Protecting stable biological nomenclatural systems enables universal communication

Authors:

Pedro Jiménez-Mejías[1*], Saúl Manzano [2,3,4,*], Vinita Gowda[5], Frank-Thorsten Krell[6], Mei-Ying Lin[7], Santiago Martín-Bravo[1], Laura Martín-Torrijos[8], Gonzalo Nieto Feliner[9], Sergei L. Mosyakin[10], Robert F.C. Naczi[11], Carmen Acedo[3], Inés Álvarez[5], Jorge V. Crisci[12], Modesto Luceño Garcés[1], John Manning[13], Juan Carlos Moreno Saiz[14], A. Muthama Muasya[15],Ricarda Riina[5], Andrea Sánchez Meseguer[5], Daniel Sánchez-Mata[16,17], and 1369 signatories from 108 countries.

Affiliations

1. Área de Botánica, Departamento de Biología Molecular e Ingeniería Bioquímica, Universidad Pablo de Olavide, Carretera de Utrera km 1 sn, 41013 Seville, Spain.
2. Quaternary Palynology Lab, Instituto de Medio Ambiente, Recursos Naturales y Biodiversidad, Universidad de León, Calle La Serna 58, 24071, León, Spain.
3. Área de Botánica, Departamento de Biodiversidad y Gestión Ambiental, Campus de Vegazana s/n. Universidad de León. 24071, León, Spain.
4. African Centre for Coastal Palaeoscience, PO Box 77000, Nelson Mandela University, Gqeberha, 6031, South Africa.
5. Department of Biological Sciences, Indian Institute of Science Education and Research, Bhopal, India
6. Department of Zoology, Denver Museum of Nature & Science, 2001 Colorado Blvd, Denver, Colorado 80205-5798, U.S.A.
7. Engineering Research Center for Forest and Grassland Disaster Prevention and Reduction, Mianyang Normal University, 166 Mianxing West Road, Mianyang,Sichuan 621000, China
8. Department of Mycology. Real Jardín Botánico (RJB) CSIC, Madrid, Spain.
9. Department of Biodiversity and Conservation. Real Jardín Botánico (RJB), CSIC, Madrid, Spain.
10. M.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, Kyiv (Kiev), Ukraine.
11. New York Botanical Garden, Bronx, New York, New York 10458-5126, U.S.A.
12. Museo de La Plata, La Plata, Argentina.
13. Compton Herbarium. South African National Biodiversity Institute. Cape Town. South Africa.
14. Departamento de Biología, Universidad Autónoma de Madrid, Madrid, Spain.
15. Department of Biological Sciences, University of Cape Town, Cape Town 7700, South Africa.
16. Botany Unit, School of Pharmacy, Complutense University of Madrid, 28040 Madrid, Spain.
17. Harvard University Herbaria, Department of Organismic and Evolutionary Biology, Harvard University, 22 Divinity Ave, Cambridge, Massachusetts 02138, U.S.A.

Corresponding authors: pjimmej@gmail.com, pjimmej@upo.es, smanzr@unileon.es

Disclaimer and declaration of interest:

This text is entirely motivated by scientific concern, and lacks any political agenda. It does not intend to endorse the opinions of people who coined names deemed as “inappropriate,” nor to justify the reasons behind the dedication of eponyms. Examples cited in the text are for illustrative purposes only. Names of countries of affiliation of the 1369 signatories are listed according to the most recent UN declarations. No offense is intended by using this standard. Legitimacy of territorial claims are beyond the scope of this work.

For the preparation of this text, the two main authors drafted a first version which was distributed and commented on by the other 18 primary authors. The collective manuscript has then been distributed for endorsement during the last three months, a period during which we have received feedback from hundreds of signatories. Regarding the closing paragraphs on recommendations for future development of nomenclature, all the endorsers (as listed by

January 6th 2024) whose institutions/origins were in Global South countries (according UN rank of industrial development) were directly contacted for feedback. We received specific contributions from 20 of them and declarations of reassertions from most of the others. Every suggestion received has been individually considered, discussed among the primary authors, and whenever possible included in the text. The final version has again been distributed to all the signatories for their endorsement prior submission. Accordingly, every person signing this work is entitled to be considered a coauthor.

Main text:

Taxonomy is the science that aims to classify and describe the biodiversity of the planet. As such, taxonomy provides a foundation necessary for other sciences: knowing biodiversity is the first step needed for any biology-based discipline or service to develop. Taxonomy is transmitted to the rest of the scientific community through a regulated, internationally agreed language: the nomenclatural systems. Biological nomenclature allows all scientists to share and use a common language when referring to species and other taxa.

The fundamental value of universal nomenclatural systems in biology, and the key to their success, is that they have enabled unambiguous scientific communication among and across different cultures. These binomial/binominal systems (hereafter biological nomenclatural systems) are codified in sets of rules for zoology (ICZN 1999), botany (ICN, Turland et al. 2018), and other branches of biology (e.g. ICSP, Oren et al. 2023). Such systems have helped advance biological research (including paleontology) for more than 250 years. However, the very principles and fundamental conventions of biological nomenclature are now being questioned, and its stability compromised. Recent discussions and debates on biological nomenclature have asked for fairer, more inclusive and socially just scientific nomenclature for species and other taxa, with a possible collective aim to heal some of the wounds that colonialism, sexism, racism, casteism, and other human failings have inflicted in communities all over the planet (e.g., Hammer & Thiele 2021, Smith et al. 2022, Thiele et al. 2022, Tracy 2022, Wright & Gillman 2022, Harris & Xavier, 2023, Guedes et al. 2023, Mabele et al. 2023, Roksandic et al. 2023). These debates have also led to the suggestion that bulk revisions should be advanced to remove 'inappropriate' names, such as eponyms dedicated to controversial people or words perceived as offensive in certain languages or regions. It is evident that such contentions come from very deep feelings, yet it is unclear if the consequences of some of these proposed revisions have been thoughtfully pondered, considering whether the intended good could be outweighed by negative effects. Taking into account the diverse societal and geographical backgrounds of the proponents of such name changes, the number of names affected over time could easily be in the hundred thousands (Ceríaco et al. 2023), including eponyms, toponyms, racial slurs, names reflecting colonialism, and so forth.

Claimants for "nomenclatural justice" have moved some legitimate, non-scientific, social concerns into the scientific arena, where other considerations should prevail, in the spirit of cross-cultural, international understanding. While their intentions are undoubtedly good and the pursuit is laudable, most of these revisionist authors seem not to realize that their proposals try to address alleged problems mostly built on post-hoc premises, and that attack the foundations on which biological nomenclature is built. These proposals essentially disregard that present **nomenclatural systems** are intended to **allow transcultural communication through a shared, operationally neutral system of names that is stable across space and time**. These benefits may not be maintained if efforts to address social injustice destabilize the nomenclatural systems and undermine the pillars of universal scientific communication and mutual understanding.

Recent proposals, suggestions, and demands for extensive change dominate the discourse of critics who, by narrowly focusing on one facet of a much broader and complex picture, fail to recognize and acknowledge the critical importance of our current biological nomenclatural systems. While the legitimacy of the authors' aspirations is beyond reproach, it is paradoxical that their impact on the discussion of biological nomenclature is amplified by several scientific journals that have allowed subjective appreciations to develop. Proposals to modify current biological nomenclature based on ethical arguments have consistently met resistance from nomenclatural practitioners, who provide technical and practical counter-arguments (e.g., Mosyakin 2022, 2023b, Ceríaco et al. 2023, Garbino 2023, Katumo et al. 2023, among others). However, the discussion arena has been unequal so far. The papers fueling the controversy find space in transdisciplinary journals with wide audiences, while technically argued opposing views are largely published in specialized journals with narrower audiences.

Here we present a response that aims at uniting a much more widespread concern that has remained in the background: that the functionality of communication within the scientific community and across society is the greatest contribution of the biological nomenclatural systems, and that this benefit may become jeopardized. Many of us, researchers in taxonomy, systematics, evolutionary biology, and other biological sciences, are concerned about well-intentioned but ill-considered and irresponsible opinions published on the subject that may irreparably damage the system of biological communication that unites us all and, in turn, the fundamental discipline that underlies and connects all others: taxonomy. In contrast to previous replies, which provide detailed responses to the multiple technical flaws in the well-meaning proposals, we would like to make explicit four essential, non-technical considerations that arise from the very reason why we have and need shared codes of biological nomenclature with objective rules: universality, stability, neutrality, and transculturality. These considerations, implicit in our nomenclatural systems, seem to go unnoticed by many non-taxonomists, who inadvertently undermine these systems as a solution to pervasive social or political problems that transcend the scope of biological nomenclature.

The signatories call upon the scientific community to endorse the considerations we enumerate below on the grounds that, (i) they provide rational guides to the principles governing the current systems and practice of biological nomenclature, and (ii) they allow unambiguous universal communication in biology and related disciplines, as well as transfer of taxonomic knowledge to wider society. Accordingly, no subjective, politically motivated, or opinion-based proposals should undermine them.

(1) **Universality:** *biological nomenclature* ***must be shared across*** *the entire planet.*

This is the only way to ensure cross-cultural, universal communication.

It has been proposed that those taxon names that are deemed necessary to be replaced should be substituted by new scientific names derived from native names to honor indigenous cultures (e.g., Wright & Gillman 2022). The biological nomenclature systems were adopted exactly for the reason that they avoid the conundrum that multiple vernacular names present for effective global communication. This is a practicality devoid of any colonial, racial, national, regional, cultural, or other non-universal legacies other than the Linnaean origin of the systems in Europe. In fact, most European common names – which are by definition indigenous native names – are not used as the generic or specific epithet for the corresponding taxa. In addition, there is no barrier to honoring native vernacular names: the codes make provisions for names to be derived from any language, thus proactively avoiding any potential tongue-based discrimination in coining new names, and thus not banning the use of native terms in scientific naming. Indeed, Heard & Mlynarek (2023) compiled examples of scientific names based on a variety of languages from Norwegian, Quechua, Te reo Māori, to Tselagi, Afrikaans, and Russian.

The current biological nomenclature systems strive for each species to have a single and unique, two-word disambiguator as the species name to be used in scientific contexts within every language on the planet. Replacing existing scientific names with new names based on vernacular names poses a situation with no single fair solution: among all the possible competing native names for the same taxon, which one should be used and in which language? It goes without saying that there is often no native name, and if native names are available, we often have several in different languages for the same species when its geographic range spreads over several linguistic communities. Moreover, no language must have priority over another when it comes to naming taxa. This problem has already been faced by scientists (see Mosyakin 2023b), and has been solved by diligently respecting the nomenclatural priority (older names should prevail over newly coined names) on which the international nomenclatural systems are based.

It has recently been suggested that to compensate for any perceived bias and move towards cultural inclusion, the scientific names proposed in the future will be the ones for which native terms should be considered (see Hayova et al. 2023).

(2) **Stability:** *biological nomenclature* ***must be stable over time****, now and in the future.*

This is the most efficient way to ensure trans-generational communication.

Critics argue that a bulk revisionary process should be forced upon the nomenclatural systems to help heal the open wounds of colonialism in science (e.g., Wright & Gillman 2022, Guedes et al. 2023, Mabele et al. 2023). These authors seem to think that this process is a blanket solution for the complex problem posed by judging the past by today's standards, forgetting that their views and grievances will likewise be subject to future judgment. It is entirely possible that in the future other people will see the decisions we are making now as unfair and demand never-ending revisionary processes. This paradox of future grievance threatens transgenerational communication and thus stability in the use of scientific names. The stability in the use of names over time is even addressed by our codes on a case-by-case basis, when universal communication is threatened (e.g., conserved types under ICN, Turland et al., 2018).

Preserving the stability of our universal biological nomenclatural systems seems the most reasonable and responsible way to ensure that the nomenclatural identity of taxa will be protected over time against the evolution of future grievances.

(3) **Neutrality:** *Biological nomenclature must be understood simply as* ***a universal operational system of disambiguators*** *for taxa.*

Most members of society perceive scientific names as names only and devoid of any explicit or implicit content.

Names can be an arbitrary combination of letters, although in many cases they are derived from Latin or Ancient Greek. Being either idiosyncratically composed or (mostly) based on largely dead languages, the vast majority of scientific names make as little sense to the general public as personal names, making them neutral in their meaning and use. This is true in most cases even for speakers of Latin-derived languages. Despite this reality, proponents of nomenclatural change insist that there are targeted oppressive or offensive messages within scientific names that are perceived by society. Offense is not generally a component of nomenclature, although it may occur in a few rare instances (e.g., *Centaurea latronum* Pau, meaning "thieves' *Centaurea*", targeting a colleague of Pau who got preferential treatment).

Though biological scientific names were initially intended to act as descriptors and bear a meaning, names do not have to make semantic sense, to the point that they can be wrong or confounding, but still act as valid/available names as long as they fulfill relevant code regulations. For example, toponymic specific epithets created in error are well-known. The tree *Quercus canariensis* Willd., believed to have been collected in the Canary Islands, is absent from these; the geophyte *Scilla peruviana* L., an Old-World species, does not exist in Peru; and the moss *Bryoxiphium norvegicum* (Brid.) Mitt. was described from Iceland and it is apparently absent from Norway. The biological nomenclatural systems have unquestionably evolved from

an initial intention of creating short descriptors to names being simply understood as disambiguators.

Scientific names that include or are derived from terms that may be perceived as an offensive word in certain languages are in most cases a matter of coincidence. These names now considered offensive may be perceived as such by decontextualizing the moment in which they were coined, and either predate negative connotations or simply refer to something different (e.g., *niger*, the Latin word for black color is not intended to be used in biological nomenclature as a racial slur; or the specific epithet *marica,* referring to a mythological nymph and certainly unrelated to the homonymous derogatory term in Spanish for homosexual men). In the particular case of eponyms, while coined to honor particular people, such meaning is rarely understood beyond the immediate expertise field. Eponyms are also to a great extent devoid of any connotations for lay-people, who are more likely to think that *Magnolia* derives from the Latin root *magnus* (big), rather than being eponymic to the French botanist Pierre Magnol. Name based on pop culture, such as the fern genus *Gaga* Pryer et al., the fly *Scaptia beyonceae* (named after the artists Lady Gaga and Beyoncé respectively), or the sedge *Carex leviosa* Míguez et al. (referring to a spell from Harry Potter's universe) were coined with the intention of raising attention amongst the general public and policy makers, who clearly perceive them with a conspicuous meaning creating some immediate interest (Blake et al. 2023). Accordingly, these names are not neutral at the present. But the duration of such a semantic sense in time is improbable, and while the dedication is understood in the present, the meaning inevitably will be diluted over time as most of the personalities and references are progressively forgotten.

For all these reasons, we believe that neutrality in the meaning of scientific names is the rule; offensive contents in a scientific name are the exception or need to be inquisitively sought beyond its author's original intentions and, in such cases, are therefore the product of decontextualization. According to our consideration, a massive uncritical revision of potentially offensive scientific names might be doomed to find a large number of "false positives" of inappropriateness.

(4) **Transculturality:** *Biodiversity and its associated scientific nomenclature must be understood as a universal heritage, and* ***this fact should take precedence over any locally biased interest****.*

At its very essence, the value of biodiversity is universal and transcultural and must transcend political boundaries to be shared across all cultures. So too must be the associated nomenclature system that we use to refer to it. Nature and its parts, as abstract entities, are shared World Heritage (not to be confused with material resources derived from nature). Conversely, problems with nomenclature arising within or involving particular cultures or countries (e.g., the Anglosphere) should in no way affect the otherwise neutral globality of nomenclatural codes. Science goes far beyond the views imposed by our immediate cultural

spheres, historical moments, and personal contexts. Observing the principle of nomenclatural priority -with some limitations precisely outlined in the nomenclatural codes- that has so far governed codes, rather than regarding every name as susceptible to change, is the only fair way to avoid encouraging nationalist or even chauvinist stances in biology, and the extreme consequences of shaking the foundations of all natural sciences.

Concluding statement: let's work for a fairer future scientific nomenclature

We acknowledge and agree that the pervasive problems derived from colonial, imperial, totalitarian, racist, casteist, sexist, and other regrettable legacies are still present in society and should be addressed in science. We must work together to avoid perpetuating them and to reform society prospectively. In addition, where productive for the common good and nomenclatural stability, we must provide the codes of nomenclature with appropriate tools to promote fairness and sensitivity in future developments (e.g., Mosyakin 2023a, 2023c) while not disturbing the existing fundamental nomenclatural procedures. Some straightforward measures that may add better opportunities for equity and inclusion in nomenclatural practice could be: (1) the incorporation of cultural references in the newly coined names (e.g., common names, local terminology, and cultural traditions); (2) active consultation with knowledgeable collaborators when choosing names, to avoid inaccurate or offensive use of terms (e.g., naming living beings deemed as repulsive after sacred entities); (3) honoring local researchers, naturalists, environmentalists, and field experts (Jost et al. 2023); and (4) including and suggesting vernacular names in scientific publications, preferably in local scripts (Marinho & Scatigna 2022). Some nice examples of names already coined following such good practices are the ant *Pheidole klaman* (the term *klaman* referring to the beauty of the Akan tribe of West Africa), the dinosaur *Yi qi* (from the Chinese 奇翼, "strange wing", describing its odd-looking appearance), and the thistle *Cirsium tukuhnikivatzicum* Ackerf. (which honor indigenous peoples and cultures in western North America). Current and future generations of taxonomists must have the right to be free to decide the names we will create, but also the responsibility of being thoughtful, fair, and considerate, paying attention to ethics to avoid harm or upset in the future. Actions towards such more inclusive and up-to-date nomenclature will certainly arise by collaboration and exchange with local scientists, especially from the Global South.

We understand that a revision process for existing names may be considered by some in rare, exceptional instances. For example, as redress for flagrant direct violations of Human Rights. Nevertheless. These decisions must each be made very carefully and deliberately, under the technical provisions of the relevant codes and the corresponding governing bodies, and in contact with stakeholders, weighing the potential confusion caused to communication against any positive reinforcement, but certainly not as a bulk process.

Above all else, we must preserve the immense value of the current nomenclature systems and their universality and stability, which have withstood the tides of time for more than 250 years enabling universal communication, contributing to the unprecedented development of the natural sciences. Raising the issue and acknowledging the problems derived from past legacies is important and we must find ways to compensate and move forward and, at the same time, progress. However, such endeavors cannot become impediments to the ongoing scientific process. Science is universal and, if a common technique or procedure can be maintained for the benefit of all, it is worth protecting. Attempts to revise and correct perceived mistakes of the past in retrospect are as emotionally tempting as they are futile, and maintaining published scientific names is not an endorsement of the eponyms or of the intention behind the names, but a practical functional consideration that relies on the principle of priority as the fairest and most impartial of solutions. Moreover, every act of coining a new name increases the load of synonyms and adds noise to the nomenclatural frameworks, making it more difficult to trace taxa across published works and checklists. The potential number of name changes based on ethical grounds would add many new names with the subsequent nomenclatural noise, and still the removed name could not be entirely expunged since it will necessarily persist in synonymy lists. That should not be mistaken with nomenclatural changes derived from systematic reasons, which albeit annoying, are necessary for achieving natural classifications.

Currently humanity faces urgent challenges like global climate change, deforestation, and species extinction, but also a diminishing interest in biodiversity and ecology. Meanwhile, basic biodiversity exploration struggles to survive under unfavorable scientific climates (e.g., Löbl et al. 2023). A bulk revision could too easily divert the scarce human and economic resources allocated for taxonomy into an endless process that will backfire on all of us as scientists (Antonelli et al. 2023), and on taxonomists in particular. Especially those from the Global South would be affected, the region of the planet which hosts the richest biological diversity but also often lacks economical and trained human resources. Moreover, the possible destabilization of the systems of biological nomenclature threatens the applications of Life Sciences and risks the correct understanding not only of scientific texts, but also of technical reports and laws. To avoid dire consequences for the rest of human societies, nature needs to be understood and named in a stable, universal and operationally neutral and transcultural manner.

References:

Antonelli, A., Farooq, H., Colli-Silva, M., Araújo, J.P.M., Freitas, A.V.L., Gardner, E.M., Grace, O., Gu, S., Marline, L., Nesbitt, M., Niskanen, T., Onana, J.M., Pérez-Escobar, O.A., Taylor, C., Knapp, S. People-inspired names remain valuable. *Nature Ecology & Evolution* **7**, 1161–1162 (2023). https://doi.org/10.1038/s41559-023-02108-7

Blake, K., Anderson, S.C., Gleave, A. & Verissimo, D. Impact on species' online attention when named after celebrities. *Conservation Biology* 2023 Sep 12, e14184. (2023). https://doi.org/10.1111/cobi.14184 Epub ahead of print.

Ceríaco, L.M.P., Aescht, E., Ahyong, S.T., Ballerio, A., Bouchard, P., Bourgoin, T., Dmitriev, D., Evenhuis, N., Grygier, M.J., Harvey, M.S., Kottelat, M., Kluge, N., Krell, F.-T., Kojima, J.-i., Kullander, S.O., Lucinda, P., Lyal, C.H.C., Pyle, R., Rheindt, F.E., Scioscia, C.L., Welter-Schultes, F., Whitmore, D., Yanega, D., Zhang, Y.-Q., Zhou, H.-Z., Pape, T. Renaming taxa on ethical grounds threatens nomenclatural stability and scientific communication: Communication from the International Commission on Zoological Nomenclature. *Zoological Journal of the Linnean Society* **197**, 283–286 (2023). https://doi.org/10.1093/zoolinnean/zlac107

Garbino, G.S.T. Rethink changing of species names that honour real people. *Nature* **616**, 433 (2023). https://doi.org/10.1038/d41586-023-01276-7

Guedes, P., Alves-Martins, F., Arribas, J.M., Chatterjee, S., Santos, A.M.C., Lewin, A., Bako, L., Webala, P.W., Correia, R.A., Rocha, R., Ladle, R.J. Eponyms have no place in 21st- century biological nomenclature. *Nature Ecology & Evolution* **7**, 1157–1160 (2023). https://doi.org/10.1038/s41559-023-02022-y

Hammer T.A., Thiele K.R.. (119–122) Proposals to amend Articles 51 and 56 and Division III, to allow the rejection of culturally offensive and inappropriate names. *Taxon* **70**, 1392–1394 (2021). https://doi.org/10.1002/tax.12620

Harris, D.J., Xavier, R. Name and shame: can taxonomists agree on systematic reforms?. *Trends in Ecology & Evolution*. (2023) DOI:https://doi.org/10.1016/j.tree.2023.07.008

Hayova V.P., Boiko G.V., Mosyakin S.L.. (221) Proposal to add a new Recommendation after Article 38, with the advice to report local/indigenous vernacular names (if available) of new taxa and to use such names, if appropriate, in scientific nomenclature. *Taxon* **72**,455 (2023). https://doi.org/10.1002/tax.12907

Heard, S.B., Mlynarek, J.J. Naming the menagerie: creativity, culture and consequences in the formation of scientific names. *Proceedings of the Royal Society B* **290**, 20231970 (2023).

ICZN (International Commission on Zoological Nomenclature). *International Code of Zoological Nomenclature. Fourth Edition.* London, UK: International Trust for Zoological Nomenclature (1999).

Jost L., Yanez-Muñoz M.H., Brito J., Reyes-Puig C., Reyes-Puig J.P., Guayasamín J.M., Ron S.R.,

Quintana C., Iturralde G., Baquero L., Monteros M., Freire-Fierro A., Fernández D., Mendieta-Leiva G., Morales J.F., Karremans A.P., Vázquez-García J.A., Salazar G.A., Hágsater E., Solano R., Fernández-Concha G.C., Arana M. Eponyms are important tools for biologists in the Global South. *Nature Ecology & Evolution* **7**, 1164–1165 (2023). https://doi.org/10.1038/s41559-023-02102-z

Katumo, D.M., Wei, M., Jiao, B., Deng, Y., Want, W., Gao, T. Preserving scientific merit and legacy in biological eponyms. *Phytotaxa* **626**, 73–77 (2023). https://doi.org/10.11646/phytotaxa.626.1.9

Löbl, I., Klausnitzer, B., Hartmann, M., Krell, F.-T. The Silent Extinction of Species and Taxonomists—An Appeal to Science Policymakers and Legislators. *Diversity* **2023**, 15(10), 1053 (2023). https://doi.org/10.3390/d15101053

Mabele, M.B., Kiwango, W.A., Mwanyoka, I. Disrupting the epistemic empire is necessary for a decolonial ecology. *Nature Ecology & Evolution* **5**, 109910 (2023).

Marinho, L.C., Scatigna A.V. A good practice: why we should suggest vernacular names for new plant species. *Bionomina* **31**, 108–114. http://doi.org/10.11646/bionomina.31.1.7

McGlone, M.S., Heenan, P.B., Wilton, A.D., Anderson, A. Proposal to 'restore' indigenous names misunderstands the complementary nature of botanical nomenclature and indigenous vernacular plant names. *New Zealand Journal of Botany* **60**, 215–226 (2022). https://doi.org/10.1080/0028825X.2021.2011752

Mosyakin, S.L. If "*Rhodes*" must fall, who shall fall next? *Taxon* **71**, 249–255 (2022). https://doi.org/10.1002/tax.12659

Mosyakin, S.L. (195) Proposal to amend the Preamble by adding a "potentially sensitive content disclaimer and limitation of liability" *Taxon* **72**, 442-443 (2023a). https://doi.org/10.1002/tax.12897

Mosyakin S.L. Attempts to introduce a system of national, racial and/or ethnocultural discrimination in codes of biological nomenclature should not be tolerated: Comments on some recent proposals (Wright & Gillman, 2022, etc.). *Taxon* **72**, 469–482 (2023b). https://doi.org/10.1002/tax.12837

Mosyakin S.L.. (349) Proposal to amend the Preamble by adding a "Non- Discrimination Statement". *Taxon* **72**, 1149–1150 (2023c). https://doi.org/10.1002/tax.13033

Oren, A., Arahal, D.R., Göker, M., Moore, E.R.B., Rossello-Mora, R. & Sutcliffe, C. (eds). International Code of Nomenclature of Prokaryotes. Prokaryotic Code (2022 Revision). *International Journal of Systematic and Evolutionary Microbiology* **73**, 005585 (2023). https://doi.org/10.1099/ijsem.0.005585

Orr M.C., Hughes A.C., Carvajal O.T., Ferrari R.R., Luo A., Rajaei H., Ron S.R., Warrit N., Zamani A., Zhang Y.M., Zhu C.-D.. Inclusive and productive ways forward needed for species-naming conventions. *Nature Ecology & Evolution* **7**, 1168–1169 (2023).

https://doi.org/10.1038/s41559-023-02103-y

Palma, R.L. & Heath, A.C.G. Science versus vernacular: Should some taxa of animals and plants be renamed according to 'indigenous' practices? *Bionomina* **22**, 32–38 (2021). https://doi.org/10.11646/bionomina.22.1.1

Roksandic, M., Musiba, C., Radović, P., Lindal, J., Wu, X.-J., Figueiredo, E., Smith, G.F., Roksandic, I., Bae, C.J.. Change in biological nomenclature is overdue and possible. *Nature Ecology & Evolution* **7**, 1166–1167 (2023). https://doi.org/10.1038/s41559-023- 02104-x

Smith G.F., Figueiredo E., Hammer T.A., Thiele K. Dealing with inappropriate honorifics in a structured and defensible way is possible. *Taxon* **71**, 933–935 (2022). https://doi.org/10.1002/tax.12742

Thiele, K.R., Smith, G.F., Figueiredo E., Hammer T.A. Taxonomists have an opportunity to rid botanical nomenclature of inappropriate honorifics in a structured and defensible way. *Taxon* **71**, 1151-1154 (2022). https://doi.org/10.1002/tax.12821

Tracy, B.H. What's in a fish species name and when to change it?. Fisheries, **47**(8), 337-345 (2022). https://doi.org/10.1002/fsh.10750

Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F. (eds.). International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. *Regnum Vegetabile* **159**. Glashütten: Koeltz Botanical Books (2018).

Wright, S.D., Gillman, L.N. 2022. Replacing current nomenclature with pre-existing indigenous names in algae, fungi and plants. *Taxon* **71**, 6–10 (2022). https://doi.org/10.1002/tax.1259