

**Testimony in Support of Increased FY 2009 Funding for the National Science Foundation**

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Submitted by:

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Subcommittee on Commerce, Justice, Science and Related Agencies  
Committee on Appropriations  
U.S. House of Representatives  
Washington, DC

The Natural Science Collections Alliance (NSC Alliance) encourages the Committee to provide the National Science Foundation (NSF) with \$7.326 billion for fiscal year (FY) 2009, the funding level authorized by the America COMPETES Act.

The NSC Alliance is a nonprofit 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 members 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, public service, service to governmental entities such as public health, agriculture, homeland security, defense, natural resource conservation, and outreach activities for the betterment of society.

Although the President's FY 2009 budget request recognizes the need to increase funding for the NSF, the request would only provide a modest two-year adjustment for NSF programs such as the Biological Sciences directorate (BIO). Thus, we encourage the Committee to work to provide NSF funding at the level authorized in the America COMPETES Act (PL 110-69),

which, with the Committee's prior guidance to the Administration to support all NSF research directorates, would enable a modest increase for BIO.

NSF's BIO directorate is vital to our nation's continued leadership in the biological sciences, the fields of science dedicated to understanding how organisms and ecological systems function. Research disciplines heavily dependent upon the directorate include botany, ecology, microbiology, zoology, basic molecular and cellular biology, and systematics and taxonomy. Equally important, NSF provides essential support for our nation's biological research infrastructure, such as natural science collections, university-based natural history museums, and field stations. These research centers enable scientists and students to study the basic data of life for the history of the planet, conduct modern biological and environmental research, and provide undergraduate and graduate students with the opportunity to learn directly from nature.

Government data clearly shows the importance of NSF's BIO to our research enterprise. BIO provides 67 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. Transformative research in the biological sciences has advanced our understanding of complex living systems and is leading the way forward in addressing major challenges – protecting the environment, conserving biodiversity, and developing new bio-inspired technology. As NSF director Dr. Arden Bement told this Committee during a recent hearing, we are in “the bio century” and bioscience is “where the fundamental work is being done.”

The President's FY 2009 budget request would provide \$5.594 billion to support disciplinary research programs within the Research and Related Activities (R&RA) account. This funding level would provide an average 16.0 percent increase over FY 2008 estimated appropriations for the R&RA account; however, within R&RA, proposed budget increases are spread unevenly among the directorates. For example, the Mathematical and Physical Sciences directorate would increase \$235.36 million (20.2 percent) and the Engineering directorate would increase \$122.46 million (19.2 percent) over their respective FY 08 estimated appropriations while BIO is slated for just a \$63.04 million increase (10.3 percent).

This would be understandable and acceptable if it were a one-year anomaly. However, this pattern of funding has become the norm – leaving some directorates, such as BIO, SBE (Social, Behavioral, and Economic Sciences) and GEO (Geosciences) behind. The nation's valuable and irreplaceable biological scientific resources that transcend time, as represented by its natural science collections amassed over more than 200 years, and its biological scientific vitality, as demonstrated by research funded through the BIO directorate, are in great need of additional funding. This is particularly true given current threats to natural habitats, biodiversity, environmental contaminants, introduced species and emerging diseases, than at any time in the past. The increased need for funding for these programs is ignored at great peril to the biological research capacity of the nation.

In contrast to the President's budget request, COMPETES authorizes \$5.742 billion for R&RA in FY 2009, and would provide an average 19.1 percent increase over FY 2008 appropriations. Moreover, COMPETES-authorized funding levels would provide NSF with the necessary funding to provide BIO with a 19 percent increase, placing it more on-par with the

trajectory of other directorates and recognizing the importance of biological research to the nation's scientific well-being.

Administration officials point to the importance of aligning the budget with priorities articulated in both the American Competitiveness Initiative and the America COMPETES Act. Yet, language in COMPETES (Public Law No: 110-69, Sec. 7018(b)) calls for parity in funding among scientific disciplines by specifying, "The Director shall give priority in the selection of awards and the allocation of Foundation resources to proposed research activities, and grants funded under the Foundation's Research and Related Activities Account, that can be expected to make contributions in physical or natural science, technology, engineering, social sciences, or mathematics, or that enhance competitiveness, innovation, or safety and security in the United States."

Members of the natural sciences community are concerned that inadequate funding is being provided to fundamental biological, social, and environmental sciences. This research is central to our ability to understand the world in which we live. More immediately, however, this research provides the knowledge required to understand and mitigate the emerging threats and uncertainties associated with global environmental change.

For twelve years, the research grant funding rate for BIO has been consistently lower than the NSF-wide funding rate. In 2008, the research grant funding rate was only 15 percent compared with an agency-wide rate of 21 percent. Unfortunately, this trend occurs at a time when BIO is contributing the largest percentage of federal dollars to basic biological sciences research and the number and scope of problems requiring biological information continues to increase.

Funding for NSF at the level authorized by the America COMPETES Act would enable more robust investments in the five core programs supported by BIO: Molecular and Cellular Biosciences; Integrative Organismal Systems; Environmental Biology; Biological Infrastructure; and Emerging Frontiers.

BIO provides essential support for the development and maintenance of important research infrastructure (e.g., natural science collections) that is necessary to advance our understanding of biological systems. There is a growing national awareness of the need to reinvest in the physical and personnel resources associated with our nation's scientific infrastructure represented by its natural science collections. Evidence for this may be found in the annual Office of Science and Technology Policy (OSTP) and Office of Management and Budget (OMB) memorandum to federal agencies on Research and Development priorities, which has charged federal agencies to evaluate the needs of the collections they host or support. A federal interagency working group on scientific collections has also been established. As part of this effort, NSF is surveying non-federal research collections to gain a better understanding of the nature of our nation's holdings.

Unfortunately, the FY 2009 budget request for the Division of Biological Infrastructure (DBI) is \$86.99 million, only 0.1 percent more than DBI's FY 2008 appropriation (\$86.94 million). The biological sciences community is increasingly concerned that decreasing

investment in the tools of science, namely the facilities, collections, and instruments that enable discovery, will have profound and negative impacts on the science. Indeed, the United States is presently lagging behind many other nations in moving toward full utilization of its natural science resources through Internet based access to digitized data instantly available to researchers, government officials, health workers, agricultural scientists and others who require instant access to such data. In some cases, data in natural science collections in the United States are difficult to access, incompletely catalogued, not available in digital format, and maintained in buildings that are inadequate to preserve such valuable resources. Increased funding for BIO would be a first step toward mitigating these difficulties. The time to act is now.

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