

Biogeography, genetic diversity and host specificity of *Amanita* in New England

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Although the genus *Amanita* is one of the most widely recognized groups of mushroom-forming fungi throughout the world, we know surprisingly little about the ecology and evolution of this group. For my dissertation research, I am examining the evolutionary and ecological processes that have led to the origins and diversification of the symbiosis in *Amanita*. Most *Amanita* species form ectomycorrhizal associations with woody plants where the host plant receives soil nutrients from the fungus and the fungus receives photosynthetically fixed carbon from the host plant. The goal of the proposed research is to understand the natural history and ecology of *Amanita* species in New England with a focus on understanding patterns of host plant specialization of different *Amanita* species in relation to biogeographic distribution and genetic diversity. This research will lead to a better understanding of the evolution of host specialization in *Amanita* and will have implications for the conservation of fungi. It will also contribute to an understanding of the potential for the introduced species *A. phalloides* to spread in New England and other parts of North America.