

NATIONAL MUSEUM OF NATURAL HISTORY

	APPLICATION OF OPERATING RESOURCES							
	FEDERAL APPROPRIATIONS		GENERAL TRUST		DONOR/SPONSOR DESIGNATED		GOV'T GRANTS & CONTRACTS	
	FTE	\$000	FTE	\$000	FTE	\$000	FTE	\$000
FY 2006 ACTUAL	390	43,779	8	1,861	28	5,998	20	4,623
FY 2007 ESTIMATE	398	44,778	7	1,198	29	8,191	20	7,340
FY 2008 ESTIMATE	398	46,052	7	1,198	29	8,191	20	7,340

STRATEGIC GOALS: INCREASED PUBLIC ENGAGEMENT; STRENGTHENED RESEARCH; AND ENHANCED MANAGEMENT EXCELLENCE

Federal Resource Summary by Performance Objective and Program Category

Performance Objective/ Program Category	FY 2007		FY 2008		Change	
	FTE	\$000	FTE	\$000	FTE	\$000
Increased Public Engagement						
<i>Public Programs</i>						
Engage and inspire diverse audiences	54	5,320	54	5,471	0	151
<i>Exhibitions</i>						
Offer compelling, first-class exhibitions	47	5,126	47	5,271	0	145
<i>Collections</i>						
Improve the stewardship of the national collections for present and future generations	140	15,525	140	15,967	0	442
Strengthened Research						
<i>Research</i>						
Engage in research and discovery	130	15,894	130	16,349	0	455
Enhanced Management Excellence						
<i>Facilities</i>						
Execute an aggressive, long-range revitalization program and limited construction of new facilities	3	309	3	317	0	8
<i>Security and Safety</i>						
Provide a safe and healthy environment	2	220	2	226	0	6
<i>Information Technology</i>						
Modernize the Institution's information technology systems and infrastructure	12	1,264	12	1,299	0	35
<i>Management Operations</i>						
Strengthen an institutional culture that is customer centered and results oriented	10	1,120	10	1,152	0	32
Total	398	44,778	398	46,052	0	1,274

BACKGROUND AND CONTEXT

The mission of the National Museum of Natural History (NMNH) is to inspire curiosity, discovery, and learning about nature and culture through outstanding research, collections, exhibitions, and education. Building upon its unique and vast collections and associated data, field research stations, specialized laboratories, and internationally recognized team of staff scientists, research associates, federal agency partners, and fellows, the Museum provides fundamental research information to a wide array of constituencies ranging from federal agencies to the public. The Museum's particular strengths are in the following three Smithsonian Science theme areas: formation and evolution of the Earth and similar planets; discovering and understanding life's diversity; and studying human diversity and cultural change. The Museum's research provides new understanding and relevance to broader national and international science agendas, looking at such important societal issues as global change, biodiversity, cultural conflict, and natural hazards.

The Museum's stewardship of its collection of more than 126 million natural history specimens and human artifacts is at the core of its mission. This collection, the largest of its kind, is an unparalleled resource for collections-based research on the diversity of life on Earth, including plants, animals, fossils, minerals, and human artifacts. NMNH collections and their attendant information are a dynamic resource used by researchers, educators, and policy makers worldwide. In addition, these resources are actively and collaboratively used by staffs of the Departments of Defense, Commerce, Agriculture, and Interior, who are housed in NMNH facilities.

NMNH's first-class research supports its exhibitions and educational outreach. As one of the most visited museums in the world, NMNH provides diverse public audiences with exciting and informative presentations on every aspect of life on Earth. Through affiliations and partnerships, the Museum takes its science and public programs beyond the National Mall to other museums and non-traditional exhibition venues, such as libraries, schools, and universities throughout the country. With a growing network of interactive websites, the Museum is transforming itself into a true electronic classroom, which is potentially accessible to everyone.

The FY 2008 budget estimate includes an increase of \$1,274,000 for necessary pay for existing staff, which is justified in the Mandatory Costs section.

MEANS AND STRATEGY

To achieve the goal of Increased Public Engagement, funding will be used to replace outdated exhibits with a stimulating program of integrated, multi-disciplinary, and interactive exhibitions on the Mall and in other venues through traveling exhibits and electronic outreach across the country. NMNH is committed to continue renovating its permanent halls and offering new temporary exhibitions each year. The Museum will complete the fabrication of two new permanent exhibitions by November 2007: the Korea Gallery and *Butterflies and Plants: Partners in Evolution*. In 2008, the NMNH will open the *Ocean Hall* exhibit, a significant accomplishment because of its size (23,000 square feet of exhibition space), complexity, and the dynamic nature of this new exhibit hall. This is the largest renovation of public space at the Museum in 40 years. The temporary exhibitions planned for 2008 include *Soil: Worlds Underfoot*, *Going to Sea*, and *Nature's Best Photography*. In addition, the designs for a new 15,000 square foot exhibit on human origins will be completed in preparation for the exhibit opening in 2009. Federal funding also enables NMNH to make its exhibitions available to other U.S. and international institutions. The effectiveness of NMNH exhibitions and public programs can be seen in the excitement they generate and in their popularity with family audiences. In FY 2006, NMNH hosted more than five and a half million visitors.

In FY 2008, the Museum's commitment to education will continue through support for ongoing programs, an extensive national/international network that includes traveling exhibitions, websites, and an ocean Web portal, as well as school programs, self-guides for teachers, and festivals to attract interest in and understanding of our research and collections. These outreach efforts serve millions of visitors each year, nationally and internationally. In FY 2008, NMNH will increase the number of teacher training manuals available on the NMNH website by 50 percent; prepare and distribute 2,500 new curriculum packages for each of the major exhibitions and electronic programs opening in FY 2008; and continue to upgrade the website to provide additional educational programs and make use of the planned ocean Web portal's asset to provide additional educational material on ocean literacy for both formal and informal educational opportunities.

The Museum's collections serve as the foundation of NMNH research, exhibits, and public outreach programs. Federal funding is the linchpin for maintaining and preserving these priceless collections and their valuable information for future generations, while also supporting their use for critical ongoing research. Consistent with the guidance provided in the joint Office of Management and Budget-Office of Science and Technology Policy memo on FY 2008 research and development budget priorities, dated June 23,

2006, NMNH will strengthen its commitment to stewardship of the federal scientific collections that play an important role in public health and safety, homeland security, trade and economic development, medical research, and environmental monitoring. NMNH's commitment to research on and stewardship of the collections, in partnership with affiliated federal agencies (such as the Departments of Defense, Commerce, Agriculture, and Interior), will be expanded in response to this guidance.

In FY 2008, NMNH will focus on adding more specimens to its electronic museum catalogue, the Research and Collections Information System (RCIS), and on expanding the availability of these invaluable and unique assets via the Internet to national and worldwide researchers, policy makers, and the public. NMNH also will continue migrating records from the in-house Transaction Management (TM) system into the RCIS, using EMu, a commercial application software for museums. TM records document ownership and custody of NMNH's collections as well as objects and collections on loan. Furthermore, NMNH will continue image digitization of selected plant, vertebrate and artifact collections. In addition, NMNH will continue digitization of selected sets from the 50 million additional paper records and link text-based information to images, video, and audio recordings to make available to scientists and the public a wealth of resources (e.g., photographs, artwork, sound recordings, field notes, and publications) which describe and explain the diversity of life, culture, and Earth processes. NMNH will also continue to move fluid-preserved collections to a new facility, and update associated inventories.

To achieve the goal of Strengthened Research in FY 2008, NMNH will build upon its updated strategic plan which is linked to the Smithsonian Science Plan, and focus on initiatives related to new insights in geology and mineralogy, paleobiology, systematics, evolutionary biology, ecology and its relationship to biodiversity, and anthropology. Increasing the number of digitized specimens will enable researchers to leverage the knowledge inherent in the diverse collections to address many of today's pressing issues regarding invasive species, disease vectors, and the impact of humans on biodiversity and climate. Smithsonian publications will have a more integrated quality, providing insights from all viewpoints of the Museum on pressing national and international topics.

NMNH is committed to training future generations of scientists by increasing the number of its postdoctoral fellowship awards and providing an entry-level experience for the most talented undergraduates in the Earth and life sciences as well as anthropology. Collaboration with foreign students and colleagues will continue to be emphasized to broaden the international science network.

In FY 2008, NMNH will address the goal of Enhanced Management Excellence in part by supporting the move to re-house collections preserved in alcohol, currently located on the Mall, into a completed state-of-the-art research, conservation, and collection storage facility at the Museum Support Center (MSC) in Suitland, Maryland. This facility will ensure that the alcohol-preserved collection will continue to be available for research in a facility that meets fire and safety codes. Additional focus in FY 2008 for the Natural History Building on the Mall will continue to be the renovation of major building systems and improving security in the building.

STRATEGIC GOALS AND FY 2008 ANNUAL PERFORMANCE GOALS

Increased Public Engagement

Engage and inspire diverse audiences in a lifelong exploration and understanding of art, history, science, and culture (54 FTEs and \$5,471,000)

- Increase the number of teacher training manuals available on the NMNH website by 50 percent
- Prepare and distribute 2,500 new curriculum packages for each of the major exhibitions and electronic programs opening in FY 2008
- Increase the distribution of the electronic educators' newsletter by 50 percent
- Continue and enhance interaction with graduate training programs at local universities
- Increase access to exhibits, research, and collections for students with disabilities and for economically disadvantaged students
- Increase access to the scientific professions for minorities and women, with a special emphasis on museum science careers

Offer compelling, first-class exhibitions at Smithsonian museums and across the nation (47 FTEs and \$5,271,000)

- Complete fabrication and install all specimens, models, and exhibit elements for the *Ocean Hall* exhibit for a September 2008 opening of the 23,000 square feet of exhibition space. This is the largest renovation of public space at the Museum in 40 years
- Complete fabrication of and open two new permanent exhibits, *Butterflies and Plants: Partners in Co-evolution*, and the Korea Gallery by November 2007
- Complete designs for the new *Human Origins* exhibit opening in 2009
- Open the temporary exhibitions *Emissaries of Peace*, *Going to Sea*, and *Nature's Best Photography*, fulfilling NMNH's commitment to change 15 percent of available exhibition space annually

- Open *Soil: Worlds Underfoot*, as part of the ongoing series *Forces of Change*
- Open *Discovering Rastafari!*, an exhibit focusing on the origins and practice of the Rastafari religion in Jamaica and the movement's subsequent spread throughout the African Diaspora and the world
- Open *Mexican Cycles*, to contribute to the NMNH's celebration of Hispanic Heritage Month in the fall of 2007

Improve the stewardship of the national collections for present and future generations (140 FTEs and \$15,967,000)

- Initiate work on the next phase of a Museum-wide collections assessment that prioritizes collections care projects and provides comparable, current information about the status of the collections
- Continue image digitization of selected plant, vertebrate, and artifact collections, including initiation of digitization of cryptogamic type specimens (e.g., mosses, lichens, algae) in Botany for Web access
- Initiate project to conserve all botanical specimens from the U.S. Exploring (Wilkes) Expedition that were preserved with mercuric chloride
- Provide conservation treatments of fossil collections in need of physical stabilization, vertebrate skeletons (including human skeletal remains) in need of rehousing, and geological collections in need of chemical stabilization
- Re-house DNA collections, update inventory, and continue assessing incremental results from the pilot project that informs the most effective conservation strategies for these tissue collections and supports their accessibility to the wider scientific community
- Continue making records of paleontological, botanical, entomological, zoological, and anthropological specimens and objects and associated data universally available on the Web
- Continue migrating records from the in-house TM system into the RCIS, using EMu, a commercial application software for museums. TM records document ownership and custody of NMNH collections as well as objects and collections on loan
- Continue digitization of selected sets from within the 50 million additional paper records, and link text-based information to images, video, and audio recordings to make available to scientists and the public a wealth of resources (e.g., photographs, art, sounds, field notes, and publications) that describe and explain the diversity of life, culture, and Earth processes
- Develop improved functionality of the EMu system, including faster importing and exporting of data and reports
- Continue to implement the congressionally authorized program of repatriating Native American skeletal remains and associated objects

- Continue moving fluid-preserved collections to the new MSC facility, updating associated inventories and correcting any container, preservative, or labeling problems resulting from the move
- Secure cold storage for the eight million feet of ethnographic film in the Human Studies Film Archives

Strengthened Research

Engage in research and discovery focused on understanding the origin and evolution of the universe, Earth and planets, biological diversity, and human culture (130 FTEs and \$16,349,000)

- Implement NMNH's strategic plan linked to the Smithsonian-wide Science Enterprise Plan, focusing on three fundamental themes:
 - 1) formation and evolution of the Earth and similar planets;
 - 2) discovering and understanding life's diversity; and 3) understanding human diversity and cultural change

The Formation and Evolution of Earth and Other Planets

- Continue research on asteroid differentiation and geochemical consequences for carbon, and alteration in Martian meteorites
- Continue to analyze prebiotic materials in the first samples returned from a comet by a NASA spacecraft
- Continue work on the geological history of global climate change with a special emphasis on periods of global warming
- Continue work on ocean environments and circulation, focusing on past intervals and greenhouse climate

Discovering and Understanding Life's Diversity

- Continue studies of the large-scale evolutionary relationships among birds, insects, and plants as part of collaborative research projects in the National Science Foundation (NSF)-funded Tree of Life initiative, and, in particular, studies of the large-scale evolutionary relationships among Lepidoptera (moths and butterflies), spiders, and ants. The primary goal of the Tree of Life initiative is to produce a robust phylogeny of all oldest lineages within a particular group of organisms, which provides an important predictive framework for diverse purposes, including biodiversity studies
- Continue research on the tempo and mode of evolution in deep-sea faunas
- Inventory and digitize diatom type collections in Botany for Web access
- Continue research into the geological history of plant-animal interactions
- Continue work on evolution and phylogenetic relationships of dinosaurs
- Continue exploring the diversity of various groups of vertebrates, particularly in tropical regions, with emphasis on undescribed forms and the development of comprehensive studies of various groups, their phylogenies, and biogeographic histories

- Continue studies of deep-sea invertebrates from the Gulf of Mexico, including exploration of poorly known regions such as cold seeps and petroleum seeps, which are home to a diverse but still largely unknown community of animals. This research is being done in collaboration with National Oceanic and Atmospheric Administration (NOAA) and Texas A&M University at Corpus Christi
- Make 50 percent of ant-type specimens and 100 percent of geometrid moths available on the Web
- Continue molecular-phylogenetic and population-genetic studies of and develop checklists for identification and inventories for various plant families, with an emphasis on plants in the Pacific, northern South America, the Caribbean, Southeast Asia, and specific marine environments
- Continue to sample insects and spiders from poorly sampled localities, particularly beetles, ants, spiders, and moths and butterflies from Central and South America
- Continue research on ecological recoveries from mass extinctions and the evolution of innovations in the history of life, with special emphasis on the Cambrian explosion, the Permo-Triassic, and the early Cenozoic era
- Hire a new research scientist to study the evolution and environmental context of Paleozoic marine animals

Understanding Human Diversity and Cultural Change

- Continue to support the Endangered Language Program, which will preserve and make accessible through digitization more than 11,400 sound recordings of endangered languages in the National Anthropological Archives and Human Studies Film Archives, many of which currently exist only on endangered recording media
- Continue research on the climatic and environmental context of human evolution in East Africa
- Host a scientific symposium on *Life and Death in the Colonial Chesapeake*, in the spring of 2008, linked to the temporary exhibit *Written in Bone: Life and Death in the Colonial Chesapeake*, where more than a dozen regional experts will present research on the early settlers of the Chesapeake Bay area
- Continue research into the development of coastal and deltaic environments as early centers of urbanization
- Host an international arctic research symposium as part of the Fourth International Polar Year (2007–2008)
- Complete NSF-funded project supporting interdisciplinary fieldwork in Mongolia and the development of computer simulations to study the development of early civilizations in Central Asia
- Continue NSF-funded research into the spread of the earliest humans from Africa and Asia

- Conduct research into how and when human beings first processed and cultivated cereal grains, illuminating how the human species went from being primarily hunter-gatherers to becoming farmers

Enhanced Management Excellence

Execute an aggressive, long-range revitalization program and limited construction of new facilities (3 FTEs and \$317,000)

- Provide curatorial and technical support for continuing renovation of the Natural History Building and the occupation of a new facility at the MSC to re-house collections preserved in alcohol
- Provide oversight and review of the Natural History Building's long-term facilities heating, ventilation, and air-conditioning (HVAC) efforts and renovation, and restoration of public exhibit spaces

Provide a safe and healthy environment to support Smithsonian programs (2 FTEs and \$226,000)

- Implement extensive inspection and training efforts that provide the highest quality safety program to continue to reduce identified safety problems and ensure that new problems do not develop

Modernize the Institution's information technology (IT) systems and infrastructure (12 FTEs and \$1,299,000)

- Maintain desktop and application server support for NMNH functions
- Work with resources provided by the Office of the Chief Information Officer to replace desktop computers on a four-year cycle
- Ensure that 100 percent of users of the Enterprise Resource Planning (ERP) system have compatible hardware and software to support all transactions
- Create a robust and reliable infrastructure for new online facilities and broader Web programs that support NMNH-specific electronic outreach goals, with a focus on making collections data easily accessible via the Internet, as well as developing important collaborative Web projects such as the Ocean Web portal

Strengthen an institutional culture that is customer centered and results oriented (10 FTEs and \$1,152,000)

- Train 100 percent of staff responsible for financial, budget, procurement, and human resources transactions to implement the ERP system as it is deployed
- Recruit, hire, and train staff to perform core administrative functions
- Implement the NMNH strategic plan and annual performance activities, and ensure that these efforts are linked to the Smithsonian Science Strategic Plan

NONAPPROPRIATED RESOURCES—General trust funds provide support for salaries and benefits of administrative personnel, development and business activities, and other program-related costs. The Museum raises funds from

private sources to support research, public programs, and administrative functions. This includes securing funds for special events to promote new exhibitions and educational initiatives, and public outreach through the news media. Donor/sponsor-designated funds are critical to supporting exhibition hall renovations, such as the major gift that built the Kenneth E. Behring Family Hall of Mammals, which opened in November 2003, and another significant gift that is helping to fund *Ocean Hall*, which will open in September 2008, along with the first fully endowed Chair at the Museum.

Other examples include the Johnson and Hunterdon endowments, which provide all operating support for the Smithsonian Marine Station in Fort Pierce, Florida, in addition to supplying a significant portion of the base funding needed to run the NMNH research station at Carrie Bow Cay in Belize. The endowment also supports research in the biodiversity, life histories, and ecology of marine organisms in the coastal waters of Florida by almost 50 scientists each year, including staff from NMNH, the Smithsonian Environmental Research Center, the Smithsonian Tropical Research Institute, and collaborators from universities across the country.

Researchers in the Departments of Mineral Sciences and Paleobiology continue to receive significant amounts of funding from NASA and the NASA Jet Propulsion Lab, in the form of matching funds toward upgrades in equipment that enables NMNH researchers to analyze smaller and smaller particles of extraterrestrial matter, and in the form of support for a variety of research programs dealing with subjects ranging from meteorites found in the Antarctic to the geology of Meishan, China, where evidence for the greatest extinction in the history of life can be studied.

The Museum was awarded 69 grants and contracts in FY 2006, totaling \$5,459,495. These funds support both cutting-edge research and exhibitions, and demonstrate international collaboration in addition to cross-agency collaboration on shared projects and issues. Funds have been received from NOAA for the new *Ocean Hall* slated to open in late FY 2008; from NSF for research on environmental dynamics and the evolution of human adaptability, as well as research on the prehistory of the indigenous Sami people in northern coastal Sweden; and from the U.S. Air Force and the U.S. Department of Transportation to support the bird/aircraft strike hazard program that provides critical data to the FAA and other agencies on the types of birds that can get caught in airplane engines. The Museum's forensic anthropology program continued to receive support from the FBI, and the Museum received funds from the State of California for work on the Tree of Life, specifically on an evolutionary tree of ants, considered the world's premier social organisms.