



**National Park Service
U.S. Department of the Interior**

NOTICE OF INTENT TO AWARD

This Funding Announcement is not a request for applications. This announcement is to provide public notice of the National Park Service's intention to fund the following project activities without full and open competition.

ABSTRACT	
Funding Announcement	P13AS00062
Project Title	Evaluating the Influences of Nitrogen Deposition Gradients on Plant Diversity: Filling in the Gaps
Recipient	The Regents University of Colorado
Principle Investigator / Program Manager	William Bowman
Total Anticipated Award Amount	64848.00
Cost Share	none
New Award or Continuation?	This is a Task Agreement under Cooperative Agreement # H2370094000
Anticipated Length of Agreement	From date of Award to September 30, 2014
Anticipated Period of Performance	From date of Award to September 30, 2014
Award Instrument	Cooperative Agreement
Statutory Authority	16 USC 5933 & 16 USC 1a2(j) and 16 USC 1 g
CFDA # and Title	15.954 National Park Service Conservation, Protection, Outreach, and Education
Single Source Justification Criteria Cited	(4) Unique Qualifications
NPS Point of Contact	June Zastrow, 303-987-6718, june_zastrow@nps.gov

OVERVIEW

Cooperative Agreement Number H2370094000 was entered into by and between the Department of the Interior, National Park Service, (NPS), and The University of Colorado Boulder, pursuing research, technical assistance and education with partners that are part of the Rocky Mountains Cooperative Ecosystem Studies Unit (CESU). Unless otherwise specified herein, the terms and conditions as stated in the Cooperative Agreement will apply to this Task Agreement.

This project evaluates the influence of nitrogen deposition on plant diversity, by conducting field surveys of plants and soils along existing nitrogen deposition gradients in four regions where little such data currently exists. These four areas (northern Colorado Plateau; southern Colorado Plateau; remnant prairies in Minnesota and Iowa; and western North Dakota and eastern Montana) are all in proximity to national park units and each area has experienced recent increases in nitrogen emissions from oil and gas and/or agricultural development. Excess nitrogen deposition has been shown to cause losses of species from plant communities in other areas, but the effects of nitrogen deposition increases are largely unknown in the areas targeted by this research. This project will fill in data gaps about the effects of nitrogen on plant diversity, and will supplement and support an effort funded by the Environmental Protection Agency (EPA) and the U.S. Geological Survey (USGS); a Powell Center biodiversity and nitrogen synthesis that is evaluating existing vegetation data sets along deposition gradients in other parts of the U.S.

RECIPIENT INVOLVEMENT

The University of Colorado Boulder, Institute of Arctic and Alpine Research agrees to:

1. Collaboratively undertake the research outlined below and further detailed in Attachment A
2. Collaborate with NPS-Air Resources Division (ARD) and park personnel in selection of any specific field sampling sites in national parks;
3. Conduct field surveys of plant diversity and soils across nitrogen deposition gradients in four areas: (a) the northern Colorado plateau; (b) the southern Colorado plateau; (c) remnant prairies across southern Minnesota and Iowa; (d) western North Dakota and eastern Montana;
4. Select at least five sites for plant and soil sampling along each nitrogen deposition gradient;
5. Assess vegetation composition and abundance, and species richness at plots within each site;
6. Sample soils at sites and have them chemically analyzed (carbon:nitrogen ratios, extractable nitrogen, base cations, aluminum, and pH);
7. Sample leaf tissue and have them chemically analyzed (nitrogen concentration, carbon:nitrogen ratios and carbon to phosphorus ratios);
8. Obtain lichen samples at sites (where feasible), and have them analyzed for tissue nitrogen concentration;

9. Establish relationships between atmospheric nitrogen deposition and plant diversity using chemical concentrations from plant, soil and deposition analysis; environmental gradient data, and statistical and modeling analyses;
10. Work with NPS staff to identify sites which complement existing data collected by the NPS Inventory and Monitoring program, and preferentially select these sites for sampling where feasible;
11. Deploy deposition collectors at each site to make field measurements of nitrogen deposition;
12. Obtain research permits from Dinosaur, Mesa Verde, Grand Canyon, Effigy Mounds, Theodore Roosevelt, Fort Union, and Knife River national park units if sites are selected for sampling within any of these areas;
13. Utilize data and results collected as a part of this study in conjunction with the USGS funded Powell Center biodiversity synthesis workshop held in January, 2014;
14. Develop annual reports detailing findings and accomplishments for the NPS due October 30 of each year until the final report to NPS is completed;
15. Submit a final assessment report to the NPS by March 30, 2014;
16. Prepare one or more manuscripts incorporating results of this study, in cooperation with Powell Center biodiversity synthesis cooperators, for submission to a peer-reviewed journal;
17. Clearly acknowledge NPS and the Rocky Mountains CESU in any published material produced from this agreement.

NATIONAL PARK SERVICE INVOLVEMENT

Substantial involvement on the part the National Park Service is anticipated for the successful completion of the objectives to be funded by this award. In particular, the National Park Service will be responsible for the following:

1. Provide financial assistance to the University of Colorado Boulder, Institute of Arctic and Alpine Research as provided in Article V of this Task Agreement;
2. Provide to the PI any existing modeled nitrogen deposition gradient data or maps produced by ARD that are relevant to the cooperator's selection of field sampling sites;
3. As needed, designate individual park resource management or research staff to collaborate with the Principal Investigator (PI) and his staff to provide guidance, technical assistance, and logistical coordination for site visits in parks;
4. Provide any available NPS inventory and monitoring data on plant biodiversity and soils for the four geographic areas covered in this analysis, to provide context for the field data collected in this study;
5. Participate in periodic conference calls and/or meetings with the PI and collaborators to provide guidance, technical assistance and/or suggestions for incorporation of existing NPS data, and/or field site issues;
6. Participate in the development and review of the interim and final reports;
7. Review and comment on draft reports and all publishable material submitted from this project in a timely fashion;
8. clearly identify the University of Colorado Boulder and other cooperators as appropriate in all published material produced under this funding.

SINGLE-SOURCE JUSTIFICATION

DEPARTMENT OF THE INTERIOR SINGLE SOURCE POLICY REQUIREMENTS

Department of the Interior Policy (505 DM 2) requires a written justification which explains why competition is not practicable for each single-source award. The justification must address one or more of the following criteria as well as discussion of the program legislative history, unique capabilities of the proposed recipient, and cost-sharing contribution offered by the proposed recipient, as applicable.

In order for an assistance award to be made without competition, the award must satisfy one or more of the following criteria:

- (1) Unsolicited Proposal – The proposed award is the result of an unsolicited assistance application which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract or assistance award, but which is deemed advantageous to the program objectives;
- (2) Continuation – The activity to be funded is necessary to the satisfactory completion of, or is a continuation of an activity presently being funded, and for which competition would have a significant adverse effect on the continuity or completion of the activity;
- (3) Legislative intent – The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient of purpose;
- (4) Unique Qualifications – The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability if applicable, technical expertise, or other such unique qualifications;
- (5) Emergencies – Program/award where there is insufficient time available (due to a compelling and unusual urgency, or substantial danger to health or safety) for adequate competitive procedures to be followed.

The National Park Service did not solicit full and open competition for this award based the following criteria:

4. Unique Qualifications – The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability if applicable, technical expertise, or other such unique qualifications;

Single Source Justification Description:

The proposed research will combine with an effort funded by EPA and USGS that is evaluating existing data sets for vegetation across estimated gradients of N deposition spanning ~ 1 to 20 kgN/ha/yr. The EPA/USGS research effort primarily focuses on use of existing data collected from monitoring and research efforts of state and Federal agencies, Non-Governmental Organizations (NGOs), and individual researchers. Using these data sets of herbaceous species diversity, coupled with estimates of N deposition, our main objective is to determine if patterns of plant diversity correspond with variation in N deposition rates across landscapes with the same plant community types, soil parent materials, and climate regimes. In addition to determining if diversity is declining due to N deposition we hope to validate and refine critical loads of N deposition estimated from recent reviews (Pardo et al. 2011, Bobbink et al. 2010).

A second part of this research effort involves field surveys of plant diversity and soils across N deposition gradients which appear to have a high potential for evaluating whether changes in diversity of herbaceous plants is associated with N deposition rates. The objective for this component is to fill in some of the gaps in existing vegetation data sets to better span the N deposition gradients. Additionally the field research will provide information on targeted areas where concern over loss of biodiversity associated with N deposition is high, such as in national parks and monuments and other areas governed by more stringent air quality standards.

STATUTORY AUTHORITY

16 U.S.C. §5933 Cooperative study units The Secretary is authorized and directed to enter into cooperative agreements with colleges and universities, including but not limited to land grant schools, in partnership with other Federal and State agencies, to establish cooperative study units to conduct multi-disciplinary research and develop integrated information products on the resources of the National Park System, or the larger region of which parks are a part. (b) Report Within one year of November 13, 1998, the Secretary shall report to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Resources of the House of Representatives on progress in the establishment of a comprehensive network of such college and university based cooperative study units as will provide full geographic and topical coverage for research on the resources contained in units of the National Park System and their larger regions.

16 U.S.C. §1a-2(j) authorizes the NPS to enter into cooperative agreements with public or private educational institutions, states, and their political subdivisions, for the purpose of developing adequate, coordinated, cooperative research and training programs concerning the resources of the national park system. Pursuant to such agreements, the cooperator may accept from or make available to the NPS technical and support staff, financial assistance for mutually agreed upon research projects, supplies and equipment, facilities, and administrative services relating to cooperative research units as the Secretary deems appropriate (research projects subject to Federal Acquisition Regulation excluded).

16 U.S.C. §1g authorizes the NPS to enter into cooperative agreements that involve the transfer of NPS appropriated funds to state, local and tribal governments, other public entities, educational institutions, and private nonprofit organizations for the public purpose of carrying out National Park Service programs.

This section provides broad authority for NPS to enter into cooperative agreements with most recipients for a public purpose. Although broad, this authority must be read in conjunction with the Federal Grant and Cooperative Agreement Act of 1977 and other authorities that prescribe whether a particular relationship should be a procurement contract or a cooperative agreement. Thus, in making this determination, one must always consider whether the principal purpose of the work is to acquire goods and/or services for NPS's direct benefit in furtherance of its mission or for a public purpose.