AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES

Talking Points on Natural History Collections for the 2024 Biological Sciences Congressional District Visits

This information is provided for your reference and to help you craft a clear and well-informed message. You do not need to repeat these points verbatim nor do you need to say all of the talking points; use those that are appropriate or comfortable for you and convey them in your own words.

Scientific collections are critical elements of our national research enterprise.

- Scientific collections held at museums, government managed labs or archives, university science departments, field stations or botanic gardens contain specimens, sample, and data (for example, genetic, tissue, species, image/recording, and environmental) that form a unique and irreplaceable foundation from which scientists study and explain past and present life on earth and assess change into the future.
- The institutions and professionals who care for scientific collections enable scientists to conduct research that informs our understanding of life on earth, and to understand how life will be affected by changing environmental conditions – from the genetic and cellular level to the regional and continental scale. We can use what we learn about these species to identify new bio-based products – from pharmaceuticals to crops.

Federal research programs provide essential funding to support biological research and natural history collections.

- Federal funding from the National Science Foundation (NSF) and other federal research agencies is critical for supporting the research and education conducted at institutions with natural history collections.
- NSF provides about two-thirds of federal support for fundamental biological and environmental research conducted at colleges, universities, and non-profit research centers across the nation.
- NSF plays a unique role in protecting and expanding access to our nation's scientific collections. It supports research that uses existing collections as well as studies that gather new natural history specimens.
- NSF funds are used to digitize high-priority specimen collections. Consequently, irreplaceable biological specimens and their associated data are now accessible through the Internet to researchers, government agencies, educators, and the public.
- NSF's Directorates for Biological Sciences (BIO), Geosciences (GEO), and Social and Behavioral and Economic sciences, all support research and student training opportunities in natural history collections to create a more diverse and effective workforce.
- NSF supports national biological research infrastructure that houses natural history collections, such as living stock collections and field stations.

- The Institute of Museum and Library Services (IMLS) provides grants to institutions with collections for preserving and digitizing collections, educational programming, professional development, and community outreach.
- *Speak about the federal program that funds your institution and its collections.*

New investments in scientific collections are in our national interest.

- Scientific collections are a critical resource for advancing the knowledge needed to address global challenges such as climate change, biodiversity loss, and pandemics. They allow us to predict threats to human health, find successful methods for ensuring food security, and address the impact of future environmental changes.
- Biological collections help us understand where viruses such as SARS-CoV-2 exist in nature, or when and where they cross from their current hosts to humans.
- A 2019 report by the Biodiversity Collections Network, "Extending U.S. Biodiversity Collections to Promote Research and Education," called for the development of a digital network of associated specimen data that represents the depth and breadth of biodiversity collections. This Extended Specimen Network (ESN), which would include both the physical specimens and their associated genetic, phenotypic, and environmental data, will stimulate new research endeavors, particularly in areas where biology intersects with other fields and engages students and the public. The ESN enables scientific discovery that would address questions of national interest, such as how diseases are transmitted from animals to humans, how crops can be more effectively and efficiently grown in changing climates, and how we can sustain and use biological resources in our oceans. Long-term investments are required to support this important endeavor.
- A 2020 report by the National Academies of Science, Engineering and Medicine argued that collections are a critical part of our nation's science and innovation infrastructure and require stable, long-term funding.
- A 2023 report from the U.S. Interagency Working Group on Scientific Collections (IWGSC) enumerated the many ways federal scientific collections have served the nation in diverse areas, including with the COVID-19 response and improving national health, climate change research and mitigation, ensuring the nation's food security, as well as environmental health and safety.
- A 2023 White House report developed by the Interagency Working Group on Data for the Bioeconomy called for digitization of biobank collections noting that "[t]apping into this biodiversity could yield insights for all sectors of the bioeconomy."

Museums strengthen our national economy.

- Museums provide core educational and outreach programs to engage the public, contribute more than $50 billion to the U.S. economy every year, and support more than 726,000 American jobs, according to the American Alliance of Museums.
- Economic activity generated by museums results in more than $12 billion in tax revenue. A third of this revenue goes to state and local governments.
- Prior to the COVID-19 pandemic, each job created by the museum sector resulted in $16,495 in additional revenue.
- According to data from the National Endowment for the Arts and the Bureau of Economic Analysis, non-government museums added $12.9 billion to the national economy in 2022.

- Museums spend more than $2 billion annually on education activities and receive 55 million visits from students in school groups every year. Children who visit museums during kindergarten demonstrate higher achievement in reading, mathematics and science in third grade than children who do not.

Public investments in research yield a positive rate of return.

- Over the past decade, the U.S. science, technology, engineering, and mathematics (STEM) workforce grew in both number and the percentage of the total U.S. workforce – from 22% to 24% between 2011 and 2021.
- In 2021, the U.S. STEM workforce comprised 36.8 million people in diverse occupations that require STEM knowledge and expertise, constituting 24% of the total U.S. workforce.
- Workers in science and engineering occupations tend to have higher incomes and lower unemployment rates than workers in other kinds of jobs.
- In FY 2023, NSF directly supported an estimated 353,000 people (researchers, postdoctoral fellows, trainees, teachers and students). Since 1952, it has supported more than 70,000 graduate students through its Graduate Research Fellowship program.
- Federal research funding has contributed to the success of numerous companies, such as Genentech, Ekso Bionics, Ginkgo BioWorks, and Google. Federal investments have also spawned entirely new fields, such as genomics and its applications in forensics, agriculture, and medicine.
- *Include an example from your state.*

Federal support for research has been shrinking.

- Since 1976, federal investment in research and development (R&D) as a share of Gross Domestic Product has declined from 1.23 percent to 0.76 percent. Since 2010, federal R&D as a share of the U.S. economy decreased by nearly 25 percent.
- Foreign countries, especially China, are rapidly increasing investments in all fields of science, jeopardizing our nation's status as a leader in scientific discovery and innovation. The annual rate of increase of China's R&D is almost double that of the U.S.

Sustained investment in research is required if we are to solve our greatest problems.

- Predictable annual investments allow federal research managers, scientists, and industry executives to plan wisely in setting research priorities.
- Fluctuations in funding result in a backlog of unfunded but highly competitive research. This demoralizes researchers and slows the pace of discovery.

Many of our nation's museums are still reeling from the impacts of the COVID-19 pandemic and need support.

- Natural history museums, botanical gardens, herbaria, field stations, and other research institutions suffered revenue losses due to reducing, postponing, and canceling of public programs, including formal and informal science education programs. Most of these institutions are non-profits and cannot easily absorb revenue losses resulting from

reduced public visitation. Boosting federal scientific investments would greatly benefit these institutions.
- *Provide examples of how the pandemic has impacted your institution.*

We urge you to provide the National Science Foundation at least $11.9 billion in Fiscal Year (FY) 2025.

- NSF funding is essential to our nation's research infrastructure, such as natural history museums/collections, biological field stations, and ecosystem research centers.
- This appropriations request aligns with the FY 2023 authorization for NSF in the CHIPs and Science Act and is supported broadly by the scientific community.
- We were encouraged by the passage of the CHIPS and Science Act, which demonstrated bipartisan commitment to our nation's scientific and technological enterprise and recognized biological collections as a research priority. We urge Congress to follow through on its promise by funding NSF as close as possible to the levels authorized by the law.
- Fully funding NSF at the levels authorized by the CHIPS and Science Act will allow the agency to sustain critical support for collection and digitization efforts and make new awards to facilitate the establishment of an Action Center for Biological Collections. Such a center will provide leadership, support, and coordination for federal, non-federal, and private collections and enable transformative research to address grand societal challenges.

Please also provide robust funding increases for programs that support natural history collections within the Department of the Interior, the Smithsonian Institution, and IMLS.

We are disappointed that NSF received only $9.1 billion in FY 2024, an 8% cut compared to its FY 2023 budget. Other agencies like the U.S. Geological Survey and the Smithsonian Institution also received decreased funding in FY 2024.

- This is the first time that funding for NSF has decreased in a decade. The reduced allocation hurts research and undermines the nation's ability to address societal challenges.
- While we are thankful an agreement could be reached to complete the appropriations process, the decreased funding level for NSF will stall American innovation by diminishing prior research, workforce, and infrastructure investments. We understand the difficult choices faced in the current fiscal environment. However, the FY 2024 funding for NSF fell far below our competitiveness needs.
- Further, this cut ignores the bipartisan CHIPS and Science Act, which provided an exciting framework for growing federal investments in scientific research. Failure to meet the funding levels authorized in this law will lead to billions of dollars in lost opportunities.