Inspiring Generations through Knowledge and Discovery
Highlights of New Discoveries and Research Initiatives

The work of Smithsonian curators, historians, and scientists is essential to the Institution’s ability to meet the four grand challenges of the Smithsonian Strategic Plan: understanding and sustaining a biodiverse planet, unlocking the mysteries of the universe, valuing world cultures, and understanding the American experience. The following stories highlight a few of the many new discoveries, research programs, and initiatives that have occurred recently at the Smithsonian. These achievements reflect the immense resources and intellectual talent of the Smithsonian, as well as demonstrate its commitment to addressing issues and answering questions of global importance.

Valuing World Cultures

Collaborative exhibition and publication reflect 150 years of Smithsonian anthropological research in Alaska

Based on a collaborative exhibition created by the National Museum of Natural History (NMNH), the National Museum of the American Indian, Alaska Native communities, and the Anchorage Museum, the new book Living Our Cultures, Sharing Our Heritage: The First Peoples of Alaska celebrates both the long-awaited return of ancestral treasures to their northern homeland and the diverse cultures in which they were created. The publication, edited in part by NMNH anthropologist Aron L. Crowell, features more than 200 objects representing the masterful artistry and design traditions of 20 Alaska Native peoples. Universal themes of “Sea, Land, Rivers,” “Family and Community,” and “Ceremony and Celebration” are explored by referencing exquisite masks, parkas, beaded garments, basketry, weapons, and carvings that embody the diverse environments and practices of their makers. Accompanied by traditional stories and personal accounts by Alaska Native elders, artists, and scholars, each piece featured in Living Our Cultures, Sharing Our Heritage evokes both historical and contemporary meaning, and breathes the life of its people. This Smithsonian publication builds on 150 years of Smithsonian anthropological research in Alaska and carries it forward in a new mode of extensive collaboration with indigenous scholars. The Living Our Cultures collections, which include over 600 objects, will be on display until at least 2017 in Anchorage, where they will be available for ongoing community-based study and interpretation.
Hirshhorn’s *Yves Klein: With the Void, Full Powers* culminates seven-year research project

In May 2010, the Hirshhorn Museum and Sculpture Garden opened *Yves Klein: With the Void, Full Powers*, the first United States retrospective of the noted French artist’s work in nearly 30 years. One of the twentieth century’s most influential artists, Yves Klein (1928–1962) took the European art scene by storm in a prolific career that lasted only from 1954 to 1962. Klein was an innovator whose goal was to reinvent what art could be. Inspired by Eastern philosophies and judo, he sought to achieve “immaterial sensibility” in all his work—from painting and sculpture to photography and film.

The project, which was co-organized by the Hirshhorn and the Walker Art Center, Minneapolis, is the culmination of nearly seven years of research that included extensive work with the Yves Klein Archives in Paris; interviews with Rotraut Klein-Moquay (Yves Klein’s widow); consultation with a range of scholars; and substantial text and photographic research. Co-curated by Hirshhorn Deputy Director and Chief Curator Kerry Brougher and Dia Art Foundation Director Philippe Vergne (formerly chief curator and deputy director at the Walker Art Center), the exhibition presents approximately 200 artworks that explore the full range of the artist’s body of work and reveal his process and creative practice. Examples from all of Klein’s major series are included—from his iconic blue monochromes and Anthropometries to sponge reliefs, Fire Paintings, Cosmogonies, planetary reliefs, and “air architecture” projects that envisioned a utopian future.

In addition to the multilayered exhibition content, *Yves Klein: With the Void, Full Powers* is supported by a 352-page illustrated exhibition catalogue that includes archival materials and translations of the artist’s published and unpublished writings; the first-ever complete English translation of *Dimanche*, a faux newspaper Klein created for the November 1960 Avant-Garde Art Festival; the launch of multiple social media sites with a changing menu of online quotes, photos, and video and audio recordings by Klein; and images of artworks, quotes from Klein, and audio/video recordings of the artist on the Hirshhorn’s first iPhone app. The exhibition, catalogue, and iPhone app have received significant press attention, with reviews in national and international newspapers, magazines, and journals, including the *New York Times*, the *New Yorker*, the *Wall Street Journal*, the *Economist*, the *Washington Post, Art in America*, and *ArtForum*, among others. After closing at the Hirshhorn in September 2010, *Yves Klein: With the Void, Full Powers* was installed at the Walker, where it will be on view until mid-February 2011.
Center for Folklife and Cultural Heritage explores relationship between Colombian cultural expressions and regional ecosystems

In August and October of 2010, researchers from the Center for Folklife and Cultural Heritage (CFCH) and various Colombian cultural institutions carried out field research in five regions of that country, each of which is defined by a unique ecosystem and distinctive regional culture. The purpose of the research was to explore *The Nature of Colombian Culture*, the theme selected for the 2011 Smithsonian Folklife Festival “living exhibition,” and examine how Colombian cultural expressions are inextricably connected to their distinctive environments.

The five ecosystems include the Andean Savannah, the Coffee Belt, the Momposino Flood Plains, the Southeastern Plains, and the Pacific Rainforest. The regional cultural profiles range from the historically Hispanic traditions established by the earliest Spanish colonizers of the Andean spine of the country, to the strongly Afro-descendant communities that originated with the slave laborers brought to the mines and plantations of the Pacific Rainforest belt, to the cattle ranchers of the immense flood plains of the Orinoco river basin. Traditions documented include occupations surrounding coffee production, the thriving flower-growing industry and expressive traditions around the city of Medellín, the weaving of Andean woolen textiles and reed baskets, the crafting of leather goods, and musical forms rooted in local tradition.

Additional research focused on the cultural mix in Colombia’s three principal urban areas: the capital city of Bogotá with its 7 million inhabitants, Medellín, and Cali. The massive migration of rural people—many of them displaced by the drug trade and civil unrest, others lured by more lucrative work—to urban centers has created a new mix of people seeking both to maintain their sense of cultural identity and to adapt to increasingly urban tastes and vogues. For example, in Medellín, young people of African descent from the Chocó region of the Pacific coast are creating hip-hop expressions that incorporate the sounds and rhythms of their regional past. The research team interviewed more than 100 potential participants throughout the five regions for the Folklife Festival project, and documented numerous traditions with interviews, photographs, and video.
Museum Conservation Institute assists in Immigration and Customs Enforcement training

The Museum Conservation Institute (MCI), in collaboration with the U.S. Department of State’s Cultural Heritage Center and Department of Homeland Security’s Immigration and Customs Enforcement (ICE), has organized three highly successful training workshops for ICE agents tasked with investigating and preventing the illicit trade of art and antiquities. The workshops, which have trained 67 agents thus far, cover legal issues and processes, including investigative methods and procedures appropriate for international cultural property cases. The courses also draw upon Smithsonian specialists’ expertise in identifying, determining the provenance of, and assessing the authenticity of cultural heritage materials. With the Office of International Relations coordinating key logistical aspects, and the assistance of the Office of the Under Secretary of Science and the Center for Folklife and Cultural Heritage, staff from MCI and other Smithsonian museums also provide a behind-the-scenes introduction to objects from regions that are at greatest risk of looting and trafficking, as well as practical training in the handling, photographing, recording, and packing of objects.

National Postal Museum publishes papers from the Winton M. Blount Symposia

The National Postal Museum recently published The Winton M. Blount Postal History Symposia: Select Papers, 2006–2009. Printed by the Smithsonian Institution Scholarly Press, the book is a collection of 16 essays selected from over 60 papers presented during the first four Winton M. Blount Postal History Symposia. The symposia were conceived as a venue for bringing together philatelic and academic postal historians, allowing them to interact and share their research. One measure of the symposia’s success is that seven of the 18 authors in the publication are academic or public historians who do not collect stamps.
National Museum of Natural History entomologist contributes to the understanding of mimicry in butterflies and moths

The evolution of caterpillars and pupae of many tropical butterflies and moths has resulted in a diversity of color patterns that mimic vertebrate eyes. In an article published in the June 2010 issue of the Proceedings of the National Academy of Sciences, National Museum of Natural History Research Entomologist John Burns, along with Daniel Janzen and Winnie Hallwachs from the University of Pennsylvania, proposed that false-eyed lepidopteran species (which are more or less edible) comprise a large complex of vertebrate-mimicking species that is generated and sustained by the tendency of small insectivorous birds to avoid potential vertebrate predators. These birds instinctually flee from anything that resembles the eyes of a vertebrate, such as a snake or lizard, that might eat them. In this kind of mimicry, where the birds’ avoidance behavior is innate instead of learned, the camouflaged lepidopterans vastly outnumber the vertebrates whose eyes they mimic, and the false-eye color patterns differ greatly from species to species instead of looking alike. On June 15, 2010, the Science section of the New York Times featured a story on this research that included a full page color photo spread of several species of butterflies and moths. The story also appeared in the Washington Post and in several international media outlets.

STRI team’s discovery of ancient pollen provides new information on global warming

In October 2010, as the world representatives prepared to address contemporary global warming at the United Nations Climate Change Conference in Cancun, Mexico, Science magazine published a prescient study led by Smithsonian Tropical Research Institute (STRI) staff scientist Carlos Jaramillo about warming in ancient tropical forests in South America. Jaramillo’s team examined plant pollen trapped in rock cores and outcrops from Colombia and Venezuela that were formed before, during, and after the Paleocene–Eocene Thermal Maximum, an abrupt global warming event that occurred some 56.3 million years ago. The event raised the world’s temperature by 3–5 degrees Celsius, doubled carbon dioxide levels in only 10,000 years, and resulted...
in warm conditions that lasted for the next 200,000 years. Based on the first-ever discovery of ancient pollen from the passionflower plant family and the chocolate family, among others, Jaramillo’s research dispelled assumptions that tropical forests would be devastated under similar conditions. Finding that new plant species evolved at a much faster rate than the older species became extinct, the team concluded that forest diversity actually increased rapidly during this ancient warming event. The report received extensive media reporting, including pieces by Elisabeth Rosenthal in the New York Times and other syndicated wire service reports.

Spreading implications: SERC studies a new marine invasion in southeast Alaska

Smithsonian Environmental Research Center (SERC) Senior Scientist Greg Ruiz has long-predicted the northward migration of invasive marine species along the West Coast. In June 2010 he found new evidence of this phenomenon. Ruiz, along with a team of colleagues and volunteers, discovered the invasive tunicate Didemnum vexillum in the waters off Sitka, Alaska. D. vexillum is a prolific fouling organism that can cause economic and ecological damage because it grows rapidly, creates monocultures, and smothers sensitive marine environments and shellfish resources.

The D. vexillum discovery was the result of the first annual “BioBlitz,” a coordinated survey of invasive species that involved SERC, citizen scientists, and partner institutions. Ruiz spearheaded the survey to determine whether or not species like D. vexillum are advancing northward along the Pacific Coast. Prior to this discovery, the tunicate was known to live only in coastal waters stretching from California to British Columbia.

Ruiz anticipated the arrival of D. vexillum in Alaska after much study and analysis. Under his direction, SERC’s Marine Invasions Research Lab has tracked the movement of cruise ships and other vessels that inadvertently transfer invasive species to new locations. The lab has identified and located source populations of potential invaders, as well as developed predictive models for several species that would find suitable habitat in Alaskan waters. This multifaceted approach has produced greater predictive powers and yielded early detections, such as the discovery of D. vexillum. Early detections can lead to faster responses and ultimately mitigate the problems associated with invasive species. In recognition of the program’s success, the Alaska SeaGrant Program has awarded Ruiz $400,000 to do additional research, outreach and eradication planning on D. vexillum.
**STRI researchers bolster understanding of tropical tree biodiversity**

In July 2010, Smithsonian Tropical Research Institute research associate Liza Comita and STRI staff Salomon Aguilar, Steve Hubbell, and Helene Muller-Landau made the cover story in *Science* magazine. The team’s study of the survival of more than 30,000 seedlings of 180 species of tropical trees showed that seedlings of rare species are much more sensitive to the presence of neighbors of their own species than are more common species. The study was sponsored in part by the HSBC Climate Partnership and used STRI’s large-scale, long-term forest dynamics plot on Barro Colorado Island, the first plot in the Smithsonian Institution Global Earth Observatory system of more than 40 plots worldwide that use the same methodology to characterize forests.

Similar results were found during another STRI study. Using a different experimental technique, post-doctoral fellow Scott Mangan and staff scientist Allen Herre found that underground interactions are a key to understanding tropical tree biodiversity. Their findings were published in *Nature*.

**National Zoo grows two species of anemones using coral techniques learned in the field**

The National Zoo has become the first in the zoo and aquarium communities to use coral larvae—settling techniques to successfully grow two species of anemones—an accomplishment that will provide a unique opportunity to learn how anemones grow. The anemones, both of which are commonly called Tealia red anemones under the species of *Urticina*, spawned in late April and early May 2010, just days apart. Hours after they spawned, invertebrate keeper Mike Henley collected the eggs and sperm from the more than 2,000-gallon tank and put them together in smaller tanks to increase the chances of fertilization. After fertilization, the larvae settled and metamorphosed into polyps. Henley then put some of the developing larvae in a circular tank called a kreisel—the same type of tank researchers use to hold coral larvae when conducting field work—that automatically stirs the water to prevent larvae from binding to one another, which would kill the
animals. Other free-swimming larvae went into a regular tank with aeration and rocks on which the new anemones could settle. Now the Zoo has hundreds of thriving anemones, all smaller than the tip of a pencil. Henley will continue to observe the anemones to learn about their growth rate and the conditions that are necessary to rear these species in captivity, including the food, light, and water temperature they require.

**UNLOCKING THE MYSTERIES OF THE UNIVERSE**

Smithsonian Astrophysical Observatory astronomers discover an extrasolar Earth-sized planet

There are over 500 confirmed extrasolar planets, most of which are gas giants like Jupiter. Using the recently launched Kepler spacecraft, which was designed to study extrasolar planets, a team of Smithsonian Astrophysical Observatory (SAO) astronomers led the Kepler’s discovery of an Earth-sized extrasolar planet in October 2010. By carefully analyzing the orbital motions of two known Saturn-sized extrasolar planets in the system named Kepler-9, and then subtracting their influence to search for even smaller effects, they found a candidate planet whose size is only about 1.5 Earth-radii—one of the smallest extrasolar planets known. Because the planet orbits the star in only 1.5924 days (its “year”), it is very close to its star, hot, and thoroughly unlike the Earth. Nevertheless, this discovery represents a major step forward in the search for small planets.

Solar storms witnessed with SAO instrument on the Solar Dynamics Observatory satellite

Launched in February 2010, the Solar Dynamics Observatory is the most advanced spacecraft ever created to study the sun. It carries a Smithsonian Astrophysical Observatory instrument designed to image the sun with high precision at a variety of wavelengths.

In August 2010, astronomers used it to witness the sun’s surface blasting billions of tons of plasma into interplanetary space towards Earth. These types of events, called coronal mass ejections, can interact with the Earth’s magnetic field, causing the spectacular light shows known as aurorae.
Air and Space Museum researcher collaborates to find evidence of ancient mega-lakes

Utilizing both field work and techniques similar to those used to study ancient lakes on Mars, researchers have discovered evidence that the northward flowing Nile River was diverted into the Western Desert of Egypt some 250,000 years ago, forming a series of lakes the size of the Great Lakes that likely covered much of the eastern Sahara.

Over the past several years, Ted Maxwell of the National Air and Space Museum (NASM) Center for Earth and Planetary Studies and colleagues from Egypt and the University of Arizona used field work and Space Shuttle Imaging Radar to piece together a complicated history of what is currently a desert. The researchers analyzed evidence for fossil fish in the middle of the desert, along with information from the Imaging Radar that revealed the timing and direction of flow of mid-Pleistocene (~250,000 years ago) river channels—some with peculiar terminations—buried beneath the sand. By considering the archaeological findings together with a detailed topographic profile from the Shuttle Radar Topography Mission, they concluded that the seemingly disparate features of the now hyperarid desert actually occurred at the same elevation.

The study was published in December 2010 in the journal Geology and reported by Science News, UPI, and MSN.COM. It also was the picture of the day for New Scientist on December 2, 2010. In addition to early external funding from NASA, Smithsonian Endowment funds provided crucial support for the past decade of fieldwork.

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National Museum of African American History and Culture develops inaugural exhibition

In July 2010 National Museum of African American History and Culture (NMAAHC) Museum Curator Paul Gardullo had the opportunity to travel to Lyles Station, Indiana, to do site-specific research on an African American farming community that dates back to the mid-nineteenth century. The trip was part of a long-term effort to conceive and collect material for a major inaugural exhibition at the National Museum of African American History and Culture. Tentatively entitled The Power of Place, the exhibition will use the lens of place to immerse visitors in the diversity and broad implications of the African American experience. The goal is to present the rich diversity of people, places, and experiences that, even if unfamiliar, can offer meaningful perspectives on the historic role of place and region in the lives of all Americans.

With the support of the Smithsonian’s Research Opportunities fund, Gardullo spent three days meeting with members of the Lyles Station Historical Society, conducting research in local archives, and viewing potential collection items in homes, farms, and institutions. The result was a case study of a farming community that has lived on and farmed the same land for over 150 years, facing multiple and diverse challenges.

Gardullo coordinated his visit with a non-resident fellow from the W.E.B. Du Bois Institute for African and African American Research who is working on a broader project researching African American pioneers in the antebellum Midwest. Together they recorded several interviews with members of the Lyles Station community. Gardullo also was able to make contact with other heritage tourism, museum, and preservation projects related to African American history in southern Indiana. Future visits will focus both on identifying specific collections for the Smithsonian, as well as strategizing about ways to share the history of this African American farming community with visitors both on the National Mall and in Indiana.

The presentation of this story through artifacts and oral histories will allow NMAAHC to tell an important story about African American farming and land ownership. It also will provide a unique perspective on the largely unknown story and legacy of African American pioneers and their crucial role in shaping the American frontier in the nineteenth century.
Hide/Seek examines the role of sexual difference in the depiction of modern Americans

Hide/Seek: Difference and Desire in American Portraiture, the National Portrait Gallery’s (NPG) landmark survey of the role of sexual difference in the depiction of modern Americans, is the product of a multi-year research collaboration between NPG historian David C. Ward and Jonathan D. Katz, director of visual studies at the University of Buffalo. Through over 100 works of art from the late nineteenth century to the present, Hide/Seek and its exhibition catalogue show how artists have explored definitions of sexuality and gender at key points in social and cultural history, as well as how art has reflected society’s changing attitudes toward sexual identity over the last century.

The exhibition also considers how major movements in modern art—especially abstraction—were directly shaped by the position of gay and lesbian artists who were present in, but not fully a part of, the American society they portrayed. Occupying a position of influential marginality in modern society, these artists crafted innovative and revolutionary ways of painting portraits that included coding and abstraction. Art became a creative act of resistance that could express the identities of both the artists and their subjects.

Supported by extensive surveys of museum collections, artists’ papers, and published and unpublished scholarship on modernism and abstraction, Hide/Seek demonstrates that communion and exchange among people of different sexualities has been the rule, not the exception, in American culture. Many of the artists represented—from Thomas Eakins to Andy Warhol—produced works of art that are recognized touchstones in the history of American art and masterpieces of American portraiture. In extricating the hidden biographical dimensions of many of America’s most iconic portraits, Hide/Seek addresses the complexities of American culture as it has evolved during the course of the twentieth century. By examining the intersection between artistic representation and biography, and presenting the realities of American culture that have literally been “hidden in plain sight,” Hide/Seek advances the Smithsonian’s commitment to collection-based scholarship, inclusion, and understanding the diversity of the American experience.

An undated photo of Janet Flanner by Berenice Abbott graces the cover of the exhibition catalogue.
America’s Doll House examines one of the Institution’s most popular exhibits and its creator

National Museum of American History Political History Curator William L. Bird Jr. recently published America’s Doll House, an incisive portrait of a librarian’s sentimental pastime that resulted in one of the most popular exhibits at the Smithsonian: a five-story, intricately furnished miniature house that now sits on the museum’s third floor.

Faith Bradford spent more than a half-century accumulating and constructing the 1,354 miniatures that fill the house’s 23 intricately detailed rooms. When she donated the house to the Smithsonian in 1951, Bradford included a lengthy manuscript that described the lives of its imaginary residents; cataloged their tastes, habits, and preferences; and inventoried the household belongings. Photographs and fabric samples were included in the scrapbook.

Emboldened by the overwhelming popular reception of her first model, in 1955 Bradford embarked upon a second house that was inspired by the architectural renderings for the Museum of History and Technology, which was scheduled to open in 1964. Like the previous house, the Modern House had three display floors and was intricately furnished, albeit with a contemporary vision. Although the Modern House was formally accessioned into the museum’s collection in 1959, the museum’s administration became increasingly critical of the sentimental and fantastic features of Bradford’s models. The Modern House was never exhibited and is now lost.

In America’s Doll House, William Bird weaves together the rich tapestry of Faith Bradford’s miniature world, the history of modernism on the Mall, and the Smithsonian’s metaphorical change from the “nation’s attic” to an “exhibition machine.” Featuring vibrant color photography that brings every narrative detail to life, America’s Doll House celebrates Bradford’s remarkable and painstaking accomplishments and contributes to the understanding of a popular exhibit in the museum now known as National Museum of American History.
The Freedoms We Lost offers new perspective on genesis of America’s patriot movement

National Museum of American History Curator of Political History Barbara Clark Smith’s new book, *The Freedoms We Lost: Consent and Resistance in Revolutionary America*, offers a striking new interpretation of America’s eighteenth-century movement for independence. Whereas conventional knowledge suggests that elite, educated colonists generated revolutionary ideas about liberty, Smith’s book explores a different trajectory of political mobilization. By showing that these ideas arose from the experiences of small farmers and tradesmen seeking access to land and security in a growing and hierarchical empire, this innovative account places popular participation, values, and ideas about fairness and freedom at the center of America’s Patriot movement.

To make this case, *The Freedoms We Lost* considers the political practices that made up “the common ground of colonial politics”—the institutions in which ordinary men were expected to participate and in which ordinary knowledge and common sense were acknowledged to be sufficient. The institutions included, for example, elections for representatives to colonial houses of assembly and courtrooms of common law where middle-class men served on juries. These practices depended on new relationships of mutuality and interdependence that embraced limits on self-interest in order to protect the wellbeing of the community.

These ideals characterized the Patriot movement until the 1780s, when leaders began to dissociate from the social values and political goals of common farmers and tradesmen. In the following decades, prominent Patriots would form new alliances with “monied” men who previously had distanced themselves from the Revolution, establish new political institutions, and transform the system of common law. By the nineteenth century, common men discovered that forms of participation they had once prized as British subjects had become inappropriate—even impermissible—to citizens of the new United States. Americans gradually forgot the popular elements and popular ideals of the Revolutionary moment; they no longer understood the Patriots’ profound belief that meaningful independence requires individual Americans to declare their interdependence with one another in common cause.
Portrait Gallery exhibition *Inventing Marcel Duchamp* spurs new research and publication

The National Portrait Gallery (NPG) reports that interest generated by its critically acclaimed 2009 exhibition *Inventing Marcel Duchamp: The Dynamics of Portraiture* has resulted in the development of an anthology entitled *Of or By Marcel Duchamp and Rrose Sélavy: Meditations on the Identities of an Artist*. Now being edited by Anne Goodyear and James W. McManus, the publication is scheduled to be released in 2012.

The exhibition *Inventing Marcel Duchamp* served to recontextualize Duchamp as a groundbreaking artist (American, born France, 1887–1968). It increased attention among researchers and the general public to Duchamp’s strategic use of portraiture as a tool to explore intriguing questions regarding the fluidity and construction of personal and professional identity. It also examined the role of collaboration in the artist’s career.

Many of the portraits in the exhibition had never been exhibited together, which offered new opportunities for scholarly research and interpretation. For example, a team of curators and conservators from the National Portrait Gallery, the Museum of Modern Art (MoMA), and the Philadelphia Museum of Art (PMA) were able, on the basis of archival materials held by the Archives of American Art and the Smithsonian American Art Museum, to reconsider the date and larger significance of a pair of portraits of Duchamp (owned by MoMA and the PMA) that were drawn by Duchamp’s brother-in-law, Jean Crotti; the research also provided new information about related photographs in the Archives. The Hirshhorn loaned a previously obscure portrait of Duchamp by Ettore Salvatore that documents their relationship during Duchamp’s pivotal period of self-reinvention in the United States following the Second World War. Salvatore is now known to be Duchamp’s instructor in casting, a technique that would play a key role in the completion of his final master work, the installation *Étant donnés*. 