Point of View

Sense and stability of taxon names

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Polaszek & Wilson (2005) note that recent technological advances (e.g. in molecular biology, imaging technology and bioinformatics) are bringing systematics to the brink of a major revolution. They attempt to clarify the role of *the International Code of Zoological Nomenclature* (*ICZN*) in that revolution, emphasizing its global recognition and authorization by international bodies and conventions and concluding that it remains the only officially accepted set of rules for the scientific naming of animals. The implication is that alternative approaches, such as the *PhyloCode* (Cantino & de Queiroz 2004), lack this official sanctioning. Moreover, Polaszek & Wilson (2005) presented a biased portrayal of the *PhyloCode*, citing only negative references. We wish to raise some considerations not mentioned by Polaszek & Wilson (2005) that are relevant to this debate.

The official sanctioning of the *ICZN* is to a large extent by default, because it is the only code for animal names currently in use (the *PhyloCode* is still under development). This historical fact should not be used as a form of authoritarianism to suppress the development of alternative codes, particularly if those codes do a better job of providing sense and stability in the naming of biological taxa. In fact, the *PhyloCode* has several advantages over the *ICZN* in this regard.

Much debate about the *PhyloCode* has focused on its ability to stabilize taxon composition relative to the rank-based codes (Nixon & Carpenter 2000; Bryant & Cantino 2002). Under the *PhyloCode*, the composition of taxa designated by particular names varies only when the reference phylogeny changes. This situation should provide greater taxonomic stability than under the *ICZN* and other rank-based codes, where taxon composition can change not only as the result of revisions to phylogenetic hypotheses but also as the result of purely subjective changes in taxonomic ranks. Moreover, application of the *PhyloCode* should clarify the references of numerous taxon names (Laurin & Anderson 2004) by eliminating the current ambiguity resulting from the application of particular taxon names (such as Mammalia) to several different taxa in a nested series despite general consensus concerning their phylogenetic relationships (Rowe & Gauthier 1992). Third, the *PhyloCode* makes it possible to name clades individually without changing the ranks and therefore the names of taxa above and below them in the hierarchy, as occurs under the rank-based codes (Hibbett & Donoghue 1998). Finally, the *PhyloCode* would provide a much-needed mechanism for eliminating confusion that currently exists for organisms that are neither plants nor animals but have been given different names under the zoological and botanical codes (Corliss 1992; Patterson & Larsen 1992). The *PhyloCode* would solve this problem because it is designed to govern the names of all groups of organisms.

One of the main challenges facing systematics is centralizing taxonomic and nomenclatural information and making it freely accessible to scientists (Godfray 2002). The International Society for Phylogenetic Nomenclature (which will produce and govern the *PhyloCode*) will address this concern by maintaining an online database of all taxon names (and associated information) considered established under that code (Cantino & de Queiroz 2004; Laurin & Cantino 2004). This online database should be relatively inexpensive to build and maintain because taxonomists themselves will be responsible for entering the data, and they will be motivated to do so because taxon names will not be considered established under the *PhyloCode* unless they are registered in the database. This situation obviates the need for mega-projects, major grants and armies of technicians and taxonomists trained only for this purpose.

Polaszek & Wilson (2005) note that the merits of the *PhyloCode* have been appraised in great detail; however, both of the references that they cite are by opponents of the *PhyloCode*. Readers interested in both sides of the argument should consult the references listed in the third paragraph under 'history' in the preface to the *PhyloCode* (Cantino & de Queiroz 2004). We concur with Polaszek and Wilson concerning the importance of sense and stability in the naming of biological taxa; however, we see no objective reason to believe that the *ICZN* and other rank-based codes are the most effective mechanisms for achieving these goals.

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