The relationship between species richness and taxonomic distinctness in freshwater organisms

Heino, Jani, Janne Soininen, Jyrki Lappalainen, Risto Virtanen

Limnol. Oceanogr., 50(3), 2005, 978-986 | DOI: 10.4319/lo.2005.50.3.0978

ABSTRACT: Taxonomic distinctness is a newer biodiversity measure that emphasizes the average taxonomic relatedness between species in a community. We examined whether species richness (SR) and taxonomic distinctness (TD) were significantly related and whether they showed similar environmental relationships in regional data sets for various groups of freshwater organisms, ranging from lake mollusks and fishes to stream diatoms and invertebrates. We found that the relationship between SR and TD varied widely, ranging from significantly negative through nonsignificant to significantly positive. In general, SR and TD were related to different environmental gradients, although the particular environmental variables accounting for biodiversity patterns varied among data sets and, more importantly, even between different data sets for the same organism groups. SR and TD can provide complementary views of the variability of biodiversity. These findings thus underline the importance of considering a set of different measures in the assessment of community-level biodiversity, as well as considering this variability when determining anthropogenic effects in freshwater ecosystems.

Article Links

Download Full-text PDF

Return to Table of Contents