



NATIONAL SCIENCE FOUNDATION  
2415 EISENHOWER AVENUE  
ALEXANDRIA, VIRGINIA 22314

NSF 20-059

## Dear Colleague Letter: Poorly Sampled and Unknown Taxa (PurSUiT)

---

March 19, 2020

Dear Colleagues:

Discovering the world's biota underpins the study of the origins, evolution, and maintenance of biodiversity. Yet despite centuries of exploration, our knowledge of the diversity of life is still temporally and spatially biased, and critical areas of extant and extinct biodiversity remain undiscovered or undocumented. This restricts our ability to develop a comprehensive and comparative evolutionary framework for all life and hinders our understanding of the mechanisms and processes of evolution.

To address this issue, the Division of Environmental Biology (DEB) in the Directorate of Biological Sciences (BIO) encourages the submission of proposals to the Systematics and Biodiversity Sciences (SBS) cluster ([https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503666](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503666)) to support research on Poorly Sampled and Unknown Taxa (PurSUiT). The PurSUiT category is meant to encourage biodiversity discovery and description in poorly known, or dark areas, of the Tree of Life. Its incorporation as a special category within SBS reflects a continued effort to close significant gaps in biodiversity knowledge.

Proposals submitted to this category should address expeditionary and exploratory research on organismal diversity that occurs, or used to occur, in natural environments and should aim to advance the discovery, identification, description, classification, and cataloguing of the world's unknown extant and extinct biodiversity. Research projects must address compelling biodiversity discovery questions and must entail a primarily clade- or guild-based approach (e.g., regional, global, or planetary inventories). Priority will be given to innovative projects that fill **significant gaps in biodiversity knowledge and integrate taxon information within an evolutionary or taxonomic framework.**

### RESEARCH

---

Investigations will be focused at the organismal level and must concentrate on pivotal areas

of the Tree of Life for which biodiversity is poorly known or undescribed. Proposals may target any such group of organisms, extinct or extant, from any habitat. Successful proposals will make a compelling case demonstrating that lack of knowledge and will describe how filling this knowledge gap will significantly advance our understanding of organismal diversity and evolution. Biodiversity documented in the proposed effort must be placed within a phylogenetic context (either by creating new trees or incorporating new data within existing trees such as from the Open Tree of Life) or placed in a taxonomic framework using cutting-edge approaches.

Projects that do not focus on biodiversity discovery in poorly explored areas of the Tree of Life or projects that generate biodiversity data without integration within a phylogenetic or taxonomic framework are not appropriate for the PurSUiT category.

Projects on poorly known groups that include fieldwork or use of existing collections are appropriate for this program. PurSUiT proposals should include well-documented plans for fieldwork coordination and permitting, sample or specimen vouchering, data sharing and storage, and taxon delimitation and description. When appropriate, collaboration and integration with other ongoing biodiversity efforts is encouraged. Successful proposals will document plans for long-term sample storage or specimen deposition in a permanent and publicly accessible storage facility/collection and describe a strategy for the rapid dissemination and sharing of data into public biodiversity databases (e.g., specimen data through iDigBio/GBIF). Any phylogenies and associated organismal data generated through this effort must be deposited in a format that allows easy integration with existing databases. Shared data should include sample numbers, specimen voucher and collections information with associated metadata, as well as morphological/genetic data for Dryad, GenBank, and other public resources, and, if applicable, should include source code for data pipelines/programs.

## **TRAINING**

---

Student training that focuses on producing broad research competence in all areas of systematics and evolutionary biology is encouraged in PurSUiT proposals. Training should promote intellectual and methodological interaction and encourage an integrative perspective to understanding taxonomy, systematics, and biodiversity. PurSUiT seeks to enhance organismal, phylogenomic, bioinformatics, phenotypic, and biodiversity analytical expertise. Proposals that provide specific examples of how the project will broaden the skill set of PIs, students, or postdocs (particularly with respect to researchers from traditionally underrepresented groups) are encouraged. Partnerships with undergraduate institutions, community colleges, high schools, museums, and other institutions are likewise encouraged.

Titles of proposals submitted to this category should be prefaced with "PurSUiT:". Proposals must conform to all requirements in the current DEB Core Programs solicitation found on the

[SBS cluster web page.](#)

Investigators with questions about PurSUiT proposals are encouraged to contact the SBS cluster program officers listed on the cluster page.

Joanne Tornow  
Assistant Director  
Directorate for Biological Sciences