Department of Biological Sciences and Center for Environmental Studies
COLLEGE OF ARTS & SCIENCES

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APLICATION DEADLINE: March 3, 2008

The Department of Biological Sciences and Center for Environmental Studies are pleased to offer the following research project for the summer of 2008. 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.

POPULATION REGULATION OF THE ROCKY MOUNTAIN APOLLO BUTTERFLY, THE ROLE OF EGG MORTALITY

Professor Stephen F. Matter
Department of Biological Sciences and Center for Environmental Studies
1402 Crosley Tower
Cincinnati, OH 45221-0006
Tel: (513) 556-9768
Fax: (513) 556-5299
Email: mattersf@uc.edu

Project Description

Rising tree-line is fragmenting alpine meadow habitat in the Rocky Mountains. Our previous research (Roland et al. 2000, Matter et al. 2004) has shown that encroaching forest habitat severely isolates populations of a meadow-specialist butterfly, *Parnassius smintheus*, by decreasing dispersal. As populations become more isolated understanding how factors that limit local growth and reproduction vary among locations becomes increasingly important.

Mortality during the overwintering egg stage can be particularly high for this species (>90%). It is suspected that predation by ants is the primary source of egg mortality. Because ants tend to have highly spatially clumped distributions, mortality risk for eggs may vary on a small scales within meadow habitat and broadly with ant abundance among meadows. The focus of this project will be characterizing spatial variation in mortality risk. Students will participate in field experiments and statistical modeling.

The research project will take place in Cincinnati and in Kananaskis Country, Alberta, Canada. A valid passport is required to enter Canada. Accessing research sites in Canada requires strenuous hiking.