



Smithsonian  
Institution

**Collections Management: Progress Made  
with Initiatives to Improve Inadequate  
Storage and Undertake Digitization, but  
Key Challenges Remain**

**Office of the Inspector General  
Report Number A-13-11  
September 14, 2015**



# In Brief

## ***Collections Management: Progress Made with Initiatives to Improve Inadequate Storage and Undertake Digitization, but Key Challenges Remain***

**Report Number A-13-11, September 14, 2015**

### **What We Did**

The objective of this audit was to evaluate the extent to which the Smithsonian has made progress in implementing the two key initiatives to improve collections care: (1) collections space planning and (2) digitization.

### **Background**

Smithsonian collections include works of art, historical artifacts, natural and physical science specimens, living animals and plants, images, archives, libraries, and audio and visual media. In total, the Smithsonian's collections are made up of approximately 138 million objects; 157,000 cubic feet of archival materials; and 2 million library volumes. The Smithsonian's 23 collecting units are responsible for caring for their collections.

A 2005 Smithsonian study, *Concern at the Core*, identified that the Smithsonian's collections storage space conditions posed a significant risk to the collections. The study also stressed the importance of digitizing the Smithsonian's collections.

Digitization is the creation of electronic records and digital images to represent the Smithsonian's vast collections in order to broaden access, improve inventory control, and assist in the preservation of the collections.

### **What We Found**

The Smithsonian completed its collections space planning initiative in late 2014. For the first part of the initiative, it completed the first comprehensive survey of the condition of the spaces used to store collections. The survey found that 34 percent of its spaces were optimal (meet or exceed current Smithsonian standards); 19 percent were acceptable (meet the majority of standards but can still be improved); and 47 percent were unacceptable (do not meet current standards).

For the second part of the space initiative, the Smithsonian used the survey results to develop the Collections Space Framework Plan. To better safeguard the collections, the plan calls for renovating nearly 700,000 square feet of existing collections space and adding 1 million square feet of space to: (1) replace space that cannot be renovated, (2) allow for future collections growth, (3) address overcrowding of collections space, and (4) reduce reliance on leased facilities. The plan will cost an estimated \$1.3 billion (in 2013 dollars) over 30 years to implement. Over the next five fiscal years (2015-2019), the Smithsonian expects to spend at least \$107.4 million for projects in the plan.

The Smithsonian is making progress in creating digital images and electronic records of its collections but significant work remains. The Smithsonian created a central Digitization Program Office to provide overall leadership to the initiative. Furthermore, as of September 30, 2013 (the latest available data), the Smithsonian has an electronic record for 17 percent of its collection objects and digital images for 14 percent of 16 million high-priority objects.

The Smithsonian voluntarily submits annual performance plans and reports to the Office of Management and Budget (OMB). However, in six of its performance reports, the Smithsonian mislabeled the fiscal year for performance data because it has not been collecting data in a timely manner that would enable it to include the most recently completed fiscal year data in the reports. Smithsonian units have not been required to compile this data until several months after OMB's November performance reporting deadline. In response to our work, the Smithsonian corrected the mislabeled data in these reports and developed procedures to accurately report digitization performance data.

### **What We Recommended**

Because performance data must be timely to be useful and used by decision makers, we recommended that management develop and implement a plan to obtain timely digitization performance data for inclusion in its annual performance reports. The Smithsonian concurred and plans to address it by February 2016.

**For additional information or a copy of the full report, contact us at (202) 633-7050 or visit <http://www.si.edu/oig>.**

---

**TABLE OF CONTENTS**

INTRODUCTION	1
RESULTS OF AUDIT	
<i>Smithsonian Survey Found Forty-Seven Percent of Storage Space is Unacceptable, and the Smithsonian has Initiated a \$1.3 Billion Program Over 30 Years to Safeguard the Collections</i>	2
<i>Digitization is Progressing, but Improvements in the Accuracy and Timeliness of Performance Reporting are Needed</i>	4
Appendix I: OBJECTIVES, SCOPE, AND METHODOLOGY	11
Appendix II: RELATED OIG PRODUCTS	13
Appendix III: MANAGEMENT'S RESPONSE	14
TABLES	
Table 1: Performance Reports with Mislabeled Performance Data for Digitization Initiative, as of July 2015	9
FIGURES	
Figure 1: Status of Collections Space Conditions, as of September 30, 2012	2
Figure 2: Digital Image of a Bumblebee Obtained through Rapid-Capture Project with Data Entered Through Transcription Center	6
Figure 3: Percentage of Prioritized Collections that have Digital Images and Electronic Records, as of September 30, 2013	7

**ABBREVIATIONS**

CDRS	Collections and Digitization Reporting System
DPO	Digitization Program Office
GPRA	Government Performance and Results Act
NCP	National Collections Program
OFEO	Office of Facilities, Engineering, and Operations
OMB	Office of Management and Budget
OPMB	Office of Planning, Management, and Budget

## INTRODUCTION

The collections are at the core of the Smithsonian. They include works of art, historical artifacts, natural and physical science specimens, living animals and plants, images, archives, libraries, audio and visual media, and their associated information. In total, the Smithsonian's collections are made up of approximately 138 million objects,<sup>1</sup> 157,000 cubic feet of archival materials,<sup>2</sup> and 2 million library volumes. The Smithsonian's 23 collecting units<sup>3</sup> are responsible for the care of their collections, including identifying, recording, and locating collection items; storing them safely; conserving or restoring them when necessary; ensuring safe and responsible use; and routinely assessing their condition.

However, according to a 2005 Smithsonian study, *Concern at the Core*,<sup>4</sup> 35 percent of the Smithsonian's collections storage spaces put collections at risk due to poor storage conditions or practice. This study also stressed the importance of digitizing the Smithsonian's collections. Subsequently, the Smithsonian embarked in 2010 on two key initiatives. The first was a plan for addressing current and projected Smithsonian collections storage space requirements. The second was digitization, or the creation of electronic records and digital images, to represent the Smithsonian's vast collections in order to broaden access, improve inventory control, and assist in the preservation of the collections.

The objective of this audit was to evaluate the extent to which the Smithsonian Institution has made progress in implementing the two key initiatives to improve collections care: (1) collections space planning and (2) digitization. A detailed description of our objectives, scope, and methodology is included in appendix I. A bibliography of our prior collections-related products is provided in appendix II.

---

<sup>1</sup> Collection objects are often unique or irreplaceable items used primarily for exhibition, or historical, artistic, or scientific research.

<sup>2</sup> Archival materials are non-current records of individuals, groups, institutions, and governments that contain information of enduring value. They include unpublished letters, diaries, manuscripts, photographs, films, and audio and video recordings.

<sup>3</sup> A collecting unit is a museum, archive, library, or research office that has the authority to acquire and manage collections, according to Smithsonian Directive 600, *Collections Management* (October 26, 2001).

<sup>4</sup> Smithsonian Institution, Office of Policy and Analysis, *Concern at the Core, Managing Smithsonian Collections* (Washington, D.C.: April 2005).

## Smithsonian Survey Found Forty-Seven Percent of Storage Space is Unacceptable, and the Smithsonian has Initiated a \$1.3 Billion Program Over 30 Years to Safeguard the Collections

In December 2014, the Smithsonian completed its collections space planning initiative that began in 2010. The initiative included the first comprehensive survey of the condition of the storage spaces for the Smithsonian's collections, which found that 47 percent of space used to store collections was unacceptable. The Smithsonian also developed a plan to improve collections space conditions, which will cost an estimated \$1.3 billion dollars (in 2013 dollars) to fully implement.

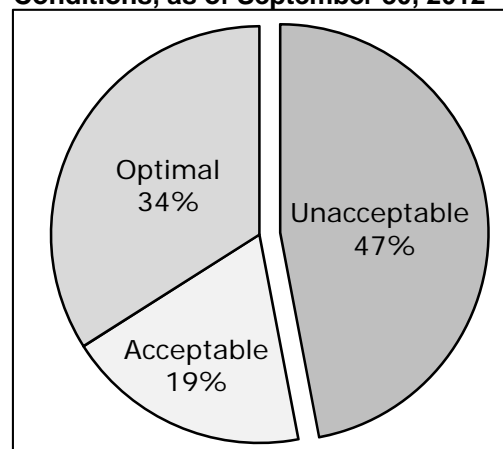
### Smithsonian's Space Planning Survey Found that 47 Percent of Space Used to Store Collections was Unacceptable

As the first part of the collections space planning initiative, the Smithsonian completed a survey of its collections storage spaces in 2011 to help ensure that its collections were properly stored and remained accessible. The space survey was the Smithsonian's first comprehensive study of the condition of its collections spaces. For the survey, the Smithsonian used standards it developed to evaluate the adequacy and quality of collections space in key areas, including storage equipment, accessibility, environmental conditions, security, and fire safety. This survey has provided collecting units with valuable information by identifying storage space needs, which will better inform their future plans for collections storage space.

The Office of Facilities, Engineering, and Operations (OFEO) and the collecting units identified 2.1 million square feet of collections storage space at 1,800 locations including rooms and buildings; assessed the condition of those spaces; and recorded the information in the newly developed Collections Space Database. As shown in figure 1, the survey classified the Smithsonian's collections storage space as:

- 34 percent optimal – The space meets or exceeds standards;
- 19 percent acceptable – The space meets the majority of standards, but can still be improved; and
- 47 percent unacceptable – The space does not meet standards.

**Figure 1: Status of Collections Space Conditions, as of September 30, 2012**



Source: Smithsonian Collections Space Framework Plan (December 2014).

A majority of the unacceptable collections storage space is located at the Paul E. Garber Facility (comprised of 25 collections storage buildings in Suitland, Maryland) and the National Museum of Natural History building on the National Mall. For example, many of the aging buildings at the Garber Facility are overcrowded and lack proper

environmental controls, and several are contaminated with hazardous asbestos and lead-containing dust.

The Smithsonian has Completed the Collections Space Framework Plan that is Estimated to Cost \$1.3 Billion Over 30 Years to Implement

In the second part of the collections space planning initiative, the Smithsonian used the information from its collections space survey to develop a comprehensive plan to improve collections space conditions across the Smithsonian. The Collections Space Framework Plan, completed in December 2014, creates a road map for near-, intermediate-, and long-term collections space projects. The space plan is estimated to cost \$1.3 billion (in 2013 dollars) over the next 30 years.

According to the space plan, the Smithsonian must renovate 695,166 square feet of existing collections space. The Smithsonian also must add an additional 1 million square feet of space to: (1) replace unacceptable space that cannot be renovated, (2) allow for future collections growth, (3) reduce overcrowding of collections space, and (4) reduce reliance on leased facilities to store collections. To address storage needs, the space plan includes three “prototype” designs: (1) renovations of existing buildings at the National Museum of American History, (2) a new facility for large objects at the Dulles Collections Center in Virginia, and (3) a new facility for small- and medium-sized objects at the Suitland Collections Center in Maryland. These three “prototype” designs are intended to add a combined 1.3 million square feet of storage capacity.

According to the fiscal year 2015 facilities capital plan,<sup>5</sup> the Smithsonian expects to spend \$107.4 million over the next five fiscal years to fund the near-term projects. The facilities capital plan includes the following near-term projects:

- the decontamination and demolition of three asbestos or lead-containing dust contaminated buildings at the Garber Facility, as well as the construction of a temporary building to store the collections removed from these buildings;
- the design and construction of a new addition (Pod 6) to the Museum Support Center building in Suitland, Maryland;
- the design and construction of two storage additions to the Udvar-Hazy Center for National Air and Space Museum collections; and
- renovations of collections space at the National Museum of American History.

The Smithsonian faces a significant challenge in obtaining the funds to fully implement the space framework plan in light of other competing needs. The intermediate- and long-term collections space projects will need to be funded, while the Smithsonian needs billions of dollars to fund other capital projects, such as major renovations of the National Air and Space Museum and the Smithsonian Castle.

---

<sup>5</sup> Smithsonian Institution, *Facilities Capital Program Summary, Fiscal Year 2015 Five-Year Plan*, (Washington, D. C., November 21, 2013). The Facilities Capital Program is a 5-year planning document that prioritizes all of the Smithsonian’s construction and renovation projects and their associated costs.

Additionally, management is assessing options to accelerate and reduce costs of the Collections Space Framework Plan. The Smithsonian hired a consultant to analyze alternative project completion schedules and options for financing plan projects.<sup>6</sup> These options include issuing debt, partnerships with third parties to construct the facilities, and private fundraising. OFEO's deputy director stated that they will analyze the costs and benefits of the various options, which they expect to complete by June 2016, before deciding which option, if any, should be used. Timely follow through on finalizing this analysis will be critical to identifying funding sources and cost saving opportunities.

### **Digitization is Progressing, but Improvements in the Accuracy and Timeliness of Performance Reporting are Needed**

The Smithsonian has made progress in digitizing its collections. Launched in 2010, the digitization initiative was designed to create electronic records<sup>7</sup> and digital images<sup>8</sup> to represent its vast collections. It will help the Smithsonian to broaden access to the collections by making them available to view online, assist in preserving collection objects for future generations by reducing the need to handle the objects, and strengthen inventory control through improved electronic record keeping.

However, we found that the Smithsonian had not accurately reported annual performance data on its digitization initiative in six reports since it began reporting the data in its fiscal year 2011 reports because the Smithsonian has not been collecting data in a timely manner to enable it to include current data in its performance reports.

---

<sup>6</sup> Deloitte Consulting LLP, *Collections Storage Funding and Financing Options Assessment* (June 11, 2014).

<sup>7</sup> Electronic records include the information related to each object, archival material, or library volume. For example, a record for an object could include the object number as well as a description and location of the object.

<sup>8</sup> Digital images are electronic representations of the collections and could include photographs, audio recordings, or video recordings.



The Smithsonian has Made Progress with its Digitization Initiative, but Significant Work Remains in Creating Digital Images and Electronic Records of its Collections

As part of its digitization initiative, the Smithsonian developed the digitization strategic plan for fiscal years 2010-2015.<sup>9</sup> The digitization strategic plan established three goals: create an infrastructure for a digitization program, provide unparalleled access to Smithsonian collections through electronic records and digital images, and secure resources to digitize Smithsonian's collections. In addition, the Smithsonian established the Digitization Program Office (DPO) to implement the digitization strategic plan. According to Smithsonian Directive 610, *Digitization and Digital Asset Management Policy* (March 31, 2011), the DPO is responsible for developing long-term strategies, policy, best practices, and procedures that address Smithsonian-wide digitization needs.

Furthermore, the DPO has implemented several tools to improve digitization:

- **The Collections and Digitization Reporting System (CDRS):** In 2012, staff from the DPO and National Collections Program<sup>10</sup> implemented a new information system, CDRS, in part to report on Smithsonian-wide progress in digitizing its collections. This system was designed to aggregate the collections data from the 23 collecting units, such as the number of objects with standard electronic records and digital images.
- **Rapid-Capture Projects:** In 2013, the DPO began conducting pilot rapid-capture projects<sup>11</sup> that demonstrate for units how to quickly digitize a number of objects at a lower cost. Additionally, the projects streamlined the flow of information from the capture of the image to the unit's collections information system and onto the Smithsonian's public website.

In 2014, DPO started larger scale digitization projects at several museums. For example, staff at the National Museum of Natural History imaged over 44,000 bumblebees, an important scientific collection, in 40 days from July to August 2014. (See figure 2.)

---

<sup>9</sup> Smithsonian Institution, *Creating a Digital Smithsonian: Digitization Strategic Plan, Fiscal Years 2010-2015* (Washington, D.C., no date).

<sup>10</sup> The National Collections Program is responsible for improving the overall stewardship and management of Smithsonian collections by providing central leadership and policy oversight of Smithsonian-wide collections initiatives.

<sup>11</sup> Rapid capture refers to processes that are designed to digitize large numbers of relatively homogeneous collection items using technologies and workflows optimized for efficiency, throughput, and quality control.



**Figure 2: Digital Image of a Bumblebee Obtained through Rapid-Capture Project with Data Entered Through Transcription Center**



Source: Smithsonian Transcription Center, <https://transcription.si.edu/view/6794/EBTrO>.

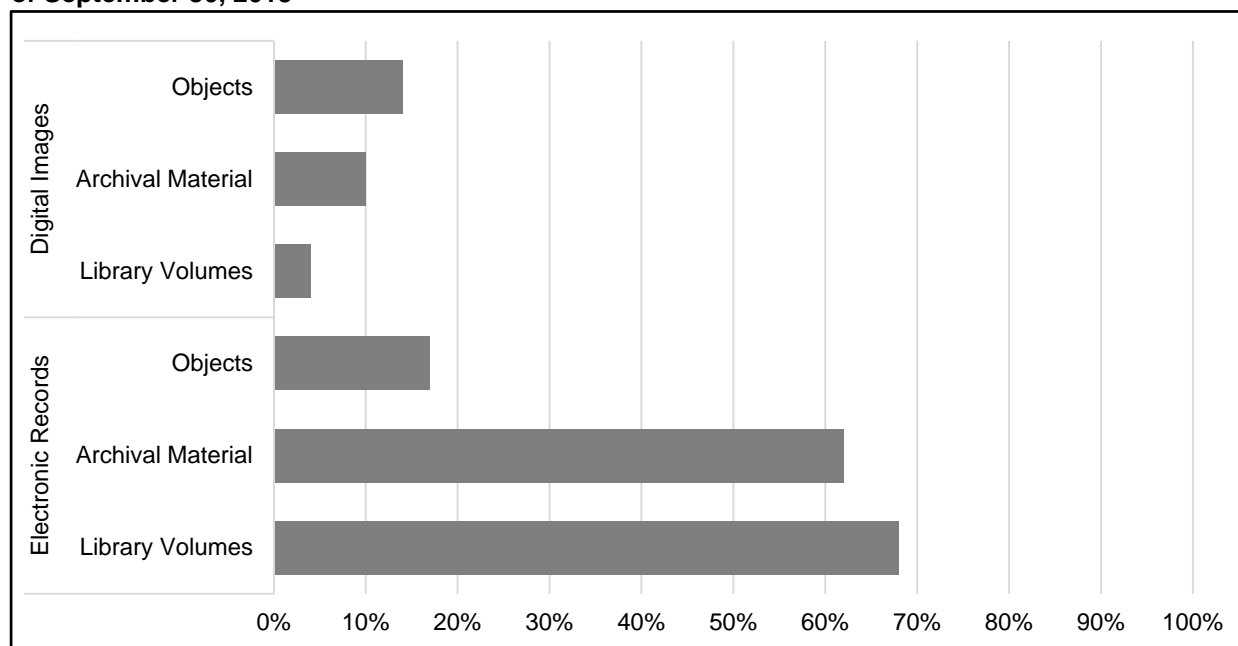
- **Smithsonian Transcription Center Website:** The Smithsonian also launched in August 2014 its transcription website that allows members of the public to transcribe information about collection objects into an electronic record format.

In addition to DPO projects, collecting units have been carrying out their own digitization efforts. For example, the Archives of American Art has been conducting a large-scale digitization project since 2006 when it received a multi-million dollar external grant. As of September 2015, this project has digitized 163 collections totaling 1,642 cubic feet of archival materials and resulted in approximately 2.2 million images being available through their website, according to the Archives of American Art.

As shown in figure 3, the Smithsonian has made progress in digitizing parts of its collections, but significant work remains. For example, as of September 30, 2013 (latest available data), the Smithsonian has created electronic records for more than 60 percent of its archival materials and library volumes, while it has created digital images for 14 percent of the 16 million prioritized<sup>12</sup> objects in its collections.

<sup>12</sup> Each collecting unit has determined, or "prioritized," the specific objects, archival materials, and library volumes that it intends to represent with a digital image since not all collection items need to be imaged, such as when there are duplicate copies of the same object. However, all objects, archival materials, and library volumes will need to be represented by an electronic record.

**Figure 3: Percentage of Prioritized Collections that have Digital Images and Electronic Records, as of September 30, 2013**



Source: OIG analysis of latest available data from Collections and Digitization Reporting System.

Note: All collection objects, archival materials, and library volumes will need to be represented by an electronic record, but only a portion of them will need to be represented with a digital image. Each collecting unit has determined, or "prioritized," the specific objects, archival materials, and library volumes that it intends to represent with a digital image since not all collection items need to be imaged, such as when there are duplicate copies of the same object.

### The Smithsonian Needs to Ensure Performance Data for its Digitization Initiative are Accurately Reported and Collected in a More Timely Manner

Since the enactment of the Government Performance and Results Act of 1993 (GPRA),<sup>13</sup> executive branch agencies have been required to develop five-year strategic plans and annual performance plans that establish performance goals. GPRA further requires that agencies compare actual performance achieved with those goals through annual performance reports. While the Smithsonian is not legally obligated to follow GPRA requirements, management has developed a strategic plan<sup>14</sup> and has voluntarily agreed to submit annual performance plans<sup>15</sup> and annual performance reports<sup>16</sup> to OMB.

<sup>13</sup> Pub. L. No. 103-62, 107 Stat. 285 (Aug. 3, 1993).

<sup>14</sup> Smithsonian Institution, *Inspiring Generations through Knowledge and Discovery: Strategic Plan, Fiscal Years 2010-2015* (Washington, D.C., no date). The Smithsonian has extended the timeframe of the strategic plan through fiscal year 2017.

<sup>15</sup> The annual performance plan is a description of the level of performance to be achieved during the year, including identifying performance targets and key milestones for each strategic objective.

<sup>16</sup> The annual performance report provides information on progress towards achieving the goals and objectives described in the strategic plan and annual performance plan.

Starting in fiscal year 2005, the Smithsonian has been submitting section one, *Management Discussion and Analysis*, of the performance and accountability report to OMB.<sup>17</sup> Under OMB Circular A-136, the management discussion and analysis report should provide a clear and concise description of, among other things, key performance results. The aim is to provide the Congress, public, and other stakeholders with sufficient information on how a program is progressing compared to its past achievements and shortfalls.

Since fiscal year 2011, the Smithsonian has been publicly reporting performance data for the digitization of its collections in three reports: *Annual Performance Plan*, *Management Discussion & Analysis*, and *Annual Performance Report*.<sup>18</sup> The Office of Planning, Management, and Budget (OPMB) management prepares these reports each year using information from responsible offices.

We found that the Smithsonian has inaccurately reported performance data for the digitization of its collections in its public performance reports by mislabeling the fiscal year that the data represented. Our analysis shows that, since it began reporting the data in its fiscal year 2011 reports, the Smithsonian properly reported digitization performance data in three reports, and mislabeled it in six reports (see table 1). For example, in the fiscal year 2011 annual performance report, fiscal year 2010 data were mislabeled as fiscal year 2011 data. In its fiscal year 2014 annual performance report, fiscal years 2012 and 2013 data were mislabeled as fiscal year 2013 and calendar year 2014, respectively. In response to a recommendation we made in our draft report, the Smithsonian has revised all of these reports to correctly label the data with the appropriate fiscal year.

---

<sup>17</sup> The Smithsonian submits its management discussion and analysis report by November 15 of each year. The Smithsonian also submits the annual performance report at this time.

<sup>18</sup> Management considers the annual performance report and the management discussion and analysis to be a single report. However, we assessed them as separate reports because at the time of our audit the Smithsonian posted them as two distinct documents on its website. In response to our work, management has combined them into a single document on the Smithsonian website.

**Table 1: Performance Reports with Mislabeled Performance Data for Digitization Initiative, as of July 2015**

Type of Performance Report	Fiscal Year				
	2011	2012	2013	2014	2015 <sup>(b)</sup>
Annual Performance Plan		(a)	●	●	○
Annual Performance Report	○	○	●	○	
Management Discussion and Analysis	○	○			

Legend: ○ = data mislabeled; ● = properly labeled; = digitization data not reported

Source: OIG analysis of the Smithsonian's three public performance reports.

<sup>a</sup> We could not determine if the fiscal year 2012 annual performance plan contained properly labeled data because OPMB management was unable to provide supporting documentation for the 8.5 percent that was reported.

<sup>b</sup> As of the date of this report, the annual performance report and the management discussion and analysis have not been published.

According to OPMB management, they mislabeled the fiscal year of the data in the six reports because the data for the most recently completed fiscal year<sup>19</sup> were not available in November when these reports were due to OMB. Furthermore, OPMB does not have written procedures for how to report data that are not available, such as directing staff to clearly report the data as not available and annotate the reason for its unavailability. In response to a recommendation we made in our draft report, OPMB has developed and implemented new procedures to address this issue.

OPMB has been mislabeling performance data because the Smithsonian has not been collecting timely data on its digitization initiative for inclusion in its performance reports. In accordance with DPO guidance, the units are not required to compile and enter the data into the CDRS database until several months after the OMB November reporting deadline. After the units have compiled the data in CDRS, DPO staff reviews the data and conducts necessary follow up to help ensure data quality. Smithsonian management said that they do not believe that the data can be made available in November. Moreover, the fiscal year 2014 digitization data only became available on August 31, 2015, eleven months after the end of the fiscal year. According to DPO, the significant delay in the data's availability was the result of questions about whether a new collection had completed the accession process<sup>20</sup> and should be included in fiscal year 2014 data.

However, performance information needs to be timely and accurate to be both useful and used by decision makers. In its 2010 update of GPRA,<sup>21</sup> the Congress established requirements for quarterly reviews of cross-cutting and agency priority goals. Performance data that are compiled annually and months after the completion of a fiscal year, such as for the digitization initiative, offers limited value to decision makers.

<sup>19</sup> In the federal government, a fiscal year begins on October 1 and ends on September 30.

<sup>20</sup> Accessioning is the formal process for recording the addition of an item or group of items to a unit's collections.

<sup>21</sup> GPRA Modernization Act of 2010 [124 Stat. 3866 (Jan. 4, 2011)].

Although OPMB management acknowledged inaccurately reporting the digitization performance data, they stated that they were not trying to mislead users of the reports. We believe the mislabeling of performance data could diminish the public's confidence in the Smithsonian's performance reports. It also hinders the ability of Congress and other decision makers to assess the initiative's progress.

## CONCLUSION

The collections are the core of the Smithsonian, and they need to be preserved and remain accessible for current and future generations. With the successful completion of its collections space planning initiative, the Smithsonian now knows that about one-third of its collections storage space is in optimal condition. The Smithsonian faces challenges to fully implement the plan that will ensure the proper storage of its collections because of its estimated cost, \$1.3 billion in 2013 dollars, over 30 years, and the need to balance competing demands to fund other capital projects.

The digitization initiative will help the Smithsonian to achieve important goals, such as to broaden access to the collections by making them available to view online and strengthen inventory control through improved electronic record keeping. The Smithsonian has made progress towards implementing its digitization initiative, but more work remains. In addition, the Smithsonian needs to improve procedures to ensure accurate and timely reporting of performance data so that decision makers can track and monitor the initiative's progress. Without timely performance data, management and other stakeholders cannot use the data effectively to measure performance against established goals.

## RECOMMENDATIONS

To better ensure performance data on its digitization initiative are used and useful to decision makers, we recommend that the Under Secretary for Finance and Administration/Chief Financial Officer:

1. Develop and implement a plan to get more timely performance data on the digitization initiative.

## MANAGEMENT COMMENTS AND OUR EVALUATION

We provided the Smithsonian with a draft report for comment and the Smithsonian provided its response (see appendix III). The Smithsonian concurred with all three recommendations in our draft report and provided documentation to show that two of them, as noted in the body of this report, were addressed. The Smithsonian plans to complete our recommendation to develop and implement a plan to get more timely performance data by February 28, 2016.

## OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of this audit was to evaluate the extent to which the Smithsonian Institution has made progress in implementing two key initiatives to improve collections care: (1) collections space planning and (2) digitization.

To gain an understanding of the two pan-institutional collections care initiatives, we reviewed Smithsonian studies related to collections care; directives and guidance related to collections management; the Collections Space Framework Plan; the Smithsonian's Strategic Plan; the Digitization Strategic Plan; Office of Facilities Engineering and Operations (OFEO) handbooks and guidance related to facilities planning; and minutes from Board of Regents meetings, including those from several committees. Further, we examined standards, best practices, and studies from other organizations, such as the Government Accountability Office, Office of Management and Budget, Government Finance Officers Association, the Federal Agencies Digitization Guidelines Initiative, and the Naturalis Biodiversity Centre. We also reviewed prior OIG audit reports on the stewardship of the Smithsonian's collections (see appendix II).

In addition, we interviewed the Deputy Under Secretary for Collections and Interdisciplinary Support to understand how the Smithsonian plans to fully implement these initiatives, as well as their current progress on improving collections conditions across the Smithsonian. To obtain an understanding of current collections care initiatives and their impact on collecting units, we also interviewed personnel from five Smithsonian collecting units: the National Air and Space Museum, National Postal Museum, Smithsonian American Art Museum, Archives of American Art, and the National Museum of Natural History. We observed collections care projects related to the digitization initiative at three of these units: the National Air and Space Museum, Archives of American Art, and National Museum of Natural History.

To discuss collections space planning efforts, we interviewed OFEO, National Collections Program (NCP), and Office of Planning, Management, and Budget (OPMB) management. For the digitization initiative, we interviewed staff from the Office of the Chief Information Officer, including the Digitization Program Office (DPO).

**Appendix I**

To assess the digitization initiative, we obtained the most recently available data (fiscal year 2013) from CDRS and analyzed it to illustrate the percentage of each units' collection that had been digitized. In addition, we reviewed and analyzed the performance data for the digitization initiative in three annual reports: the annual performance plan, annual performance report, and management discussion and analysis. We compared the performance data in these reports to the actual data from CDRS and then discussed differences in the reported and actual data with managers in DPO and OPMB. We did not assess the accuracy and reliability of the CDRS data; rather, we evaluated whether the data were accurately reported. Finally, we observed digitization rapid-capture pilot project events sponsored by DPO at three collecting units: the National Museum of African American History and Culture, the Freer and Sackler Galleries of Art, and the National Museum of American History.

We conducted this performance audit in Washington, D.C., from June 2013 through September 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence we obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.



## RELATED OIG PRODUCTS

Hearing before the Committee on House Administration, *Collections Stewardship at the Smithsonian*, July 17, 2013.

*Audit of Collections Stewardship of the National Collections at the National Museum of American History – Preservation and Physical Security* (A-10-03-2, September 30, 2011).

*Audit of Collections Stewardship at the Cooper-Hewitt, National Design Museum* (A-11-02, September 12, 2011).

*Audit of Collections Stewardship of the National Collections at the National Museum of American History – Inventory Controls* (A-10-03-1, February 8, 2011).

*Audit of Physical Security and Inventory Control Measures to Safeguard the National Collections at the National Air and Space Museum* (A-09-04, March 17, 2010).

*Audit of Physical Security and Inventory Control Measures to Safeguard the National Collections at the National Museum of Natural History* (A-05-06, September 29, 2006).

## MANAGEMENT'S RESPONSE



## Smithsonian Institution

Office of the Under Secretary for Finance and Administration

Date August 31, 2015

To Cathy L. Helm, Inspector General  
Thomas Yatsco, Assistant Inspector General for Audits

cc Greg Bettwy, Acting Chief of Staff, Office of the Secretary  
Porter Wilkinson, Chief of Staff, Office of the Regents  
Judith Leonard, General Counsel  
William Tompkins, Director, National Collections Program  
David Voyles, Director, Office of Planning, Management and Budget  
Deron Burba, Director, Office of the Chief Information Officer  
Günter Waibel, Director, Digitization Program Office  
Nancy Bechtol, Director, Office of Facilities, Engineering and Operations

From Albert Horvath, Under Secretary for Finance and Administration and Chief Financial Officer *Horvath*  
Richard Kurin, Under Secretary for History, Art and Culture *Kurin*  
John Kress, Under Secretary for Science *Kress*  
Scott Miller, Deputy Under Secretary for Collections and Interdisciplinary Support *Miller*

Subject Management Response to Inspector General Audit (A-13-11): Collections Management

We extend our appreciation to the Office of Inspector General (OIG) staff for the audit of collections management, and for the recommendations to improve the accuracy and timeliness of collections-related performance reporting, as well as the cooperation, attention and professionalism of the OIG staff in preparing this report.

Collections Space

The Smithsonian's commitment to collections stewardship has been steadfast over its history. We welcome OIG's recognition of our continuous efforts to improve the management, care, and accessibility of the collections.

The [Collections Space Framework Plan](#) is a first-of-its-kind assessment of more than 2.1 million square feet of Smithsonian collections space in 1,800 individual locations at more than 35 properties, both leased and owned, including facilities that are National Historic Landmarks.

In conducting the assessment, the Smithsonian developed and applied standards that exceed all safety and/or legal requirements, and in many cases, surpass industry standards and best practices for collections storage, environmental conditions, fire protection, and security. Applying our own rigorous standards, we determined that more than half of Smithsonian collections space is "Optimal" or "Acceptable," including the one-third of all collections space that achieves an "Optimal" grade.

We respectfully disagree with the OIG's characterization that "unacceptable space" means that collections are being put "at risk of damage." Our ratings of collections space take into account multiple factors ranging from environmental controls to ease of access.

The Smithsonian is committed to taking action to upgrade or replace "Unacceptable" space in a prioritized fashion. Much of that work is currently underway. As OIG cited, more than half of unacceptable collections space (47 percent) is in two facilities — the Paul E. Garber Facility (Garber) comprised of 25 buildings in Suitland, Maryland, and the National Museum of Natural History's (NMNH) Mall building — locations already slated for renovation or currently being remediated. Focusing resources on correcting the space deficiencies in these two locations will resolve the most outstanding collections space issues.

The Smithsonian will continue to assess options to address its short- and long-term collections space needs, to enhance overall collections stewardship, and to ensure that the collections continue to serve as the intellectual base for Smithsonian scholarship, discovery, exhibitions, and education.

### Digitization

We are pleased that OIG acknowledges the progress made in collections digitization. The scale, variety, and dispersed nature of the Smithsonian's collections create unique challenges in assessing the status of digitization, as well as making more significant progress against our goals.

The Collections and Digitization Reporting System (CDRS) modernized assessment activities by replacing the manual collation of dozens of spreadsheets with an online database system. While the digitization assessment is a relatively new activity, the methodology has been consistent over three reporting cycles. FY2014 digitization assessment data is not yet publicly available pending a determination on how to characterize a major NMNH accession.

Weeklong pilot projects at six museums/units (Smithsonian Gardens, the National Museum of African American History and Culture, National Museum of American History, Freer and Sackler Galleries, National Air and Space Museum and Center for Folklife and Cultural Heritage) have defined a best-in-class digitization process. Three large-scale production projects (National Museum of Natural History, National Museum of American History, Cooper Hewitt, Smithsonian Design Museum) provide valuable lessons for how these processes can be sustained over months and years.

Based on these experiences, the following digitization capacity now exists for the first time at the Smithsonian:

- Systems integration allows digitization projects to go from the storage shelf to a public website in 24 hours for immediate impact;



- Workflow advances allow digitization projects to create digital surrogates for 50,000 (three-dimensional/fragile objects) to 175,000 (flat/stable objects) objects (single work station) per year;
- Tailored digitization systems such as the conveyor belt used at the National Museum of American History [see below] can increase single-station productivity to 1million+ objects (flat/stable objects) per year; and
- Digitization costs utilizing the mass digitization approach have become forecastable, ranging from approximately \$1 (flat; conveyor) to \$15-\$20 (three-dimensional objects; oversized studio photography).

In addition to the 2014 bumblebee digitization at NMNH cited in the OIG report, the following production projects demonstrate that the Smithsonian can digitize entire collections quickly and cost-effectively:

- At the National Museum of American History, the Smithsonian deployed a conveyor belt based system to digitize 270,000 currency (and other) proof sheets from the Bureau of Engraving and Printing collection. Historically, this collection was digitized using a flatbed scanner, with projected time-to-completion of 20 years. The first U.S. implementation of the conveyor digitized the entire collection in six months.
- The Smithsonian has started digitizing the entire 210,000-object collection at the Cooper Hewitt, Smithsonian Design Museum in late 2014. Through a dedicated digitization workforce, back-end systems integration, deployment of barcoding, and other workflow innovations, this project has digitized 70,000 collections objects (from vases to couches) in nine months, with projected completion for the entire effort in June 2016. For comparison, the complete Freer and Sackler Galleries collection of 40,000 objects (announced in December 2014) was digitized in an ad-hoc manner over 15 years.
- In the fall, the conveyor belt will be used to digitize 500,000 of 5 million botany sheets at the National Museum of Natural History.

We concur with the recommendations to strengthen the controls for reporting performance data on digitization initiatives, but wish to stress that the digitization data reported in certain reports, albeit mislabeled, was accurate and verifiable and the best information available at the time of submission. The data should have been annotated to reflect that it was derived from the prior Fiscal Year.

### **Management Response to Recommendations**

To strengthen the controls for reporting performance data on its digitization initiative, we recommend that the Under Secretary for Finance and Administration and Chief Financial Officer:

## Appendix III

1. Develop and implement written procedures to ensure that the performance data are properly labeled in performance reports, such as how to report data that are not available.

***Response: Concur and completed.***

2. Correct performance data reported in the annual performance plans, annual performance reports, and management discussion and analysis reports for Fiscal Years 2011 through 2015.

***Response: Concur and completed.***

3. Develop and implement a plan to get more timely performance data on the digitization initiative.

***Response: Concur***

***Anticipated completion date: February 28, 2016***

The Digitization Program Office and the National Collections Program will accelerate the annual call for collecting units to report Fiscal Year information in the Collection and Digitization Reporting System (CDRS). The call will be issued in the first week of September (historically mid-October to late-November), with a deadline in the first week of January (historically mid-January to late-February). This accelerated schedule will ensure the performance data for the digitization initiative is available to Smithsonian senior leadership in early February to support briefings and inquiries regarding the current-year Congressional budget justification document.

###



Smithsonian Institution  
Office of the Inspector General

## **HOTLINE**

202-252-0321

[oighotline@oig.si.edu](mailto:oighotline@oig.si.edu)

<http://www.si.edu/oig>

or write to

Office of the Inspector General  
P.O. Box 37012, MRC 524  
Washington, D.C. 20013-7012

The Office of the Inspector General investigates allegations of waste, fraud, abuse, gross mismanagement, employee and contractor misconduct, and criminal and civil violations of law that have an impact on the Smithsonian's programs and operations.

If requested, anonymity is assured to the extent permitted by law. Although you may remain anonymous, we encourage you to provide us with your contact information. The ability to gather additional information from you may be the key to effectively pursuing your allegation.

Information provided is confidential.