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Dimensions of Biodiversity FY2015

PROGRAM SOLICITATION
NSF 15-533

REPLACES DOCUMENT(S):
NSF 14-525

National Science Foundation

Directorate for Biological Sciences
Division of Environmental Biology

Directorate for Geosciences
Division of Ocean Sciences

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

April 09, 2015

IMPORTANT INFORMATION AND REVISION NOTES

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 15-1), which is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200).

The “taxonomic/phylogenetic” dimension is now referred to as “phylogenetic”. It is presumed that any taxonomic investigations will be included within the phylogenetic dimension.

The solicitation includes a new emphasis on investigating dynamic and novel interactions among the three dimensions of biodiversity.

Researchers who are eligible for FAPESP Young Investigator awards can now apply for US-São Paulo Collaborative Research Grants.

All proposals are required to include an integrated training plan for undergraduate researchers and graduate students involved in the proposed research

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 15-1), which is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200).

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Dimensions of Biodiversity

Synopsis of Program:

Despite centuries of discovery, most of our planet's biodiversity remains unknown. The scale of the unknown diversity on Earth is especially troubling given the rapid and permanent loss of biodiversity across the globe. The goal of the Dimensions of Biodiversity campaign is to transform, by 2020, how we describe and understand the scope and role of life on Earth.

This campaign promotes novel integrative approaches to fill the most substantial gaps in our understanding of the diversity of life on Earth. It takes a broad view of biodiversity, and focuses on the intersection of genetic, phylogenetic, and functional dimensions of biodiversity. Successful proposals must integrate these three dimensions to understand interactions and feedbacks among them. While this focus complements several core programs in BIO and GEO, it differs by requiring that multiple dimensions of biodiversity be addressed simultaneously, in novel ways, to understand their synergistic roles in critical ecological and evolutionary processes.

The Dimensions of Biodiversity program again includes partnerships with the National Natural Science Foundation of China (NSFC) and São Paulo Research Foundation (FAPESP) of Brazil in fiscal year 2015.

Investigators wishing to inquire about the suitability of potential projects for Dimensions of Biodiversity are encouraged to email a brief summary and contact information to Dimensions@nsf.gov.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Simon Malcomber, BIO/DEB, telephone: (703) 292-8227, email: Dimensions@nsf.gov
- George W. Gilchrist, BIO/DEB, telephone: (703) 292-7138, email: Dimensions@nsf.gov
- Matthew D. Kane, BIO/DEB, telephone: (703) 292-7186, email: Dimensions@nsf.gov
- Douglas Levey, BIO/DEB, telephone: (703) 292-5196, email: dlevey@nsf.gov
- Garth Spellman, BIO/DEB, telephone: (703) 292-8610, email: gspellma@nsf.gov
- Kelly Zamudio, BIO/DEB, telephone: (703) 292-2992, email: kzamudio@nsf.gov
- Arcady Mushegian, BIO/MCB, telephone: (703) 292-8528, email: Dimensions@nsf.gov
- Reed S. Beaman, BIO/DBI, telephone: (703) 292-7163, email: rsbeaman@nsf.gov
- Michael Sieracki, GEO/OCE, telephone: (703) 292-7585, email: msierack@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.050 --- Geosciences
- 47.074 --- Biological Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 8 to 12

Awards are contingent on availability of funds and the quality of proposals.

Anticipated Funding Amount: $16,000,000 to $22,000,000

NSF anticipates that at least $16,000,000 will be available in fiscal year 2015. Research awards will be up to five years duration and up to a total of $2,000,000 for both individual and collaborative projects. This upper limit does not include costs of facilities or ship time. Up to two US-China Collaborative Research Project awards will be funded at a level of up to $2,000,000 over 5 years from NSF plus up to ¥3,000,000 from NSF-China. Up to two 5-year US-São Paulo Collaborative Research Project awards will be funded by NSF to the US components and by FAPESP (São Paulo Research Foundation) to the São Paulo components. NSF will fund its US researchers at a level up to $2,000,000. FAPESP will fund Thematic Project investigators at a level up to $2,000,000 (this total value includes both the overhead for researcher direct use and the overhead for institutional infrastructure) and Young Investigator Award researchers at a level up to $1,500,000 (this total value includes both the overhead for researcher direct use and the overhead for institutional infrastructure). Please note that for Dimensions of Biodiversity competition only, FASESP will consider Young Investigator Award proposals with a duration of 5 years.

Eligibility Information

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

An individual may appear as Principal Investigator (PI), co-PI, or other senior personnel on only one proposal per annual cycle submitted in response to this solicitation. This limitation includes proposals submitted by a lead organization, any sub-award submitted as part of a proposal, or any collaborative proposal submitted as separate submissions from multiple organizations, and this includes all types of projects.

If an individual is listed as PI, co-PI, or senior personnel on more than one proposal to this solicitation, all proposals in excess of the limit for any person will be returned without review in the reverse order received.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.

Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  April 09, 2015

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Life on Earth is astounding in its diversity and in its ability to transform the world. Despite centuries of discovery, the vast majority of our planet's diversity remains unknown. Only a few years ago scientists shared the view that the diversity of life on Earth was so vast that it might be beyond cataloging, much less understanding. This is no longer the case. Advances in our capacity to collect, analyze, and integrate biological data have provided tools with which researchers can significantly expand our knowledge of Earth's biodiversity and revolutionize our understanding of the living world. Unfortunately, the pace of discovery is increasingly offset by rapid and permanent loss of biodiversity. Drivers of biodiversity loss include climate change, over-exploitation of natural resources, planetary re-engineering (such as land use change, water diversions, coastal development, fertilizer use), and the intentional or unintentional movement of species. With biodiversity loss, humanity is losing links in the web of life that provide important ecosystem services, forfeiting opportunities to understand the history and future of the living world, and losing opportunities for future beneficial bio-inspired discoveries and innovations. This reality has stimulated a campaign of integrated study across the dimensions of Earth's biodiversity.

Biodiversity research has often focused on single dimensions. For example, investigators have concentrated on the taxonomic diversity

or phylogenetic history of a clade, the genetic diversity of a population or a species, or the functional role of a taxon in an ecosystem. Although this research has yielded important advances, huge gaps persist in our understanding of biodiversity. We understand little about how these various dimensions, individually and in concert, contribute to environmental health, ecosystem stability, productivity, resilience, and biological adaptation in response to rapid environmental change.

By 2020, the Dimensions of Biodiversity program is expected to have transformed our understanding of the scope and role of life on Earth. Investigators are encouraged to propose projects that transcend traditional boundaries among areas of biodiversity research. The Dimensions program focuses on genetic, phylogenetic, and functional dimensions of biodiversity. **Successful proposals will test hypotheses about biodiversity that integrate these three dimensions and investigate the dynamic interactions and feedbacks among them**. While this focus complements several core programs in BIO and GEO, it differs by requiring that multiple dimensions of biodiversity be addressed and integrated in innovative ways to understand the roles of biodiversity in critical ecological and evolutionary processes. Examples are provided in the following section. Projects funded in the first four years of the program are listed at http://www.nsf.gov/pubs/2014/nsf14057/nsf14057.pdf.

II. PROGRAM DESCRIPTION

The Dimensions of Biodiversity campaign takes a broad view of biodiversity that ranges from genes through species to ecosystems in an effort to integrate both descriptive and functional aspects of biodiversity on Earth. The long-term goal of the campaign is to develop an integrated understanding of the key dimensions of biodiversity in an ever-changing world.

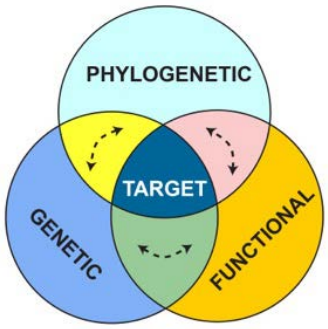

Figure 1. Three dimensions of biodiversity: phylogenetic, genetic, and functional. This solicitation targets biodiversity research areas where all three overlap. Arrows illustrate the preferred emphasis on understanding dynamic relationships among those dimensions.

The Dimensions of Biodiversity program currently targets three fundamental dimensions of biodiversity - genetic diversity, phylogenetic diversity, and functional diversity. **Integration among these three dimensions is an essential aspect of all proposals.** Genetic diversity includes nucleotide sequence diversity at neutral or coding loci as well as genomic (proteomic, transcriptomic) diversity. Phylogenetic diversity refers to reconstructing evolutionary relationships among lineages at and above the level of the population and how these relationships compare to current taxonomic understanding. Functional diversity includes aspects of organismal, population, community and ecosystem traits and functions, and the role of key innovations in the generation and maintenance of biodiversity (see examples below). Investigators are encouraged to study the dynamic relationships among these three dimensions and their associated feedbacks. How does functional biodiversity relate to the phylogenetic or taxonomic dimension in a particular study system? How does population genetic diversity influence the functional role of a species or group of species in their habitat? Because these relationships are not static, proposals should seek to understand how these relationships adjust and evolve over time. **In addition, a primary goal of the program is to describe the largest unknown mechanisms driving the origin, maintenance, and functional roles of biodiversity; proposals that have the potential to fill large gaps in our understanding of biodiversity are particularly encouraged.**

Examples of topics that might be addressed by Dimensions proposals include, but are not limited to, the integrated roles of the three dimensions of biodiversity in: food web and community stability or ecosystem resilience, sustainability or productivity, particularly with respect to environmental thresholds and alternate stable states; feedbacks between biotic and abiotic change; maintenance of symbioses; genetic/phylogenetic diversification enabled by natural selection on novel traits; ecological response to anthropogenic disturbances including climate change; carbon, nitrogen, and other biogeochemical cycles; and rates of evolution.

The Geosciences Directorate is particularly interested in projects that consider how marine biodiversity interacts with ecosystem function relative to climate change.

All projects must ensure that data and biological materials are collected, archived, digitized, and made available using methods that allow current and future investigators to access data to address new questions. Funded projects must disseminate project data broadly, using widely accepted electronic methods. Data publication via existing repositories (e.g., Genbank, Dryad, iDigBio, MorphBank, Open Tree of Life) is strongly encouraged. All projects will be expected to adhere to appropriate standards where they exist (e.g., for taxonomic, geospatial, ecological, gene and genome sequence data) and to identify and maintain data linkages across repositories where possible. **As a condition of funding: any digitized data and/or digital media (e.g., images, audio files) of voucher material from the project must be made available through the online National Resource for Digitized Collections (iDigBio.org); and, any phylogenetic character matrices and trees must be formatted and deposited for inclusion within the Open Tree of Life (see http://purl.org/opentree/data-sharing for instructions).**

Proposals should focus on fundamental aspects of biodiversity research; those whose primary focus is applied in nature (e.g., food and drug development; biomedical prospecting, restoration or biodiversity management) are not eligible for funding. Projects that integrate multiple dimensions of biodiversity but largely repeat or replicate existing work will also not be funded. Additional examples of proposals that will not be considered by this program include: 1) projects that only address the characterization of genetic diversity within a single population or species; 2) projects that focus on species surveys, discovery, inventories, or descriptions (including projects that solely focus on large-scale sequence acquisition, for example microbiome surveys, without integrating the three dimensions of biodiversity); 3) projects that only address taxonomic boundaries (e.g., species delimitation) using genetic markers; and 4) phylogenetic and/or phylogeographic studies that do not also address the genetic and functional aspects of the focal group(s).

Research on biodiversity science that is focused exclusively on systematics, evolution, ecology, or ecosystem science is supported by NSF, however proposals addressing those individual areas may not be directly applicable to the Dimensions of Biodiversity Program.

Proposals that do not integrate the three dimensions as described herein will not be considered by the Dimensions of Biodiversity program and should be submitted to relevant NSF programs instead.

Research Proposals

Research projects must integrate all three dimensions of biodiversity (Fig. 1) with the goal of understanding the complex interactions and dynamic feedbacks among these dimensions. Innovative approaches that accelerate the characterization and understanding of these three dimensions of biodiversity are encouraged, as are empirical, experimental, theoretical, and modeling approaches. Projects may incorporate the context provided by one or more drivers of biodiversity loss (e.g. climate change; over-exploitation of natural resources; planetary re-engineering such as land use change, water diversions, coastal development, fertilizer use; and the intentional or unintentional movement of species), but this is not a requirement of the solicitation. Projects that also develop original computational methods or technology that will be useful to a wide community of researchers (e.g., informatics, instrumentation, imaging, analysis) and other tools specific to integrative biodiversity studies are also welcome.

Both single investigator and collaborative efforts are acceptable. Investigators are encouraged to develop international collaborations if projects will characterize multiple dimensions of biodiversity and understand their ecological and evolutionary significance within a global context.

International collaborators are encouraged to seek support from their respective funding organizations. Funding guidelines for involving international collaborators allow the following expenses to be included in the NSF budget:

* Travel expenses for US scientists and students participating in exchange visits integral to the project.

* Project-related expenses for international partners to engage in research activities while in the United States as project participants.

* Project-related expenses for US participants to engage in research activities while abroad.

NSF has agreements with the Chinese National Natural Science Foundation (NSFC) to jointly support US-China International Research Projects, as described below. NSF also has signed an agreement with the State of São Paulo Research Foundation (FAPESP), Brazil to jointly support US-São Paulo Collaborative Research projects, as described below. These agreements do not preclude other international collaborations.

US-China Collaborative Research Projects

For FY2015 the US-China partnership will support research projects that integrate the three dimensions of biodiversity as described in this solicitation.

For US-China Collaborative projects, NSF will fund up to $2,000,000 to support the activities of US researchers and NSF-China has agreed to provide up to ¥3,000,000 to Chinese participants. The proposal budget submitted to NSF should include only the costs of US participants; the anticipated budget for Chinese participants should be submitted as a supplementary document.

NSF and NSFC will each independently review proposals and then come to agreement about which projects to support. NSF will manage the review of US-China Collaborative project proposals in accordance with NSF policies and procedures. At the end of that review process, reviews of proposals that NSF has an interest in funding will be shared with NSFC, but reviewer names will be redacted. Coordinated support will be arranged for successful proposals by the participating organizations, with NSF funding the US participants and NSFC funding Chinese participants through its standard award process.

US-São Paulo Collaborative Research Projects

For FY2015 NSF will continue the partnership with the São Paulo State Research Foundation (FAPESP) of Brazil to facilitate coordinated funding of up to two US-São Paulo Collaborative Research projects. These projects can focus on any topic that falls within the scope of this Dimensions of Biodiversity solicitation and the corresponding FAPESP- BIOTA call for proposals published at http://www.fapesp.br/biota/dimensions-NSF2015. These projects must have a 5-year duration and should take advantage of the unique and innovative opportunities offered by an international collaboration.

São Paulo state researchers applying to FAPESP under this heading must meet FAPESP eligibility requirements and must apply through an institution eligible to receive FAPESP funding. Researchers should meet the FAPESP eligibility requirements for either Thematic Projects (http://www.fapesp.br/176) or for Young Investigator Awards (http://www.fapesp.br/en/4479). São Paulo state researchers must send a pre-proposal as described in the FAPESP call published at http://www.fapesp.br/biota/dimensions-NSF2015 (item 9.1), before 26 February 2015 (at least 6 weeks prior to the full proposal deadline) to receive pre-approval by FAPESP regarding eligibility as a PI for a FAPESP Thematic Project or Young Investigator Award. Please note that for Dimensions of Biodiversity competition only, FASESP will consider Young Investigator Award proposals with a duration of 5 years.

For a US-São Paulo Collaborative Research Project, the NSF budget may be up to $2,000,000, and the FAPESP budget, for the project, may be up to the equivalent of $2,000,000 (this total value includes both the overhead for researcher direct use and the overhead for institutional infrastructure) for Thematic Projects and up to the equivalent of $1,500,000 (this total value includes both the overhead for researcher direct use and the overhead for institutional infrastructure) for Young Investigator Awards. The proposal budget submitted to NSF should include only the costs of US participants; the anticipated budget for São Paulo state participants should be submitted as a supplementary document. The proposal budget submitted to FAPESP should include only the costs of São Paulo participants; the anticipated budget for US participants should be submitted as a supplementary document in the proposal submitted to FAPESP. Proposal budgets submitted to NSF and FAPESP do not have to request equal funding from each agency; each proposal should have a budget that reflects the participation of scientists from each region.

Special requirements for FAPESP submissions

The following exceptions to normal FAPESP rules will apply:

1) Thematic Grants

a) Each proposal must have at least two co-Principal Investigators, in addition to the Principal Investigator. Please consult with FAPESP before preparing a proposal to ensure the people proposed as co-PIs meet the necessary qualification requirements.

b) The requested budget must allocate at least 40% of the total funds to support fellowships.

c) Proposers may request up to three MSc Fellowships, as a quota (Bolsas como Item Orçamentário")

2) Young Investigator Awards

Proposers may request:

a) Up to two MSc Fellowships, as a quota ("Bolsas como Item Orçamentário").

b) Up to one Post-Doctoral Fellowship, as a quota ("Bolsas como Item Orçamentário").

For US-São Paulo Collaborative Research Projects, proposals will be shared with FAPESP during the review process. NSF will solicit suggestions for appropriate external reviewers from FAPESP, but will independently manage the review of proposals in accordance with NSF policies and procedures. Reviews will be shared with FAPESP, but reviewer names will be redacted. Coordinated support will be arranged for successful proposals by the participating organizations with NSF funding the US participants and FAPESP funding São Paulo participants through each agency's standard award process.

Collection and Transfer of Samples

Plans to collect and transfer samples should be approved by the appropriate government authorities. Arrangements for the use of traditional knowledge or the collection of samples from the lands of local peoples should be based upon full disclosure and informed consent of those peoples. Under best practices, such arrangements develop as a partnership with early and ongoing full participation of community representatives in project design. If cooperating indigenous groups, on the basis of religious or other concerns, object to specific uses, widespread dissemination or other treatments of the knowledge or resources they provide, these concerns should be respected. Any dissemination of samples or data that were collected in a foreign country, or dissemination of results based on samples or data collected in a foreign country, should be done with the full knowledge and consent of collaborators in that country, and under any agreements that exist with government agencies in that country.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

NSF anticipates that at least $16,000,000 will be available in fiscal year 2015. Research awards will be up to five years duration and up to a total of $2,000,000 for both individual and collaborative projects. This upper limit does not include costs of facilities or ship time. Up to two US-China Collaborative Research Project awards will be funded at a level of up to $2,000,000 over 5 years from NSF plus up to ¥3,000,000 from NSF-China. Up to two 5-year US-São Paulo Collaborative Research Project awards will be funded by NSF to the US components and by FAPESP (São Paulo Research Foundation) to the São Paulo components. NSF will fund its US researchers at a level up to $2,000,000. FAPESP will fund Thematic Project investigators at a level up to $2,000,000 (this total value includes both the overhead for researcher direct use and the overhead for institutional infrastructure) and Young Investigator Award researchers at a level up to $1,500,000 (this total value includes both the overhead for researcher direct use and the overhead for institutional infrastructure). Please note that for Dimensions of Biodiversity competition only, FASESP will consider Young Investigator Award proposals with a duration of 5 years.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

An individual may appear as Principal Investigator (PI), co-PI, or other senior personnel on only one proposal per annual cycle submitted in response to this solicitation. This limitation includes proposals submitted by a lead organization, any sub-award submitted as part of a proposal, or any collaborative proposal submitted as separate submissions from multiple organizations, and this includes all types of projects.

If an individual is listed as PI, co-PI, or senior personnel on more than one proposal to this solicitation, all proposals in excess of the limit for any person will be returned without review in the reverse order received.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to

determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.5 of the Grant Proposal Guide provides additional information on collaborative proposals.

See Chapter II.C.2 of the GPG for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions.

For US-São Paulo Collaborative Research Projects, an identical scientific research project description must be submitted to NSF, by the US researcher and to FAPESP by his/her SP collaborator(s).

Proposal Title: Titles of proposals submitted to the Dimensions of Biodiversity program should begin with "Dimensions: " followed by the substantive title. Titles of US-China Collaborative Research proposals should begin with "Dimensions US-China: " followed by the substantive title. Titles of US-São Paulo Collaborative Research proposals should begin with "Dimensions US-BIOTA-São Paulo: " followed by the substantive title.

Project Summary – Research proposals: The one-page Project Summary must separately address Intellectual Merit, Broader Impacts, and Integration. Descriptions of Intellectual Merit and Broader Impacts must be entered into the appropriate text boxes if the proposal is created in FastLane. **As part of the Overview text box, explicitly summarize how the project integrates the three dimensions of biodiversity as defined in this solicitation.** Grants.gov has revised instructions for completion of the summary. Although there are not separate text boxes, the information described above must be included. **Proposals that do not address all three of the required dimensions of biodiversity in the Project Summary will be returned without review**.

Project Description (max 15 pages): For all proposals, the project description must include:

* A description of how the project integrates the three dimensions of biodiversity, as defined in this solicitation.

* Details about why the work represents an innovative approach to biodiversity research.

* Information about how the work will rapidly increase understanding of biodiversity.

* Identification of the substantial gap(s) in biodiversity knowledge that will be filled by the proposed research.

For research proposals the Project Description must include the following description of results from Prior NSF Support: If any PI or co-PI on the project has received NSF funding in the past five years, information on prior award(s) is required. Each PI and co-PI who has received more than one prior award (excluding amendments) must report on the award most closely related to the proposal. The information required is described in the GPG. Reviewers will be asked to comment on the quality of the prior work described in this section of the proposal. Please note that the proposal may devote up to five pages to describe the results, within the maximum 15 pages of Project Description. Results may be summarized in fewer than five pages, which would leave the balance of the 15 pages for the Project Description.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a section labeled "Broader Impacts of the Proposed Work." This section should provide a discussion of the broader impacts of the proposed activities. PIs can decide where to include this section within the Project Description.

Biographical Sketches (*up to two pages each*): Biographical sketches following the standard NSF format, as described in the GPG should be submitted for all PIs, co-PIs, and Senior Personnel. The biosketches may omit the collaborators and conflict of interest information as that material is to be submitted as a unified single copy document for all project participants, formatted as described below.

Budget: Proposals Requiring Research Facilities, including Ship Time: Budgets should include all costs charged to the project for platforms and facilities supporting the proposed research, except those facilities separately supported by NSF (e.g. UNOLS research vessels, research aircraft, or field equipment). For research involving UNOLS vessels, a UNOLS ship request should be appended to proposals. Likewise, research involving polar regions should follow established guidelines for requesting logistical assets, as discussed in the relevant proposal solicitations (for Antarctic Sciences, see NSF 15-529; for Arctic Sciences, see NSF 14-584). Principal investigators are responsible for filing the appropriate requests for major research platforms; a copy of the request must be attached as an appendix to the proposal.

Special Information and Supplementary Documentation: Provide information such as letters of collaboration, foreign counterpart agency letters of commitment, collecting permits, environmental impact statement, and other allowed items as noted in the current issuance of the GPG. Include letters of commitment and other materials (such as the vertebrate animal care certificate, if applicable, or Memoranda of Understanding with existing collections for maintenance and archiving voucher specimens and digitized images). For Grants.gov users, supplementary documents should be attached in Field 12 of the R&R Other Project Information Form.

Supplementary Document - Student Training Plan: *(up to two pages, if applicable)***:** Building a diverse, interdisciplinary, globally engaged, scientific workforce capable of transforming and communicating our understanding of biodiversity on Earth is one of the major activities of the Dimensions of Biodiversity Program. The future of biodiversity science is highly interdisciplinary and as such, Dimensions proposals require student training in broad research competencies including areas such as ecology, evolution, genetics, phylogenetics, bioinformatics, data management and modeling. Training should promote intellectual and methodological cross-fertilization and encourage a systems/integrative perspective towards understanding biodiversity.

An integrated training plan for undergraduate and/or graduate students is a newly required element of Dimensions of Biodiversity proposals. The goal of the Training Plan is to prepare students to develop broad hypotheses and to become well versed with all aspects of inter-disciplinary biological research. This may be accomplished, for example, through lab rotations among PI institutions, cross-training plans, and/or integrative training workshops. NSF believes that student research experiences have their greatest impact in situations that lead the participants from a relatively dependent status to as independent status as their competence warrants. A

training plan must be included that explains the approach, depth and breadth of instruction. The training plan must not exceed two pages. Proposers should describe specifically how the proposed training plan will enhance the future workforce for the field of biodiversity science and how trainees will be better able to engage in emerging research areas employing newly developing methods and tools. Only one Student Training Plan should be submitted for each project, even if it is a collaborative project. Proposals that do not comply with this requirement will be returned without review.

Supplementary Document – Post-Doctoral Mentoring Plan *(one page, if applicable)***:** Each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. The mentoring plan must not exceed one page. Only one Postdoctoral Mentoring Plan should be submitted for each project, even if it is a collaborative project. Proposals that do not comply with this requirement will be returned without review.

Supplementary Document - Data Management Plan *(up to two pages)***:** Each proposal must include, as a supplementary document, a data management section with the specific details of data standards, accessibility, electronic dissemination, and preservation. Of particular logistical importance (where applicable) are: plans for data collection and analysis; plans for dissemination of data and archiving; details of collaborative efforts; information about import, export and collecting permits; plans and agreements with existing collections for the distribution and long term storage of voucher specimens; plans for digitization (and sharing with iDigBio) of all voucher material along with a description of specific data standards to be implemented (e.g., Darwin Core); and information about access to resources that are not immediately under the investigator's control (e.g., museum collections, research sites, computing facilities). The data management plan must not exceed two pages. Proposals that do not comply with this requirement will be returned without review (see the PAPP Guide Part I: Grant Proposal Guide Chapter II for further information about the implementation of this new requirement).

Supplementary Documents - Letters of Collaboration: This section may include letters of collaboration from individuals or organizations that will play an integral role in the proposed project (e.g., individuals or organizations who will provide materials, data, or analytical capabilities). Letters of collaboration should focus solely on affirming that the individual or organization is willing to collaborate on the project as specified in the project description of the proposal. No additional text, especially elaboration of the nature of activities to be undertaken by the collaborator and endorsements of the potential value or significance of the project for the collaborator, may be included. The template that must be used for the preparation of letters of collaboration is provided below. Letters of collaboration should not be provided for any individual designated as a principal investigator or senior personnel, nor are letters of collaboration required for any organization that will be a subawardee in the proposal budget. Letters of collaboration should not be provided from data repositories where deposition of relevant data is already in scope (e.g., Genbank, Dryad, iDigBio, MorphBank, Open Tree of Life). Each letter of collaboration must be signed by the designated collaborator. The PI should request letters of collaboration well in advance of the proposal submission deadline, because they must be included at the time of the proposal submission. Letters deviating from this template will not be accepted and may be grounds for returning the proposal without review.

Template to be used for letters of collaboration

To: NSF Dimensions of Biodiversity Program

From: _____(Printed name of the individual collaborator or name of the organization and name and position of the official submitting this memo) By signing below (or transmitting electronically), I acknowledge that I am listed as a collaborator on this proposal, entitled "__(proposal title)__," with _(PI name)_ as the Principal Investigator. I agree to undertake the tasks assigned to me or my organization, as described in the project description of the proposal, and I commit to provide or make available the resources specified therein.

Signed: _____

Organization: _____

Date: _____

Supplementary Documents: US-China Collaborative Research Proposals. Information for the Chinese portion of these proposals should be included as Supplementary Documents written in English. That information should include the following, and only the following:

1. Biographical sketches of Chinese senior personnel: Those biographical sketches must conform to NSF format and limitations as described in the GPG.

2. China budget: Costs for the China component of the project should be entered onto budget worksheets that conform to NSF standards. Except for justification of the requested budget, this document SHOULD NOT include any additional project information; all such information should be included in the Project Description. A PDF version of the form should be included as a supplementary document in the NSF proposal.

3. Letters of collaboration: Letters of collaboration from Chinese scientists are required. These letters must be restricted to a statement of intent to collaborate only (follow template above). Additional information on the nature of the collaboration and the roles of the investigators should be included in the Project Description.

4. Institutional endorsement: An institutional acknowledgement of the submission must be a signed letter from an authorized Chinese institutional representative with the following text: "I confirm on behalf of [insert name of institution] that the U.S.-China Collaborative proposal between [insert name of US PI and institution] and [insert name of Chinese PI] is endorsed and has been submitted by [name of Research Office]."

5. An identical proposal must be submitted to NSFC by close of business on 13 April 2015.

Supplementary Documents: US-São Paulo Collaborative Research Proposals. The full proposal must be submitted to both agencies by close of business on 9 April 2015. Proposals should be prepared, formatted, and submitted in accordance with the guidelines of the agency to which they are submitted, using the appropriate cover sheet and application forms.

Information for the São Paulo state portion of the proposal should be included as Supplementary Documents in the NSF proposal. Similarly, comparable information from the NSF proposal should be included as Supplementary Documents to the proposal submitted to FAPESP. That information must include only the following:

1. FAPESP Proposal Application Form: A PDF version of the FAPESP Application Form, completed and submitted to FAPESP by the São Paulo PI, should be included as a Supplementary Document in the proposal submitted to NSF. Similarly, a PDF version of the NSF proposal cover page, completed and submitted to NSF, should be included as a Supplementary Document in the proposal submitted to FAPESP by the São Paulo PI;

2. Senior Personnel Biographical Sketches: A PDF version of the São Paulo state Senior Personnel Biographical Sketches, following the format required by FAPESP, should be included as a Supplementary Document in the proposal submitted to NSF. Similarly, a PDF

version of the US Senior Personnel Biographical Sketches, following the format required by NSF, should be included as a Supplementary Document in the proposal submitted to FAPESP.

3. São Paulo budget: Costs for the São Paulo component of the project should be entered onto budget worksheets that conform to FAPESP standards as described by the corresponding FAPESP-BIOTA call for proposals published at http://www.fapesp.br/biota/dimensions-NSF2015. A PDF version of the FAPESP budget worksheets should be included as a supplementary document in the NSF proposal. Similarly, a PDF version of the NSF budget pages containing the cost for the U.S. components of the project should be included as a Supplementary Document in the proposal submitted to FAPESP by the São Paulo PI. Except for justification of the requested budget, this document SHOULD NOT include any additional project information; all such information should be included in the Project Description.

4. Letters of collaboration: Letters of collaboration from São Paulo scientists are required. These letters must be restricted to a statement of intent to collaborate only (follow template above). Additional information on the nature of the collaboration and the roles of the investigators should be included in the Project Description. Similarly, letters of collaboration from US scientists must be included as a Supplementary Document in the proposal submitted to FAPESP.

5. Institutional endorsement: For the proposal submitted to NSF, an institutional acknowledgement of the submission should be included as a Supplemental Document. This must be a signed letter from an authorized São Paulo state institutional representative, and should consist of the following text: "I confirm on behalf of [insert name of institution] that the US-São Paulo Collaborative proposal between [insert name of US PI and institution] and [insert name of São Paulo PI] is endorsed and has been submitted by [name of Research Office]." Similarly, an institutional acknowledgement of the submission must be included as a Supplemental Document in the proposal submitted to FAPESP. This must be a signed letter from an authorized US institutional representative, and should consist of the following text: "I confirm on behalf of [insert name of institution] that the US-São Paulo Collaborative proposal between [insert name of US PI and institution] and [insert name of São Paulo PI] is endorsed and has been submitted by [name of Research Office]."

Single Copy Documents: Suggested Reviewers. Provide names and contact information for 4-8 individuals who have expertise appropriate to review the proposal. Do not include the names of people with whom you have conflicts.

Single Copy Documents: Conflicts of Interest. For the PI, all Co-PIs, and all Senior Personnel, including Chinese collaborators on US-China Collaborative Research proposals and São Paulo state collaborators on US-São Paulo Collaborative Research proposals, list all persons or institutions with which there is a conflict of interest, using an alphabetized spreadsheet with the following column headers: full name (last name first), institutional affiliation, and type of conflict (e.g., advisor, advisee, co-author in last 48 months, collaborator, institutional). Do not include the names of people with whom you do not have conflicts as this may unnecessarily limit qualified reviewers. In addition, list all subawardees who would receive funds through the Dimensions award.

For more information refer to the NSF policy on conflict of interest:
http://www.nsf.gov/pubs/policydocs/pappguide/nsf09_1/gpg_2.jsp#IIex2

Applicants must complete the Proposal Classification Form. The Proposal Classification Form is required for all submissions to BIO; FastLane will not allow processing of the proposal without it.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  April 09, 2015

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
    a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
    b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

For research proposals, reviewers will also be asked to evaluate whether the proposal defines a bold agenda that will use innovative approaches to integrate examination of the three dimensions of biodiversity as defined in this document. Strong plans for integration of the information and results from the project with other data should be clearly detailed in the proposal.

US-China and US-São Paulo Collaborative Research Projects will also be reviewed with respect to the extent to which they demonstrate substantial collaboration between the US and China or US and São Paulo partners and enhance research on the dimensions of biodiversity. The most competitive projects will be those in which the international collaboration brings substantial additional value to the project.

For all proposals involving international collaborations, reviewers will consider: mutual benefits, true intellectual collaboration with the foreign partner(s), benefits to be realized from the expertise and specialized skills, facilities, sites and/or resources of the international counterpart, and active research engagement of U.S. students and early-career researchers.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will be completed and submitted by each reviewer. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

For US-São Paulo Collaborative Research projects, FAPESP awardees are subject to FAPESP reporting and administration requirements as appropriate and outlined in the FAPESP Dimensions of Biodiversity/NSF-Biota/FAPESP Call for Proposals at http://www.fapesp.br/biota/dimensions-NSF2015. Annual and final reports of projects awarded by NSF and FAPESP should describe activities of the entire collaborative effort.

As a condition of funding, any digitized data and/or digital media (e.g., images, audio files) of voucher material from this project must be made available through the online National Resource for Digitized Collections (iDigBio.org), located at the University of Florida and funded by the ADBC program at NSF.

Also as a condition of funding, any phylogenetic character matrices and trees must be formatted and deposited for inclusion within the Open Tree of Life, funded by the AVAToL program at NSF (see http://purl.org/opentree/data-sharing for instructions).

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

As a requirement of the Dimensions of Biodiversity program: 1) any digitized data and/or digital media (e.g., images, audio files) of voucher material must be made available through the online National Resource for Digitized Collections (iDigBio.org), located at the University of Florida, and 2) any phylogenetic character matrices and trees must be formatted for inclusion within the Open Tree of Life (see http://purl.org/opentree/data-sharing for instructions). Consequently, PIs must include statements in annual and final reports indicating that their project data are being prepared according to these standards for integration or, in the case of voucher material, any media and/or digitized data are now part of the national resource and the physical specimens are part of a permanent natural history collection.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Simon Malcomber, BIO/DEB, telephone: (703) 292-8227, email: Dimensions@nsf.gov
- George W. Gilchrist, BIO/DEB, telephone: (703) 292-7138, email: Dimensions@nsf.gov
- Matthew D. Kane, BIO/DEB, telephone: (703) 292-7186, email: Dimensions@nsf.gov
- Douglas Levey, BIO/DEB, telephone: (703) 292-5196, email: dlevey@nsf.gov
- Garth Spellman, BIO/DEB, telephone: (703) 292-8610, email: gspellma@nsf.gov
- Kelly Zamudio, BIO/DEB, telephone: (703) 292-2992, email: kzamudio@nsf.gov

- Arcady Mushegian, BIO/MCB, telephone: (703) 292-8528, email: Dimensions@nsf.gov
- Reed S. Beaman, BIO/DBI, telephone: (703) 292-7163, email: rsbeaman@nsf.gov
- Michael Sieracki, GEO/OCE, telephone: (703) 292-7585, email: msierack@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

Contacts for US-São Paulo Collaborative Research Projects

Dr. Simon Malcomber, NSF BIO/DEB, telephone: (703) 292-8227, email: smalcomb@nsf.gov

Dr. Regina Costa de Oliveira, FAPESP, email: roliveira@fapesp.br

Contacts for US-China Collaborative Research Projects

Dr. Simon Malcomber, NSF BIO/DEB, telephone: (703) 292-8227, email: smalcomb@nsf.gov

Ms. Xiuping Liu, NSFC, email: liuxp@nsfc.gov.cn

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website at https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_179.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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 about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center)**:** (703) 292-5111

TDD (for the hearing-impaired):	(703) 292-5090
• **To Order Publications or Forms:**	
Send an e-mail to:	nsfpubs@nsf.gov
or telephone:	(703) 292-7827
• **To Locate NSF Employees:**	(703) 292-5111

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