Grear, J.S. 2009. Evaluating effects of localized habitat manipulations on landscape-level dynamics of white-footed mouse populations. Oral presentation, USEPA Regional Science Workshop: Landscape/Biodiversity Change and Lyme Disease- Science and Application. Sept 22-23, 2009. EPA-New England Regional Laboratory, Chelmsford, MA.

ABSTRACT: Due to complex population dynamics and migration behaviors, the well-being of animal populations that host human diseases sometimes varies across landscapes in ways that cannot be deduced from geographic abundance patterns alone. In such cases, efficient management of ecological characteristics that control disease prevalence may be difficult to achieve. This presentation describes solutions to this problem using a combination of intensive field-based analyses of demography and migration and spatial matrix models of white-footed mouse populations (*Peromyscus leucopu*s). Using landscape-scale field experiments, results of this work show how small-scale habitat manipulations can affect population dynamics over the larger landscape. The presentation also describes the level of effort required to produce this knowledge, in this case through an extramural collaboration, and some of the benefits it provides to the management of disease vector populations.

KEYWORDS: white-footed mouse; *Peromyscus leucopus*; population ecology; demography; spatial matrix model; spatial population model; Lyme disease; habitat; landscape; experiment