

**Testimony in Support of FY 2017 Funding for the  
National Science Foundation**

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***Submitted by:***

Joseph Cook, Ph.D.

President

Natural Science Collections Alliance  
1201 New York Avenue, NW, Suite 420  
Washington, DC 20005  
Phone: 202-628-1500  
Fax: 202-628-1509  
Email: cookjose@unm.edu

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House 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) 2017 appropriations for the National Science Foundation (NSF). We encourage Congress to provide the NSF with at least \$8.0 billion in FY 2017.

*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.*

Scientific collections are a vital component of our nation's research infrastructure. Whether held at a museum, government managed laboratory or archive, or in a university science department, these scientific resources contain genetic, tissue, organismal, and environmental samples that constitute a unique and irreplaceable library of the Earth's history. The specimens and their associated data drive cutting edge research on significant challenges facing modern society, such as improving human health, enhancing food security, and understanding and responding to environmental change. Collections also inspire novel interdisciplinary research that drives innovation and addresses some of the most fundamental questions related to biodiversity.

The institutions that care for scientific collections are important research centers that enable scientists to study the basic data of life, conduct modern biological, geological, and environmental research, and provide undergraduate and graduate students with hands-on training opportunities.

According to the federal Interagency Working Group on Scientific Collections, "scientific collections are essential to supporting agency missions and are thus vital to supporting the global

research enterprise.” In recognition of the importance of collections, the Office of Science and Technology Policy issued a memo in 2010 that directed federal agencies to budget for the proper care of collections. “Agencies should ensure that their collections’ necessary costs are properly assessed and realistically projected in agency budgets, so that collections are not compromised.”

Preservation of specimens is not only in the best interest of science, it is also in the best interest of taxpayers. Proper care of existing scientific collections is typically more cost effective than recollecting the information. Moreover, preservation of specimens and associated data allows for integration into new research. Specimens that were collected decades or centuries ago are often used in cutting edge research in the fields of genetics, biodiversity, and human health.

The NSF plays a unique role in protecting and expanding access to our nation’s scientific collections. NSF supports research that utilizes existing collections as well as studies that gather new natural history specimens. NSF’s Biological Sciences Directorate (BIO) and Directorate for Geosciences (GEO) support research and student training opportunities in natural history collections.

NSF support for natural history collections has resulted in innovative discoveries. For example, in 1993 a deadly disease appeared in the southwestern United States. The agent was Hantavirus, but its origin was unknown. Using NSF-supported biological collections at Texas Tech University and University of New Mexico, researchers discovered that certain rodents naturally carried the disease. When rodents became much more abundant following an El Niño weather event in 1992, the animals spread into human environments. This brought more rodents into contact with people and increased the transmission of Hantavirus. With the vector known, new cases of Hantavirus were largely prevented by reducing transmission opportunities.

Another example of state-of-the-art work supported with NSF funding is 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.

In addition to supporting research, NSF’s STEM education programs enhance the ability of museums, botanic gardens, zoos, and other research institutions to provide science learning opportunities for students. The Advancing Informal STEM Learning program is furthering our understanding of informal science, technology, engineering, and mathematics (STEM) education outside of traditional classrooms. The program is especially valuable at broadening participation in science.

## **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 \$8.0 billion for NSF for FY 2017.

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