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Opinion

Defining and Bringing Relevance of Meaning to Species Group-Level Taxa

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A definition for differing terminal taxa in nomenclature is needed to make them practically relevant. The International Commission of Zoological Nomenclature (1999) provides for two levels: species and subspecies. At present species and subspecies are used interchangeably and arbitrarily. We examine both concepts, with a focus on practical applications of these terms.

Currently, species represent the last meaningful unit in nomenclature. Recent advances in species theory have sought to avoid the complexities of forcing a taxonomist to choose a species concept (Heethoff 2018). Zealous adherence to a rigid conceptual demarcation has plagued the differentiation of species group-level taxa (Maxwell et al. 2020). The latest conceptual iteration views species as essentialistic objects in an evolutionary continuum, which provides for the ideal framework for a species definition (Maxwell et al. 2020). Fundamentally, the practical rationale for erecting species is to generate points of reference enabling a clear explanation of visualized nature.

Treatment of subspecies is not so resolved. The Mayr (1982) school and its derivatives view subspecies as representing a taxonomic category, which are not reproductively isolated, and which are morphologically divergent from the type-defining discrete population. In contrast, Maxwell & Dekkers (2019) suggest that the subspecies rank should be restricted to those taxa where there are no other forms of discrimination other than phenetic differences in genetic sequences. These subspecies conceptions are fundamentally mutually exclusive with differences that are critical to the practical use of nomenclature.

Practically, field researchers need to know whether the organisms that they are observing are distinguishable from others, or whether there is a need to indiscriminately collect multiple specimens to search for phenetic differences in genetic sequences. The restriction of subspecies to genetically cryptic organisms allows this practical distinction. The definitions provided for terminal taxa ensure an understanding of how species group level taxa are utilized.

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