

FIRST INDICATION OF ADAPTIVE EVOLUTION IN NORTH AMERICAN MICROBES AS A RESULT OF GARLIC MUSTARD INVASION. Rachel N. Nodurft, Steven G. Hallett, and Kevin D. Gibson, Graduate Student, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907-2054, and Professors, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907-2054.

Invasive species have the potential to not only alter community composition and ecosystem functions but also to stimulate evolutionary change in the native species with which they interact. Garlic mustard (*Alliaria petiolata*), a biennial herb native to Europe, invades forests and appears to inhibit arbuscular mycorrhizal fungi (AMF) which may inhibit the growth of AMF-dependent forest species. Since garlic mustard has been present in the United States for at least 150 years, we hypothesize that fungal communities in areas long exposed to this weed may have evolved higher levels of resistance to the allelochemicals produced by garlic mustard. Soil samples were collected during the summer of 2006 from sites along a transect of invasion of from New York, where the presence of garlic mustard was first recorded, to more recently invaded sites in Kansas and Missouri. Paired soil samples were taken from directly underneath patches of garlic mustard and from a meter outside each patch. DNA was extracted from the soil samples and processed using PCR with universal fungal primers. PCR products were separated by DGGE and the percent similarity between the fungal communities from within and outside garlic mustard patches measured. Initial results suggest greater similarity in the fungal communities between paired samples from sites with a longer history of garlic mustard duration as opposed to sites fairly naïve to its presence. Thus, in older sites, North American fungi appear to have evolved increased resistance to garlic mustard suppression.