

Taxonomy is not beholden to its dependencies: a rebuttal to Garnett and Christidis

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Garnett and Christidis (2017) slammed taxonomy for hampering conservation. They painted a picture of capricious taxonomists arbitrarily creating or dismissing species and claimed “the scientific community's failure to govern taxonomy threatens the effectiveness of global efforts to halt biodiversity loss, damages the credibility of science, and is expensive to society”. We reject their premise that taxonomy is but a service in need of governance, rather than an independent—and foundational—scientific discipline.

Linnaean taxonomy is the cornerstone of biology and presents phylogenetic hypotheses at all levels of classification. A taxonomic designation is a hypothesis of (1) functionally independent evolution and (2) phylogenetic position by assignment to a higher taxon in a hierarchical classification. Like any scientific hypothesis, evolutionary independence and taxonomic placement can be tested. Species concepts may be considered additive, and each additional concept satisfied lends more support to the species hypothesis (De Queiroz, 2007). When new evidence or analysis rejects previous hypotheses, new ones must be established. Changes in taxonomy therefore generally represent progress in understanding biodiversity.

Garnett and Christidis (2017) proposed that committees should oversee and approve taxonomic works and create official lists of vetted species, on which the conservation community could base its work. A static list would be shielded from testing, and thus unscientific, but a dynamic list would be subject to change—the very problem that Garnett and Christidis hoped to avoid. Oversight committees would impede progress in identifying the ~7.5 million species that await taxonomic description (Mora et al., 2011) and introduce bias to taxonomy by compelling taxonomic decisions be based on social and conservation consequences rather than scientific merit. We contend that taxonomy must continue to be practiced as an evidence-based science and that conservation and other dependencies must adapt to taxonomy, not the converse. It is not the fault of taxonomy that conservation policy sometimes struggles to remain abreast of scientific progress.

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