Interactions of invasive garlic mustard (*Alliaria petiolata*), native herbaceous plant species, and invertebrates in Vermont forests

By Anna Louise Carragee

The impacts of invasive species into the ecosystems of North America can be seen on a community ecology level. Garlic Mustard (*Alliaria petiolata*) is an invasive plant species that is currently disrupting the function of forest ecosystems in North America. Garlic mustard forms monotypic stands in the understory of forests and thus crowds out native herbaceous plant and tree species, in effect lowering the species richness or biodiversity of the area. As garlic mustard becomes established in a forest, the interactions of native insect pollinators and other guilds of invertebrates with the native species and garlic mustard may shift. Using sweep nets, invertebrates were collected from patches of garlic mustard, and the native plants sweet cicely (*Osmorhiza sp.*), raspberry and blackberry species (*Rubus spp.*), and orange jewelweed (*Impatiens capensis*) at state parks around Vermont. Total invertebrate abundance, species richness (S), and Shannon-Weaver species diversity (H') were compared between plant species and patch size across collection dates using factorial ANOVA with multiple comparisons. Pollinator attraction to flowers of garlic mustard relative to native plants varied by site and native plant species. Pollinators were also observed collecting next that had recently dropped their flowers. Results of this study suggest that the ability of garlic mustard to successfully outcompete native plants for space may be influenced by their relative associations with beneficial and antagonistic invertebrates.