

**Testimony in Support of FY 2016 Funding for the  
National Science Foundation**

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***Submitted by:***

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***Submitted to:***

Senate Committee on Appropriations

Subcommittee on Commerce, Justice, Science and Related Agencies

The Natural Science Collections Alliance appreciates the opportunity to provide testimony in support of fiscal year (FY) 2016 appropriations for the National Science Foundation (NSF). We encourage Congress to provide the NSF with at least \$7.724 billion in FY 2016.

The Natural Science Collections Alliance is a non-profit association that supports natural science collections, their human resources, the institutions that house them, and their research activities for the benefit of science and society. Our membership consists of institutions that are part of an international community of museums, botanical gardens, herbaria, universities, and other institutions that contain natural science collections and use them in research, exhibitions, academic and informal science education, and outreach activities.

**The Role of NSF in Scientific Excellence**

Federal support for science is an investment in our nation's future. The NSF supports research that creates new knowledge and helps to drive innovation and economic growth. NSF-supported research has led to improvements in human health, food and national security, energy, and natural resource management.

NSF provides the support that trains the next generation of researchers and science educators. The agency supports graduate student research training programs that help maintain our nation's global competitiveness. Moreover, K-12 education initiatives ensure a pipeline of scientifically skilled workers for tomorrow's jobs.

America's continued excellence in science and technology depend on sustained investments in research and science education. The progress of basic research requires a steady federal investment. Unpredictable swings in federal funding can disrupt research programs, create

uncertainty in the research community, and impede the development of solutions to the nation's most pressing problems.

### **Biological Research at NSF**

NSF's Biological Sciences Directorate (BIO) is the primary federal funding source for fundamental biological research. BIO serves a vital role in ensuring our nation's continued leadership in the biological sciences by providing about 66 percent of federal grant support for basic biological research conducted at our nation's universities and other nonprofit research centers, including natural history museums.

The budget request for BIO would provide a modest increase of \$16.9 million. This funding is critical to ensuring that the directorate's research grant funding rate does not slip below 23 percent. The success rate for BIO research proposals has hovered below the funding rate for all of NSF for nearly two decades.

### **Support for Scientific Collections**

BIO provides essential support for our nation's biological research infrastructure, such as natural science collections and natural history museums. These research centers enable scientists to study the basic data of life, conduct next generation biological and environmental research, and provide undergraduate and graduate students with hands-on training opportunities.

Scientific collections play a central role in many fields of biological research, including disease ecology and biodiversity science. NSC Alliance's member institutions also provide critical information about existing gaps in our knowledge of life on Earth. Indeed, the federal Interagency Working Group on Scientific Collections recognized this value in their 2009 report, which found that "scientific collections are essential to supporting agency missions and are thus vital to supporting the global research enterprise."

The NSC Alliance encourages Congress to sustain NSF's support for the digitization of high priority U.S. specimen collections. NSF's investment in digitization is enabling the scientific community to ensure access to and appropriate curation of irreplaceable biological specimens and associated data, and has stimulated the development of new computer hardware and software, digitization technologies, and database management tools. This effort is bringing together biologists, computer science specialists, and engineers in multi-disciplinary teams to develop innovative imaging, robotics, and data storage and retrieval methods. These tools will expedite the digitization of collections and contribute to the development of new products or services of value to other industries.

The FY 2016 request would also sustain a program to link long-term planetary biodiversity data with specimen and collections data. This integration of data will enable novel interdisciplinary research in biodiversity science.

### **Other NSF Programs**

The Dimensions of Biodiversity program supports cross-disciplinary research to describe and understand the scope and role of life on Earth. Despite centuries of discovery, most of our planet's biological species diversity remains unknown. This lack of knowledge is particularly troubling given the rapid and permanent loss of global biological diversity. Better understanding of life on Earth will help us protect valuable ecosystem services and make new bio-based discoveries in the realms of food, fiber, fuel, pharmaceuticals, and bio-inspired innovation.

The Directorate for Geosciences (GEO) supports research and student training opportunities in natural history collections. GEO also supports cross-disciplinary research on the interactions between Earth's living and non-living systems – research that has important implications for our understanding of water and natural resource management, climate change, and biodiversity.

Within the Directorate for Education and Human Resources, the Advancing Informal STEM Learning program is furthering our understanding of informal science, technology, engineering, and mathematics (STEM) education. This program supports projects that create tools and resources for STEM educators working outside traditional classrooms, such as at museums, botanic gardens, and zoos.

## **Conclusion**

Continued investments in the NSF programs that support natural science collections research and education are essential if we are to maintain our global leadership in innovation. Sustained investments in NSF will help spur economic growth and new discoveries and continue to build scientific capacity at a time when our nation is at risk of being outpaced by our global competitors. Please support an investment of at least \$7.724 billion for NSF for FY 2016.

Thank you for your thoughtful consideration of this request and for your prior support of the National Science Foundation.