National Park Service
U.S. Department of the Interior

Rocky Mountain National Park
Continental Divide Research Learning Center

Slime Molds

The Question: What slime molds can be found in the park?

The park is responsible for protecting all resources within its borders, even those bearing an unattractive common name. The eumycetozoans, or slime molds, are a group of microscopic organisms characterized by an amoeba-like trophic stage and aerial spore-bearing reproductive structures. Eumycetozoans are widespread, common to even abundant in nature, where they are major predators of other microorganisms such as bacteria, yeasts, cyanobacteria and green algae. This would suggest some degree of ecological significance. However, because of their cryptic life cycle and because the number of scientists studying them is relatively small, eumycetozoans are among the most understudied groups of terrestrial organisms. This project, conducted by the University of Arkansas and funded by two grants from the National Science Foundation, seeks to expand, standardize, systematize, and ultimately summarize the body of information available on the taxonomy, ecology and distribution of all three groups of eumycetozoans (myxomycetes, dictyostelids and protostelids).*

Slime molds grow in wet places, like this *Arcyria cinerea* (above) and *Metatrichia floriformis* (below) found on rotting conifer logs near a stream.

The Project: Using trained volunteers collect and culture slime molds from National Park Service areas.

In order to inventory the slime molds of Rocky Mountain National Park, local volunteers learned to identify and culture slime molds. Each year, they search appropriate microclimates in the park for species. With permission of the park, they collect samples and return to the laboratory for microscopic measurement and description, and occasionally culture. After an initial identification, Dr. Steven Stephenson and Dr. Rod Nelson, both of the University of Arkansas, provide taxonomic expertise.

Some slime molds, like this one above (*Didymium dubium*) are only found next to melting snowbanks, which are common in Rocky Mountain National Park.

The Results: There are at least 84 different species of slime molds in the park.

As of 2009, 84 different slime mold species have been identified for the park. Further identification of species is in progress. Analysis of data from cultures of substrate collections is ongoing at the University of Arkansas. Because new collecting locations account for two thirds of the additional species found each year, the local volunteers will continue to survey more, and especially uncommon habitats. Inventorying slime molds is a challenge because moisture variation and natural decay continually change their habitat. From year to year, species can vary at a given location. Photographs and representative specimens will be preserved in the park's records and museum collection. This study provides a point-in-time assessment of the most common and some of the less common species that can occur in the habitats of the park.

An as yet unidentified slime mold is seen changing from amoeba-like stage to spore-bearing stage in a damp log crevice.

This summary is based on published, peer-reviewed and/or unpublished reports available at the time of writing. It is not intended as a statement of park policy or as a definitive account of research results.
For more information on the park's research program, see www.nps.gov/romo
*Written by: Cheri Yost Date: 09/20/2010 Photo credit: Mary Jane Howell *This information provided by the project website: http://slimemold.uark.edu/index.htm*