

**Testimony in Support of FY 2013 Funding for the
National Science Foundation**

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Submitted by:

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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) 2013 appropriations for the National Science Foundation. We encourage Congress to provide the National Science Foundation (NSF) with at least \$7.373 billion in FY 2013.

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. We are comprised of over 100 institutions which are part of an international community of museums, botanical gardens, herbariums, universities, and other institutions that house natural science collections and utilize them in research, exhibitions, academic and informal science education, and outreach activities.

Federal support for science is an investment in our nation's future. The NSF supports research that creates new knowledge. NSF-sponsored research also helps to drive innovation and economic growth. The agency supports job creation directly by awarding research grants to scientists and institutions, and through the acquisition of research infrastructure and instrumentation. NSF also trains the next generation of researchers and science educators. Collectively, these activities provide the foundation for the nation's research enterprise and generate information that ultimately drives economic growth, improves human health, addresses energy needs, and enables sustainable management of our natural resources.

The progress of basic scientific research requires a sustained and predictable 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. NSF's budget request for FY 2013 would sustain critical research and education efforts while funding 300 new research grants.

NSF's Biological Sciences Directorate (BIO) is the primary federal supporter of basic biological research. BIO serves a vital role in ensuring our nation's continued leadership in the biological sciences by providing about 62 percent of federal grant support for fundamental biological research conducted at our nation's universities and other nonprofit research centers such as natural history museums. BIO's support of transformative research has advanced our understanding of complex living systems and is leading the way forward in addressing major challenges, such as conserving biodiversity, combating invasive species, and developing new bio-inspired technologies.

Equally important, BIO provides essential support for our nation's biological research infrastructure, such as natural science collections and university-based natural history museums. These research centers enable scientists to study the basic data of life, conduct modern biological and environmental research, and provide undergraduate and graduate students with hands-on training opportunities. Additionally, NSF's Directorate for Geosciences and Office of Polar Programs support data and specimen collections that contribute to our understanding of the Earth's systems.

Support for Scientific Collections

Scientific collections play a central role in many fields of biological research, including disease ecology, biodiversity, and climate change. They 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."

We strongly encourage Congress to support NSF's request for \$10.0 million to support the digitization of high priority U.S. specimen collections. NSF's investment in digitization would enable the scientific community to ensure access to and appropriate curation of irreplaceable biological specimens and associated data, and will stimulate 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 digitization efforts, NSF supports curation and preservation of important biological specimens. We are concerned, however, about NSF's proposal to change the Collections in Support of Biological Research (CSBR) program from an annual to biennial competition. This change would effectively cut in half support for preservation and care of our nation's biological sciences collections. In addition to preserving important biological specimens for ongoing and future research, CSBR awards are an important source of revenue for American-owned companies that specialize in cabinetry and supplies used by museums and universities. CSBR awards also directly employ researchers and curators, and are used to train the next generation of biological scientists. Given the current financial strain at many museums and universities, CSBR funding is a critical lifeline that helps to ensure proper curation of

specimens. We urge Congress to restore the proposed funding cut of \$4.0 million and to encourage other NSF directorates to join with BIO in providing research support to our nation's natural science collections, which include mineral, water and ice, anthropological artifacts, and biological specimens.

Other Programs

The FY 2013 budget would continue efforts to better understand biological diversity. Funding is included for the Dimensions of Biodiversity program, which 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 biodiversity remains unknown. This lack of knowledge is particularly troubling given the rapid and permanent loss of global biodiversity. Better understanding of life on Earth will help us to 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) also supports research and student training opportunities in natural history collections. GEO 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, formerly called the Informal Science Education program, supports projects that create tools and resources for STEM educators working outside traditional classrooms, such as at museums, botanic gardens, and zoos. The program also builds professional capacity for research and development. We urge Congress to restore the proposed 22 percent cut to the program.

Conclusion

Continued investments in scientific collections and the biological sciences are critical. The budget request for NSF will help spur economic growth and innovation 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 \$7.373 billion for NSF for FY 2013.

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