

Undergraduate Research Experience Grant Program

Integrating Weed Control and Restoration for Great Basin Rangelands

2004

Application Deadline – April 19, 2004
Notification of Awards – April 30, 2004

I. Introduction

A collaborative research project among three universities (University of Nevada at Reno, Utah State University, and Oregon State University), three federal research agencies (USFS Rocky Mountain Research Lab, USGS Forest and Range Research Center, and USDA Agricultural Research Service), and two federal land management agencies (Natural Resources Conservation Service and Bureau of Land Management) is addressing the ecologic and economic impacts of invasive weeds on Great Basin rangelands, and the methods for restoring these degraded rangelands with diverse, native plant communities. The project is funded by the USDA Initiative for Future Agriculture and Food Systems, and by in-kind contributions from the collaborating institutions mentioned above. A series of common experiments in Oregon, Nevada, Utah and Idaho will be used to: 1) test techniques for controlling cheatgrass (*Bromus tectorum*) and other weeds, establishing native plants, and restoring ecosystem structure and function; 2) provide an ecological understanding of why restoration techniques succeed or fail; 3) develop conceptual and economic bases for choosing appropriate management techniques; and 4) convey knowledge to land managers and increase public awareness of invasive species and native plant restoration problems. Log on to the project website (www.cabnr.unr.edu/ifafs/home.htm) for:

- A detailed description of the research problem and the experiments (go to Data Bases link, and then to Project Summary link under Proposals heading)
- A listing of project participants (go to Personnel link)
- A description of experimental protocols (go to Data Bases link, and then to Protocols heading)
- The location of the research sites in each state (go to Data Bases link, and then to Site Maps and Directions under General Information heading)

Undergraduate students at colleges and universities in or adjacent to the Great Basin will have the opportunity to participate in research experiences associated with the project. During 2004, two mini-grants (up to \$4,000 each) will be available to support original and independent research experiences.

II. General Information

Those eligible to apply for Undergraduate Research Grants are full- and part-time undergraduate students at colleges and universities in or adjacent to the Great Basin. More than one research proposal may be submitted from a college or university. Multiple student investigators may submit a single proposal and work collaboratively on one research project. Students should carefully read the information that follows and submit proposals that adhere to the stated guidelines. Failure on the part of applicants to follow the guidelines and procedures as outlined in this document will result in disqualification of the proposal.

Student research projects should compliment experiments described in the Project Summary on the project website. Student projects can be field-, greenhouse-, and/or laboratory-based. Contact the lead scientist in your state to discuss potential research projects, or the possibility of working on an existing experiment at one of the field sites. The lead scientists for the four states are: Dr. Bob Nowak (Nevada), Dr. Gene Schupp (Utah), Dr. Dave Pyke (Oregon and Idaho), and Dr. Paul Doescher (Oregon and Idaho); their contact information can be found in the Personnel section of the project website. Student research projects could address:

- Seedling establishment of weed and restoration species
- Seed bank dynamics of weed species
- Soil and plant water dynamics
- Soil and plant nutrient dynamics
- Soil microbial community and biological crusts
- Efficacy of weed control and restoration techniques, including herbicides, prescribed fire, prescribed grazing, and seeding
- Economic assessment of weed control and restoration strategies

Student project proposals are read and rated by a selection committee comprised of scientists involved in the collaborative project. Students and their advisors will be notified of the committee's decisions by e-mail (and later by regular mail) within 10 days of the application deadline. If a proposal is not funded, feedback will be given so the student can learn from the process.

Researchers should be aware of the various regulations and compliances to which universities must adhere. Among the most important to consider are proper animal care, and use of hazardous materials or biohazards. Information on these policies may be obtained at your college or university.

Obligations – Students who accept a financial award for their projects will be required to do the following:

- Present the results of their work at a state, regional, or national meeting of a professional society (e.g., Society for Range Management, Weed Science Society of America, etc.), or at a student research symposium held on their campus, within one year of receipt of the award.
- Submit a high-quality final report detailing their research and results (see section V).

A maximum of \$4,000 may be requested for each project. Funds will be made available within two weeks following notification of the awards, and will be transferred to an account managed by the faculty advisor. All funding must be expended within one year after the award date.

III. Application Procedures

Step 1: Identify a project from the list in section II that you would like to work on. Select a faculty advisor with similar interests, and discuss project possibilities with him or her. Plan and design your research project with the help of your faculty advisor.

Step 2: Prepare a draft proposal and a budget that closely follows the guidelines in section IV for review by your faculty advisor. Complete a final proposal and a budget that will cover the expenses required for you to carry out your research project.

Step 3: Have your faculty advisor write a detailed letter of support for your proposed research experience (see section IV-D).

Step 4: You, your faculty advisor, and the department chair must sign the original copy of the proposal. If funded, this signature copy serves as a contract between you, your university, and the Undergraduate Research Grant Program, indicating that you will fulfill your obligations as outlined in these guidelines.

Step 5: Submit an electronic copy (Word or PDF file) of the proposal to Dr. Chris Call (e-mail address: cacall@cc.usu.edu) by the application deadline (April 19, 2004). Send the signature copy (signed hard copy) of the proposal to Dr. Chris Call at the address below (post marked by April 19, 2004):

Forest, Range & Wildlife Sciences Department
5230 Old Main Hill
Utah State University
Logan, UT 84322-5230

Step 6: You will be notified of the selection committee's decision via e-mail (and later via regular mail) by April 30, 2004.

IV. Proposal Writing Guidelines

The proposal will consist of: A.) Cover Sheet, B.) Proposal Narrative, C.) Proposal Budget, D.) Faculty Letter of Support, and E.) Student Transcripts, in that order. The proposal narrative shall not exceed 3 single-spaced pages in length (1-inch margins on top/bottom and sides, 12-point font). Appendices may be utilized to incorporate additional, pertinent diagrams or information if absolutely necessary. The proposal should be stapled in the upper left-hand corner; it should not be placed in a binder or other cover.

Use the following guidelines for preparing the proposal:

A. Cover Sheet

1. Title of Project
2. Applicant Information – Applicant name, college or university, major, year in school (e.g. junior), date of graduation, address, phone number, and e-mail.
3. Faculty Advisor Information – Advisor name, college or university, department, campus address, campus phone, and e-mail.
4. Abstract – Concise synopsis of proposed research (do not exceed 250 words).
5. Grant Effort – Provide the expected project starting and ending dates, and predicted amount of effort (i.e. hours/week) over that time period.
6. Amount Requested – Enter the total amount of funding requested (total from budget sheet).
7. Compliances – If your project includes the use of animals, or hazardous chemicals or potentially hazardous biological agents, indicate that you are following the appropriate protocols (e.g. Institutional Animal Care and Use Committee) at your college or university.
8. Signatures – Provide signatures (and dates for signatures) of all persons submitting the proposal: the applicant, the faculty advisor, and the appropriate department head.

B. Proposal Narrative

1. Statement of the Problem / Significance of the Project – Be concise. Clearly support your problem statement with documentation and references, including an up-to-date and pertinent review of the relevant literature. Describe how your project will address the problem and add to existing knowledge related to the problem.
2. Objectives – Define the specific, proposed outcome(s) and product(s) of the research. What will be known after the project is completed?

3. Research Methods and Materials – Design and describe a work plan consistent with your stated objectives. Include information about field site and/or laboratory features, experimental materials (e.g., plant species, microbes, soils, etc.) and procedures, and methods for data gathering and statistical analysis.
4. Final Products and Dissemination – Describe possible forms of the final product, e.g., publishable manuscript, conference paper, etc. Be specific about the methods used to disseminate your results to a wide audience.

C. Proposal Budget

A maximum of \$4,000 for each project may be requested. Each student who has a proposal funded can receive a stipend of up to \$3,000. If multiple student investigators are working collaboratively on one research project, they must divide the \$3,000 stipend amount among themselves. The remainder of the funds requested (up to \$1,000) should be used for supplies, travel, and other expenses required for execution of the research project. Budget categories should include: Stipend, Supplies and Services, and Travel (mileage, lodging, per diem).

D. Letter of Support

The applicant should arrange to have his or her faculty advisor write a critical letter of support to the Undergraduate Research Grant Program Committee, commenting on the individual abilities of the student investigator to succeed in the undertaking. The faculty advisor should clearly explain how the student will act as an independent investigator in the project, and describe the role of the student in carrying out the research. In addition, mention should be made of what facilities, equipment, and supportive roles he or she intends to lend to the work. Finally, the faculty advisor should make an estimate of the time required to complete the proposed work.

F. Transcripts

Copies of current transcripts for the student applicant must be included.

V. Final Report

Following completion of the research project, awardees will submit a brief manuscript detailing the research problem, methodology, data collected, and final results. These reports must be submitted in printed form. The faculty advisor will be responsible for assuring that the report meets the format criteria of a representative publication in the discipline.