

Partnership to Advance Conservation Science and Practice (PACSP)

PROGRAM SOLICITATION NSF 22-613



National Science Foundation

Directorate for Biological Sciences
Division of Environmental Biology
Division of Integrative Organismal Systems



Paul G. Allen Family Foundation

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

October 11, 2022

IMPORTANT INFORMATION AND REVISION NOTES

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in [Important Notice No. 147](#). In support of these efforts, proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov and may not be prepared or submitted via FastLane.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) ([NSF 22-1](#)), which is effective for proposals submitted, or due, on or after October 4, 2021.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Partnership to Advance Conservation Science and Practice (PACSP)

Synopsis of Program:

The National Science Foundation (NSF) and the Paul G. Allen Family Foundation (the foundation) are partnering to support a new program, to be administered by NSF, that will support conservation science and science-informed conservation practice in the United States. The objective of the PACSP Program is to support conservation research that investigates organismal biology, ecology, and/or evolution and is designed to contribute to the development and implementation of evidence-based activities and/or technology solutions to advance biodiversity conservation. We seek proposals that involve the implementation of conservation activities with academic-conservation organization partnerships. The strongest projects will involve ongoing assessment of biodiversity outcomes, for instance via an adaptive management framework, that inform both scientific understanding and conservation actions. A significant distinction between the PACSP program and other NSF programs is that proposals to this program must make clear and well-defined connections between basic research questions and the implementation of conservation focused actions.

The Program's focus is on conservation goal-related research that will directly translate to on-the-ground biodiversity conservation efforts. Proposals that adopt a convergent approach between climate change, conservation, and the health of ecosystems and the organisms therein are especially encouraged. Proposals are also expected to incorporate project outcomes within the context of broader societal impacts and, as appropriate for the research proposed, engage non-academic partners in collaboration.

For proposals recommended for funding, NSF will fund the proposed research scope and the foundation will fund the proposed conservation component of the project.

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.

- Matthew D. Carling, Program Director, BIO/DEB, telephone: (703) 292-2134, email: mcarling@nsf.gov
- Colette M. St. Mary, Program Director, BIO/IOS, telephone: (703) 292-4332, email: cstmary@nsf.gov
- Anji Moraes, Senior Program Officer, Paul G. Allen Family Foundation, telephone: (206) 342-2019, email: anjim@vulcan.com

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

- 47.074 --- Biological Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 4 to 8

Projects up to 3 years in duration will be considered.

Anticipated Funding Amount: \$8,000,000

\$8,000,000 in FY 2023, which is estimated to include \$4M from the NSF for new standard and/or continuing awards and \$4M from the Paul G. Allen Family Foundation, pending availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- See below for eligible Paul G. Allen Family Foundation eligibility.

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:

There are no restrictions or limits.

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 Research.gov: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
 - 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: https://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:**

Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

October 11, 2022

Proposal Review Information Criteria

Merit Review Criteria:

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

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

According to a collaborative [assessment](#) by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC), unprecedented changes in climate and biodiversity have combined and increasingly threaten nature, human lives, livelihoods, and well-being. Biodiversity loss and climate change mutually reinforce each other, and neither will be successfully resolved unless both are tackled together.

The climate change and biodiversity crises require immediate action by governments, the private sector, academic institutions, non-governmental organizations, philanthropies, and individuals. NSF and the Paul G. Allen Family Foundation (the foundation) have established a public-private partnership to move forward science-based conservation actions and technology solutions to address climate change and biodiversity loss. This partnership represents the first NSF public-private partnership focused on conservation.

The Partners each have substantial prior investment in related efforts:

The National Science Foundation (NSF) has been investing in understanding the environmental response to climate change and environmental biology for years through a portfolio of programs that advance the frontiers of knowledge, develop new approaches, and enable cross-disciplinary collaborations. As the agency looks to the future, NSF is committed to strengthening its capacity to innovate, produce breakthroughs, and accelerate the translation of fundamental discoveries from lab to application.

The Paul G. Allen Family Foundation supports a global portfolio of partners working to preserve ocean health, protect wildlife, combat climate change, and strengthen communities. The foundation invests in grantees to leverage technology, fill data and science gaps, and support public policy to enable lasting change.

With this partnership, and via this solicitation, our joint goal is to enable the establishment of effective partnerships between academic researchers and conservation practitioners to advance science-based conservation efforts in the U.S. The PACSP program calls for projects that involve basic research and the development of evidence-based conservation action plans, such that the implementation of those plans, and their ongoing assessment, will inform both basic

science and conservation efficacy.

II. PROGRAM DESCRIPTION

The Partnership to Advance Conservation Science and Practice (PACSP) program focuses on urgent biodiversity conservation problems and research that will make significant and impactful progress in advancing conservation science and practice. The program aims to fund integrative and transdisciplinary research, and projects must span both basic and applied conservation research endeavors. It supports partnerships between scientists and conservation practitioners to implement science-based conservation action plans and to engage in ongoing assessment that informs both conservation efficacy and the science on which those plans are based.

Proposals submitted to the PACSP program can be in any area of basic research on organismal biology (e.g., physiological, behavioral, immunological, and developmental responses to a changing environment), ecology (e.g., dynamics of small populations, responses to changing community composition, including symbiotic interactions, or ecosystem-level function) or evolution (e.g., effects of low genetic diversity, selection and the consequences of maladapted phenotypes) that contributes to the development or implementation of science-based conservation plans. Similarly, proposals may focus on individual species, groups of species, communities, or ecosystems. **Critically, the basic research component must be focused on a biodiversity conservation need.** Examples could include, but are not limited to: testing hypotheses about the mechanism(s) causing a biodiversity conservation problem; exploring how organismal, ecological, or evolutionary processes relate to urgent conservation needs; understanding how environmental variation, emerging diseases, or changing environments influence organismal responses and hence biodiversity conservation.

The program aims to support projects that integrate three components: (1) basic research questions motivated by an urgent biodiversity conservation need, (2) the development and implementation of science-informed conservation actions specifically related to the biodiversity conservation need, and (3) a plan for on-going evaluation or assessment of the success of the conservation action to inform both the science and efficacy of the conservation action. Proposals to the PACSP program may also include plans to leverage technology to fill data and science gaps and can also be aimed at driving positive public policy to advance knowledge and enable lasting change in the realm of biodiversity conservation. Furthermore, the PACSP program encourages activities that advance understanding and conservation of wildlife and ecosystems by improving the collection, curation, analysis, visualization, and dissemination of data to strengthen resource management and support conservation outcomes. Other areas of emphasis include convergence between response to climate change, biological conservation, and the health of terrestrial and aquatic ecosystems.

All proposals submitted to the National Science Foundation must include discussion of the broader impacts of the project for societal benefit. In addition to the conservation impacts, the PACSP program encourages broader impacts that increase the recruitment, training, and retention of individuals or groups underrepresented in conservation science and practice. The PACSP program will prioritize broader impacts that develop, enhance, or strengthen relationships between basic conservation researchers, conservation practitioners, and the human communities involved.

PACSP Partner Interests:

Paul G. Allen Family Foundation

The Paul G. Allen Family Foundation supports a global portfolio of partners working to preserve ocean health, protect wildlife, combat climate change, and strengthen communities. The foundation invests in grantees to leverage technology, fill data and science gaps, and support public policy to enable lasting change.

In line with this, the foundation is interested in PACSP proposals that develop or implement science and data-informed conservation actions. Conservation plans should directly relate to the basic research question addressed by PACSP proposals and should be evidence based. Successful PACSP proposals will develop conservation actions by merging basic research outcomes with current best practices in biodiversity conservation and through integrated partnerships between academic researchers and conservation practitioners. Proposals to the PACSP program will also include a plan for the on-going assessment or evaluation of the proposed conservation actions. A goal of the program is to guide the development of successful partnerships that contribute to positive biodiversity conservation outcomes. A plan to formally evaluate or assess any proposed conservation actions is required. Similar to the development and implementation of the conservation plans, assessment of those plans should be rooted in current best practices.

For this competition, the Paul G. Allen Foundation will fund the conservation actions described in the proposal. In order to be eligible to receive funding from the foundation, conservation action partners must document their eligibility by submission of evidence of 501(c)(3) tax status and a statement that the proposer has reviewed the Paul G. Allen Family Foundation Grantee Code of Conduct and that verifies their compliance with such code. See V.A. Proposal Preparation Instructions: Conservation Partners for further guidance.

Special Information:

A. Collection and Transfer of Samples: Plans to collect and transfer biological samples should be approved by the appropriate government authorities. Arrangements for the use of traditional knowledge or the collection of samples from the lands and waters of local peoples should be based upon full disclosure and informed consent of those communities and individuals. Under best practices, project components are co-produced and stem from a partnership with early and ongoing full participation of community representatives in project design and implementation. If Indigenous peoples, based on 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.

B. Environmental Policy Considerations of Fieldwork: Federal agencies must comply with the National Environmental Policy Act (NEPA) and other applicable laws and policies such as the Endangered Species Act, the Marine Mammal Protection Act, and the National Historic Preservation Act. Projects will be assessed for environmental impacts prior to award and additional consultations, or mitigation efforts may be required (see [Environmental Impacts Checklist](#)). PIs should expect to be involved in the assessment and environmental compliance process for their projects. To the extent that projects have permits and approvals in place, these should be submitted as supplementary documents. Researchers proposing work that may affect cultural or historic properties, or whose work involves tribal lands, must cooperate with NSF in complying with the consultation requirements of section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act (NAGPRA). For additional information on cultural or historic preservation issues, see the Advisory Council on Historic Preservation's web site at <https://www.achp.gov/protecting-historic-properties>; for information concerning NAGPRA see <https://www.nps.gov/subjects/nagpra/index.htm>.

III. AWARD INFORMATION

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 4 to 8

Projects up to 3 years in duration will be considered.

Anticipated Funding Amount: \$8,000,000

\$8,000,000 in FY 2023, which includes \$4M from the NSF for new standard and/or continuing awards and \$4M from the Paul G. Allen Family Foundation, pending availability of funds.

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

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- See below for eligible Paul G. Allen Family Foundation eligibility.

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:

There are no restrictions or limits.

Additional Eligibility Info:

Paul G. Allen Family Foundation Eligibility: Eligible entities who can serve as conservation action partners and receive an award from the foundation include: Nonprofit, tax-exempt 501(c)(3), U.S. organizations; Units of state or local government; State colleges or universities; or federally recognized tribal communities or tribes. All supported organizations must review and agree to the Paul G. Allen Family Foundation Grantee Code of Conduct found here: https://pgafamilyfoundation.org/_ui/img/pgafoundation/Grantee_Code_of_Conduct.pdf. Eligible institutions do not include foreign organizations.

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 Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.
- 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: (https://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) 292-8134 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 Research.gov. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 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 PAPPG instructions.

The **Project Description** should follow the PAPPG (II.C.2.d) guidance. The **Project Description** is limited to 15 pages. In addition to the reporting requirement format described by the PAPPG (see Results from Prior NSF Support, II.C.2.d.iii), the **Results from Prior NSF Support** section must include evidence of deposition of samples, data and/or data products in recognized, accessible, community-accepted repositories by listing such repositories and, if practical, metadata. All publications, data, data products, programs and/or scripts that are specifically mentioned in the Results from Prior NSF Support section must be referenced in the References Cited section and must provide unique, resolvable, and persistent identifiers (such as Digital Object Identifiers [DOIs]; Uniform Resource Locators (URLs), or similar).

Project Descriptions should include the following sections and headers (indicated in bold).

Intellectual Merit - This portion of the description, as detailed in the PAPPG, will feature the intellectual contributions of the proposed research elements. It must include a section with the subheading **Evidence-based Conservation Planning**, which describes how the research components of the projects will inform the conservation action plan and sets objectives that can be evaluated to inform biodiversity conservation efficacy and the underlying science.

Broader Impacts - This portion of the description, as detailed in the PAPPG, will discuss the various broader impacts of the project and must specifically include sections with the subheading **Conservation Action Plan**, which articulates the planned conservation intervention, and **Plan Assessment**, which details the plan to assess in an ongoing or periodic manner the degree to which the Conservation Action Plan is meeting its goals and inform the fundamental science on which it is based.

Finally, the **Project Description** should also include a section entitled **Project Management** that details how the personnel and partnering organizations will work together to achieve the goals of the project. The proposed management structure must clearly ensure planned activities integrate across the fundamental research and conservation implementation components of the project and engage both parties in the evidence-based conservation planning. It should also address how trainees involved in the project will be engaged to assure they have opportunities to work across the academic-conservation practitioner boundary. This section should describe the specific tasks each member of the research team is expected to oversee. The Project Management section should also include a **Project Timeline** that specifies project progress and, in particular, when specific project objectives are expected to be met.

Budget - The budget and budget justification submitted should conform to PAPPG guidance and only be for the research portion of the proposed project that will be funded by NSF. The budget and justification for the conservation partner should be submitted as a supplementary document (see below).

Supplementary Document - Data Management Plan (DMP; maximum 2 pages). The PAPPG (II.C.2.j) requires the inclusion of a DMP with all full proposal submissions. The Directorate for Biological Sciences provides additional context and guidance to PIs on the preparation of Data Management Plans here: <https://www.nsf.gov/bio/biodmp.jsp>.

Conservation Partners:

Supplementary Document - Conservation Partner Budget.

The conservation practice portion of the budget, to be funded by the Paul G. Allen Family Foundation, should be submitted as a supplemental document using the NSF budget form, and include a budget justification as detailed in the PAPPG; it should not be calculated or submitted as a part of the NSF funded portion of the proposal. No indirect costs should be included in conservation partner budgets; indirect costs will not be supported by the Paul G. Allen Family Foundation.

Single Copy Document - Evidence of Conservation Partner Eligibility

Evidence of 501(c)(3) tax status by providing Tax ID Number and Tax Classification. If the proposer is a unit of state or local government, a letter should be included confirming this fact. The proposer should also include a statement that the proposer has reviewed the Paul G. Allen Family Foundation Grantee Code of Conduct and that verifies their compliance with such code. The Paul G. Allen Family Foundation code of conduct is found here: https://pgafamilyfoundation.org/_ui/img/pgafoundation/Grantee_Code_of_Conduct.pdf.

The conservation practice portion of the budget, to be funded by the Paul G. Allen Family Foundation, should be submitted on the NSF budget forms but as a supplemental document using the NSF budget form, and include a budget justification as detailed in the PAPPG; it should not be calculated or submitted as a part of the NSF funded portion of budget for the proposal. No indirect costs should be included in these conservation partner budgets; indirect costs will not be supported by the Paul G. Allen Family Foundation.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Budgets submitted to support conservation action partners, to be supported by the Paul G. Allen Family Foundation, should include no indirect costs. Indirect costs are not eligible for support on these budgets.

Budget Preparation Instructions:

Budgets, both the NSF and the foundation, should include funds for key personnel to attend 1 in person PI meeting at the NSF in year 3 of the project. **PIs are encouraged to provide a budget reflecting the equally balanced roles the academic and conservation partners should play in the project.**

C. Due Dates

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

October 11, 2022

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov 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: <https://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 Research.gov may use Research.gov 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 PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.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 *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. 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. (PAPPG 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 PAPPG 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 other underrepresented groups 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

In addition to the standard NSF review criteria, reviewers will be asked to consider the following questions for PACSP proposals:

1. Does the proposal describe an overarching conservation relevant question and science-informed conservation action aimed at advancing biodiversity conservation?
2. Does the proposal describe an integrated approach in which the outcomes of basic research directly inform the design or implementation of science-focused conservation activities and those activities are assessed or evaluated to track their success?

B. Review and Selection Process

NSF will manage the review of proposals in consultation with the Paul G. Allen Family Foundation. Copies of proposals and unattributed reviews will be shared with the partner funding organization, as appropriate.

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 generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

NSF Process: Those proposals selected for funding by NSF will be handled in accordance with standard NSF procedures. 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 or the Division of Acquisition and Cooperative Support 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.

Paul G. Allen Family Foundation (the foundation) Process: The conservation component of the projects recommended for funding will be awarded through the foundation in accordance with its policies and terms and conditions. The supplementary document detailing the conservation partner's budget and budget justification will be transferred to the foundation.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by an NSF Grants and Agreements Officer. 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 https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, [Ensuring the Future is Made in All of America by All of America's Workers](#) (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's [Build America, Buy America](#) webpage.

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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 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 Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

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:

- Matthew D. Carling, Program Director, BIO/DEB, telephone: (703) 292-2134, email: mcarling@nsf.gov
- Colette M. St. Mary, Program Director, BIO/IOS, telephone: (703) 292-4332, email: cstmary@nsf.gov
- Anji Moraes, Senior Program Officer, Paul G. Allen Family Foundation, telephone: (206) 342-2019, email: anjiM@vulcan.com

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: fastlane@nsf.gov
- Research.gov Help Desk e-mail: rgov@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.

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](#).

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 <https://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 (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 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 <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **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) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

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; and 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 proposal review process; to proposer 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 or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; 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 [System of Record Notices, NSF-50](#), "Principal Investigator/Proposal File and Associated Records," and [NSF-51](#), "Reviewer/Proposal File and Associated Records." Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. 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 the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314

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