence the *ICBN* through institutional voting would be over ten times that of one Polish worker. It is hard to imagine a more blatant rejection of the ideal that taxonomists from all nations should be treated as equals.

Of course, Smith & al. do not advocate that national population and flora should be the only criteria used; they leave the door open for taxonomic activity to be considered, reducing the magnitude of the effect. As a more realistic, if still simplified example, let us suppose that in addition to the current institutionally based votes (15 for each country), those two countries were to receive a comparable total number of nationally based votes, distributed, as calculated above, on a 1 : 5.4 ratio (i.e., of 30 votes, 5 would go to Poland and 25 to South Africa). The total votes awarded would then be 20 for Poland’s voting institutions and 40 for South Africa’s. If a fivefold disparity in voting power between institutions with similar levels of activity is plainly unacceptable, would a twofold disparity be tolerated? What if the advantage were only 50%, or 25%? We suspect that no overt weighting would be widely accepted unless the magnitude of the effect were too small to be conspicuous, in which case it would not provide the results desired by Smith & al. Otherwise, those whose votes were down-weighted because of their nationality or nation of residence would certainly feel ill used. To be sure, developing-country taxonomists have frequently been disempowered by economic limitations and cultural biases, a situation that creates justifiable resentment. However, those factors are unofficial and amenable to progressive amelioration.

To enshrine explicit, formal discrimination in the *ICBN* would be a huge step in the wrong direction, and would provide an endless source of anger and division.

■ WHO GETS VOTES, HOW MANY, AND WHY?

As Smith & al. (2010) observe, most of the developing-country herbaria listed in *Index herbariorum* (*IH*) do not have any institutional votes. This fact, however, is not unique to developing nations. By Smith & al.’s numbers, 13 of 72 southern African herbaria with *IH* acronyms have allocated votes (18.1%), and nine of 43 South African herbaria (20.9%). Those numbers actually pertain only to active herbaria, including those with as few as 200 specimens; *IH* lists 53 acronyms for South Africa, but the remaining ten are defunct. For purposes of comparison, 93 herbaria in the United States have institutional votes, and *IH* online lists 714 acronyms for U.S. herbaria; we have not been eager to wade through all of those to determine the status of each one, but if the same proportion were defunct as in South Africa, about 579 would be active and 16% of those would have votes, a proportion comparable to that in Africa. The non-voting U.S. institutions are mostly small local herbaria belonging to educational institutions, government agencies, and the like; many see very little active curation or research activity, and some do not employ a single taxonomist. Nomenclature Sections would not materially benefit if these institutions were encouraged to demand votes, nor would the institutions themselves: few could participate meaningfully, and most would simply hand over their votes as proxies to botanists from the large regional research institutions that already are said to have excessive influence.

Similar local herbaria in developing countries, if they requested institutional votes, would be in a similar position. Almost all would be forced to delegate their votes to attendees from the few well-funded national herbaria in their region, in practice giving disproportionate power to the staff of that handful of institutions, whose interests might not be identical to the interests of smaller herbaria. Broader distribution of institutional votes is thus no panacea for the barriers to international participation faced by taxonomists at ill-funded smaller institutions. Nevertheless, under the present rules, institutional voting is the only means by which a taxonomist who lacks travel funds can, through choosing or influencing the choice of a proxy, participate indirectly in the voting process. Therefore, we concur with Smith & al. (2010) that in the interest of increasing the participation of developing-country taxonomists, all taxonomically active herbaria in developing countries may find it desirable to request institutional votes.

Voting herbaria of modest size and activity receive one institutional vote, while larger and more active herbaria receive two to seven based on less than explicit criteria. From the example of the herbaria receiving four votes (McNeill & Turland, 2009), which vary considerably in the quantitative criteria of staff, specimens, and in-house publications, Smith & al. (2010) suggest that vote allocation is “historically based.” The process does seem to be somewhat subjective, but if taxonomic activity

is to be maintained as a major criterion, it is not immediately obvious how to avoid that. The fairest system might seem to be one based only on staff size, but that measure is problematic. Even staff numbers may be uncertain: the two four-vote herbaria reported by Smith & al. to have only four staff (UPS and TI) list more staff on their own websites than they do on *Index herbariorum*. Staff with a given educational credential may be in positions of authority at some institutions, while being employed at others only at lesser rank with no ability to affect voting decisions; individuals and positions vary in their levels of taxonomic activity, and some institutions list among their staff emeritus faculty who have not worked for years. Thus, many institutions would be able to prove that their staff did more taxonomic work than the staff of a larger institution. Devising a purely objective and fair system could be quite a challenge.

In the interim, one measure of the equity of the present system is whether there are allegations of actual, as opposed to hypothetical, injustice. If some herbaria receive, despite appeal to the Bureau of Nomenclature, fewer votes than other herbaria that can be shown to be similar according to objective criteria, that would be strong evidence that the process requires quick reform. To our knowledge, no claims of discrimination are being made—the apparently strongest of those four-vote herbaria, for example, are not publicly complaining that they have been unfairly denied a fifth vote—so we have no basis for presuming that the current practice generates systematic inequity. Rather than trying to enact hasty and possibly ill-considered reforms, we believe that the taxonomic community will be better served by taking adequate time to weigh the merits and demerits of a full range of options.

■ CONCLUSION

We all recognize that many high-biodiversity nations have too little taxonomic activity, and that the taxonomists they do employ face often insurmountable barriers to participation in international science. Given the biodiversity crisis the world now faces, this situation inflicts harms on those nations that

are orders of magnitude more serious than the inability to participate in amending the *ICBN*, and the needed response is to do everything possible to increase taxonomic infrastructure and research capacity in developing nations, not to redistribute voting rights as if to try to pretend that the disparity does not exist. Economic justice is of course a global issue, which some nations and international interests are notoriously unwilling to address, and the power of taxonomists to act alone is limited. However, the best means we do have of supporting the development of botanical infrastructure is international collaboration. Mutual effort and sharing of resources will certainly be impeded if taxonomists of different nationalities view one another as competitors or opponents. Instead, we must see ourselves as collaborators, wherever we may work, in the tremendous common task of cataloguing the world's biodiversity and preserving it from extinction.

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