

**Department of Biological Sciences
COLLEGE OF ARTS & SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2009

The Department of Biological Sciences is pleased to offer the following research projects for the summer of 2009. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

THE SPATIAL DISTRIBUTION OF BUTTERFLY EGG MORTALITY IN ALPINE MEADOWS

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PROJECT DESCRIPTION

Our lab is investigating the spatial population dynamics of the Rocky Mountain Apollo Butterfly and the related applied question of how alpine species respond to rising treeline. At our research site in the Canadian Rocky Mountains, rising treeline over the past century has reduced alpine meadow area by over 75%. This loss of habitat potentially threatens species which are restricted to habitats above treeline such as this butterfly.

The potential project would build on existing data and examine the spatial distribution of egg mortality within alpine meadows. Previous research has shown that mortality is greatest during the egg stage, but it is unrelated to distance from anthills and appears to be unrelated to distance from treeline. However there are significant clusters in mortality, possibly indicating spatially correlated habitat factors affecting mortality risk or non-random predator behavior. The project would involve setting up spatial arrays of butterfly eggs excluding different predators, monitoring them for predation, and conducting microhabitat and climate analyses at each site. Results from this project will advance our understanding of important mortality sources for the butterfly and help to determine if these may change with continued rise in treeline.