

NOMENCLATURE COMMUNICATIONS

Report of the Registration Committee

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Abstract The Registration Committee was established at the Nomenclature Section of the XIX International Botanical Congress (IBC) in Shenzhen, China in 2017. It followed the previous Special Committee on Registration of Algal and Plant Names (including fossils). A clear majority of Registration Committee members support having named taxa associated with a unique universal digital identifier in order to secure and facilitate the exchange of information by electronic means. However, discussions within the Committee showed that *mandatory* referencing of a unique universal digital identifier was not a solution. The Committee recommends that authors provide nomenclatural repositories with a reference to an actual and current publication for indexing purposes, or to register voluntarily.

Keywords *Code*; International Botanical Congress; nomenclature; registration; unique universal digital identifier

Members of the Registration Committee at the time of voting

Pierre-André Loizeau (Switzerland, Chair, appointed in Shenzhen), Anouchka Maeder (Switzerland, Secretary), Laurence J. Dorr (United States, appointed in Shenzhen), Renée H. Fortunato (Argentina, appointed in Shenzhen), Quentin Groom (Belgium, appointed in Shenzhen), Shelley James (Australia, appointed in Shenzhen), Geoffrey A. Levin (Canada, appointed in Shenzhen), James S. Miller (United States, appointed in Shenzhen), Alan J. Paton (United Kingdom, appointed in Shenzhen and representative of prospective repository), Mark F. Watson (United Kingdom, appointed in Shenzhen), Aaron D. Wilton (New Zealand, replaced Ilse Breitwieser appointed pending acceptance in Shenzhen), Emma Wrangmore (United Kingdom, replaced Heather L. Lindon appointed in Shenzhen and representative of prospective repository), John C. Brinda (United States, representative of the Committee for Bryophytes and prospective repository), Paul Gabrielson (United States, representative of the International Phycological Society), Martin J. Head (Canada, representative of the Committee for Fossils), Matthew von Konrat (United States, representative of the International Association of Bryologists), Wolf-Henning Kusber (Germany, representative of the Committee for Algae), Jiří Kvaček (Czech Republic, representative of the Committee for Fossils and the International Organisation of Palaeobotany), Alexander N. Sennikov (Finland and Russian Federation, representative of the Committee for Vascular Plants), Nicholas J. Turand (Germany, representative of the General Committee), Carmen Ulloa Ulloa (Ecuador/United States, representative of the Committee on Institutional Votes), John H. Wiersma (United States, representative of the Editorial Committee).

Introduction

The Registration Committee was established at the Nomenclature Section of the XIX International Botanical Congress (IBC) in Shenzhen, China in 2017. It followed the previous Special Committee on Registration of Algal and Plant Names (including fossils), authorized by the prior Melbourne Congress of 2011, which led the Shenzhen Nomenclature Section to adopt its proposals (Barkworth & al. in *Taxon* 65: 656–658. 2016). The proposals introduced the

idea into the *Shenzhen Code* (Turand & al. in *Regnum Veg.* 159. 2018) that nomenclatural repositories with experience in indexing could be approved by the General Committee, and that these could issue identifiers allowing different data to be linked electronically. However, the Special Committee did not wish to make registration of algal and plant names mandatory at that time (Barkworth & al. in *Taxon* 65: 670–672. 2016).

The functioning of the Registration Committee was disrupted by the difficulty of obtaining names and responses from referees for some associations. The COVID-19 period did not help matters and only very recently has the membership of the Committee been finalized (see above list). Because of this, there have been no formal meetings of the Committee either in-person or virtually. On 1 March 2023, a draft proposal written by P.-A. Loizeau was circulated as a starting point for a discussion with the aim of submitting the Committee's recommendations in time for the 2024 Madrid Congress. On 6 March, the email list was corrected and the proposal was sent to several members who did not receive the first mailing. Members were encouraged to comment on the shared document and via email exchange with the rest of the Committee. It is therefore only recently that an exchange of views has taken place between members of the Committee.

From the email exchanges that have ensued, no consensus has emerged among the Committee members on the form a proposal should take or even whether the Committee should make a recommendation at this time. Two very different proposals were voted on: (1) the original, which would make proactive registration of plant and algal names mandatory as is already in place for fungi, and (2) an alternative proposal written by J.C. Brinda in which assignment of digital identifiers would not affect valid or effective publication in any way. Although more members preferred the mandatory option, the proposals received about the same level of overall support. A first vote on whether to present both options to the General Committee was split (6 in favour, 8 against, 1 abstain, participation 68%) and consequently a second vote was held.

The second and final vote, on whether to recommend the original or alternative proposal, was much more divided than the first. The analysis of the voting results showed a paradoxical situation, which

was probably an expression of doubts about the need for proposing proactive mandatory registration. Indeed, on the one hand there was a general opinion that both sets of proposals should be presented (9 in favour, 2 against, participation 50%), and on the other hand only a small majority were in favour of proactive mandatory registration (6 in favour, 5 against, participation 50%), but all the proposals outlining the necessary procedures were rejected (add five new paragraphs to Art. 42: 6 in favour, 7 against; add a new Note under Art. 42: 6 in favour, 7 against; amend three paragraphs in Art. 42: 5 in favour, 7 against; modifications in Art. 30.9: 4 in favour, 9 against). As a result, it was decided to withdraw the proposal for proactive and mandatory registration.

The subject of the discussion, the unique universal identifier

There may be some confusion in the minds of botanists who have participated for many years in the various IBCs about the term “Registration”. Indeed, the registration of names was proposed by Werner Greuter at the Berlin Congress in 1987. His concept was to ensure that a “registered name is guaranteed to be validly and effectively published, and available for use from a date that can be recorded with greatest precision. The criteria for effectivity, validity and date would be applied by an authorized and experienced group of persons in a uniform way to each individual name (and a committee would stand ready to decide on controversial cases)” (Greuter in Taxon 35: 817. 1986). This approach was rejected by the botanical community at the Berlin Nomenclature Section in favour of setting up a Special Committee on Registration to study this further and report to the next (Tokyo) Congress (see Greuter & al. in Englera 9: 121–129. 1989). This Special Committee prepared a set of proposals (Faegri in Taxon 40: 681–683. 1991) that established conditional registration requirements for valid publication in then-Art. 32 of the *Tokyo Code* (Greuter & al. in Regnum Veg. 131. 1994), subject to the approval of the next (Saint Louis) Congress, where these requirements were subsequently eliminated (see Greuter & al. in Englera 20: 159–165. 2000).

Since the Melbourne Congress in 2011, the various committees have been working on a different concept, although it is still called “registration”. The current aim is to associate with any named taxon, in a durable manner, a unique and universal identifier, which meets the requirements of electronic communication.

This need has been expressed by many data aggregators (such as the Catalogue of Life, <https://www.catalogueoflife.org/> or the Global Biodiversity Information Facility, <https://www.gbif.org/>) that need trusted, stable identifiers in order to communicate taxonomic data. To this end, institutions have started to build such repositories and provide them as a service to the scientific community at large. See in particular the World Flora Online site (<http://www.worldfloraonline.org/>) or the Plants of the World Online site (<https://powo.science.kew.org/>). All these platforms need to be able to share data without duplicating the efforts of one another. This is best achieved by the use of a single, universal digital identifier supplied by a trusted source. The International Association for Plant Taxonomy could play a vital part in helping to coordinate those efforts.

Despite the fact that, historically, a taxon has been identified by its scientific name, the Committee members agreed that because of homonyms and other issues, the scientific name by itself does not meet the requirements of computer database management, electronic communication and data exchange. If the information in the taxonomic repository were to change (such as a spelling correction of

the name), using a unique universal identifier would allow for easier and faster updating.

In summary, most of the Committee is convinced of the need to designate a unique universal identifier for all validly published names in order to secure and facilitate electronic data exchange, and that this is in line with the principle of a nomenclatural repository, although opinion is divided on whether this should be mandatory in order for a name to be validly published.

Advantages and disadvantages

Adding a *Code* provision to require citation in the protologue of a unique universal identifier proactively issued by a nomenclatural repository recognized by the General Committee would secure the wish that every validly published new name or nomenclatural novelty will have such an identifier at the instant of its publication.

The disadvantages of making this citation mandatory are related to the possibility that, at the time of assigning an identifier proactively, not all the information to be recorded is known. Those responsible for checking the publication of an allocated identifier must therefore consult the actual publication anyway to complete this information. This doubles their work and increases the risk of errors. Moreover, if the information was entered by an author, it is likely to contain errors that an indexer working on behalf of the nomenclatural repository would not make, or would make less easily.

Adding this provision to the *Code* as a recommendation has the advantage of not imposing an additional constraint on the publication of nomenclatural novelties. Another advantage lies in the indexing itself, which could be done retrospectively by an indexer, a specialist, on the basis of an actual and definitive publication (PDF, scanned pages, URL, DOI, etc.).

Such a recommendation has the disadvantage of not requiring authors to communicate with a repository prior to publishing a new name. That interaction could potentially help prevent illegitimate homonyms and other nomenclatural errors.

Two ways of introducing a unique universal identifier

The Committee differed on the timing of the assignment of this unique universal identifier. Many on the Committee were in favour of making the assignment of this unique universal identifier proactive and mandatory by obliging authors to mention it in the protologue in order for the name to be validly published. However, others felt that this addition, while imposing an extra burden on authors, would do very little to improve the speed and efficiency of indexing, which can only be completed after publication (retrospectively) when all of the important pieces of nomenclatural data are available. Because it appeared undesirable to add a rule to the *Code* affecting names that had already been published, the Committee preferred to suggest this as a recommendation instead.

In view of the need to find a coherent system for the allocation of a unique universal identifier, and the objective advantages and disadvantages of the two alternative solutions envisaged, the Committee decided to propose to amend the *Code* with a recommendation, in order to designate a unique universal identifier as necessary for the exchange of botanical data, while allowing flexibility on how to record nomenclatural novelties.

Conclusions

A clear majority of the members of the Registration Committee are convinced of the importance of associating taxa with a unique

universal digital identifier in order to secure and facilitate the exchange of information by electronic means, as the name itself is not sufficient for the requirements of computer databases. The designation by the General Committee of recognized nomenclatural repositories should avoid the multiplication of such identifiers. The

Committee does not wish to make the assignment of an identifier at the protologue stage mandatory, but recommends that an identifier be associated. This can be done either by voluntary registration or by transmitting to a recognized repository the reference to a current and definitive publication.