

Project Information for the Soil Myxos and Algae Project

Project Details

Principal Investigator: Dr. Adam W Rollins

Project Description: Biodiversity Inventory of Myxomycetes and Algae Associated with the Soils of Different Forest Types in the Great Smoky Mountains National Park

Project Dates: **Start Date:** 4/1/2010 **End Date:** 3/1/2011

Protocol: A total of eight study areas were established throughout the Great Smoky Mountains National Park (GRSM) during the 2010 field season. These study areas encompassed the following forest types: red spruce dominated (1618m), beech gap (1577m), northern hardwoods (1502m), cove hardwoods (965m), hemlock dominated (734m), oak dominated mixed-hardwoods (636m), early successional Liriodendron dominated (622m), and pine dominated (568m). Samples were collected for the laboratory isolation of slime molds (myxomycetes) and algae (both eukaryotic and prokaryotic [i.e., cyanobacteria]) from the soil/humus-litter interface.

Project Notes: The project involved three undergraduate students from Lincoln Memorial University. One student participated in the field work across the GRSM whereas two other students worked with the materials in the laboratory. This work formed the basis of one student's Junior-Senior Seminar project which is a minimum two semester research project required for graduation (BS Biology). She successfully defended the project entitled, "Myxomycetes of the humus layer in the Great Smoky Mountains National Park". Furthermore one manuscript (Coelho & Stephenson 2012 [this grant DLIA2010-03 is listed in the acknowledgements]) has been published and another manuscript detailing the specific results of this study is currently in preparation. Dr. Stevenson of the University of Arkansas collaborated on the project.

Summary: The cultures produced 97 myxomycete specimens accounting for 11 species. All of these species have been previously reported from GRSM; however, these collections represent the first reports from this particular microhabitat. More interestingly, this microhabitat has not received any appreciable study (for this group of organisms) prior to this survey. Thirty-nine species of algae (33-cyanobacteria, 6-chlorophyta, and 1-bacillariophyta) were recovered from the eight study areas. Interestingly 84% (33 species) represent species that have not previously been reported from GRSM (i.e., new records for the Park).

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Data Summary

Data Collection Year(s): 2010 to 2010

Number of Sites Sampled:	8
Number of Samplings:	16
Number of Orders Identified:	21
Number of Families Identified:	33
Number of Genera Identified:	50
Number of Species Identified:	62
Number of Specimens Identified to Species:	201
Number of Specimens not Identified to Species:	6
Total Number of Individuals Counted (actual or estimated):	51132
Percentage of Major Watersheds Sampled:	14 %