COMMENTARY

A universal register for animal names

Andrew Polaszek and colleagues propose an open-access web-register for animal names, which they believe is vital to move taxonomy into the twenty-first century.

How can we maintain and continue to benefit from our planet's biodiversity? A first step, the effective exchange of information about biodiversity, needs an efficient and stable means of naming species. For animals, this is achieved with the Linnaean system of binominal nomenclature, introduced in 1758, and a comprehensive set of rules administered by the International Commission on Zoological Nomenclature (ICZN). Although the Linnaean system and the ICZN code have been hugely successful, they are often perceived as failing to meet the needs of today's biologists. To meet these new demands, we propose the creation of a mandatory web register for all new animal names, and the subsequent inclusion of all existing animal names and nomenclature in a single information system.

With more than 1.5 million animal species described so far, the scale of taxonomic study today poses considerable challenges to a system developed in the age of letter-post and printing press — when the community of taxonomists and biologists was much smaller. Each year 15,000 to 20,000 new animals are named according to the rules of the current code (ICZN, 4th edn, 1999). These new names and descriptions are scattered across many journals and other publications. In entomology alone, taxonomically relevant information can be found in more than 1,100 specialized journals.

Moreover, sources such as books and conference proceedings are difficult to access or have low print runs. Where the code allows publication in different types of media, this adds to the complexity. These problems not only affect the progress of taxonomy, they also make it harder for taxonomy to be used by non-specialists.

One for all

We propose a register of new zoological names — ZooBank — to be established and administered by the ICZN, and bolstered by a mandatory requirement, in the next edition of the code, for the registration of new names. The register would be web-based and open-access, and would cover all taxonomic ranks relevant to the code.

The idea of a register for newly discovered organisms is not new. Such a register already exists for bacteria, and was considered and rejected by the plant-taxonomy community who decided that with fewer taxa (and some excellent existing databases) it was not needed.

We believe that ZooBank could have huge benefits for taxonomists and for biologists in general. First, many names currently published do not conform to the current code, and sorting out the ensuing mess wastes time. ZooBank would improve code-compliance by using automated tools that are integrated into the registration process. We stress that assessing the merits of different taxonomic hypotheses would not be part of ZooBank's function; it would be a register, not a peer-evaluation system. Second, anyone could sign up for automatic e-mail alerts, which would notify them of any additions or changes to the taxonomy of a particular group. Third, it would democratize taxonomy and allow those without access to major libraries to retrieve essential information.

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The current code is a complex document, and there are many technical issues involved in developing an online register. These include establishing the precise date when a name becomes available (at publication or registration), effective feedback systems for correcting errors, and the problem of archiving. We are confident that these issues can be successfully addressed, as they have been for molecular databases such as GenBank.

Eventually, ZooBank could allow retrospective registration of existing names, and of all nomenclatural acts in zoology. Although this would require considerable resources, ongoing projects that seek to catalogue existing names should help immeasurably. Support from Zoological Record — the closest thing currently available to a register of animal names (www.biosis.org.uk/ion) — is particularly important. Other resources are the uBio nameserver (www.ubio.org/nameserver), Species 2000 (www.sp2000.org), Integrated Taxonomic Information System (www.itis.usda.gov) and GBIF's Electronic Catalogue of the Names of Known Organisms (www.gbif.org/prog/ecat). Rather than replace these projects, ZooBank will link to them and provide the definitive naming authority.

Joining forces

Through its website (www.iczn.org), the ICZN is initiating a year-long period of consultation on the merits of mandatory registration and the details of ZooBank's creation. Using existing resources, the register will be established and will accept names on a voluntary basis. Compulsory registration will begin only with community support and when resources to run the project for at least ten years are in place (with the expectation that it would continue indefinitely). Our target is to have ZooBank, and a fifth edition of the code, completed by 2008, the 250th anniversary of Linnaeus' animal nomenclature.

Taxonomists are often criticized for failing to act together as a community, not least in *Nature*. However, the almost universal, voluntary adherence to the current codes of nomenclature is arguably one of the strongest examples of international scientific cooperation. The success of the ICZN in facilitating this cooperation over many years makes it the right organization to spearhead a universal system for the registration of zoological names. We appeal to all taxonomists to support this project and to engage in the consultation needed to design the best system. We also appeal to all biologists, whose work depends on taxonomy, to throw their weight and influence behind this initiative.

It is inevitable, and to be welcomed, that taxonomy will rely increasingly on electronic forms of communication. Molecular methods in taxonomy, such as the current Barcode of Life initiative, will increase in importance. Integrating ZooBank with such projects will be critical in maintaining the coherence of taxonomy and avoiding conflicting systems of names. What we propose will make animal taxonomy a truly modern science. ■

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