



## On the use of high-level taxonomic names

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Asher & Helgen (2010) recently proposed some rules for naming animal taxa above the family level—names that are currently unregulated. They suggested that strict priority be used as a criterion for high-level names and that such priority be based on group content rather than the procedure used for low-level taxa, anchored to constituent taxa. Authorship of a high-level name thus may vary in a complex way depending on content. While it is true that taxonomic codes are always in need of improvement, the lack of regulation of high-level names has not caused major problems. Originality, priority, stability, and other common sense considerations usually come to play in a process that can be described as community consensus. Their proposed system would lead to less stability because names would lack both permanent anchors (e.g., types) and permanent authors, and would be based on something (group content) susceptible to change with time. Furthermore, name selection may frequently conflict with common usage, leading to confusion and instability. An example of the problems with these rules is their preferred name for the order containing tenrecs and golden moles, Tenrecoidea, which has a long history of different meanings (content). Instead, the most commonly used name, Afrosoricida, is also preferred because it does not have that confusing history and has a more typical suffix (-a) for a mammalian order.

It is often not appreciated that much of taxonomy, across all levels, is determined by community consensus rather than strict rules. For example, the decision to recognize a collection of individuals or populations as a species is frequently debated. Likewise, both the recognition (or not) of a supraspecific taxon and the level applied (e.g., genus, tribe, family) is usually subjective because there are many ways to divide up a phylogenetic tree and apportion taxa. And long debate often occurs before a new taxon is accepted and used by most of the community, or rejected and considered a synonym of a more inclusive taxon. In formal taxonomy, the Law of Priority and application of types helps to establish which name should be used if more than one exists, but these rules do not apply to high-level taxonomy. Above the family group level in eukaryotes and class level in prokaryotes, the arbiter for acceptance of a name is usually the consensus of the community.

Asher & Helgen (2010) introduce two criteria for determining the most appropriate high-level name. They propose it should be "the first, published name for a monophyletic group with unique content" and "based on terms deemed familiar and logical to as many students as possible." Thus the person who coined a name is not necessarily considered the author. According to Asher & Helgen, the current estimate of group content—which can change as time progresses—is matched with the earliest use of the name which recognized the same or similar content.

For example, under these rules, a researcher this year may build a tree that joins five families, and apply an earlier ordinal name to the group. Even though the order was originally named in 1863 by one person, another person who published in 1961 might get credit because the content they assumed in that publication was closer to the content recognized today. However, a family could be added next year by another researcher, making the group closer in content to the version of the taxon recognized in 1932 by yet another person, changing the authorship of the same taxon yet again. A slight change in content might also require switching from one widely used taxon name to a name confounded with many different meanings. Moreover, this system favors such names—ones that have been mixed and matched many times in the past—because those names are most likely to match, even by chance, the current group content.

The notion of general priority—use of the first name proposed for particular group—is already part of the community consensus process because it involves common sense. There are famous exceptions, such as the renaming of Archaeobacteria and Eubacteria (Woese & Fox, 1977) to Archaea and Bacteria (Woese *et al.*, 1990), but otherwise general priority is commonly used for high-level names. Asher & Helgen's (2010) first criterion goes a step further and proposes strict priority. However, without a system—such as the type system—to anchor a name to a constituent taxon, there is no objective way to stabilize the name. Also none of the other necessary regulation is operating for high-level names (e.g., rules for publication, dates, diagnoses, etc.). Without that other regulation, high-level names are not strictly comparable