

NSC ALLIANCE WASHINGTON REPORT

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Policy News from NSC Alliance

Through the NSC Alliance partnership with the American Institute of Biological Sciences, we are pleased to provide NSC Alliance members with the following public policy update. If you have any questions or require additional information regarding any of the following items, please contact NSC Alliance director of public policy Dr. Robert Gropp at 202-628-1500 x 250 or at rgropp@aibs.org

Senator Rockefeller Includes Collections in Senate COMPETES Legislation

On 15 July 2010, Senator Jay Rockefeller (D-WV) introduced legislation that would reauthorize the America COMPETES (Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science) Act. Like the measure passed by the House of Representatives in June (H.R. 5116), Rockefeller's legislation (S. 3605) would seek to stimulate innovation and improve science education by increasing funding authorizations for federal agencies that support basic research. The Rockefeller legislation also includes Section 105, which addresses federal science collections. However, there are several differences between the House and Senate bills.

Currently, the Senate legislation is broader than H.R. 5116. Like H.R. 5116, the Rockefeller plan includes authorizations for the National Science Foundation (NSF) and the National Institute of Standards and Technology (NIST). However, S. 3605 also includes policy provisions regarding education programs at NOAA (National Oceanic and Atmospheric Administration) and NASA (National Aeronautics and Space Administration). Additionally, NOAA's research and development program would be codified in law.

The Senate bill would authorize funding for a three year period, instead of the five years in H.R. 5116. Moreover, the funding path for NSF increases more rapidly in the Senate bill: \$9.943 billion in fiscal year (FY) 2013 versus \$10.161 billion in FY 2015 in the House's version.

Notably for the natural science collections community, the Senate bill includes language regarding the management, use, and access to federal scientific collections. Like the House-passed legislation, S. 3605 would require the Office of Science and Technology Policy to develop a policy “to improve the quality, organization, access, including online access, and long-term preservation of [federally held] collections for the benefit of the scientific enterprise.” Significantly, the Senate bill would also require that the plan be developed in consultation with non-federal collections.

The Senate Commerce, Science and Transportation Committee could consider the legislation as early as this week. The Senate Energy and Natural Resources Committee and Senate Health, Education, Labor, and Pensions Committee are also expected to contribute to the legislation.

Reminder: North American Living Plant Collection Survey Closes August 1, 2010

Botanic Gardens Conservation International - US, United States Botanic Garden, and Harvard University’s Arnold Arboretum are conducting an important survey to document all living plant collections in North America as part of a regional and global assessment. Survey organizers thank those who have already contributed their collection’s taxa list to the PlantSearch database, and encourage other collection professionals to participate before the survey closes on August 1, 2010.

This effort is intended to provide valuable insights about plant diversity and threatened plants in cultivation. It is quick, easy, and free to participate. Simply upload a spreadsheet of taxa held in your collections to the PlantSearch database.

To participate, visit www.bgci.org/usa/MakeYourCollectionsCount. Please contact Abby Hird at abby_hird@harvard.edu or (617) 384-5774 if you have questions or require assistance in completing the survey.

Collections Inform Study of Pollution in National Parks

Two recent publications on pollution in National Parks utilized natural history collections to establish baselines of environmental contamination. Published in the 15 June issue of *Environmental Science and Technology*, the studies found that pesticides and polycyclic aromatic hydrocarbons (PAHs) were prevalent throughout National Parks in the western United States.

“I think what continues to surprise me even though we’ve been studying this issue for a while now is that when we think of parks, we think of them being very pristine and especially with the more remote sites within the parks, we think of them as being pristine, but, in fact, there is deposition of pollutants within those sites and it can be significant in some of those areas,” said Staci Simonich, an associate professor of environmental and molecular toxicology at Oregon State University and an investigator on both of the studies. Simonich noted that the pesticide

pollution is so routine in contemporary society that researchers had to use museum specimens to find baseline data that existed prior to pesticide use.

Shell Collection Sheds Light on Pre-Oil Spill Pollution

A collection of over 10 million shells housed at Philadelphia's Academy of Natural Sciences is being used by scientists to better understand historical levels of environmental contamination in the Gulf of Mexico. The collection, dating back to 1812, includes oyster shells collected from the Gulf between 1887 and 1960.

Shells can serve as a record of water pollution. Mollusks incorporate ingested contaminants, such as hydrocarbons, polychlorinated biphenyls, and heavy metals, into their shells. Scientists are currently comparing the composition of shells in the museum with oysters collected after the BP oil spill. This analysis should reveal if water pollution levels have changed throughout the region in the wake of the oil spill.

"You never know what these things will be useful for," said Peter Roopnarine, the leader of the ongoing study, whose first results are expected by September. "Each individual shell is going to give us a record back in time."

House Subcommittee Considers Future of Biology

On 29 June 2010, Dr. James P. Collins, Virginia M. Ullman Professor of Natural History and the Environment at Arizona State University and the former Assistant Director for Biology at the National Science Foundation (NSF), was among the witnesses testifying before a House Research and Science Education Subcommittee hearing examining the future of the biological sciences. The hearing was spurred, in part, by the National Research Council's recent publication, *A New Biology for the 21st Century: Ensuring the United States Leads the Coming Biology Revolution*. Funded by the National Science Foundation (NSF), the National Institutes of Health, and the Department of Energy, the report makes recommendations for how a "new biology" can advance basic research and solve world problems in the areas of environment, energy, health, and agriculture.

In his opening remarks, Subcommittee Chairman Daniel Lipinski (D-IL) shared an amusing, but informative, personal experience: "Although biology was not my favorite subject in high school – although that may be because it was first semester freshman year and we had to dissect the fetal pig – the new, 21st century biology has me much more interested. I was trained as a mechanical engineer, and when I hear people talking about cells as a systems design problem, I understand the important role of engineers and physicists working in biology."

The panel's senior Republican, Representative Vernon Ehlers (MI) – a Ph.D. physicist – commented that he is still getting his head around the complex issues associated with 21st century biology. Ehlers hypothesized, however, that if he were to return to science he might well pursue the kind of questions and interdisciplinary research often described as 21st century

biology. Representative Brian Baird (D-WA), who has a Ph.D. in clinical psychology, joked that he and Ehlers might form an interesting interdisciplinary team and that they should consider submitting a grant application.

The panel examined the promise of 21st century biology by exploring research happening at the intersection of the biological sciences, the physical sciences, engineering, and mathematics, and its potential to address real-world problems. “We’ll also look at how these potential advances can be translated into technologies that benefit society, and what we need to do to train researchers who can thrive in an area that doesn’t fit into any one department...research at the intersection of biology and engineering, known as synthetic biology...could lead to the development of bacteria that could help clean up the oil spill in the Gulf of Mexico, produce cellulosic biofuels, or even lead to an organism that can detect and destroy cancer cells,” Lipinski said.

“As a former university professor, I’ve seen firsthand the difficulty of overcoming cultural and institutional barriers between academic departments and schools... But the potential successes that can be realized by having interdisciplinary teams working on biological problems mean that we need to ensure these collaborations continue to grow,” Lipinski said.

Collins told the subcommittee: “The biological sciences will flourish in the 21st century by sustaining strength in its core disciplines while simultaneously supporting research at the intersection of the natural, physical, and social sciences as well as engineering. Research at these disciplinary edges holds great promise for addressing problems in energy, the environment, agriculture, materials, and manufacturing. Interdisciplinary methods cut across disciplines to combine in powerful ways basic research with solving real world problems. Because today’s students are tomorrow’s problem solvers we must also integrate research and education.”

“At the Subcommittee’s request I’ll comment on the environmental sciences, which offer many promising research opportunities. Interdisciplinary research is advancing our basic understanding of challenges such as global change and global loss of biodiversity and suggesting ways in which we might mitigate these changes. NSF-supported sensing systems in the Long Term Ecological Research Network (LTER) and in the proposed National Ecological Observatory Network (NEON) are designed to gather enormous quantities of data continuously. These networks of sensors, computers, and people promise to transform how we test basic ecological theory and apply the results to environmental problem solving,” Collins said.

“Molecular methods are accelerating the description of new species, including the discovery of novel microbes that add to our basic understanding of the biosphere while serving as ‘bio-inspiring’ sources of novel energy technologies. At NSF the new Dimensions of Biodiversity initiative is supporting just this sort of grand challenge research in which new knowledge is developed. As this research matures, researchers will need new tools such as sensors that run on small, very long life power sources. New methods must include fast, highly accurate molecular techniques for identifying species and efficient computer algorithms for analyzing, visualizing, and storing large quantities of data. Students entering these fields must be skilled in quantitative and computational methods, understand how to draw on multiple disciplines to address

problems, and learn to do science in nationally and globally connected communities,” Collins explained.

Following witness testimony, Baird noted that NSF is still seeking to fill Collins’ former NSF post. Baird asked whether NSF would seek to fill this position with someone who is familiar with and embraces the concepts of 21st century biology. Collins responded, “Yes.”

Other witnesses appearing before the panel were:

Dr. Keith Yamamoto, Chair, National Academy of Sciences, Board on Life Sciences, and Professor, Cellular and Molecular Pharmacology at the University of California, San Francisco; Dr. Reinhard Laubenbacher, Professor, Virginia Bioinformatics Institute and Department of Mathematics, Virginia Tech;

Dr. Joshua N. Leonard, Assistant Professor, Department of Chemical and Biological Engineering, Northwestern University; and,

Dr. Karl Sanford, Vice President, Technology Development, Genencor.

Although the hearing considered the promise and challenges of synthetic biology, as one element of new biology, witnesses also discussed training for the scientists who will work in 21st century biology.

House Considers FY 2011 Appropriations

Running far behind schedule, the House Appropriations Committee has begun work on the twelve spending bills that would fund the federal government in fiscal year (FY) 2011. Since June, eight proposals have advanced from subcommittees. Of interest to many in the scientific community, the measure that would appropriate funding for the National Science Foundation (NSF) and several other science agencies was approved by the Commerce, Justice, and Science (CJS) Appropriations Subcommittee on 29 June 2010.

If enacted, the CJS bill would provide \$32.8 billion for science, technology, and innovation and \$1.5 billion for science education. According to Subcommittee Chairman Alan Mollohan (D-WV): “The Subcommittee recommendation continues to provide resources consistent with the doubling path identified for NSF and NIST [National Institute of Standards and Technology] in the COMPETES Act. It also considers the science and research conducted at NOAA [National Oceanic and Atmospheric Administration] and NASA [National Aeronautics and Space Administration] as critical to the Nation’s science enterprise as that performed by the NSF and NIST, and investments are recommended accordingly.”

The proposal would allocate \$7.424 billion to NSF in FY 2011, \$498 million more than last year and the same amount requested by the President. Within this funding, \$5.96 billion is designated for Research and Related Activities, a 6 percent increase over FY 2010. Education and Human Resources at NSF would increase by almost 10 percent to \$958.4 million. Major Research Equipment and Facilities Construction would increase by \$47.9 million to \$165.2 million. The bill would also provide a 17 percent increase to for NOAA. Details on how the funding would be allocated among NOAA’s programmatic activities have not yet been released, although the

\$5.5 billion budget for the agency would be dominated by spending for the acquisition of climate and weather satellites.

The Labor, Health and Human Services, and Education appropriations bill was also approved by its appropriations subcommittee in the House. Of potential interest to the collections community is funding for the Institute of Museum and Library Services, which would receive \$266 million in FY 2011. This funding level is the same as the President's request and \$16 million less than last year.

Given Congress' late start on FY 2011 appropriations and the few days remaining on the legislative calendar before the November elections, many in Washington speculate that few, if any, individual spending bills will be enacted this year. Rather, the bills could be bundled into a single "omnibus" appropriations bill.

Join Collection Colleagues on LinkedIn

A new online group has formed to encourage networking among natural science collections leaders. This group offers an opportunity for individuals from collections across the nation to identify and discuss common public policy issues, or other common challenges they face as natural science collections professionals.

To join this group you must first join LinkedIn (www.linkedin.com). There is no cost for creating a profile on this site. Once you have registered, simply search the Groups function for "Natural Science Collections Leadership." Membership in this group is limited to natural science collections professionals, but there is no cost to join or participate in group discussions or events.

President Obama Orders Risk-Based Security Measures for Select Agents

In an Executive Order issued on 2 July 2010, President Barack Obama called for major changes to the government's management and oversight of biological select agents and toxins (BSAT). The National Select Agents Registry Program, which regulates the use of dangerous pathogens and toxins in research, will now be required to identify and better secure biological agents and toxins with greater risk for misuse.

The presidential order directs the secretaries of the Departments of Agriculture and Health and Human Services, the agencies that oversee the select agent program, to identify "Tier 1" biological agents based on "risk of deliberate misuse with most significant potential for mass casualties or devastating effects to the economy, critical infrastructure, or public confidence." These Tier 1 agents will be subject to higher security protections than less risky agents. The agencies are also directed to consider reducing the number of agents and toxins on the Select Agent List, which currently includes 82 substances. A final rule implementing the changes should be issued by October 2012.

The select agent program has been the focus of recent attention for Congressional, the Executive Branch, and non-governmental organizations. Legislation is pending in both the Senate and the House of Representatives that would overhaul the program. A 2009 report from the National Academy of Sciences recommended the stratification of the current list of biological select agents and toxins, which includes anthrax and other deadly substances. A working group chaired by the Secretaries of the Departments of Defense and Health and Human Services also found fault with current “one-size-fits all” security measures for restricted agents.

The Natural Science Collections Alliance is a Washington, D.C.-based nonprofit association that serves as an advocate for natural science collections, the institutions that preserve them, and the research and education that extend from them for the benefit of science, society, and stewardship of the environment. NSC Alliance 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, and outreach activities. Website: www.NSCAlliance.org

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