

| Field Name | Field Value |
|---------------------|--|
| Name | Andrew McCall |
| Organization | Denison University |
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| Web_Address | http://invasionsrcn.org/portal/activities/alliaria-sampling/ |
| Renewal | No |
| Permit_Number | 2009-0017 |
| Activity | Research |
| Project | BIOL 321 'Plant Ecology' (Denison University) |
| Dates | 29 September 2009 |
| Group_Size | 9 |
| Research_Area | Yes – South Woods |
| Sensitive_Area | No |
| Other_Areas | No |
| Public_Areas | Yes |
| Steiners_Woods | Yes |
| Building | No |
| Prep_Work | |
| Sampling_Collecting | Yes |
| Sampling_Methods | We would like to collect insects from pitfall traps (8 oz plastic cups) in 10 1m by 0.5m plots where garlic mustard is growing, and in 10 plots where garlic mustard is absent or has been pulled. The cups would be out for approximately 5 days; insect biomass has typically been under 50g for each cup. We would also like to collect leaf litter from the plots, approximately 40g per plot. This amount should not interfere with the functioning of the ecosystem. Finally, we would like to take soil samples from each of the plots using a soil corer; approximately 50g of soil from each plot would suffice. |
| Description | Research Proposal Andrew McCall, Assistant Professor of Biology BIOL 321 'Plant Ecology' class Denison University 1. Goals: Our first goal is to provide information on invasive populations of garlic mustard (<i>Alliaria petiolata</i>) growing in North America as part of the Global Garlic Mustard Survey (http://invasionsrcn.org/portal/activities/alliaria-sampling/). In general, researchers from all over the world are working in concert to determine if garlic mustard is, on average, larger and less prone to herbivory in its introduced range versus its native ranges. We are using standardized protocol in several populations in Ohio to help contribute to the effort. We are attempting a North-South transect from Granville to |

Akron. Our second goal is to sample both areas with and without garlic mustard to determine if this plant's properties affect insect abundance and diversity and nematode abundance. There is some evidence in Denison's reserve that garlic mustard can negatively affect larger organisms like salamanders, but we wish to see if smaller organisms more intimately associated with the soil might also be affected. 2. Proposed activities: We will need to establish ten 1m by 0.5m plots arranged in a line in a garlic mustard population and ten similar plots in an adjacent area with no garlic mustard. We will survey garlic mustard abundance, size, and herbivore damage in the garlic mustard plot. In both areas (garlic mustard and non-garlic mustard) we will also place 10 insect pitfall traps (8 oz plastic cups) in each of the plots. These will be filled with 2 inches of water and left in the ground for 5 days, after which the cups will be removed and the holes filled in. We will also sample leaf litter in all 20 plots by collecting approximately 40g of material from the plot surface and placing them in plastic bags for transport to Denison. To sample for nematodes we will take 3 soil cores (2 inches deep) from each plot. This usually results in removal of 50g or less of soil from the plots. 3. Impacts Insects: we do not anticipate that the removal of insects will negatively impact the ecosystem at the Bath preserve. Collection will only be for 5 days and in similar areas the total mass of insects per cup has been less than 50g. Leaf litter: Although we do not plan to replace the leaf litter, it is unlikely that 40g of material per plot will have long-term consequences on the biota or ecosystems at the preserve. The litter will eventually be replaced by natural processes such as leaf fall and decomposition. Soil: The total mass of soil collected will be small per plot; we do not anticipate disrupting the soil ecosystems very much with our small core samples. Natural processes should fill in the holes over time.

Agreement

Accept