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The use of the prefix Pan- and other problems in zoological family-series nomenclature

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Zoological nomenclature is the obligate medium by which we communicate taxonomic information, and a series of precise nomenclatural rules are designed to minimize confusion and ambiguity. The longest used, internationally applicable system of nomenclature is “Linnaean Nomenclature” (LN) (Polaszek & Wilson 2005), which has provided a stable platform capable of simultaneously designating discrete taxa and conveying their phylogenetic relationships, through the use of scientific names (nomina; Dubois 2000). Precise adherence to the rules of nomenclature as defined by the International Commission on Zoological Nomenclature (ICZN) is all the more important today when zoologists have millions of taxa to name. The recent importation of exogenous practices into LN is both confusing and unacceptable under the rules of the ICZN. Such practices include the use of a prefix Pan- in the family-series nomenclature. The nomenclature of all taxa from rank subspecies to superfamily is regulated by the International Code of Zoological Nomenclature (ICZN Code; Anonymous 1999). This means that all zoologists who endorse LN should use nomina complying with the rules of the ICZN Code for taxa of all ranks, including those from superfamily to subtribe and additional intermediate ranks of the nominal family group, also called family-series. However, some recent publications using LN do not follow the ICZN Code in several respects, concerning in particular (1) the rules of formation of nomina and (2) their authorship and date. Recent articles involving fossil birds (Smith 2011, 2013; Smith & Mayr 2013), explicitly or implicitly following the ICZN Code, illustrate both problems, representative of these recent practices. We wish to emphasize that our comments are in no way criticisms directed toward the core information of these studies, otherwise extremely useful, but rather a more general and formal invitation to follow more closely the ICZN Code. We found few other published examples of similar practice concerning birds (“Pan-Apodidae” in Mayr & Manegold 2002, also used by Ksepka et al. 2013; “Pan-Trochilidae” in Mayr & Manegold 2002 and Mayr 2007; “Pan-Hemiprocnidae” in Mayr & Manegold 2002; for articles published in a LN frame). We use hereafter the “Pan-Alcidae” example.

Family-series nomina such as “Pan-Alcidae” (Smith 2011, 2013; Smith & Mayr 2013) are not acceptable in zoological LN. Nevertheless, in these articles LN and the ICZN Code are, in principle, followed (implicitly or explicitly). Smith’s (2011, 2013) papers, in particular, were written explicitly within the frame of the ICZN Code when naming new genera and species. Under the ICZN Code, to be available and valid, a family-series nomen must be a term in the nominative plural formed by adding a simple suffix (like –idae for a family) to the stem of a genus-series nomen, that of its type genus (Articles 29.3 and 63). The practice consisting in the addition of a prefix Pan- to a family-series nomen, first introduced by Lauterbach (1989), followed by Meier & Richter (1992), and now recommended by the PhyloCode (Cantino & de Queiroz 2010), is not ICZN Code-compliant, and is not needed as perfectly appropriate LN nomina will be available in all cases. Whatever the taxonomic method used to delimit a taxon (e.g., through a stem-based definition under a paradigm of phylogenetic taxonomy as defined by de Queiroz & Gauthier 1990), its valid nomen in LN cannot include a prefix. Here we show, using the same taxonomy and the same taxonomic contents for Alcidae as Smith (2011), that available nomina exist for the taxon referred to as “Pan-Alcidae” and other, more inclusive taxa. The nomen Pan-Alcidae introduced by Smith (2011) is unavailable and therefore invalid under the ICZN Code. The taxon at stake, with the same definition and content, includes all taxa phylogenetically closer to the extant Alcidae than to the extant sister taxon of Alcidae, which is the family Stercorariidae G.R. Gray, 1870 (1831), according to Ericson *et al.* (2003), Paton & Baker (2006), Baker *et al.* (2007), Fain & Houde (2007), Pereira & Baker (2008) and Weir & Mursleen (2012). This taxon can be referred to the rank epifamily (Dubois & Raffaëlli 2012) and should then be called Alcidoae. As for its author and date, they are discussed below.

or implicitly, should conform to the rules of the ICZN Code and prohibit practices such as described above. In any given work, a clear choice has to be made among both nomenclatural systems, and a single system has to be used throughout the work.

Strict application of rules of nomenclature is often considered secondary, because it is not really a scientific activity, and it does not produce systematic knowledge. Indeed, nomenclature is only a tool, but in our world of fast growing knowledge on fast increasing numbers of taxa, this tool needs to be robust, and rules need to be applied rigorously, otherwise confusion might increase too. We encourage ornithologists, and all systematists, to adhere more closely to the ICZN Code. Alternatively, if one prefers to use another system of nomenclature, at least this should be clearly stated in articles, and the system in question should not be mixed with the ICZN Code (or elements of the latter).

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