

Gastropod abundance in vegetated habitats: The importance of specifying null models

Abstract—We compared gastropod diversity and abundance between areas of high and low macrophyte biomass in Trout Lake, Wisconsin, and performed laboratory experiments to determine the role of substrate surface area in explaining differences. Species richness was greater in macrophytes than in cobble, and four of the six species occurring in both areas had higher abundances per unit bottom area in the macrophyte bed. In the laboratory, we provided six snails with a choice of substrates: sand, macrophytes on sand, and cobble (rocks). When results were expressed per unit bottom area, most species preferred cobble and macrophytes, but avoided sand. When snail densities were expressed per unit surface area, most species preferred cobble, and avoided macrophytes. Our results indicate that the greater abundance and diversity of invertebrates (per unit bottom area) in vegetated habitats may be explained by the greater colonizable surface area, without recourse to alternative explanations such as decreased predation risk.

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