

The dilution effect in a field survey of eastern mosquitoes

John Soghigian and **Todd Livdahl**

Department of Biology, Clark University

The dilution effect, a hypothesis that diversity of host species in a community should reduce prevalence in a disease, has been examined only rarely in the field. Supporting evidence has focused primarily on the Lyme disease-deer tick system, and the generality of the phenomenon is uncertain. Here we present a survey of container-dwelling mosquitoes and their *Ascogregarina* parasites, protist gut parasites with potential importance as biological control agents of mosquitoes. We identified ten species of mosquitoes from twelve field sites in North America, and at least two species of *Ascogregarina* infecting those mosquitoes. Each site had between one and five samples from different container habitats. We tested for a relation between richness and prevalence at three different scales, habitat, site, and region. Using a bootstrapped regression between richness measurement and disease prevalence, we found support for the dilution effect at the site-based level of scale. This suggests that the dilution effect may be playing a role in natural systems such as this mosquito-gregarine system, but that scale is an important consideration in its detection.