

BIOTIC SURVEYS AND INVENTORIES

PROGRAM ANNOUNCEMENT

DIRECTORATE FOR BIOLOGICAL SCIENCES
DIVISION OF ENVIRONMENTAL BIOLOGY

Deadline for Receipt of Proposals: *First Friday in November of each year*

NATIONAL SCIENCE FOUNDATION

We are at a critical juncture for the conservation and study of biodiversity; such an opportunity will never occur again. Understanding and maintaining that diversity is the key to humanity's continued prosperous and stable existence on Earth.

Loss of Biological Diversity: A Global Crisis Requiring International Solutions
National Science Board 1989

PURPOSE

Understanding biological diversity is essential for studies in environmental biology. Baseline knowledge of species-level biodiversity provides the foundation for analytical research in systematic and population biology, ecology, conservation and restoration biology, anthropology, physical geography, biological oceanography, paleobiology and other sciences. This baseline knowledge is also necessary for monitoring and assessing land-use patterns, global climate change, and the economic value of natural resources. Humanity is dependent on a diverse array of products obtained from wild species, on genetic diversity among wild relatives of domesticated species, and on the stability of natural ecosystems. All of these dependencies require the maintenance of biodiversity. Increasing rates of extinction of species, and the loss of knowledge of local species among indigenous peoples, have created an urgent need for scientific exploration to increase humanity's knowledge of species-level biodiversity across all organisms. In support of this area of research, the Directorate for Biological Sciences (BIO), Division of Environmental Biology (DEB) established the Biotic Surveys and Inventories Program (BS&I). BS&I invites proposals to document diversity of species throughout the world, especially fungi, prokaryotes, protists, and invertebrate animals from all marine, aquatic, and terrestrial habitats.

The Program supports research to record the species-level diversity of life on earth as a prologue to investigations of patterns and processes and the development of plans for conservation of that diversity. Support for analytical phases of biodiversity research beyond the production of electronic specimen databases, inventories, identification guides, or other products should be sought from other programs in the Directorates for Biological Sciences or Geosciences. BS&I does not provide support for phylogenetic, monographic, biogeographic, genetic, or ecological studies. The program does not accept proposals to fund assays of genetic diversity within single species, projects to monitor diversity over time, ecological comparison of the diversity in two or more sites, or studies of the functional significance of diversity at the ecosystem level.

PROPOSAL CATEGORIES

Biotic Surveys

The majority of BS&I awards are for discovering (using traditional and/or molecular techniques), collecting, identifying, classifying and naming biota of a substantial geographic or oceanographic region. BS&I typically makes between fifteen and twenty awards in this category per fiscal year. Most awards range from \$30,000 to \$150,000 per year (averaging approximately \$70,000 per year) and are for

three years. Investigators are cautioned that the budget request should be cost-effective, commensurate with the proposed research, and fully justified in the text and budget justification. Proposals in this category should include all information discussed below under "proposal content" and "proposal format."

Long-Term, Large-Scale Inventories

Major projects to catalog thoroughly a major portion of the biota of a geographic region of continental scale usually involve multiple collaborators and complex logistics. Such projects may require several years to complete, and their successful conduct may be hampered by short funding cycles. Leaders of such projects may apply for longer-term support in the form of a series (no more than three) of five-year awards that are administered as cooperative agreements, rather than grants. Discuss potential proposals for such projects with the BS&I Program Director in advance of application. In addition to all the elements described below under "proposal content" and "proposal format," include in an initial proposal for a long-term project:

- 1) the scientific rationale for the long term of the overall project and of each of the two or three five-year components of it;
- 2) description of the electronic information products of the segments of the project and the project as whole, and of the underlying data, metadata standards, information management protocols, and database architectures that provide for interoperability with other databases, geographic information systems, ecological models, etc.
- 3) description of the mechanism by which electronic availability of the

information will be maintained into the future, and the means by which that information can be corrected, upgraded, and added to by future scientists;

- 4) discussion of the expected users of the products of the project and the benefits they will derive from those products that are not otherwise available;
- 5) description of the overall budget of the project, both of the segments and of the whole, including which categories NSF is asked to support;
- 6) specification of institutional cost-sharing, and of plans to use NSF funding as leverage to gain support from other agencies, foundations, industry, private donations and the like; and
- 7) the means by which the proportion of NSF funding will be reduced and the proportion of funding from other sources increased over the life of the project.

To address these additional seven areas, proposals for Long-Term, Large-Scale Inventories may include an appendix of no more than 5 pages to the Project Description, **with prior approval** of the BS&I Program Director.

Funded projects in this category are reviewed during the third year of each five-year segment. This review will lead either to another five-year cooperative agreement, or to two years of interim funding. In the latter case, a new proposal in year five will undergo review, and lead either to further funding or close-out of the project.

PROPOSAL CONTENT

Proposals submitted to the Biotic Surveys and Inventories Program should involve making collections of specimens of

organisms, including cultures, stocks, or extracted macromolecules where appropriate, as samples of taxa of geographic or oceanographic regions with the purpose of discovering species new to science and documenting the occurrence of groups of organisms in those regions; developing and disseminating electronic databases of the collected specimens and taxa; and/or producing electronic biotic treatments, authenticated species lists, catalogs, keys, expert identification systems, or other types of information products. BS&I funds projects to discover biodiversity, and to provide baseline information on that diversity that can be used in future hypothesis formation and testing, analyses, and syntheses.

Products: The products of the majority of BS&I projects are expected to be new collections, discovery of species new to science, and electronic inventories of those collections and taxa. Some projects may involve extensive use of existing collections and known taxa. These projects should result in the production of electronic and electronically accessible (e.g., available via the World Wide Web to the scientific community and to the public) specimen-based databases, and other electronic information products such as keys, expert identification systems, checklists, descriptions, or taxon databases and authority files. Design these products to foster interactions with other disciplines, to permit the PI and/or other scientists to use the data in research and synthesis, and to benefit both formal and informal science education. The program expects these information products to be made accessible via the Internet. In addition, the results of some projects may lend themselves to publication in other media (print, compact disc, etc.). Investigators interested in developing database standards, protocols, or applications that would support a

community infrastructure for survey and inventory research are encouraged to contact the program officer in Database Activities in the Biological Sciences in the Division of Biological Infrastructure at (703) 306-1470.

Urgency: There is much biodiversity to be discovered in most geographic regions or ecological habitats. However, the need for exploration of certain regions and habitats may be substantially greater than in others, because of one or more factors such as impending habitat destruction or ignorance of entire biotic systems (e.g., soil biotas). Proposals that demonstrate that the geographic region to be investigated, and/or the need for knowledge of particular group(s) of organisms is of particular importance and urgency, will be more competitive.

Schedule: The ongoing, unprecedented disappearance of species and populations on Earth and the need to discover ways to develop biodiversity resources in a sustainable manner dictate a timely research schedule in which the knowledge of biological diversity can be gained, disseminated, and used by the scientific community and others (e.g., conservation organizations, resource managers, governmental agencies, educational institutions, and the public). Biotic surveys and inventories and their information products should be scientifically expedient, not duplicate other studies, and be cognizant of other biological survey projects (ongoing and completed) in the same region. Where possible, collaborations with such endeavors should be developed to maximize the scientific outcomes. Plan projects such that dissemination of the information gathered during the project occurs as that information is collected or as soon thereafter as is reasonably possible.

Scale and Focus: The taxonomic content and geographic, oceanographic, or geologic scale of a survey or inventory should constitute a natural and compelling biological focus and need. The proposed project should involve sampling a diversity of taxa, rather than only a narrow group of closely related taxa. Specifically, surveys of single species or genera are excluded from submission, and surveys of single families will generally be less competitive. BS&I encourages surveys that have a very broad taxonomic scale (e.g., the full array of microorganisms from soil or water columns; fungi and vascular plants; vertebrates and their parasites). Similarly, the geographic, geologic, and logistic scales of surveys should be regional (e.g., the southeastern U.S., the Orinoco River drainage), national or larger. Biogeographic or other definitions of region, based on scientific rationale, are preferable to geopolitical definitions. Proposals that focus on little explored regions of the world and/or especially poorly known segments of the biota (e.g., prokaryotes, invertebrates, fungi, protists) are strongly encouraged, as are surveys of little-known biota of Long Term Ecological Research (LTER) sites, both those within the U.S. and in the international LTER network.

Infrastructure: Effective survey and inventory of the world's biotic diversity will require local commitment and international cooperation. Proposals for survey activities in foreign countries should involve host country scientists and students as well as U.S. students in the international activities. Design projects in developing countries to contribute to the scientific infrastructure of those countries such that biodiversity surveys can continue and expand after completion of the BS&I project. Equipment (e.g., vehicles or computers) purchased on BS&I awards may be left in-country at the discretion of the awardee; however, detail

the plans in the proposal. Prospective PIs who wish to establish working relationships with foreign scientists prior to submitting a BS&I proposal are encouraged to contact cognizant Program Officers in the NSF Division of International Programs (INT) at (703) 306-1710 for additional information.

PROPOSAL FORMAT

Biotic Surveys and Inventories (BS&I) proposals must be submitted electronically via NSF's FastLane system. Prepare proposals in accordance with the guidelines provided in the "Instructions for Proposal Preparation" found in the current issuance of the *Grant Proposal Guide (GPG)*, Chapter II. Take special care in adhering to the requirements for proposal length including content, formatting and page limitations on the Project Description and other proposal sections, such as Biographical Sketches and Special Information and Supplementary Documentation. The *GPG* is available on the NSF Web site at <http://www.nsf.gov/>. Include in BS&I proposals the components listed in *GPG*, Chapter II, Section D in the sequence and format indicated. Proposals that do not conform to the current issuance of *GPG* are returned without review. State information in each component as clearly and concisely as possible for merit review and evaluation by the Program. Guidelines are provided for specific sections as follows:

- **Cover Sheet** (NSF form 1207)

Indicate clearly in the title of the proposal the name(s) of the taxon or taxa to be surveyed - usually the scientific names, but common names may be included - and of the country or region in which the research will be conducted.

- **Project Summary** (maximum length one page)

Summarize the proposed survey or inventory project, emphasizing its design, rationale and impact on our knowledge of biological diversity and other disciplines, and the societal and educational relevance of the work.

- **Project Description** -- Include the following components within the description:

1. **Results from Prior NSF Support** (maximum length 5 pages and is part of the 15 page Project Description): Summarize the results of the single, most recent biotic survey or inventory award that the PI has received from NSF in the preceding five years (include proposal number, title, duration, and level of funding). If previous awards within the past five years do not involve biotic surveys or inventories, describe a single award to the PI or co-PI(s) that is most closely related to the current proposal.

2. **Need for the Project:** Describe the proposed survey or inventory including the need and rationale for the project, with particular reference to the following issues:

Taxonomic Breadth. Specify and justify in the proposal the range of taxonomic groups to be sampled. Estimate the number of new taxa likely to be discovered by the survey and discuss the plans for describing these new taxa and producing the electronic information products of the work.

Scale. Specify and justify the geographic or geologic scale of the proposed survey or inventory, with emphasis on the rationale for the choice of sampling sites. In particular, proposals must discuss and assess:

- a) previous and ongoing biotic surveys in the region;
- b) known levels of biotic diversity;

- c) the status of existing collections and of information products; and
- d) why these collections and inventories are inadequate.

The Program expects that proposed biotic survey and inventory projects will not overlap unnecessarily with previous or ongoing endeavors, but rather seek collaboration and cooperation with these efforts if possible, in order to maximize effectiveness and outputs.

Urgency. Provide reasons why this project is urgently needed. The urgency should be reflected in the project management plan and schedule. Justifications that involve endangered habitats, threatened sites, or vanishing resources should make reference to the specific area to be sampled, not simply to the broad region. An immediate and intensive collecting effort may be required for other reasons (such as political difficulty, limited opportunity, scientific expediency), in which case PIs should indicate the reasons for such urgency.

3. **Project Management Plan:** Describe the detailed strategies, protocols, and timetable to be used in collecting, preparing, documenting, distributing, and studying the surveyed material. Using tables and figures as appropriate (these must be included within the 15-page limit), include in the project management plan: estimates of the number of sites to be sampled and/or existing collections to be inventoried; the volume of material to be collected or inventoried; the data to be recorded at the time of the survey or inventory; the repository for new collections and accompanying data sets; and the electronic means by which these collections data and other products will be made available to the research community and other users. Include discussion of the methods by which the completeness of the survey will be assessed.

Electronic Products: Describe the electronic database and other information—that is, checklists, catalogues, manuals, descriptions, taxonomic keys, interactive identification systems, or other innovative products. The description of database activities must include information regarding hardware and software specifications, the data model, elements and structure of the database, the manner in which specimen records will be captured in a quality-controlled manner, and capabilities for expansion. Discuss in projects that involve LTER sites the use of the LTER network in databasing and dissemination of the research results. For new collections, investigators are strongly encouraged to make use of appropriate Global Positioning System (GPS) technology to record locality data, and to link the biodiversity databases to a Geographic Information System (GIS). Description of database and information provision over the World Wide Web should include networking protocols, the integration of the specimen databases with other electronic information resources, and the means by which the availability of the products of the research will be sustained into the future. The last item may be documented by letters from Directors of computer centers or other units that house WWW servers. Include letters as instructed in the Special Information and Supplementary Documentation section described later in this announcement.

Deposition of Specimens: Include in proposals to the BS&I descriptions of the arrangements for the housing of specimens, cultures, stocks, or extracted macromolecules and the accompanying data both in the host country (if the work is done outside the U.S.) and in the U.S. Funds to defray the costs of preparation and storage of the specimens collected during the project should be requested in this proposal. However, the PI must fully justify this

budget request both in the Project Description and in the Budget Justification. Include in the Special Information and Supplementary Documentation letters from the curators of the selected repositories. The letters must specifically indicate their willingness to accept, curate, and maintain the collections. It is the intent of the Program to foster international cooperation in research, and the open and accessible sharing of data across international boundaries while at the same time assuring that specimens collected today will be available for study by researchers (of any nationality) now and in the future.

Surveys and Inventories in the United States and its Territories: Projects conducted in the United States are expected to obey the laws of the state(s) or territories included in the geographic region to be surveyed, including regulations regarding collecting permits, and in accordance with the regulations of the U.S. Fish and Wildlife Service, Forest Service, Bureau of Land Management, National Park Service, or other responsible government agencies. It is expected that the rights of private landowners will be respected. If the research is conducted in whole or in part on one or more LTER site(s), include letters from the Director(s) of those sites in the Special Information and Supplementary Information section of the proposal. Evidence that all relevant permits and permissions have been obtained are required prior to an award.

If the proposed survey or inventory involves a significant component related to a comprehensive synthesis, review, analysis, or evaluation of taxonomy, nomenclature, distribution and collections for one or more biological groups (selected groups of invertebrates, protists, algae and fungi) that are high priority for the federal agency members of the Integrated Taxonomic Information System (ITIS) partnership (see

<http://www.itis.usda.gov/itis/>), it may be eligible for potential assistance by ITIS or its member agencies. The proposal may be submitted under joint NSF/ITIS aegis for support of biodiversity information in these biological groups. Survey and inventory proposals with possible NSF/ITIS implications must be submitted to the NSF BS&I Program, where the proposal will undergo merit review. Proposals that are recommended for funding by NSF may be forwarded at the discretion of BS&I to a joint NSF/ITIS steering committee for consideration for supplemental funding.

Surveys and Inventories in the Oceans & U.S. Great Lakes: Proposals to survey marine biodiversity that require the scheduling of NSF-UNOLS ship time must include a completed NSF-UNOLS Request Form (NSF Form 831). The UNOLS form may be obtained from the NSF Division of Ocean Sciences Ship Operations Program by calling (703) 306-1577, or directly from the UNOLS World Wide Web site at http://sio.ucsd.edu/supp_groups/shipsked/forms/NSFform.html. Mail the completed UNOLS Request Form with other materials cited in the PROPOSAL SUBMISSION section of this announcement. If the proposal requires time aboard non-UNOLS vessels, the proposal budget must reflect the direct cost of ship time. Use of UNOLS or other ship time also requires that permits to enter sovereign waters, in compliance with international laws of the sea, be obtained with the assistance of the U.S. Department of State if the researchers plan to collect specimens in any nation's sovereign waters. The Ship Operations Program of the NSF can assist in these negotiations. Contact information can be found in the "general divisional information" section of the

Geosciences Directorate, Division of Ocean Sciences web site at <http://www.nsf.gov/occe>.

Surveys and Inventories in Foreign Countries: For surveys in countries other than the United States, include in the proposal a description of established collaborations with scientists and students from the host country, and how these individuals will be involved in the project, as well as the arrangements for the in-country housing of specimens and data. Arrangements to divide the specimens between host country institution(s) and U.S. institutions may be made, but type specimens and quality representative specimens should remain in the host country. Prior to an award, PIs must document that they have obtained necessary research agreements and all legally required collecting, import, and export permits. These documents include those needed not only to remove specimens from the field, but also those required to export or import them across national boundaries, including compliance with CITES regulations.

Surveys and Inventories in Antarctica or Greenland: Proposals that involve field work in Antarctica must include information about the logistical and operational requisites of the proposed research, and any environmental impacts. Instructions on proposal preparation for research in Antarctica are provided in the Program Announcement and Proposal Guide for the Antarctic Program of the Office of Polar Programs (OPP), currently NSF 96-93, which can be found on the NSF Online Documents system at <http://www.nsf.gov>. Obtain information on working in Antarctica from the OPP prior to preparation of a proposal. All research projects in Greenland must be approved in advance by the Government of Denmark as stated in the *Grant Policy Manual* (NSF 95-26), Chapter 7, Article 763. The *Grant Policy Manual* is available on the NSF Online Documents system at <http://www.nsf.gov>. Applications for projects in which U.S. citizens and U.S.

nationals are involved in any way (logistical, operational and/or financial support) shall be submitted to the Danish Government through diplomatic channels (i.e., through the U.S. Department of State and the American Embassy, Copenhagen) to the Danish Ministry of Foreign Affairs. The Arctic Research Program of OPP (703/306-1029) can assist in the submission of these applications, and should be contacted for instructions prior to preparation of a proposal.

Vertebrate Animals: If the proposed research includes the collection of vertebrate animals, the PI must respond to *Grant Policy Manual*, NSF 95-26, and the current issuance of the *Grant Proposal Guide (GPG)* Chapter II, section D. The Grant Policy Manual and the Grant Proposal Guide are available on the NSF OnLine Documents system at <http://www.nsf.gov>.

The Project Management Plan must be included within the 15 page limit of the Project Description as stated in the current issuance of the *GPG*. Except as noted above, none of its elements may be deferred to Special Information and Supplementary Documentation section (see *GPG*, Chapter II). Special Information and Supplementary Documentation applies only to submit copies of permits, letters of agreement from collaborators, letters and documentation from curators of institutions in which specimens will be deposited and from scientists who will identify particular materials, and letters from institutions that document that electronic provision of information generated by BS&I-funded research will be sustained into the future.

4. Scientific Context: Collection and documentation of biodiversity alone is not sufficient to conserve that diversity for posterity; however, it is a necessary first step. All survey projects should lead to a

better description, record, and understanding of poorly known taxonomic groups and geographic regions. Lack of knowledge about the taxa and region, alone, cannot be the sole justification for a survey or inventory proposal. Therefore, place the proposed survey and inventory in a broader scientific and/or conservation context (e.g., whether the collected material will allow resolution of phylogenetic relationships of taxa, whether other data can be captured from the specimens, whether explicit tests can be made of hypotheses about evolutionary and ecological patterns and processes, whether research may be stimulated in other areas of inquiry, or how conservation efforts will be aided). Contextual statements should be specific, and projects that provide concrete plans or directions for future research based on the baseline data generated by the proposed survey or inventory will be more competitive in the review process. Furthermore, the specimens (as defined above, under "Deposition of Specimens") and data should be collected in such a way as to contribute to later scientific inquiry. However, PIs should not propose to complete the contextual work as part of the project described in this proposal.

5. Value-added: The proposed survey or inventory may include value-added component(s), such as the collection of additional or more detailed information about the organisms to be collected during the survey (e.g., ecological and/or physical context data, or descriptions of indigenous peoples' uses of the taxa under study). Interactions with foreign collaborators and training of students and others to contribute to the infrastructure for biodiversity science in host countries, as well as the involvement of U.S. students in the work in other countries, are value-added components.

Projects with meritorious value-added components will fare better in the competition.

References Cited: List the names of authors and the full citation of publications.

Biographical Sketch(es): Provide a biographical sketch only for the senior participants (PIs and co-PIs whose names are listed on the cover page of the proposal). The biographical sketch for each PI must list the full names and institutions of that person's collaborators and co-authors on papers, books, proposals or other works. The PI's doctoral major professor and post-doctoral advisor(s), but not members of advisory committees, should be listed, as well as all of the PI's own doctoral advisees.

Budget: Include a detailed budget justification, including a breakdown of any foreign costs or support of foreign scientists or students. Provide a clear explanation of the need for each listed item (e.g., why the PIs propose to purchase equipment or vehicles in the U.S. and ship it to the host-country, rather than either purchasing it in-country or renting it).

Special Information and Supplementary Documentation: Provide letters of support or collaboration, collecting permits, and other allowed items as noted in the current issuance of the *Grant Proposal Guide (GPG)*, Chapter II, Section D. Utilize the one of the following options for submitting Special Information and Supplementary Documentation: 1) include letters of support and other materials via the FastLane submission by scanning the documents and adding them at the end of the Project Description file. This information is not counted as part of the 15 page limit of the Project Description, or 2) mail 15 collated copies of all materials to the BS&I Program at the same time that the signed cover sheet

and certification page, and BIO proposal classification form are sent (see the Proposal Submission section below).

BIO Proposal Classification Form (PCF): Complete the BIO PCF, available on the NSF FastLane system. The PCF is an on-line coding system that allows the Principal Investigator to characterize his/her project when submitting proposals to the Directorate for Biological Sciences. Once a PI begins preparation of his/her proposal in the NSF FastLane system and selects a division, cluster, or program within the Directorate for Biological Sciences as the first or only organizational unit to review the proposal, the PCF will be generated and available through the form-selector screen. Additional information about the process is available in FastLane at <http://www.fastlane.nsf.gov/a1/BioInstr.htm>.

PROPOSAL SUBMISSION

The **deadline for submitting proposals** to Biotic Surveys and Inventories is 5:00 p.m., submitter's local time, on the First Friday in November, annually. Proposals for this solicitation must be submitted electronically via NSF FastLane.

In order to use NSF FastLane to prepare and submit a proposal, you must have the following software: Netscape Navigator 3.0 or above, or Microsoft Internet Explorer 4.01 or above; Adobe Acrobat Reader 3.0 or above for viewing PDF files; and Adobe Acrobat 3.X or Aladdin Ghostscript 5.10 or above for converting files to PDF.

To use FastLane to prepare the proposal your institution needs to be a registered FastLane institution. A list of registered institutions and the FastLane registration form are located on the FastLane Home

Page. To register an organization, authorized organizational representatives must complete the registration form. Once an organization is registered, PIN for individual staff are available from the organization's sponsored projects office.

To access FastLane, go to the NSF Web site at <http://www.nsf.gov>, then select "FastLane," or go directly to the FastLane home page at <http://www.fastlane.nsf.gov/>. Please see "Instructions for Preparing and Submitting a Proposal to the NSF Directorate for Biological Sciences" located at <http://www.fastlane.nsf.gov/a1/BioInstr.htm>. Additionally, read the "PI Tipsheet for Proposal Preparation" and the "Frequently Asked Questions about FastLane Proposal Preparation," accessible at <https://www.fastlane.nsf.gov/a1/A1Prep.htm>.

Mail the following materials directly to the Biotic Surveys and Inventories Program:

- a paper copy of the cover sheet, including the certification page (page 2 of 2) signed by the PI and an institutional representative;
- the BIO classification form;
- the UNOLS Request Form (NSF Form 831), **if applicable**;
- fifteen (15) collated copies of the Special Information and Supplementary Documentation material only if the PI has opted to send in hard copy instead of inserting scanned copies at the end of the Project Description file in the FastLane submission.

The mailed material must be received no later than five (business) days after the proposal submission deadline. Send materials to:

Biotic Surveys and Inventories
Program -- NSF 98-158

Division of Environmental Biology
National Science Foundation
4201 Wilson Boulevard
Room 635
Arlington, VA 22230

Do not mail copies of the proposal. NSF will make the appropriate number of copies of the proposal.

IMPORTANT NOTE: For technical assistance with FastLane, please send an e-mail message to biofl@nsf.gov. If you have inquiries regarding other aspects of proposal preparation or submission, please contact the Program Director (see OTHER INFORMATION, below) before the target date for submission.

PROPOSAL REVIEW

Proposals to the Biotic Surveys and Inventories Program are reviewed in accordance with NSF policy within six months following the deadline. Proposals received after the deadline are not eligible for consideration until the following competition. Investigators and institutions may submit more than one proposal on different projects, for the same competition. Each proposal to BS&I is reviewed by experts in the particular field represented by the project and is evaluated by the Program using the following criteria described in the guidelines for merit review in the current issuance of the *Grant Proposal Guide (GPG)*, Chapter III.

The following are suggested questions that the reviewers consider in assessing how well the proposal meets this criterion. Each reviewer will address only those questions that he/she considers relevant to the proposal and for which he/she is qualified to make judgments.

1. What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field and across different fields? How well qualified is the proposer (individual or team) to conduct the project? To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

2. What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of under-represented groups (e.g., gender, ethnicity, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Applicants are encouraged to suggest the names of possible reviewers. Provide names with complete contact information and a brief description of their expertise, in a letter or an e-mail to the Program Director (See OTHER INFORMATION, below).

AWARD ADMINISTRATION

Awards made as a result of this announcement are administered in accordance with the terms and conditions of NSF GC-1, "Grant General Conditions," or FDP-III, "Federal Demonstration

Partnership General Terms and Conditions," depending on the grantee organization, or NSF CA-1, "Cooperative Agreement General Conditions." Copies of these documents are available at no cost from the NSF Clearinghouse, P.O. Box 218, Jessup, MD 20794-0218, phone (301) 947-2722, or via e-mail at pubs@nsf.gov. More comprehensive information is contained in the NSF *Grant Policy Manual* (NSF 95-26), for sale through the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. The telephone number of GPO is (202) 783-3238 for subscription information. The NSF *Grant Policy Manual* can also be accessed online at the above URL.

Any exceptions to the terms and conditions of GC-1, FDP-III, or the Cooperative Agreement General Terms and Conditions should be addressed. If the submitting institution has never received an NSF award, it is recommended that appropriate administrative officials become familiar with the policies and procedures in the *Grant Policy Manual* that are applicable to most NSF awards. If a proposal is recommended for an award, the NSF Division of Grants and Agreements will request certain organizational, management, and financial information. These requirements are described in Chapter V of the *Grant Policy Manual*.

BIOTIC SURVEY AND INVENTORY RESEARCH EXPERIENCE SUPPLEMENTS

A limited number of supplements are provided annually to ongoing BS&I projects to underwrite the involvement of college undergraduates and high school students in survey and inventory research activities. Organizations with active BS&I awards are invited to submit requests for supplemental

support that will broaden the research and educational impact of the project. Use the current guidelines for *Research Experience for Undergraduates* (NSF 96-102) and *Research Assistantships for Minority High School Students* (NSF 89-39) in preparing such requests. The guidelines are located on the NSF OnLine Document system at <http://www.nsf.gov>. **All such supplement requests must be received by the BS&I program by February 1 of each year.**

High School Students

Investigators with active BS&I awards are encouraged to make contact with local high schools and engage one or more biology teachers as summer research associates and several students as research assistants. Most of the students chosen should be from minority or at-risk groups. In addition to being employed in the project's research activities, the students and their teachers may receive training in order to improve their understanding of biological science and foster the students' interest in biodiversity-related scientific careers. Supplements can be requested for summer salary support for the students and teachers, their supplies, training by project staff members, and the equipment to be used. Applicants should follow the currently applicable guidelines for the program *Research Assistantships for Minority High School Students* (NSF 89-39).

Undergraduate Students

Investigators with active BS&I awards have the opportunity to improve scientific research and education, especially in organismal biology, by recruiting undergraduate students to work on BS&I research projects. Supplements can be requested for student stipends as described in the "REU Supplements" section of the currently applicable *Research Experiences for Undergraduates (REU) guidelines* (NSF 96-102).

OTHER INFORMATION

Direct inquiries about the program, or these guidelines, including questions about prospective proposals to:

Program Director
Biotic Surveys and Inventories
Program
National Science Foundation
Division of Environmental Biology
Room 635,
Arlington, VA 22230

Phone: (703) 306-1481
Fax: (703) 306- 0817 or
(703) 306-0367
E-mail: bsirev@nsf.gov

GENERAL INFORMATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers, and educators. The Foundation strongly encourages women, minorities, and persons with disabilities to compete fully in its programs. In accordance with federal statutes, regulations, and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090; FIRS at 1-800-877-8339.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the review process; to applicant institutions/grantees to provide or obtain data regarding the proposal-review process, award decisions, or the administration of awards; to government contractors, experts, volunteers, and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 *Federal Register* 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 *Federal Register* 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Reports Clearance Officer; Information Dissemination Branch, DAS; National Science Foundation; Arlington, VA 22230.

The program described in this announcement is in the category 47.074 (BIO) of the Catalog of Federal Domestic Assistance.

YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include computer systems, databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the Year 2000 will have a significant impact on its ability to carry out an NSF-funded activity. Information concerning Year 2000 activities can be found on the NSF Web site at <http://www.nsf.gov/oirm/y2k/start.htm>.

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