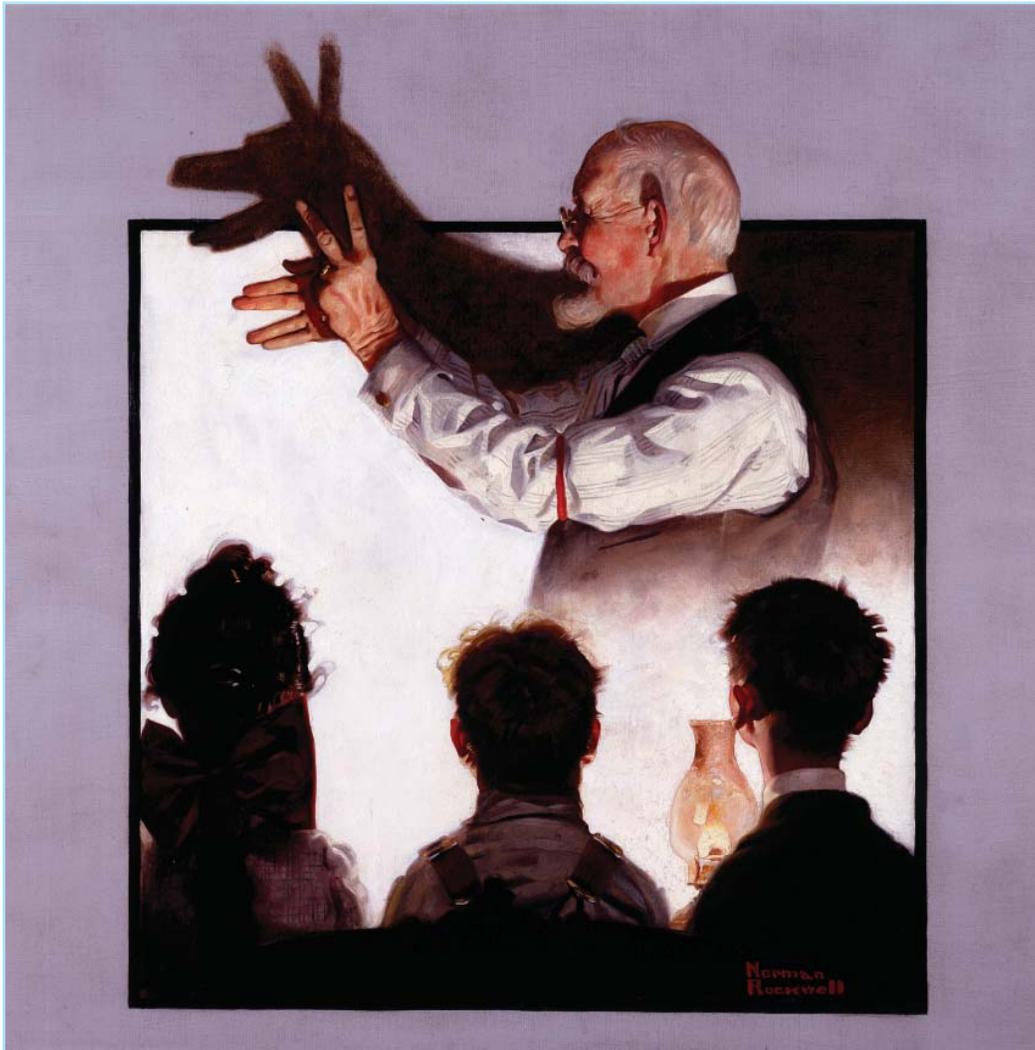




Smithsonian Institution



Telling Stories: Norman Rockwell from the Collections of George Lucas and Steven Spielberg, one of the most anticipated Smithsonian art exhibitions in years, opened at the Smithsonian American Art Museum on July 2, 2010, and remained on view through January 2, 2011.

Report to the Regents Fourth Quarter, Fiscal Year 2010



Smithsonian Institution

Prepared by
Office of Policy and Analysis

Broadening Access: Visitation Summary

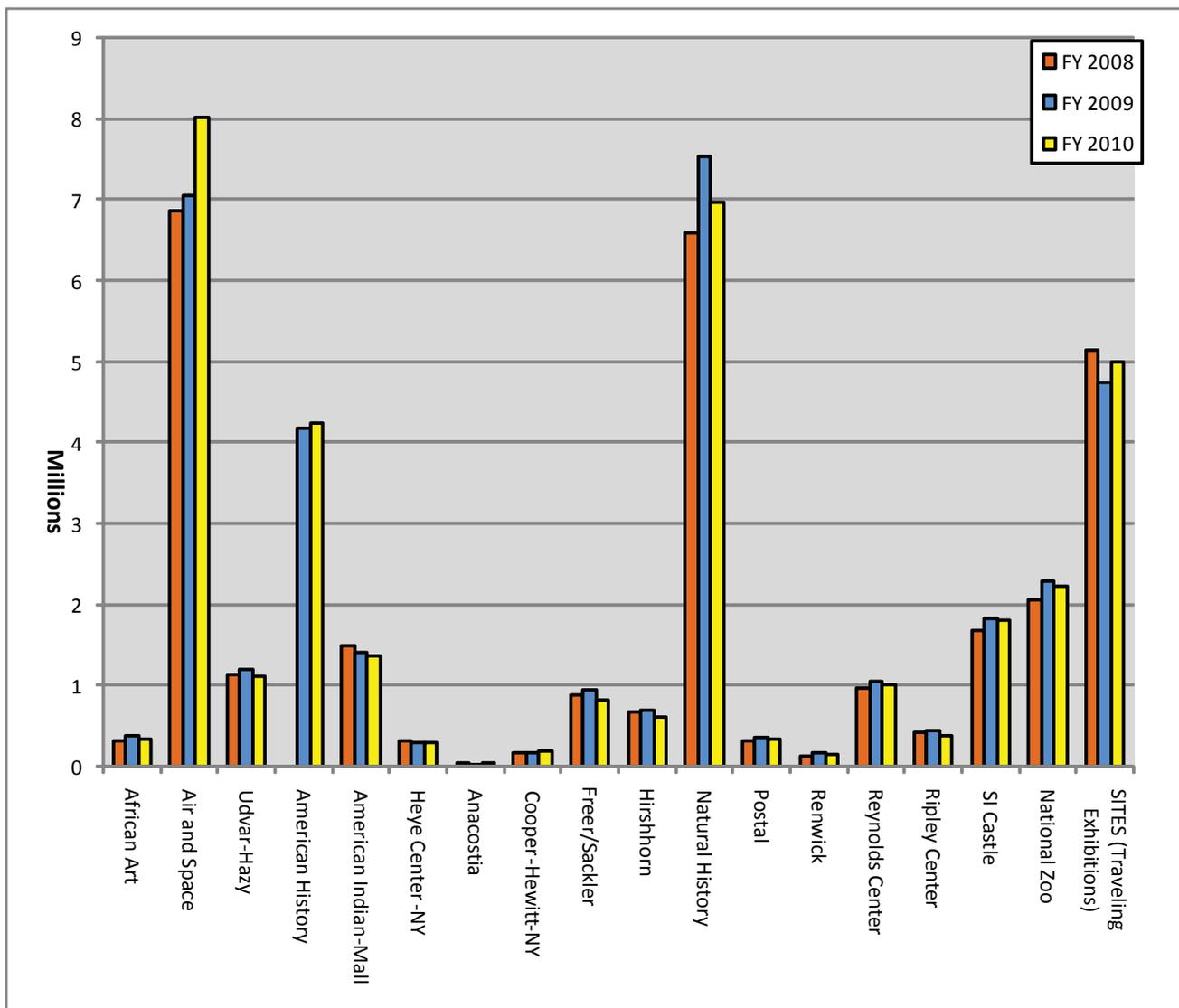
In fiscal year 2010, the Institution counted 29.9 million visits to its museums in Washington, D.C., and New York City, plus the National Zoological Park and Steven F. Udvar-Hazy Center—almost identical to the visitation figure for fiscal year 2009.

The Smithsonian also counted:

- approximately 5.0 million visits to traveling exhibitions mounted by the Smithsonian Institution Traveling Exhibition Service, and
- about 182 million visits to Smithsonian Web sites—down about 4 percent from the fiscal year 2009 figure of 189 million.

Visits to Smithsonian Venues and Traveling Exhibitions

Fiscal Years 2008, 2009, and 2010



Grand Challenges Highlights

Understanding and Sustaining a Biodiverse Planet

*Research: National Zoological Park (NZP)
Smithsonian Conservation Biology Institute (SCBI)*



Black-footed ferrets

Once believed extinct, black-footed ferrets have had a banner breeding year at SCBI. Fifty kits in 12 litters have been born since May 2010, of which 49 have survived. Forty-eight were offspring from natural breeding, while two were the result of artificial insemination. SCBI was the first to develop a successful artificial insemination technique for the species.

In a paper published in *Behavioral Ecology and Sociobiology*, SCBI's Jesus Maldonado and David Wildt and their collaborators explain that dominance tenures of alpha male and female African wild dogs are relatively short, allowing multiple adults to gain alpha status at some point and reproduce. Understanding the dogs' mating and social systems supports their conservation and management.

Janine Brown of SCBI will play a central role in a three-year study of elephant welfare in zoos funded by the Institute of Museum and Library Sciences. Using computer modeling, the study will evaluate how animal management practices affect animal welfare and will establish benchmarks for the health of elephants in zoos across the country.

NZP became the first in the zoo and aquarium community to use coral larvae-settling techniques to grow two species of sea anemones, an accomplishment that will provide a unique opportunity to study how these creatures grow. The Zoo now has hundreds of thriving anemones, all smaller than the tip of a pencil.



Anemones

Research: National Museum of Natural History (NMNH)

Damselfly Genera of the New World (Johns Hopkins University Press), coauthored by NMNH's Jerry Louton, is a companion volume to the previous work *Dragonfly Genera of the New World*. This illustrated reference contains detailed information on the 125 genera of damselflies in the Western Hemisphere.

NMNH's Lee-Ann Hayek and Marty Buzas authored a second edition of their textbook on sampling design and statistics for biologists, *Surveying Natural Populations: Quantitative Tools for Assessing Biodiversity* (Columbia University Press). The first edition has been translated into three languages, cited hundreds of times, and used frequently in workshops and courses.

Research: Smithsonian Environmental Research Center (SERC)

Excess nitrogen that drains from farms into watersheds can nurture algae that consume oxygen other organisms need and create “dead zones,” but forests and wetlands around croplands can reduce nitrate runoff. A study in *Ecological Applications* by SERC’s Donald Weller and Thomas Jordan (with Matthew Baker) is the first to quantify the impact of these so-called “riparian buffers” on a watershed-wide basis, and to estimate how much buffer restoration efforts might reduce nitrate pollution for whole watersheds. For 45 years, SERC has operated an integrated system of research facilities to collect data on how aquatic, terrestrial, and atmospheric components of the coastal landscape respond to climate and human impacts. It recently received an award of \$1.69 million from the National Science Foundation to renovate this system. The project will also upgrade the data collection process, creating an array of relay towers to transmit data from monitoring stations to central data storage facilities, servers, and the internet. The long-term data gathered by this system support SERC’s tradition of informing environmental policy.

Research: Smithsonian Tropical Research Institute (STRI)

In the 1980s, Karen Lips, then a visiting scientist at STRI, noticed that amphibians were being decimated by a fungal disease that was headed toward Panama. She teamed up with STRI colleagues Andrew J. Crawford and Eldredge Bermingham to document local amphibian communities before, during, and after the epidemic arrived, using a technique called DNA barcoding. Their findings, recently published in the *Proceedings of the National Academy of Sciences*, reveal that 30 species were wiped out by the epidemic in Central Panama, and 33 percent of the evolutionary history of the amphibian community there was lost.



STRI researchers reported on the effects of an epidemic that swept through Panama’s amphibian community

The Smithsonian Institution Global Earth Observatories (SIGEO) network initiated by STRI includes hundreds of scientists working across a network of 40 plots in 21 countries to study 4.5 million trees representing 8,500 species. It has created one of the few sets of on-the-ground data that can be used to test hypotheses about global change. This year saw the completion of the seventh five-year census of the first of SIGEO’s forest dynamics plots, located on STRI’s Barro Colorado site.



STRI’s Markku Larjavaara

A recent article in *Functional Ecology* by STRI’s Markku Larjavaara and Helene C. Muller-Landau explores the biological costs and benefits of differences in tree species’ wood density. This work has important implications for understanding the evolution of trees, the amount of carbon they store, and their response to increasing atmospheric carbon levels.

“Bleaching” is a sign that a coral reef is suffering from environmental stressors, such as increased sea temperatures. Scientists at STRI’s Bocas del Toro Research Station and Galeta Point Marine Laboratory in Panama recently reported an anomalous sea temperature rise and a major coral bleaching event in the western Caribbean, where a seawater temperature of 32 degrees Celsius was recorded at a time of year when normal temperatures are about 28 degrees Celsius.



Coral bleaching: A sign of trouble

Broadening Access

On September 2, 2010, the **National Zoological Park** celebrated the completion of Elephant Trails Phase I, an innovative and expanded home for the Zoo’s Asian elephants. It features a new elephant barn, two new outdoor yards, a quarter-mile exercise run, and the Homer and Martha Gudelsky Elephant Outpost, an open courtyard featuring interactive exhibits. When Phase II is complete, the habitat will have the capacity to accommodate between eight and 10 adult



Shanthi explores her new outdoor space at the National Zoo

elephants and their young.

The **Smithsonian Tropical Research Institute** hosted a workshop to help Panamanian indigenous leaders develop conflict resolution skills to improve dialogue with other groups involved in a proposed climate change mitigation mechanism, Reducing Emissions from Deforestation and Forest Degradation (REDD). As stewards of more than 40 percent of Panama’s remaining forest, indigenous peoples would be central stakeholders in the REDD process.

The **National Museum of the American Indian** held its first Living Earth Festival in August 2010. The three-day festival highlighted indigenous contributions to managing the environment. It featured films, concert performances, hands-on family activities, and the symposium “Living Earth/ Living Waters,” at which Native and non-Native scientists, leaders, and innovators discussed the latest thinking on the biosphere and the role of the ocean in sustaining life.



Native performers at the Living Earth Festival

The biological and anthropological collections of Edward Palmer, regarded by some as the father of ethnobotany, have long been dispersed among different Smithsonian research departments. A new Web site developed by the **National Museum of Natural History** with support from the **Smithsonian Latino Center** reunites some of these collections online after nearly 150 years, and highlights Palmer’s contributions to ethnobotanical research.

Valuing World Cultures

Research

The Freer and Sackler Galleries, in collaboration with the Smart Museum of Art at the University of Chicago, published *Echoes of the Past: The Buddhist Cave Temples of Xiangtangshan*. The Galleries also published *The Antiquity of Nepalese Wood Carving: A Reassessment* by Mary Shepard Slusser, which features a contribution by Paul Jett and photographs by Neil Greentree, both of the Galleries.

The Freer and Sackler Galleries also welcomed two new visiting scholars.

- Alfred Haft arrived for a seven-month research appointment as the first Anne van Biema Fellow in the Japanese visual arts—the Galleries' first endowed fellowship.
- Brinda Kumar, a PhD candidate at Cornell University who is focusing on the formation of South Asian art collections in U.S. museums, joined the Galleries as the 2010–2011 Hart Fellow.

The edited volume *SIKU: Knowing Our Ice* (Springer), an exploration of indigenous peoples' knowledge and use of sea ice, is the result of a project co-led by Igor Krupnik of the National Museum of Natural



National Museum of the American Indian scholars pursued field research in Peru

History. Over 100 participants from six nations worked on the project, including indigenous contributors from more than 20 communities in Alaska, Canada, Greenland, and Russian Chukotka.

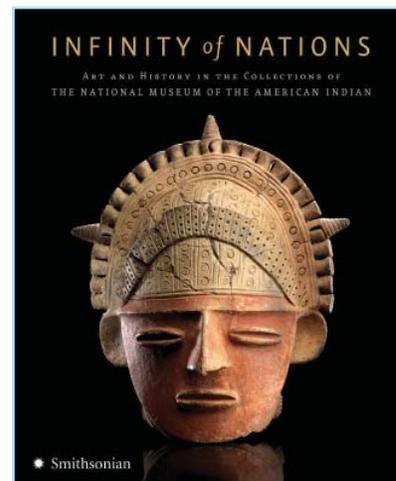
National Museum of the American Indian scholars conducted major field research for the film *Chawaytiri—On the Road: Return to Pisac*, a documentary work focusing on the Quechua community in the Peruvian Andes.

Also at the National Museum of the American Indian, Assistant Director

for Research Jose Barreiro edited the book *Thinking in Indian: A John Mohawk Reader* and the Publications Office released *Infinity of Nations: Art and History in the Collections of the National Museum of the American Indian* in advance of the October 2010 opening of an exhibition of the same name at the museum's George Gustav Heye Center in New York City.

James C. Early and Ryan F. Manion of the Center for Folklife and Cultural Heritage wrote “Intangible Cultural Heritage: A New Horizon for Cultural Democracy” for *A Living Legacy: Preserving Intangible Cultural Heritage*, an edition of the U.S. State Department Bureau of International Information Programs' *eJournalUSA*.

In the same publication, the center's D.A. Sonneborn and Megan Banner Sutherland offered “Smithsonian Folkways Recordings: A Museum of Sound,” and Sonneborn curated a Smithsonian Folkways interactive musical map of the world, available in both English and Arabic.



The **National Museum of African Art** presented another in its Global Africa discussion series, at which Chilean artist Alfredo Jaar—whose works address issues such as the Rwandan genocide, pollution in Nigeria, and poverty in Angola—considered the limitations of art in representing mass suffering.

Broadening Access

Cyprus: Crossroads of Civilizations, on display at the **National Museum of Natural History** (September 29, 2010–May 1, 2011), explores the 11,000-year history and culture of Cyprus, a crossroads where Europe, Asia, and Africa meet. The exhibition showcases more than 200 artifacts, including some of the latest archaeological discoveries from the early era of the region.

Two exhibitions opened at the **National Museum of the American Indian**.

- *Up Where We Belong: Native Musicians in Popular Culture* (July 1, 2010–January 2, 2011) spotlights 14 Native contemporary musicians. Among the highlights is a stage costume worn by the legendary rock musician Jimi Hendrix.



Aphrodite, Goddess of Cyprus
310 B.C.–A.D. 330



National Museum of the American Indian Associate Director Tim Johnson and Janie Hendrix, sister of Jimi Hendrix, display some of the late musician's memorabilia

- *Vantage Point: The Contemporary Native Art Collection* (September 25, 2010–August 7, 2011) showcases the museum's young but vital collection of contemporary art.

Also at the **National Museum of the American Indian**, the six-day festival “Makiykumanta: Peru—Arts and Cultural Legacy” celebrated Native Peruvian culture through music, dance, food, arts, crafts, and more, drawing more than 33,000 visitors.

The **National Portrait Gallery**, **Smithsonian American Art Museum**, **Smithsonian Latino Center**, and **Smithsonian Center for Education and Museum Studies** partnered to offer “Passport to Argentina,” a Hispanic Heritage Month family day at the Reynolds Center at which 1,500 visitors enjoyed hands-on activities, music, tango, and other interactive offerings.

The community day “African Soul: From Africa to the World” drew 1,500 people to the **National Museum of African Art** for activities and performances ranging from traditional African dance to contemporary break dancing.

Also at the **National Museum of African Art**, Theo Eshetu's *A Brave New World* (August 9, 2010–April 24, 2011) features a mirrored installation that allows viewers to watch themselves as they watch the work's central video. The exhibit also features works from the museum's contemporary collection.



Community day at the National Museum of African Art

Understanding the American Experience

Research

National Museum of American History staff authored the books *America's Doll House: The Miniature World of Faith Bradford* (by William L. Bird Jr., published by the museum in association with Princeton Architectural Press) and *The Freedoms We Lost: Consent and Resistance in Revolutionary America* (by Barbara Clark Smith, published by the New Press).

The National Portrait Gallery's Frank Goodyear authored "Wanted: Sitting Bull and His Photographic Portrait" for a special issue of *South Dakota History* devoted to new scholarship on the life of Sitting Bull.

The Anacostia Community Museum published *East of the River: Continuity and Change*, edited by the museum's Gail S. Lowe and featuring an essay by the museum's Portia James. An essay by Lowe, "Congress Heights: A Many-Layered Past," was published in the second edition of *Washington at Home: An Illustrated History of Neighborhoods in the Nation's Capital* (Johns Hopkins Press).

Two books to accompany Smithsonian American Art Museum catalogues were published. *Telling Stories: Norman Rockwell from the Collections of George Lucas and Steven Spielberg* was written by the museum's Virginia M. Mecklenburg, while *A Revolution in Wood: The Bresler Collection* was authored by Nicholas R. Bell, a curator at the Renwick Gallery.

The Smithsonian American Art Museum also hosted a symposium, "Norman Rockwell: American Art and the Movies," in the McEvoy Auditorium of the Reynolds Center. An afternoon session open to the public was preceded by a morning session for scholars that drew 30 experts from around the country. James Deutsch of the Center for Folklife and Cultural Heritage contributed a presentation on "Back to Civvies: World War II Veterans as Depicted by Norman Rockwell and Hollywood Film."

James Deutsch also published two book chapters, "Peddlers," in *The Early Republic and Antebellum America: An Encyclopedia of Social, Political, Cultural, and Economic History* (edited by Christopher G. Bates and published by M.E. Sharpe), and "The Best Years of Our Lives," in *The Forties in America* (edited by Thomas Tandy Lewis and published by Salem Press).



Smithsonian Folkways released two recordings celebrating the music of America: Ola Belle Reed's *Rising Sun Melodies* and a compilation of works by various artists, *Classic Sounds of New Orleans from Smithsonian Folkways*.

The *Archives of American Art Journal* marked its 50th anniversary with an issue celebrating the Archives' half-century of supporting art scholarship.



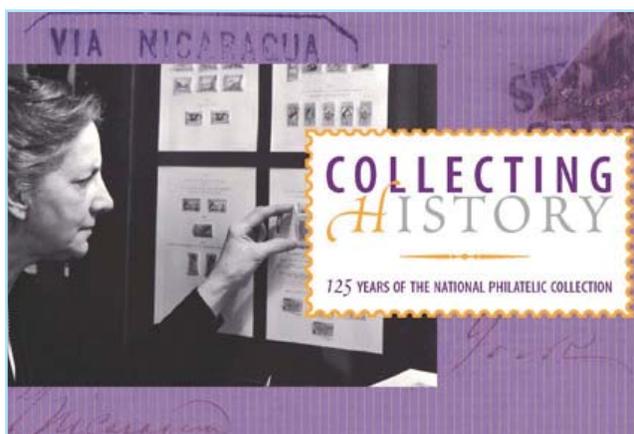
Bradford's doll house

The book *Lists: To-dos, Illustrated Inventories, Collected Thoughts, and Other Artists' Enumerations from the Smithsonian's Archives of American Art* by the Archives' Liza Kirwin was published by Princeton Architectural Press.

A new book from the **National Postal Museum** and the Smithsonian Institution Scholarly Press, *The Winton M. Blount Postal History Symposia: Select Papers, 2006–2009*, spotlights papers from the first four years of the museum's annual scholarly symposium.

Broadening Access

The much-anticipated and hugely popular exhibition *Telling Stories: Norman Rockwell from the Collections of George Lucas and Steven Spielberg* at the **Smithsonian American Art Museum** (July 2, 2010–January 2, 2011) put an impressive selection of the artist's works on display. The Smithsonian was the only venue for this exhibition.



The new **National Postal Museum** exhibition *Collecting History: 125 Years of the National Philatelic Collection* (August 4, 2010–January 9, 2012) remembers the donors and curators who shaped the Smithsonian's National Philatelic Collection, the oldest intact national stamp collection in the world.

A Revolution in Wood: The Bresler Collection, (September 24, 2010–January 30, 2011), which showcases 66 recent gifts of wood art to the **Smithsonian American Art Museum**, opened at the museum's **Renwick Gallery**.

The **Smithsonian American Art Museum** launched a new alternate reality game, "Pheon." The game, which will run online through Facebook for a year, challenges players to complete missions inspired by the museum's collections and exhibitions. A launch event at the museum was attended by 160 people.

The **National Museum of American History** and the U.S. Citizenship and Immigration Services cohosted a special naturalization ceremony for 26 citizenship candidates from 16 countries.

Kinshasha Holman Conwill of the **National Museum of African American History and Culture** and John Hasse of the **National Museum of American History** moderated a discussion on the legacy of jazz and big bands at the Apollo Theater. Panelists included radio host Willard Jenkins and Columbia University professor Robert G. O'Meally.



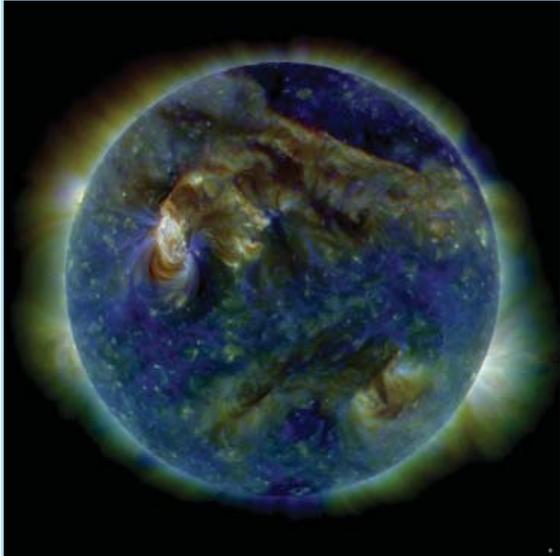
Taking the Oath of U.S. Citizenship at the National Museum of American History.

In a ceremony in July 2010, the **Asian Pacific American Program** presented to the **National Portrait Gallery** a commissioned portrait of former Smithsonian Regent Norman Mineta, who served on the Board from 1979 to 1995. Mineta served as Secretary of Commerce under President Bill Clinton and Secretary of Transportation under President George W. Bush, and was a U.S. Representative for two decades. He cofounded the Congressional Asian Pacific American Caucus and served as its first chair.

Unlocking the Mysteries of the Universe

Research: Smithsonian Astrophysical Observatory (SAO)

Harvard-Smithsonian Center for Astrophysics (CfA)



An image from the Solar Dynamics Observatory

In August 2010, the Sun's surface erupted and blasted billions of tons of plasma into space, aimed directly at Earth. Called a coronal mass ejection, this event was caught on camera by NASA's Solar Dynamics Observatory using an instrument developed at SAO to image the Sun. These types of events can interact with the Earth's magnetic field, causing the spectacular light shows known as aurorae.

NASA announced that it will fund a mission led by the Smithsonian's Justin Kasper to directly sample the Sun's outer atmosphere. The Solar Wind Electrons Alphas and Protons (SWEAP) project, to be launched before the end of this decade, will carry a cutting-edge instrument that will capture some of the Sun's gases.

A team of astronomers led by SAO's Matthew Holman has discovered the first confirmed planetary system containing an earth-sized extrasolar planet. NASA's

Kepler Mission released these findings following seven months of observations of more than 156,000 stars. Kepler looks for the signatures of planets by measuring tiny decreases in the brightness of stars when planets cross in front of them.



Artist's conception of the extrasolar planetary system discovered by the Kepler Mission

Other Research

In a paper in *Science*, Tom Watters of the Center for Earth and Planetary Studies at the **National Air and Space Museum** and his collaborators revealed their conclusion that the moon has been shrinking. They based this finding on data from the Lunar Reconnaissance Orbiter, which revealed geological features called "lobate scarps" that are most likely the result of the slow cooling of the moon's interior.

Watters also was awarded a 2010 Secretary's Research Prize for "Evolution of the Rembrandt Impact Basin on Mercury," published in *Science* last year.

Broadening Access

The American Association for the Advancement of Science has given its SPORE award for online resources to the **Harvard-Smithsonian Center for Astrophysics** for "The Habitable Planet: A Systems Approach to Environmental Science," an online course for high school teachers and other adult learners.

The annual **National Air and Space Museum** “Mars Day!” event was held at the museum’s National Mall building on July 16, 2010. “Mars Day!” celebrates the Red Planet with a variety of fun and educational family activities. More than 9,500 visitors attended.



Story time at “Mars Day!”

Crossing Boundaries

Research

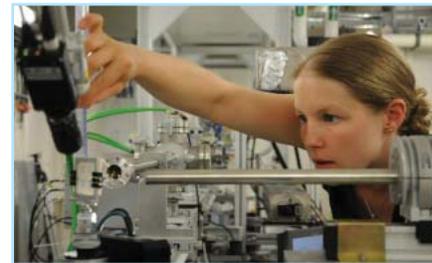
A new book by Susan F. Lake of the **Hirshhorn Museum and Sculpture Garden**, *Willem de Kooning: The Artist’s Materials*, offers the first systematic examination of de Kooning’s creative process.

The **National Portrait Gallery’s** Anne Goodyear was awarded the Secretary’s Research Prize for her catalogue, published by the MIT Press, that accompanied a recent exhibition on Marcel Duchamp.

The **Smithsonian Institution Libraries** has converted over 4,000 records from the U.S. National Museum, representing nearly 100 years of scholarly research, to electronic format for inclusion in the online Smithsonian Research Bibliography. These include materials such as the *Bulletin of the United States National Museum*, *Proceedings of the United States National Museum*, and museum annual reports.

The stable isotope mass spectrometry program of the **Museum Conservation Institute** examines biological materials at the atomic level to ferret out information on temporal climates, spatial locations, and food web positions. In fiscal year 2010, the stable isotope laboratory conducted 13,900 analyses for 51 projects, covering all four of the Grand Challenges.

Ed Vicenzi and Claire Gervais, also of the **Museum Conservation Institute**, worked with partners from the French materials conservation facility SOLEIL to study the fading of Prussian blue, the earliest synthetic pigment, in an effort to determine if changes in its chemical structure with fading are reversible.



The Museum Conservation Institute’s Claire Gervais



The renovated *Pioneers of Flight* Gallery

Broadening Access

Phase One of the **National Air and Space Museum’s** renovated *Barron Hilton Pioneers of Flight Gallery* opened in August 2010. (The completed exhibition opened on November 19, 2010.)

The expanded and updated Gallery highlights the formative decades in aviation in the 1920s and 1930s, and features several milestone aircraft and rocketry artifacts.

September 2010 saw the publication of *The Smithsonian National Air and Space Museum: An Autobiography*, a richly illustrated book that examines the history of the museum and the Smithsonian's involvement with air and space explorations dating back to shortly after the Institution's founding. It features a foreword by Senator John Glenn and text by museum research staff.

Cooper-Hewitt, National Design Museum engaged a variety of audiences with its exhibitions, programs, and collections:

- First Lady Michelle Obama celebrated Cooper-Hewitt's 2010 National Design Awards in a July 21, 2010, White House ceremony attended by 144 guests, including award winners and finalists, jury members, museum trustees, program sponsors, and others.
- Several foreign dignitaries toured the museum's *National Design Triennial: Why Design Now?* exhibition, including Finland's President Tarja Halonen, Norway's First Lady Ingrid Schulerud, and the Netherlands' Prime Minister Jan Peter Balkenende.
- The Cocktails@Cooper-Hewitt series brought 3,000 people to the museum to enjoy cocktails and light fare, listen to live jazz music, and explore the museum's current exhibitions.
- More than 2,900 people attended the Design Kids Festival, a free educational event funded by Target that included design workshops, design-themed storytelling, and other activities.



First Lady Michelle Obama and Cooper-Hewitt Director Bill Moggridge at the White House

Hide: Skin as Material and Metaphor, Part II (September 4, 2010–January 16, 2011) opened at the George Gustav Heye Center of the National Museum of the American Indian in New York City. The center also offered a variety of exciting programming for diverse audiences, including:

- an artist talk with Michael Belmore (Ojibway), one of the featured artists in the *Hide* exhibition;
- a performance by Native Roots, an Albuquerque-based Native American reggae group, a part of the Native Sounds Downtown program;
- the Summer Dance Series, which offered interactive dance programs with Native artists; and
- “Celebrating Mexico Now! Zarela’s Mexican Corn Kitchen,” a sold-out lecture and cooking demonstration by Mexican chef and food historian Zarela Martinez.



Touring *Word, Shout, Song* at the Anacostia Community Museum

The Anacostia Community Museum exhibition *Word, Shout, Song: Lorenzo Dow Turner Connecting Communities through Language* (August 9, 2010–July 24, 2011) focuses on the work of the scholar Lorenzo Dow Turner. His research in the 1930s revealed that the Gullah people of Georgia and South Carolina still possessed parts of their African ancestors' language, which had long been believed lost.

The Smithsonian Institution Libraries' *Galaxy of Images*, comprised of plates and pages from the Libraries' collections, now has more than 11,000 images available on the Web. They are freely available for use

by teachers, students, and researchers, and high-resolution versions are available for a small fee.

Broadening Access: Outreach

Smithsonian Affiliations offers museums, cultural institutions, and educational organizations around the country access to the Institution's collections and other resources. At the end of fiscal year 2010, there were 166 Affiliates in 41 states, the District of Columbia, Panama, and Puerto Rico. In this quarter:

- the Smithsonian welcomed two new Affiliates: the Polk Museum of Art in Lakeland, Florida, and the Ellen Noël Art Museum in Odessa, Texas,
- the Institution loaned 153 artifacts to Affiliates, and
- Smithsonian staff participated in eight public programs at Affiliates.

In fiscal year 2010, the **Smithsonian Institution Traveling Exhibition Service (SITES)** circulated 54 exhibitions to 512 venues in all 50 states, the District of Columbia, Guam, and U.S. military bases in 10 countries, where they were viewed by approximately five million visitors.

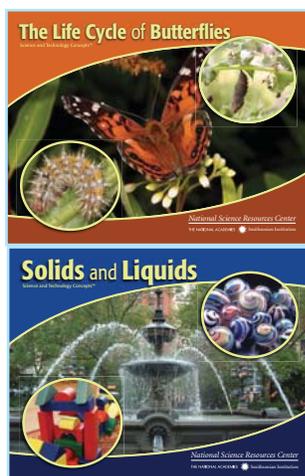
In collaboration with the educational organization Facing History and Ourselves, SITES has developed and distributed an educational poster exhibit, *Choosing to Participate*. Aimed primarily at middle- and high-school students, it is designed to encourage dialogue, engagement, respect, and participation in today's increasingly diverse communities.

The boys' choir from the Haiti's Holy Trinity Music—which was destroyed in the January 2010 earthquake in that nation—performed at the **National Museum of American History**. The Smithsonian is leading a team of cultural organizations to help assess, recover, and restore Haiti's material cultural. Under Secretary for History, Art, and Culture Richard Kurin is heading up the effort.



A Haitian boys' choir performed at the National Museum of American History

Broadening Access: Education



The **National Science Resources Center (NSRC)** was awarded a \$25.5 million Department of Education Investing in Innovation (i3) grant—one of 49 awardees chosen from a pool of 1,700 applicants. The grant will help fund a research project to explore the possibility of scaling up NSRC's Leadership Assistance in Science Education Reform (LASER) model to the national level.

NSRC also published the final four books in its 24-volume Science and Technology Concepts series for elementary school students:

The Life Cycle of Butterflies introduces the concept of life cycles by inviting children to investigate the life of a butterfly.

Solids and Liquids compares the attributes of a variety of common solids and liquids.



One of NSRC's Smithsonian Science Education Academies for Teachers

- *Changes* expands understanding of solids, liquids, and gases by exploring freezing, melting, evaporation, and condensation.
- *Balancing and Weighing* introduces the relationship between balance and weight, providing many examples from everyday life.

In addition, NSRC held its sixth Smithsonian Science Education Academies for Teachers, at which 60 secondary school science teachers attended one of three week-long, credit-granting sessions on the topics of Earth's history, biodiversity, and energy resources.

The **Smithsonian Center for Education and Museum Studies (SCEMS)** published "Final

Farewells," the fall 2010 issue of *Smithsonian in Your Classroom*, in collaboration with the **National Museum of American History** and archivists at Rutgers University. It explores one of the first school yearbooks, published on the eve of the Civil War.

SCEMS also organized a leadership summit on using technology to inspire community-based, participatory citizen science, with presenters from the Cornell Laboratory of Ornithology, Project NOAH (Networked Organisms and Habitats), and the University of Wisconsin.

The **Smithsonian Associates** organized two Teaching American History professional development workshops for educators:

- a program in Corning, New York, on the Revolutionary War for K–12 teachers, and
- a program in Washington, D.C., on "Frontiers of American History" for 26 teachers from Lansing, Michigan, that included visits to the **Reynolds Center**, **National Museum of American History**, and **National Museum of the American Indian**, as well as the National Archives, Mount Vernon, and the Capitol.

The **Hirshhorn Museum and Sculpture Garden** received a MacArthur Foundation grant of \$500,000 to create a digital learning center.

Through a \$2 million partnership funded by the Pearson Foundation, the **Hirshhorn** and the **National Postal Museum** launched pilot programs of mobile learning workshops for students and teachers. Students created games, blogs, and videocasts to share on a social network, while teachers created video curriculum clips for classroom use. The workshops kick off three years of programming to be hosted jointly by both museums.

Cooper-Hewitt's education team held two professional development programs for teachers:

- A weeklong City of Neighborhoods program at the Ogden Museum of Southern Art in New Orleans to instruct teachers on the principles of community-based design. Teachers from New Orleans, New York, Connecticut, Michigan, Indiana, and Virginia attended.



Participants at a Hirshhorn mobile learning workshop

- The annual, weeklong Smithsonian Design Institute, which this year focused on the *National Design Triennial: Why Design Now?* exhibition and included presentations by designers featured in the exhibition and lectures on how to incorporate design into the classroom.

The Lemelson Center of the **National Museum of American History** received a grant of over \$2.5 million from the National Science Foundation to support informal education tied to the center's *Places of Invention* exhibition project. The center also hosted its annual National Inventors' Month Family Festival, which drew 3,000 visitors.

In this quarter, the **Smithsonian American Art Museum's** interactive real-time videoconference program served over 1,000 students and teachers, both in the United States and in U.S. Department of Defense (DoDEA) schools worldwide.

The **National Museum of the American Indian** has added a daily program of hands-on activities that includes beading, weaving, quilt making, and games representing traditions from over 20 tribes. Some of these activities are now being adapted for the Web environment.

Strengthening Collections



One of the Zoo's lion cubs takes a swim test (above, top image), some of Jim Henson's early Muppets (above, bottom image), and the Cullinan Blue Diamond Necklace (right)

The **National Zoo's** two female African lions both recently gave birth to cubs. Shera's four cubs and Naba's three were born on, respectively, August 31 and September 22, 2010. Luke, the Zoo's five-year-old male, is the father of both litters. All seven cubs are thriving under the care and attention of the Zoo's animal-care personnel.

The **National Museum of American History** accepted a gift of ten of Jim Henson's oldest Muppets from the Henson family. These appeared in the television program *Sam and Friends*, which debuted on a Washington, D.C., station, WRC-TV, in 1955 and featured many unique characters, including the original Kermit the Frog.



In recognition of the **National Museum of Natural History's** 100th anniversary, the museum received four separate gifts of remarkable gemstones and jewelry pieces, including the Cullinan Blue Diamond Necklace, for the Smithsonian's National Gem Collection.

Organizational Excellence

Leadership Milestones

In July 2010, Secretary G. Wayne Clough named four Smithsonian scholars to serve as directors of the pan-Institutional consortia for coordinating Smithsonian activities in each Grand Challenge area:

- **Michelle Delaney**, a curator at the National Museum of American History, will head the consortium devoted to the Grand Challenge “Understanding the American Experience.”
- **Robert Leopold**, director of the National Anthropological Archives at the National Museum of Natural History, will lead the “Valuing World Cultures” consortium.
- **Christine Jones Forman**, a senior astrophysicist at the Smithsonian Astrophysical Observatory, will direct the “Unlocking the Mysteries of the Universe” consortium.
- **John Kress**, a botanist at the National Museum of Natural History, will head the “Understanding and Sustaining a Biodiverse Planet” consortium.

Information Technology

The second Smithsonian Digitization Fair was held on September 15 and 16, 2010, drawing more than 200 Smithsonian staff in person and another 400 via the Web. The first day’s activities included talks on the challenges and opportunities of digitization. On day two, the spotlight shifted to specific digitization projects being undertaken across the Institution. The event created many opportunities for staff who create, manage, and use digitized assets to share ideas and information with their colleagues.

The **Office of the Chief Information Officer** completed the move of all application servers to the Smithsonian’s Data Center in Herndon, Virginia, finally bringing these resources together under one roof. This is a first step towards a consolidation that will ultimately reduce the number of servers in the data center, including their carbon footprint.

A pioneering series, “The Scientist Is Online—From the Field,” began this summer in the *David H. Koch Hall of Human Origins* at the **National Museum of Natural History**. Four online events incorporating multimedia, live phone/video satellite feeds, and phone and Twitter conversations gave the public a unique opportunity to speak directly to researchers conducting digs in Kenya.

Major Construction, Renovation, and Facilities Projects

Arts and Industries Building (AIB)

\$55 million estimated cost for shell only

Construction documents for roof reconstruction, window replacement, and structural upgrades have been completed. A contract was awarded in September 2010, and construction commenced soon afterward. The design for the building core is in the scope development phase. Interior work has begun, with the goal of restoring the character of the original spaces and the open views through the building that have been obscured for nearly 100 years. Program possibilities for the building are being explored. A strategy for a public opening in fiscal year 2016 has been developed, and is achievable if goals for fund raising are met and an adequate allocation of resources within the Facilities Capital Plan is made.

National Museum of African American History and Culture

\$500 million total estimated project cost

The concept design for the Smithsonian’s newest museum received positive comments from both the National Capital Planning Commission and the Commission of Fine Arts at their September 2010 hearings. The design consists of a multi-tiered pavilion on a rolling green landscape, and includes several water features. In parallel with design development activities, and in accord with the National Historic Preservation Act, regular consultations with interested parties continue. A draft environmental impact statement was issued in November 2010, and a public hearing was held to receive comments. Proposals provided by exhibition design teams are in review, and a request for proposals from construction management firms is in development. Total project costs are to be shared evenly, with \$250 million from Federal capital funds and \$250 million from non-Federal sources.



National Zoological Park, Seal / Sea Lion Exhibit

\$40.0 million total estimated project cost

The Zoo’s seal/sea lion exhibit is being revitalized to meet current standards for animal care and to improve accessibility. The project includes an upgrade of underground utilities in Beaver Valley. Construction is approximately 25 percent complete and projected to be finished in early 2012. The non-capital, interpretive component of the project will be funded with \$1 million in Trust funds, while the Federal capital contribution is approximately \$39 million in fiscal years 2009–2012.



National Zoological Park, Asia Trail II: Elephant Trails

\$55.9 million estimated total project and program cost

The second phase of the Asia Trail project has a projected cost of \$55.9 million—\$41.05 million Federal (received in fiscal years 2006–2012) and \$14.8 million Trust. Construction of the new elephant barn and two of three outdoor habitats was recently completed. Remaining work on the “elephant community center”

has been removed from the original contract and has been awarded to a new contractor. Additional funding is being sought for completion of the final habitat, and the project is now scheduled to be finished in 2013.

National Zoological Park, General Services Building and North Road Retaining Wall

\$33.3 million total estimated project cost

Design is substantially complete for structural repairs, fire-protection improvements, and safety upgrades at the Zoo's General Services Building, which houses vital support functions that must remain operational throughout construction and will be temporarily relocated to swing space. Replacement of an adjacent retaining wall supporting the North Road was recently incorporated into the project and will be reviewed with the Commission of Fine Arts and the National Capital Planning Commission in early 2011. The project also includes the permanent relocation of the Institution's vehicle maintenance branch to a Suitland, Maryland facility, which is nearly 50 percent complete. Federal funding has been requested for fiscal years 2012–2014 for work on the retaining wall and the General Services Building.

*National Zoological Park, Smithsonian Conservation Biology Institute—
Smithsonian-Mason Global Conservation Studies Partnership and Utilities Upgrade*

\$39.6 million total estimated project cost

A 2008 Memorandum of Understanding between the Smithsonian and George Mason University (GMU) pledged both parties to provide facilities to support a joint conservation biology program for undergraduates and professionals at the National Zoo's facilities in Front Royal, Virginia. A bill authorizing construction has passed the House, but there has been no movement on the companion Senate bill. The Smithsonian will renovate and expand an existing building to house classrooms, laboratories, and faculty offices at a cost of \$12.5 million—\$7.5 million in Federal funds in fiscal years 2010–2013 and \$5 million in raised funds. Relocation of animals from the existing building is under way with \$1.6 million in raised funds. Design development is nearly complete, and construction is expected to begin in early 2011. Along with this contract award, the Smithsonian will upgrade site utilities with \$5.5 million in Federal funds. GMU has secured a \$20 million bond to fund its construction of residential and dining facilities. All facilities are projected to be complete for the start of the fall 2012 semester.

National Museum of American History, Kenneth E. Behring Center



Revitalization of west wing public space, package III: \$60 million total project cost

The focus of the third phase of renovation at the National Museum of American History is renewal of three west wing public spaces. Data gathering, field surveys on existing conditions, and schematic design have been completed. The 35 percent design documents are complete, with final design expected by summer 2011 and construction to begin by the end of 2011. The Federal

appropriation for design (\$6 million) was received in fiscal years 2009 and 2010. Initial construction funding of \$5 million was received in fiscal year 2011, with the remainder (\$49 million) requested for fiscal years 2012–2013.

Donald W. Reynolds Center for American Art and Portraiture

\$19.5 million total estimated project cost

The Smithsonian will complete the renovation of the Reynolds Center with the reconstruction of the F Street stairs and the addition of landscaping and security. Estimates for the associated costs are \$9.5 million in Federal funds and \$10.0 million in Trust funds.

National Air and Space Museum—Steven F. Udvar-Hazy Center, Phase Two

\$81.8 million total project cost

Phase II of the Udvar-Hazy Center has added 237,000 square feet of collections care space to the current facility. Construction was completed in December 2010, with fit-out of the storage, processing, and archives spaces subject to the receipt of Federal funding. Total project costs include \$68.7 million in Trust funds for construction and \$13.1 million in Federal funds for equipment, move in, and start-up.



Smithsonian Tropical Research Institute, Gamboa Laboratory Facilities

\$19.4 million total estimated project cost

With the acquisition of 172.5 acres in Gamboa in 2007, the Smithsonian Tropical Research Institute is proceeding with the replacement of outdated facilities. A new terrestrial science lab facility on the Gamboa site will be funded with \$15.94 million in Federal and \$3.46 million in Trust funds. Programming and design and the selection of the construction manager are complete, with construction to begin in early 2011.

National Museum of Natural History, Main Building Ground Floor and Mezzanine

\$24.0 million total project cost

The entire north ground floor of the main Natural History building is slated for renovation. The 15,500-square-foot west end of the floor will become a new learning center, and the 27,600-square-foot east end will house an expanded Smithsonian Early Enrichment Center, renovated Smithsonian Institution Libraries facilities, an improved paleobiology laboratory, and a consolidated facility support operations center. The project was awarded for construction in September 2010 with completion planned for mid-2012.

Museum Support Center of the National Museum of Natural History, Pod 3

\$42.6 million total estimated project cost

Renovations have been completed on Pod 3 in Suitland, Maryland, which will provide consolidated storage space for frozen, refrigerated, gas-preserved, and dry collections, allowing the Smithsonian to vacate leased properties and freeing up congested space in several museums. Over \$15 million of shelving/racking, cases, and freezers are now being installed. Transfers of collections from four museums began in June 2010, and will take two years and cost almost \$5 million to complete.

Cooper-Hewitt, National Design Museum

\$57.7 million total estimated project cost

Renovation of the Fox-Miller townhouses is expected to be completed in summer 2011. Design for the Carnegie Mansion renovation is scheduled for completion in February 2011, with a construction contract to be awarded in June 2011 and construction to begin in July 2011. Total project costs include \$25.2 million in Federal funds and \$32.5 million in private funding. Federal funds included pre-fiscal year 2009 awards of \$2.9 million for design and collections storage, \$1.7 million in fiscal year 2009 funds for the Fox-Miller work, and the balance for Mansion construction in fiscal years 2011–2013. Of the required private funds, over \$30 million (more than 90 percent) have been identified in gifts and pledges.

Smithsonian Environmental Research Center, Mathias Replacement Laboratory Project

\$44.5 million total estimated project cost

The Smithsonian Environmental Research Center is eliminating trailers that house 25 percent of lab space and 65 percent of office space; renovating and reconfiguring the Mathias Lab; and creating replacement labs that meet national standards. The 85,000-square-foot project employs sustainable technologies and building materials that will yield substantial reductions in energy and maintenance costs. Design was completed in October 2010, and construction is scheduled to commence in early 2011 and to be completed in 2014.

Permanent Physical Security Barriers

\$55 million total project cost

Construction of security barriers at the National Air and Space Museum is complete. The first phase of barrier construction at the National Museum of Natural History also has been finished; work on the final phase is under way, with completion expected in summer 2011. The installation of barriers

around the perimeter of the National Museum of American History was completed in December 2010. Construction of security barriers for the Castle and Quadrangle is slated to start in fiscal year 2014. Design and construction of off-Mall barriers will follow in order of priority.

American Recovery and Reinvestment Act of 2009 Projects

\$25 million total project cost

The American Recovery and Reinvestment Act of 2009 provided \$25 million for repair and revitalization projects not covered by fiscal year 2009 funding, most involving safety/code compliance or sustainability and energy efficiency. All project contracts were awarded by the end of fiscal year 2010.

Sustainability

Around the Smithsonian, work continues on multiple projects aiming to achieve Leadership in Energy and Environmental Design (LEED) certifications in areas such as geothermal heating and cooling, cool building analysis, use of “green roofs” and photo-voltaic cells, solar panel water heating, and water reclamation. A comprehensive inventory of Smithsonian greenhouse gas emissions is also under way, and is due in January 2011.