Relevance of the multifaceted approach of biodiversity for conservation

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Abstract

Since the early 2000s, scientists have called for a more integrative approach of diversity that encompasses functional and phylogenetic components beyond the traditional focus on species richness. Application of this approach to spatial conservation strategies has been then advocated through the analysis of the mismatch and congruence between the different dimensions of biodiversity with protected area networks for several groups in different regions. These papers have challenged existing conservation strategies in suggesting that important biodiversity facets were excluded from protected areas. However, the contribution of these facets to ecology and conservation science is still unclear. Overall, the justifications for developing new conservation strategies based on multi-faceted approaches must be clarified. Here, we conducted an exhaustive review of the articles integrating a multifaceted approach of the diversity for conservation, including the taxonomic, functional, and phylogenetic components. We reviewed the questions addressed in each paper as well as the spatial and thematic extent covered. We examined and explained the potential caveats and advances of using such multifaceted approaches for conservation strategies. This synthesis provides an overview of commonly used multifaceted frameworks and most promising agendas in this direction.

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