March 11, 2015

The Honorable Ken Calvert
Chairman
Subcommittee on Interior, Environment and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Calvert:

Attached please find a status report on collections stewardship initiatives at the Smithsonian. The statement of managers accompanying the conference report on the Consolidated and Further Continuing Appropriations Act, 2015 directs the Smithsonian to provide “...a progress report on the multi-year effort to improve the stewardship of national collections including those within the National Museum of American History.” The attached document is in response to that directive.

We continue to integrate collections care, space, and digitization into a cohesive strategy to capitalize on economies of scale and enable comprehensive care improvements that benefit the greatest number of items in an efficient, practical, and cost-effective manner.

Please contact Nell Payne in the Smithsonian’s Office of Government Relations should you have any questions or need additional information regarding this matter. She can be reached at 202.633.5125 and paynen@si.edu.

Thank you for your interest in the Smithsonian.

Best regards,

cc:
Ranking Member McCollum
Chairman Murkowski
Ranking Member Udall
STATUS REPORT ON COLLECTIONS STEWARDSHIP INITIATIVES AT THE SMITHSONIAN INSTITUTION

March 11, 2015
Thanks to the support of the Administration, the Congress, and the American people, the Smithsonian is able to preserve, protect, and make accessible its vast collections comprised of 138 million objects and specimens, including 1,600 live animals, 157,000 cubic feet of archival material, and two million library volumes. Our collections are a vital global asset for students, educators, scientists, scholars, policy makers, and enthusiasts—everyone in America or around the world interested in art, history, science, culture, and education. Nearly 30 million visitors come to our museums and art galleries annually to view them in person, and tens of millions more visit us online. Millions also see our treasures through our Smithsonian Travelling Exhibition Service, our nearly 200 hometown affiliate museums, and through our active outgoing loan programs which annually lend about 175,000 items to museums, universities, and non-profit educational organizations in nearly every state and to 50 countries around the world.

Collections stewardship is among the Smithsonian’s highest priorities and in some cases, our greatest challenge. The volume, characteristics, and age of Smithsonian collections—as well as the variety of standards that apply to their care—make their management, preservation, and digitization as complex as the collections themselves. We continue to improve the care, preservation, digitization, and storage of our collections.

As steward of the national collections, the Smithsonian has the unique responsibility and historic tradition of preserving and making accessible our collections that are held in trust for the American people. We hold the Star-Spangled Banner; Morse’s telegraph; Edison’s light bulb; the Hope Diamond; Louis Armstrong’s trumpet; labor leader Cesar Chavez’s jacket; the Lansdowne portrait of George Washington; the Congressional Gold Medal awarded to Japanese American World War II veterans; the Spirit of Tuskegee airplane; the camera John Glenn used on his voyage into space; and the space shuttle Discovery.

With Federal support, we are working diligently to ensure our holdings in art, science, history, and culture are available for current and future generations—to educate, inspire, and enlighten. We have been making significant progress at raising the level of collections care, storage, and accessibility with improved collections care funding in recent years. Through assessments and the development of rich data sets, long-term planning, and prioritization, we are strengthening collections in a pragmatic, strategic, and integrated manner. We have taken a coordinated, Institution-wide approach to addressing our collections challenges, focusing on the following three important initiatives:

- Implementation of collections space planning to survey the current condition of collections space and to develop a framework plan for addressing current and projected Smithsonian-wide collections space requirements, including future collections growth;
- Implementation of an Institution-wide assessment of collections physical condition and digitization, providing information to set priorities, identify areas where improvements are needed, guide comprehensive and unit-level planning, measure progress toward meeting standard levels of care, and improve physical and digital collections stewardship; and

- Focus within the "digital Smithsonian" strategy to guide electronic capture of collections and research holdings to document these collections in a format that saves and shares them in perpetuity.

We collect and evaluate these data to inform a big-picture view of Smithsonian collections, an effort that integrates collections care, space, and digitization into a strategy which capitalizes on economies of scale and enables comprehensive improvements that benefit the greatest number of items in an efficient, practical, and cost-effective manner. To support this integration, the National Collections Program (NCP) and the Digitization Program Office (DPO) developed a coordinated approach to collections data gathering, capturing information regarding collections significance, physical condition, and digitization.

Both the collections space planning initiative and the collections and digitization assessment efforts have enabled the Smithsonian to identify areas of risk, and to establish priorities and action plans for systematically improving the preservation and accessibility of collections.

**Collections Space Survey and Planning**

In 2015, we issued the report of a multi-year Institution-wide collections space planning initiative to document, analyze, and plan for addressing our current and future collections space needs in an efficient and strategic way. As part of this initiative, we completed a survey of existing collections space. The survey provided a snapshot of current collections space conditions across the Institution and characterized the quality of collections space, storage equipment, accessibility, environmental conditions, security, and fire safety. The first-of-its kind assessment of over 2.1 million square feet of collections space (18% of total Smithsonian building space) evaluated 1,800 locations at more than 35 properties and 90 buildings. Coordination of the effort itself was also a unique interdisciplinary initiative that reflects Smithsonian’s collaborative focus: progress in improving collections space must be pan-Institutional. It must involve every museum and storage facility, as well as experts in collections, facilities management, and capital planning—all working together.

While the final report was recently issued in 2015, preliminary data from the collections space survey had been in use immediately. For example, survey findings highlighted that some collections were at risk of damage or loss at the Garber Facility in Suitland, Maryland where buildings constructed in the 1950s and 1960s have surpassed their useful lifespan. As a result, a Facilities Capital project currently
underway began to address the severe collections space deficiencies in Buildings 15, 16, and 18 at the Garber Facility, supporting the decontamination, stabilization and move of American History and Postal Museum collections currently stored in Building 15 to a soon-to-be constructed temporary building to be completed in May. Phases 2 and 3 will repeat the process for Buildings 16 and 18.

This project is a tangible outgrowth of the collaborative approach to collections care. Completion of this remediation project and the continued move of Air and Space Museum collections to the Udvar-Hazy Center are the first steps in a phased redevelopment plan for the Garber Facility. As the Collections Space Framework Plan highlights, remediation of the Garber Facility would address more than one-third of Smithsonian’s unacceptable collections space.

To address near-term space requirements, our Facilities Capital program also supports the planning and design of Pod 6 at the Museum Support Center (MSC) and various museum revitalization projects that will vastly improve collections storage, preservation, accessibility, and space efficiency. Construction of Pod 6 will complete the intent of the original 1994 MSC Master Plan and initiate the Collections Space Implementation Plan for relocation of at-risk collections from the Garber Facility and several Mall museums.

**Collections Physical Assessment**

In Fiscal Year 2010, we initiated an Institution-wide collections physical assessment. The assessment includes an evaluation of the quality of collections storage equipment, object housing materials, preservation, physical accessibility, and collections space. In Fiscal Year 2012, the category of collections significance was added to the collections assessment methodology.

Although collections by their nature and use are subject to deterioration, some collections are more susceptible to deterioration, damage, or possible loss due to their fragility, current state of preservation, or storage condition. The assessment process determines and documents the physical condition and any possible variance in that state from year to year.

Informed by this data set, the Smithsonian uses the centralized Collections Care and Preservation Fund (CCPF) to address priority collection needs and to achieve targeted improvements in preservation, storage, and accessibility of collections, ranging from national icons such as the conservation of The Jefferson Bible to the preservation and management of biomaterials, in an efficient and cost-effective manner. Using that funding model, the Smithsonian will continue to target specific collections and to improve substandard aspects of collections care, preservation, and storage to an acceptable level based on the assessment results and unit collections management priorities.

The National Collections Program has strategically directed central collections care resources to specific collections across the Institution to improve substandard
aspects of collections to an acceptable level and meet professional standards; facilitate collections moves from substandard facilities; and address the Institution’s highest priority collections management needs. Examples of these accomplishments are:

- The National Museum of American History has made improvements in the inventory, preservation, and storage of its Military Uniform, Firearms and Edged Weapons, Engineering, Natural Resources and Agriculture Collections.

- The National Air and Space Museum (NASM) has used central funding to support the assessment, rehousing, and move of over 12,000 NASM objects from substandard conditions at the Garber Facility to the Udvar-Hazy Center.

- The improved management and preservation of the Smithsonian’s cryo-collections—nearly one million samples of frozen tissue products from more than 16,000 species—held by the National Zoo, Natural History Museum, and the Smithsonian Tropical Research Institute.

- The preservation, reformatting, and digitization of significant holdings of film and audiovisual recordings across the Smithsonian that are currently at high risk of permanent physical and content loss due to technology and equipment obsolescence, fragility, and rapid deterioration.

Digitization

The Smithsonian holds the world’s largest collection of historic artifacts and images, and wants to make them available online. Given the immense magnitude of the task, the Smithsonian has prioritized about 12 percent of its collections for digitization. To rise to this challenge, the Digitization Program Office is promoting rapid capture photography workflows for two-dimensional collections, and exploring innovations to speed up the capture of our three-dimensional collections, including the application of cutting-edge 3D digitization.

We are stepping up efforts to digitize as many of the collections as funds permit to expand access and advance our founding mission, “the increase and diffusion of knowledge.” We continue to increase the quantity and quality of digital inventory records and digital images, advancing each of the four major goals of our Strategic Plan, as well as broadening access, revitalizing education, and strengthening collections.

On January 1, 2015, the Freer Gallery of Art and Arthur M. Sackler Gallery released their entire collections online, providing unprecedented access to one of the world’s most important holdings of Asian and American art. The vast majority of the 40,000 artworks have never before been seen by the public, and more than 90 percent the collection objects of the images are in high resolution and without copyright restrictions for noncommercial use.
The Freer and Sackler galleries are the first Smithsonian and the only Asian art museums to digitize and release their entire collections, and in so doing join just a handful of museums in the United States. Digitization successes like these are the result of a massive staff effort to photograph and create digital records for its objects. The Freer | Sackler initiative required almost 6,000 staff hours in the past year alone and resulted in more than 10 terabytes of data and 50,000 images. The galleries also hosted a Rapid Capture Pilot Project, an emerging method of quickly and efficiently digitizing vast numbers of smaller objects.

The Cooper Hewitt Smithsonian Design Museum will be the next Smithsonian museum to release their entire collection online once a two-year effort to digitize the 200,000 collection object concludes in Fiscal Year 2017. This is the first time a museum collection of this magnitude and variety has been digitized in a single, dedicated effort, applying the cost-effective and time-efficient workflows created through the rapid capture prototype described below. Pairing the physical museum with digital information enriches the visitor experience at the Cooper Hewitt Smithsonian Design Museum in New York City, which re-opened in December 2014 after a three-year renovation. The museum boasts 60 percent more gallery space to present its important collection and temporary exhibitions and offers an entirely new and invigorated visitor experience, with interactive, immersive creative technologies. Visitors can explore the collection digitally on ultra-high-definition touch-screen tables, draw their own designs in the Immersion Room, and solve real-world design problems in the Process Lab. A newly developed pen further enhances the visitor experience through the ability to “collect” and “save” information. All of this technology, supported and complemented by the Cooper Hewitt’s new website and digital collections, affords a deeper understanding and appreciation of the more than 200,000 objects in the museum’s collection. The Atlantic magazine recently said of Cooper Hewitt, “The museum of the future is here.”

The Digitization Program Office continues to be a recognized leader in the application of 3D technology in a museum space. A project to digitize the Nation’s T. Rex at the National Museum of Natural History yielded 3D data for all of the 200 individual bones of the fossils, which will allow curators to design an engaging and scientifically accurate pose as part of the redesign of the dinosaur hall. The White House invited the Smithsonian to create a 3D portrait of President Obama. A 1:1 scale 3D printed bust based on accurate scientific measurements made its debut at the White House Maker Fair as the first such portrait of its kind of a sitting president. The National Portrait Gallery has accessioned the bust into the national collection, and exhibited it for the first time over President’s Day weekend 2015. Using 3D data of a patent model from their collection as a starting point, educators at the National Museum of American History sent two middle-school students from Virginia on an unparalleled learning journey by asking them to re-invent the Morse-Vail telegraph using a 3D printer and historical source documents. One of the students commented, “Reading and taking notes from a textbook, it doesn’t help. It’s easier to understand something that’s right in front of you.”
The Digitization Program Office has strategically invested in rapid digitization prototype projects that showcase replicable, cost-effective, high-throughput, high-quality processes for addressing the Smithsonian digitization challenge. Collections digitized in these rapid capture workflows go from the shelf to the public in a matter of 24-48 hours, enabling near-instant access and impact. These pilot projects included:

- A quarter-million sheets from the National Numismatic Collection, housed at the Smithsonian's National Museum of American History, used to print money from 1863 to 1930. The digitization project used, for the first time in the United States, a conveyor belt that made the work process as efficient as possible, digitized the objects at high speed, and enabled a significant cost-reduction over more conventional digitization methods. This conveyor belt will next be deployed in the Botany collection at the National Museum of Natural History.

- At the National Museum of Natural History a pilot project digitized 45,000 bumblebees in 40 days establishing new records of throughput for that type of collection. This collection dates back 100 to 150 years, and included the tags associated with each specimen.

- Digitization of 900 historic glass-plate negatives from the Thomas Sears Collection at the Archives of American Gardens originating from the turn of the 20th century. A follow-on project, utilizing the same techniques, completed digitization of the remaining 3,800 glass-plates from this collection.

In August 2014, Smithsonian launched the online Transcription Center. The website is designed to leverage the power of the public to help the Smithsonian unlock the content inside thousands of digitized images of documents, such as handwritten Civil War journals, personal letters from famous artists, 100-year-old botany specimen labels, and examples of early American currency.

The Smithsonian has already produced digital images for millions of objects, specimens, and documents in its collection. Many of the digitized documents are handwritten or have text that computers cannot easily decipher. Transcription by humans is the only way to make the text of these items searchable, which will open them up for endless opportunities for research and discovery.

The Smithsonian's collection is so vast that transcribing its content using its own staff could take decades. By harnessing the power of online volunteers that goal can become a reality. During the year of beta testing with nearly 1,000 volunteers, the Transcription Center completed more than 13,000 pages of transcription. In one instance—transcribing the personal correspondence of members of the Monuments Men held in the Smithsonian's Archives of American Art collection—49 volunteers finished the 200-page project in just one week. By some estimates, the volunteers
are completing in a couple of days what it would take the Smithsonian months to complete without their help.

Inviting the public to be our partners helps to unlock the collections for professional and casual researchers to make new discoveries. This public partnership has been a huge success thanks to more than 4,700 digital volunteers in Fiscal Year 2015.

**Collections Impact on Science**

Our collections are a valuable resource for scientists from Federal agencies such as the Departments of Agriculture and Defense, and the United States Geological Survey. We work with the Office of Science and Technology Policy to coordinate our efforts with Federal agencies and avoid duplication of activities. Collections acquired a century or more ago are being used today to address the effects of global change, the spread of invasive species, and the loss of biological diversity and its impact on ecosystems. Federal, state, and local authorities often look to our collections for answers during events such as flu epidemics, oil spills, volcanic eruptions, and aircraft downed by bird strikes.

In 2014, collections were used to inform species conservation efforts. Scholars from the Smithsonian, Fordham University, and the Leibniz Institute for Zoo and Wildlife Research in Germany used Smithsonian collections to demonstrate that the extinct Caribbean and critically endangered Hawaiian monk seals are more evolutionary unique than was recognized in then-current taxonomy, moving the group to describe a new seal genus, *Neomonachus*, the first new pinniped genus recognized in about 150 years. This change in taxonomy and evolutionary understanding became the basis of an official NOAA Rule published in the November 2014 Federal Register, adopting these findings and taking them under advisement in monk seal protection and conservation efforts.

Smithsonian also contributes valuable leadership and insight on collections care and access to the Federal management of scientific collections. In March 2014, the White House Office of Science and Technology Policy (OSTP) issued a policy on "improving the management of and access to scientific collections." The policy responds to the mandate of the America COMPETES Act of 2010, and builds on the work of the Interagency Working Group on Scientific Collections (IWGSC). The policy will be very important in enhancing the availability of Federally funded and Federally supported collections to advance research, education, public health, and natural resource management, and will protect the U.S. government's substantial investment in creating those collections. In addition to its direct impact on the care of collections owned, maintained, and funded by the Federal government, it will have a significant indirect impact on raising the standard for care of non-Federal collections nationally, and will be seen as model for many other countries. The Smithsonian fully supports and has informed the OSTP policies concerning scientific collections and has participated as co-chair of the IWGSC. In 2013, the Smithsonian was also selected to host the Secretariat office of Scientific Collections International (SciColl), an initiative.
launched by the OECD’s Global Science Forum.

Conclusion

Collections often have exciting impacts in scholarship, but our collections are also a valuable resource for every parent, teacher, and professional here and abroad. Through our collections we tell the story of every American to all Americans and to the world. Smithsonian collections define our national identity, documenting our history, diversity, and artistic, cultural, and technological achievements. As a storehouse of ideas, Smithsonian collections are critical to the nation’s research and education infrastructure.

We continue to make great strides in collections stewardship and digitization, but the enormity of the Smithsonian collections creates unprecedented challenges. The support and financial help of the Administration, the Congress, and the general public allows the Smithsonian to continue to preserve the nation’s treasures—and serve the American people.