

**UNDERSTANDING OUR WORLD**

**2004-2009** Strategic Plan for the  
National Museum of Natural History



Smithsonian  
*National Museum of Natural History*



Africa



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**Kenneth E. Behring Family Hall of Mammals.**

**Cover photo: Carole Baldwin, Vertebrate Zoologist, studying Galapagos underwater ecosystems.**



# Message from the Director



Chip Clark

**Cristián Samper**  
**Director**  
**National Museum of**  
**Natural History**

In June 15, 1904, ground was broken for the construction of the United States National Museum (USNM). This new building on the National Mall was designed to house the National Collections and to be the home for scholars carrying out the Smithsonian Institution's mandate: the increase and diffusion of knowledge. One hundred years have passed, and the Smithsonian today is the largest research and museum complex in the world, incorporating many museums and the disciplines of science, history, and art. The original USNM building is now home to the National Museum of Natural History.

Most of the great natural history museums were established in the late 19th and early 20th centuries as scholars sought to document and understand the natural and cultural worlds. They assembled treasures from around the world and showcased them for millions of visitors. But our society has changed dramatically since that time, and approaches to scientific research and outreach have changed as well. New technologies have created new opportunities to study the chemical composition of minerals and the genetic make-up of organisms, providing more information than ever before about the building blocks of our world and of life itself. Computers and new communication tools put millions of people around the globe within reach of this expanding knowledge.



Chip Clark

**Clyde Roper, an invertebrate zoologist, examining NMNH collections.**

**These are exciting times to pursue our work and to realize our vision of understanding the natural world and our place in it.**

I am pleased to present the *Strategic Plan for the National Museum of Natural History, 2004-2009*. This five-year roadmap establishes our goals and sets forth the strategies we will use to reach those goals, as well as the outcomes by which we will measure our success. This plan builds on the Museum's enormous strengths: the National Collections, our facilities and field sites, staff and affiliated agency partners, the NMNH Board, and our nearly five million visitors each year. The plan also takes advantage of anticipated opportunities, including new technologies for research and outreach, as well as partnerships with other institutions.

**George Zug, a herpetologist, demonstrating identification of frogs to students in Chatthin Wildlife Sanctuary, Myanmar**

Carl Hansen

*The strategic plan* was prepared by a team representing key areas of the Museum and includes valuable inputs from the NMNH Board, affiliated agencies, and the entire Museum community. It was designed to contribute to the overall Smithsonian science plan and to address many of the issues identified by the Smithsonian Science Commission in its 2002 report recommending strategies for improving the performance of our mission in light of funding, other challenges, and opportunities.

We identified four **STRATEGIC GOALS**:

- ➔ **SCIENCE:** Strengthen the visibility, value, and impact of our science by integrating research, collections, exhibitions, and education.
- ➔ **GLOBAL LEADERSHIP:** Lead the global community of natural history museums in programs of science, collections management, exhibits, and education.
- ➔ **MANAGEMENT AND INFRASTRUCTURE:** Transform the Museum's staffing, management, culture, and infrastructure to support our mission, vision, and strategic plan.
- ➔ **FUNDING:** Increase and diversify the Museum's funding to address strategic priorities.

We have established priorities in the most important areas in which we can make substantial progress in the next five years. One of those areas is marine natural history, particularly the new

Don Wilson, a mammalogist, answers questions from student audience during a live broadcast fed to classrooms across the United States and linked, through the JASON Project and the Smithsonian Tropical Research Institute, with scientists on Barro Colorado Island in Panama.



Becky Hale, National Geographic

Ocean Science Initiative, which will harness our knowledge and experience to further human understanding of oceans. This initiative will include a new 22,000-square-foot *Ocean Hall* exhibition, a Web-based portal to information on oceans, and a new Center for Marine Science. The Ocean Science Initiative reflects our strategic goal of integrating the Museum's rich resources in collections, research, and public programs to focus on a single critical topic.

## Results

How will we measure our success five years from now? Our vision and goals are clear. Measuring and evaluating our progress will take many forms. In five years, we expect to have a vibrant museum recognized throughout the world as a leader in the field of natural history, with strong collaborations and innovative approaches in science and education. We will strengthen our role as the national repository of collections and make information documented by our collections more widely available. We will train a substantial number of scientists in natural history disciplines and make significant improvements in scientific literacy among students and the general public.

Towards these goals, these are some of the highlights of what we expect by 2009:

- ▶ Host 25 million visitors.
- ▶ Renovate our major exhibition halls to communicate our exciting science.
- ▶ Publish 1,500 scientific contributions.
- ▶ Establish a Web-based *Encyclopedia of Life*.
- ▶ Improve the care of the collections and make the information about them increasingly available on the Web.
- ▶ Reach millions of students nationwide through electronic outreach.
- ▶ Create a highly motivated and diverse workforce.
- ▶ Raise \$75 million to support our programs.

We look forward to working with our partners and the NMNH Board to implement this strategic plan, and we invite you to join us in this effort.

Cristián Samper  
Director  
National Museum of Natural History

# Introduction

## Background

The National Museum of Natural History (NMNH) inspires curiosity, discovery, and knowledge about the natural world through outstanding research, collections, exhibitions, and education. When it opened in 1910 on the National Mall, the Museum — with its distinctive green slate dome — was the second-largest building in Washington after the U.S. Capitol. With the addition of two research wings and two courtyard buildings, NMNH is the world's largest and most-visited natural history museum. Today it supports a workforce of over 1,000 and is the largest museum and research unit in the Smithsonian Institution.

The Museum has unique strengths. To begin with, it is a major part of a 158-year-old institution of unparalleled reputation, resources, and prestige. Situated in the nation's capital, the Museum of Natural History is uniquely positioned for a pre-eminent leadership position with regard to academic and governmental partners and colleagues, as well as international counterparts. The Museum's scientific staff continues a tradition of freedom to pursue long-term scientific studies, often with extended periods of field research and travel. The Museum has the largest and best-documented natural history collections in the world; highly trained and skilled research, collections, and education staff; and a magnificent facility now undergoing substantial renovation and upgrading.

Each year NMNH scientists disseminate their new knowledge through hundreds of original research publications, as well as through exhibitions, education and training programs, Web sites,

**Don Davis, an entomologist, collecting leaf-mines produced by micro-lepidoptera (small moths) in mangroves of Belize.**



and public lectures. Their research, typically collection-based, explores major issues within the areas of anthropology (human studies); biology, including botany (plants), entomology (insects), and zoology (other animals); mineral sciences (minerals, gems, rocks, and meteorites); and paleobiology (fossils). The rich research tradition of NMNH includes a community of scientists from critically important affiliated government agencies who work with the Museum's collections side-by-side with NMNH-funded scientists.

With over 125 million specimens and artifacts, the NMNH collections are by far the largest in the world. They provide an unparalleled resource for collection-based research worldwide: some 3.5 million specimens go out on loan during a year; in 2003, over 3,200 research visitors collectively spent nearly 17,000 days using the collections, and almost 600,000 visits were made to National Collections databases available on the Web, the largest museum database in the world.

**View of NMNH bird collections**





**Carrie Bow Cay  
Marine Field Station,  
Belize**

**Below: Smithsonian  
Marine Station at Fort  
Pierce, Florida**



Chip Clark



Don Huribert

The Museum includes a modern collections-storage and research facility, the Museum Support Center, in Suitland, Maryland; a marine science research facility in Ft. Pierce, Florida; and field stations as far away as Belize, Alaska, and Kenya. The main building on the National Mall contains 1.5 million square feet of space overall, and 325,000 square feet of exhibition and public space.

Whether examining the history and cultures of Africa, describing the development of Earth's life forms, charting the Vikings' travels to the New World, or exploring the beauty of rare gemstones like the Hope Diamond, the Museum's temporary and permanent exhibitions serve to educate, enlighten, and entertain millions of visitors each year. Nearly 5 million people visit the main building annually, and an additional 6 million visitors used our Web services in 2003. The Museum's exhibition

and education programs, increasingly tied to the Museum's research on topical scientific issues, bring trustworthy and authoritative presentations to a broad public. With a growing network of interactive Web sites, the Museum is transforming itself into a hub for national and international learning that will be readily accessible to all by way of the Internet.

Through its research, collections, exhibitions, and education programs, NMNH serves as one of the world's great repositories of natural and cultural heritage as well as a source of tremendous pride for all Americans.

## Context

The National Museum of Natural History is entering a new phase of its history. The Smithsonian Science Commission's 2002 report recognized the Museum's strategic importance for the Smithsonian and society at large; recommended that the existing scientific disciplines be maintained; and advocated the strengthening of links among research, collections, and public programs. The report's recommendations, including the development of this strategic plan, have been, for the most part, implemented.

This strategic plan lays out the steps necessary to achieve our vision. The plan was developed by teams composed of representatives from the Museum, our affiliated agency partners, and other Smithsonian units. It builds upon previous plans and incorporates extensive internal and external input, review, and comment from our staff, customers, stakeholders, and Museum Board. This has allowed us to weave our vision and goals closely with those responsible for implementing the specific elements of the plan. We will tie the performance of each individual in the Museum to these overarching goals. And, we will set priorities and allocate resources using this

**Close-up of volunteer painting fossil cast**

**Right: NNMH volunteer, Phyllis Brenner, painting cast of bones at Paleobiology's Fossil Lab.**



framework to guide our decisions. As the plan is implemented over the next few years, we will continue to evaluate and measure ourselves and the plan to ensure that we achieve the highest quality research, collections, public programs, and education efforts.

To achieve this, the Museum will draw upon a long tradition of excellence, dedicated staff, outstanding collections, exciting research programs, active publication efforts, millions of visitors, exhibitions, and public programming. At the same time, the Museum must address steady erosion of its base funding and staffing, infrastructure problems because of its aging facilities, and an aging population within its staff.



Anne Cohen

**Invertebrate zoologist examines different types of corals in the only barrier reef system in the Western Hemisphere, off Belize.**

In short, the Museum must capitalize on its many opportunities and meet its challenges:

### Opportunities

- ▶ Smithsonian Institution's position as the world's largest museum and research complex
- ▶ Role of NMNH in the international community of natural history museums
- ▶ Links and relevance to societal needs
- ▶ Partnerships with museums, federal agencies, universities, schools, and international entities
- ▶ New technological opportunities for all aspects of Museum operations
- ▶ Recommendations of reports by the Smithsonian Science Commission and the National Academy of Sciences
- ▶ Significant potential for raising funds

### Challenges

- ▶ Responding to changing internal (Smithsonian Institution) and external (U.S. government) policy priorities
- ▶ Budget cuts and federal base erosion
- ▶ New legal barriers to research (permits for collection, export, and import of specimens)
- ▶ Security and the threat of terrorism



**Archeologists excavating grave-sites at America's first permanent English settlement in Jamestown, VA**

- ▶ Difficulties in fundraising due to uncertainties in the national and global economy
- ▶ Staffing limitations and demographics
- ▶ Aging physical infrastructure

The Museum must rely on an extensive network of partners and stakeholders to carry out its mission. These include our affiliated government-agency partners; national and international organizations; the university and research community; the education community; other natural history and science museums; many federal, state, and local government organizations; other Smithsonian units; industry; and committed donors. To meet our scientific and financial challenges successfully, we must continue to build on and strengthen these critical relationships.

history and science museums; many federal, state, and local government organizations; other Smithsonian units; industry; and committed donors. To meet our scientific and financial challenges successfully, we must continue to build on and strengthen these critical relationships.

## Organization

The National Museum of Natural History is part of the Smithsonian Institution, the world's pre-eminent museum and research complex. The Smithsonian Institution operates with a mix of public and private funds. Most of its support comes from federal appropriations, with the balance of funding provided by grants, contracts, endowment income, and business activities. An Act of Congress established the Smithsonian in 1846 as a unique trust instrumentality for the benefit of the public with its stated mission the "increase and diffusion of knowledge." The Smithsonian's independent status represents a cornerstone of the institution's culture, and bestows critical intellectual and programmatic freedom. The institution is governed by a Board of Regents, which appoints the Secretary of the Institution who, in turn, appoints the director of the National Museum of Natural History. The National Museum of Natural History's Board provides valuable assistance and advice on resource development, strategic planning, external advocacy, and networking.

The Museum's research and collection activities are organized into six departments: Anthropology, Botany, Entomology, Mineral Sciences, Paleobiology, and Zoology. The public programs staff is organized into three sections: education, exhibitions, and national outreach.

Interdisciplinary research programs bring together scientists from the Museum's various departments and research institutions from throughout the Smithsonian and the world. A number of affiliated U.S. government agencies contribute to the Museum's strength as a research center. These include the Department of the Interior (U.S. Geological Survey Biological Resources Division), Department of Agriculture (Systematic Entomology Laboratory), Department of Commerce (National Marine Fisheries Service Systematics Laboratory), and the Department of Defense (Walter Reed Biosystematics Unit).

**Remote-control underwater video camera recording fish behavior at Carrie Bow Cay, Belize.**





# Mission and Vision

**MISSION** We inspire curiosity, discovery, and learning about nature and culture through outstanding research, collections, exhibitions, and education.

**VISION** Understanding the natural world and our place in it.

## Values

The following values stand at the core of all that we do:

**DEDICATION** Museum staff exemplify unqualified dedication, responsibility, and commitment to our work, our colleagues, our departments, and the institution we serve. As public servants we work for the public good; at the same time, we recognize the special status of the Smithsonian Institution as an independent organization that supports academic freedom.

**DIVERSITY** Our staffing, research, exhibitions, and public programs must reflect the diversity of interests, backgrounds, interpretations, and viewpoints that form the bedrock of America. Respect for one another — our co-workers, guests, clients, customers, and colleagues — must guide our behavior as a fundamental principle.

**EXCELLENCE** Excellence is the foundation for all that we do, including our scholarship, care of collections, exhibitions, and education programs. We value and recognize quality results brought about through individual initiative and creativity.

**INTEGRITY** Those who work for the National Museum of Natural History must be committed to upholding the highest standards of integrity, honesty, trust, and openness, with our colleagues, our supervisors, our employees, and our visitors.

**RELEVANCE** The Museum has special responsibilities to address scientific issues of relevance to our society and the world, such as the preservation of biological and cultural diversity and the impact of global environmental change.

Scanning Egyptian mummy inside the painted wooden coffin, which dates some 2,000 years ago to the Ptolemaic period, allows Bruno Frohlich to see the internal structures without disturbing the carefully wound linen wrappings of the mummy within. Multi-million dollar CT scanner donated by Siemens Medical Solutions.



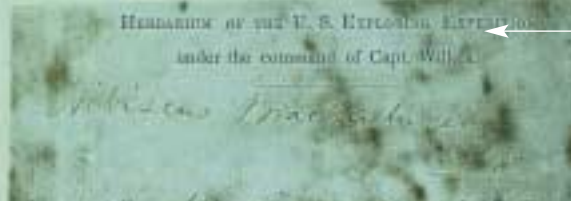
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Hawaiian Types Project  
HOLOTYPE  
*Hibiscus brackenridgei* A. Gray, U. S. Expl. Exped., Phan. 175.  
1854.  
Walter L. Wagner and R. K. Stancee (US) 1998

UNITED STATES EXPLORING EXPEDITION  
under the command of Charles Wilkes, 1838-1842  
*Hibiscus brackenridgei* n. sp.  
Maui, Sandwich Islands [Hawaiian Islands]  
[1983 reproduction of original label]



U. S. National Herbarium  
*Hibiscus brackenridgei* A. Gray subsp.  
*brackenridgei*  
Det. W. L. Wagner June 1998



HERBARIUM OF THE  
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# Overview of Science Theme Areas

Science at the Smithsonian Institution is organized into four broad thematic areas. The National Museum of Natural History plays an active role in three: (1) *Formation and Evolution of Earth and Similar Planets*, (2) *Discovering and Understanding Life's Diversity*, and (3) *Study of Human Diversity and Culture Change*. Other parts of the Smithsonian contribute to the fourth theme, *The Origin and Nature of the Universe*. Each of these themes is based on a commitment to generating new knowledge and interpreting for the public the results of our research and collections. The goals for these interpretive efforts are to inspire future scientists and to create scientifically literate citizens capable of weighing scientific evidence and making informed decisions about the scientific issues of our time. The following is a description of the research goals of the above three themes, as well as the NMNH contribution and priorities.



Chip Clark

Vertebrate zoologist quantifying impact of fish feeding on seaweed standing stock on the reef in Belize.

## Formation and Evolution of Earth and Similar Planets

The goal of this theme is to conduct original research into the origin and history of Earth and other planets. NMNH contributes to these studies by drawing on invaluable collections of minerals, rocks, meteorites, and data on global volcanic activity. Studies of meteorites, for example, provide a wealth of information on the formation of the solar system. Some primitive meteorites represent the earliest solid matter in the solar system; others reflect the breakup of Earth-like planets during gigantic collisions. NMNH's work is being greatly augmented and extended through collaboration with NASA missions to recover material from Mars, the Moon, and other objects in the solar system.

Earth's own rocks reveal the physical processes of melting, metamorphism (transformation of rocks by heat and pressure), volcanic eruption, crystallization, and deposition. They provide the evidence for scientists to track the global motions of tectonic plates, the dominant mechanism by which Earth cools and loses heat to the surrounding cold outer space. The Global Volcanism Program provides a unique set of data on Earth's volcanic activity during the past 10,000 years and monitors current eruptions as well as the hazards they pose to humans. Research on the interface between minerals, the environment, and living systems represents a promising new area of scientific investigation.

Type specimen of *Hibiscus brackenridgei* collected in 1840 by the U.S. Exploring Expedition in Hawaii. It honors William Brackenridge, one of the nine "scientifics" on the voyage. The State Flower of Hawaii, this plant is listed as endangered. The digital image is among the more than 100,000 images available on the Department of Botany web site.

**Science Initiatives**

**1. Astrobiology: Understanding potentially habitable environments in the solar system**

The interface between the biosphere and solid Earth is an active, dynamic, and linked environment; understanding that interface is an emerging major new field of study. NMNH researchers propose to extend their long-standing expertise and laboratory capabilities in precision *in situ* microanalysis — a precise analysis of very tiny particles using electron microscopes — with the goal of understanding habitable environments on Earth and elsewhere in the solar system. They will do this through the study of meteorites, terrestrial samples, and samples returned from NASA missions to other bodies in the solar system. Another important component of this research is the study of the early development of Earth’s biosphere and its influence on the formation of the atmosphere.

**2. Global Volcanism Program**

For more than 30 years, the Global Volcanism Program (GVP) has been systematically recording Earth’s volcanic activity and building databases for some 1,500 active volcanoes and their known eruptions. Staff are currently collaborating with computer scientists to use computational techniques in data- and text-mining to extract from the GVP resources information about patterns of eruptive activity. A second goal is a major redesign of the popular GVP Web site into a broader portal to enhance resources for the study of worldwide volcanic activity. New features of the Web site will include standardized maps and satellite images for all of Earth’s active volcanoes, a broad array of captioned photos from GVP’s collections, and connections to relevant datasets maintained by other research groups.

**Tim Rose, a volcanologist, descending into a deep crack of the Kilauea Volcano, Hawaii to study ancient ash deposits covered by thick lava flows.**



R.S. Fiske

**Lava from Kilauea Volcano, Hawaii, dripping into the Pacific Ocean. Eruption has been almost continuous since 1983.**



D.A. Swanson, U.S. Geological Survey

### 3. Mineral Science Collections

The Department of Mineral Sciences cares for three major, heavily used collections: Gems & Minerals, Rocks & Ores, and Meteorites. These collections grow through targeted acquisitions of specimens deemed critical for research and exhibition purposes. Through their research activities, NMNH scientists are significant contributors to the collections. Research on meteorites depends almost entirely on museum collections, and the Museum's meteorite collection grows significantly each year through acquisitions from the Antarctic Meteorite Program. The Rock & Ore Collections include the world's best holding of ultramafic xenoliths, which represent samples of Earth's otherwise inaccessible upper mantle brought to the surface by volcanic activity. NMNH's Mineral Reference Collection is a crucial resource for mineralogists around the world.

### Discovering and Understanding Life's Diversity

Smithsonian scientists discover and interpret the diversity and history of life on Earth. NMNH researchers contribute to this effort by interpreting and improving unparalleled collections of animals, plants, and other organisms, past and present. NMNH researchers are concerned with four principal questions:

- ▶ What species and groups of organisms exist or have existed?
- ▶ What are the evolutionary relationships among species and groups of organisms?
- ▶ How do evolutionary processes determine the various characteristics of organisms (structure, behavior, development, etc.)?
- ▶ How have ecological, environmental, and historical factors influenced the diversity and distribution of organisms across the globe and through time?

One of the primary tasks of NMNH scientists has been documenting biological diversity and assembling the Tree of Life, which aims to depict the origin, evolution, and genealogical relationships of Earth's various species. After over two centuries of intense study, about 1.7 million species have been formally described by systematic biologists, but credible estimates of the number of present-day species range from 5 million to 100 million. Knowing species, what they do, how they interact, and how they are related is critical to intelligent management of Earth's natural resources and systems. The pace of environmental change and the overexploitation of natural resources make a detailed knowledge of the world's biological diversity an issue of broad relevance and great urgency.

The fossil record provides critical insights on how the history and diversity of life were shaped over time and how organisms and ecosystems responded to countless, often cataclysmic changes in Earth's physical environment. It complements information from studies on present-day organisms in the discovery and interpretation of evolutionary innovations and evolutionary diversification, as well as other mechanisms that generate patterns of biodiversity.

### Science Initiatives

#### 1. Discovering global biodiversity

Despite over two centuries of intense effort, we still know little about the diversity of life on Earth. This task has become particularly urgent because of the accelerating pace of environmental degradation. Through funding for expeditionary and comparative research, NMNH researchers will continue to elucidate the basic natural history of Earth's organisms, past and present.



## 2. Encyclopedia of Life



This effort is aimed at developing a portal for information and a research program on biodiversity using state-of-the-art, Web-based technologies to create access to authoritative, image-rich pages about all living beings on Earth, past and present. This site will explain the identification of species, as well as their relationships, ecology, history, and

Part of the 4.7 million plant collections in the U.S. National Herbarium, Department of Botany

Right: Terry Erwin, an entomologist, studying insects in the NMNH's entomology collection

natural history. These pages will include a wealth of biological information for each species. The proposed portal will allow scientists to address many types of new biological questions, serve as a predictive tool (e.g., for invasive species), and allow identification of particular groups of organisms that are in critical need of more extensive biological study.

## 3. Understanding biodiversity: Biological revolutions and forces of change

NMNH research combines discovery and collections-based data with novel analyses of biological and geological processes. The proposed effort directs this valuable strength toward understanding the forces that affect the evolutionary and ecological processes of life through time. It is focused on two principal research objectives: (1) the historical origins, evolution, and ecology of tropical forests, and (2) the history and future of coastal ecosystems, particularly the roles of extinction and invasive species. Programs involved in this effort include the Caribbean Coral Reef Ecosystems Program (CCRE) and Evolution of Terrestrial Ecosystems (ETE), as well as collaboration with the Smithsonian Environmental Research Center (SERC) and the Smithsonian Tropical Research Institute (STRI).



Michael Pogue, an USDA entomologist, collecting insects at night in Bolivia.



Bruno Frolich

### Study of Human Diversity and Culture Change

Smithsonian anthropologists and other scholars seek to understand humanity in all of its complexity within the framework of broad cultural, social, linguistic, and biological theories. NMNH researchers work to document the full range of human cultural and biological diversity, from the emergence of the first humans to the present. Museum anthropologists communicate their findings to all audiences and seek to apply their insights to problems of the modern world through such means as promoting cross-cultural and international understanding.

At the Museum, physical anthropologists study long-term trends in human biology, with emphasis on health and disease, demography, evolutionary change, environmental influences on human biology and evolution, and the biological correlates of cultural diversity and change. Archaeologists and physical anthropologists assess long-term relationships of humans with their environments and examine evolutionary ecological relationships over long periods of time. Cultural anthropologists and linguists explore the historical and contemporary diversity of societies and cultures.

Our vast collections of material culture, ethnographic and linguistic documentation, and images in various media preserve knowledge of human behavior that is changing or disappearing in a transformed world. The Collections Management Division, National Anthropological Archives, and Human Studies Film Archives safeguard and make accessible to a broad public the large, well-documented anthropological and archival collections.

NMNH has been, and continues to be, a world leader in the study of Native American cultures, languages, and history. Programs in this area include working collaboratively with native communities as well as disseminating information about Native American cultures and individuals. The Museum's Repatriation Program oversees the return of Native American human remains as well as sacred and funerary objects, as mandated by legislation.

**Mongolian and American researchers with 3,000-year-old deerstone of the Mongolian steppes. Archaeological excavations help answer questions on their age, meaning and context within the Bronze Age world.**

## Science Initiatives

### 1. Human origins, adaptations, and radiations into new environments

This research focuses on key transitions in human evolution and recent history when human biological, cultural, and environmental change intersect and play prominent roles.

Such research includes the study of human biological diversity as part of our species' adaptation to diverse environments — a subject with important implications for the study of human health, demography, and forensic applications.

### 2. Present-day human/environmental interactions

Programs grounded in anthropology study ways in which past and contemporary peoples perceive, interact with, and manage their environment to sustain human communities. Many programs are being conducted in partnership with indigenous communities and combine ethnology, linguistics, biology, and cultural ecology to document traditional indigenous ecological knowledge and to explore its relationship to traditional methodologies of Western science.

Programs grounded in archaeology and the natural sciences investigate past and present human impacts on environments, including biological diversity and physical properties of the atmosphere and land.

Such programs emphasize applying information gained by these studies to mitigate natural or introduced changes. Many of these studies are directed toward enhancing the ability of indigenous communities to maintain sustainable development.

### 3. Cultural and linguistic loss and transformation in the global environment

This program will document the rapidly disappearing diversity of human languages, a key to understanding how humans think, as well as human culture and history. The initiative will focus on the incomparable linguistic resources in the National Anthropological Archives and in the Human Studies Film Archives. It will be aimed both at the technical linguistic study of basic principles of human language reflected in little-known and threatened languages and at assisting community-based programs for language preservation.



While researching Old World links to the peopling of the Americas, Dennis Stanford, an archaeologist, creates a stone tool known as a biface at the site of a Paleolithic quarry in Bergerac, France.



Doug Owsley, a physical anthropology curator, searching for human remains, removing sediment from inside the Civil War submarine, the HL Hunley, which sank on February 17, 1864. The Hunley was the first submarine to sink an enemy warship in battle.





# Strategic Goals Summary

## Science

Photos, right, top to bottom:

Paleobiologists collecting petrified fossil plants in a coal mine in Benton, Illinois. Colored bands indicate different strata levels.

Glenn MacPherson, a meteorites curator, speaking to press on possible biologic markers present in Antarctic Martian meteorite.

With the new environmental scanning electron microscope, scientists can study rare specimens non-invasively.

Members of Behring Family, major donor, at newly opened Kenneth E. Behring Family Hall of Mammals.

Strengthen the impact of our science and communicate it effectively to all audiences by integrating research, collections, exhibitions, and education.

### ▶ Research

Focus our research on issues critical to understanding the natural world and humanity's place in it, building on the Museum's established research strengths.

### ▶ Collections

Execute strategic growth and modernization to safeguard collections and make them broadly accessible.

### ▶ Exhibitions and Education

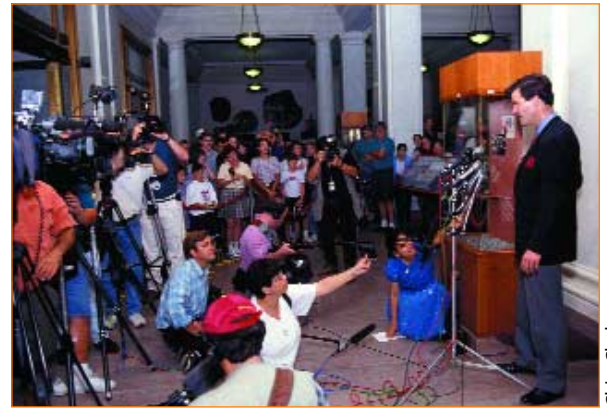
Increase public understanding of collections-based research and learning to inspire an appreciation for the importance of such work to our lives.

### ▶ Communications

Increase public and professional awareness of NMNH science.



Tom L. Phillips, University of Illinois



Chip Clark



Chip Clark

## Global Leadership

Lead the community of natural history museums in programs of science, collections management, exhibits, and education.

## Management and Infrastructure

Transform the Museum's staffing, management, culture, and infrastructure to support our mission, vision, and strategic plan.

## Funding

Increase and diversify the Museum's funding to address strategic priorities.



Chip Clark

# Strategic Goals and Objectives

The following are NMNH's strategic goals, objectives, and strategies for accomplishing them.

## Science

**Strengthen the impact of our science and communicate it effectively to all audiences by integrating research, collections, exhibitions, and education.**



Richard B. Aronson, Dauphin Marine Lab, Alabama



Chip Clark

## Research

Focus our research on issues critical to understanding the natural world and humanity's place in it, building on the Museum's established research strengths.

**Advance current research endeavors in line with the Museum's mission and strategic priorities.**

### Pursue new strategic opportunities:

- ▶ Astrobiology: Understanding potentially habitable environments in the solar system
- ▶ Biological exploration (including *Encyclopedia of Life* project)
- ▶ Cultural impacts of globalization
- ▶ Ocean Science Initiative

### Strengthen and recognize the roles of scientific staff to include:

- ▶ Education and outreach
- ▶ Training and mentoring
- ▶ Professional leadership
- ▶ External resource development
- ▶ Strategic partnerships

**Above left: Paleobiologists collecting push-cores in lagoonal reef in Belize to study its recent history.**

**Vertebrate zoologists strategize how to collect the skeleton of 52-foot beached adult sperm whale in Hatteras Inlet, N. C.**



**Nor Faridah Dahlan removing a specimen from liquid nitrogen tank at Museum Support Center**

**Reinvigorate the Museum’s research foundation by:**

- ▶ Maintaining a critical mass of staff by hiring key new research scientists in the highest-priority research areas as vacancies occur
- ▶ Strengthening our current capabilities by hiring key new research scientists, especially in Entomology and Mineral Sciences
- ▶ Expanding the number of research technical staff to strengthen research capacity
- ▶ Providing professional development opportunities to all research staff
- ▶ Maintaining and building traditional and electronic library resources

**Train the next generation of scientists and other specialized staff through:**

- ▶ Enhanced fellowship and internship programs and through partnerships with universities

**Acquire and support new state-of-the-art technology to ensure high-quality research:**

- ▶ Imaging and data visualization
- ▶ Genomics
- ▶ Bioinformatics
- ▶ Analytical microchemical analysis
- ▶ Geographic Information Systems (GIS)

**Establish centers to facilitate multidisciplinary research initiatives (e.g., marine science, biological and cultural diversity)**

**Collections**

Execute strategic growth and modernization to safeguard collections and make them broadly accessible.

**Assess and enhance collections-management and conservation staffing, organization, and processes to implement internationally recognized best practices for collections-management and conservation**

- ▶ Systematically assess the status of collections through implementation of the Heritage Health Index initiative and a next iteration of Collections Profiling. Develop policies and practices for conservation of collections
- ▶ Develop integrated system for processing of research and exhibits loans

- ▶ Develop and implement the new NMNH Collections Management Policy in line with recognized best practices
- ▶ Set standards for collection facilities and infrastructure and develop plan to achieve compliance with these standards



Above right: Mike Brett-Surman examining dinosaur bone in the collections.

Above: The museum's Hudsonian Godwit, *Limosa haemastica*, collected by Charles Darwin in 1833 on East Falkland Island, is the only Darwin bird specimen in North America.



### Maximize use of our collections by accelerating implementation of the electronic cataloguing of the Museum's collections and digitization of specimens, artifacts, and associated materials

- ▶ Fully implement the KE-EMu multimedia collection-database with integrated Transaction Management System and more user-friendly, simplified system for data entry
- ▶ Digitize key collections/specimens of public and research interest (such as biological type specimens)
- ▶ Link the electronic catalogue to meaningful and useful public access
- ▶ Link the electronic catalogue to research
- ▶ Facilitate access to the collections and associated information by the cultures and countries of origin or the groups from whom the collections were acquired
- ▶ Create digital image archives

### Improve storage and facilities to adequately safeguard collections

- ▶ Upgrade Museum Support Center facilities, including design and construction of Pod 5, an extension of the Suitland building
- ▶ Move alcohol collections of biological specimens to code-compliant facilities
- ▶ Establish centralized storage facility for frozen tissues
- ▶ Obtain cold-storage for film archives
- ▶ Replace antiquated storage modes in collections
- ▶ Develop 10-year plan for collections storage and conservation

### Prioritize collections growth to enhance representative collections relating to natural and cultural diversity



**Dinosaur Hall, one of three halls slated to be renovated and upgraded, contingent upon fundraising.**

- ▶ Identify core collections
  - Biodiversity past and present
  - Human origins and diversity
  - Minerals, gems, rocks, and meteorites
- ▶ Identify new opportunities
  - Establish cryosystem collection of biological DNA
  - Develop protocols for adoption of collections transferred to NMNH for safeguarding

**Explore and enhance the use of existing collections through:**

- ▶ New technologies such as genetic and chemical analysis
- ▶ Digital collection files for education uses
- ▶ Digital imaging of all biological type specimens and key cultural objects

**Maintain anthropological repatriation programs as required by legal mandates and ethical principles**

Chip Clark

**Exhibitions and Education**

Increase public understanding of our collections-based research and learning to inspire an appreciation for the importance of such work to our lives.

**Advance the permanent exhibitions program through the:**

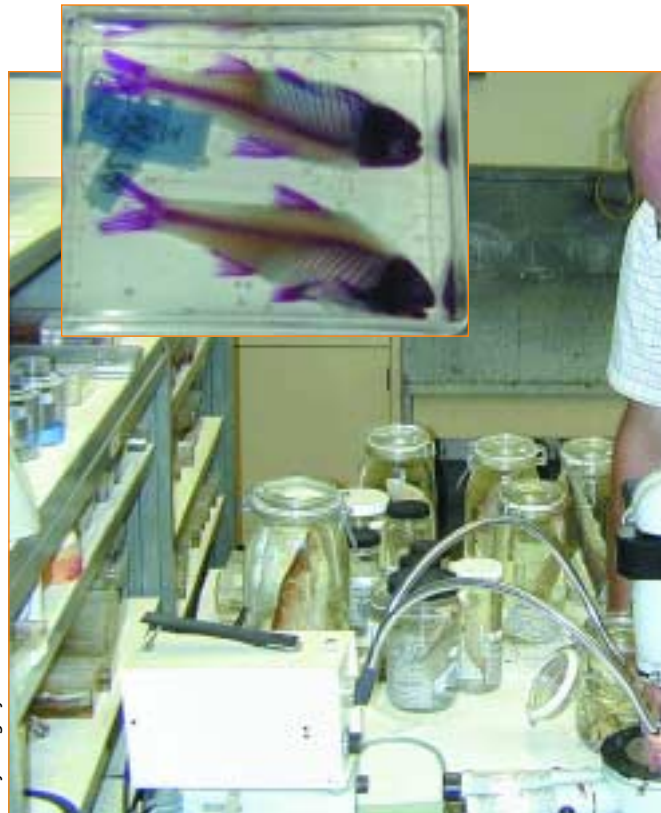
- ▶ Design, construction, and opening of *Ocean Hall*
- ▶ Design and beginning of construction of *Human Origins Hall*
- ▶ Design of a new suite of paleobiology halls, including *Dinosaur Hall* on the first floor of the Museum
- ▶ Develop a plan for maintaining and improving Anthropology exhibits, especially in ethnology
- ▶ Maintain and update current halls

**Design and install temporary exhibits that highlight our scientific contributions and important scientific developments in:**

- ▶ Astrobiology
- ▶ Tree of Life
- ▶ Forensic anthropology
- ▶ Human cultural diversity and adaptations
- ▶ Forces of Change/ecological issues
- ▶ History of science



Don Hurlbert



Mary Sangrey

Newly renovated hands-on Discovery Room, where families can work with real museum objects.

Expand the impact of the Museum by taking advantage of new and proven learning technologies in ways that acknowledge the diversity of our audiences' backgrounds and learning needs through:

- ▶ Expansion of high-quality Web sites, including Encyclopedia of Life, Marine Science, and Human Origins
- ▶ Web pre- and post-visit materials outreach
- ▶ Electronic educational products including virtual field trips, expeditions, and exhibitions

Create a hub of science learning for grades K-12, as well as post-secondary students at the Museum through:

- ▶ Electronic field trips, expeditions, and other distance-learning programs
- ▶ Customized exhibition, research, and collections-based classroom curriculum products
- ▶ Partnerships with universities, schools, and teacher training facilities
- ▶ 4 new nodes for national electronic outreach (Natural Partners)
- ▶ A national educational and advisory council

Communications Increase public and professional awareness of NMNH science.

Expand the presence of NMNH science in the local, national, and international media, including the Web

Maintain and expand NMNH science presence in professional journals and other academic publications

- ▶ Establish new venues for museum-based publication of academic works



Richard Vari, a zoologist/adviser, and Research Training Program Colombian intern, Mauricio Torres, studying a new species of the fish genus *Creagrutus* discovered by the intern in Colombia. Species is as yet unnamed.



Chip Clark

NMNH Director Cristián Samper congratulates Bruce Smith, archaeology curator and director of the archaeobiology program, on receiving one of science's highest honors, election to the National Academy of Sciences. Smithsonian Secretary Lawrence Small and Undersecretary for Science David Evans look on.

## Global Leadership

Lead the community of natural history museums in programs of science, collections management, exhibits, and education.

### Build and enhance selected strategic partnerships to:

- ▶ Train future generations of scientists, collection managers, education and technical support staff
- ▶ Provide scientific basis for public policy and management
- ▶ Set standards for 21st century exhibitions and public programming
- ▶ Set standards for collections management and conservation
- ▶ Develop informatics tools needed for natural history museums
- ▶ Provide a model for natural history museums in organizational efficiency by leading innovative approaches to collections management, research, exhibit development, and public programming

Encourage the leadership role of NMNH scientists and other museum staff in professional societies and organizations

Promote national and international scientific debate and synthesis by organizing and hosting high-profile symposia and conferences in areas such as systematic biology and cultural diversity

## Management and Infrastructure

Transform the Museum's staffing, management, culture, and infrastructure to support our mission, vision, and strategic plan.

### Strategically recruit or retrain staff to support base programs and new opportunities through:

- ▶ Long-term staffing plan for Museum (addressing all categories of employees and associated staff including research associates, fellows, interns, volunteers, and contractors)
- ▶ Training and development plan for all staff
- ▶ Succession planning
- ▶ Career progression, promotion, and mentoring plans
- ▶ Recruitment, training, and retention of volunteers

A portion of the NMNH Fish Collection, the largest and most diverse in the world.



Chip Clark

### Promote high staff morale and satisfaction with employee-generated approaches to:

- ▶ Improve internal communications
- ▶ Develop and implement innovative and effective rewards and recognition system
- ▶ Identify training and development needs and develop a Museum-wide program to meet those needs

### Infuse the value, culture, and practice of diversity in all Museum activities

#### Develop and implement meaningful performance metrics for all Museum units and employees

#### Implement an informed and transparent decision-making system for Museum-wide program planning, priority setting, and funding allocation decisions

- ▶ Regularly publicize Museum planning and decision information through the NMNH newsletter and museum-wide emails

#### Provide critical information technology infrastructure in line with plans and priorities

- ▶ Assess information technology training needs and implement a program to enhance Museum staff skills
- ▶ Expand Web capacity and initiatives

### Transform and sustain the aging physical infrastructure at the Natural History Building to support the Museum mission, vision, and strategic plan

- ▶ Finalize the NMNH space plan and continue implementation of the next priority phases of the physical plant renovation:
  - *Ocean Hall* exhibit space
  - Relocation of Laboratories of Analytical Biology

### Provide the necessary security, health, and safety measures to ensure the working environment is safe and Museum staff are prepared

- ▶ Ensure staff awareness, training, and action on health and safety concerns
- ▶ Improve building security measures to address terrorism and other threats, including perimeter barriers, window-glass protection, and more effective and efficient visitor screening
- ▶ Finalize the NMNH Disaster Management Plan to provide a coherent action framework for the protection and recovery of Museum collections, equipment, and operations from the impacts of a disaster situation





Entrance to Museum Support Center, Suitland, Maryland.

Leverage centralized Smithsonian resources, such as endowments, competitive funding pools, and other trust funds, to support Museum priorities

Streamline administrative processes and procedures

Improve visitor experience through better amenities and services

Seek external advice from outside review committees and the NMNH Board

## Funding

**Increase and diversify the Museum's funding to address strategic priorities. We will target increasing funding from the following sources: federal appropriations, agency partnerships, grants and contracts, private and corporate contributions, business and event income, and Smithsonian Institution competitive proposals.**

### Federal Support

- ▶ Review existing funding and strategically reallocate resources
- ▶ Increase federal appropriations for base operations by 5 percent over inflation
- ▶ Increase support through partnerships with federal agencies by \$40 million

### Grants and Contracts

- ▶ Improve the Museum's ability to seek, develop, and administer grants
- ▶ Double outside grants and contract awards to the Museum, staff, and contractors over five years

### Fundraising

- ▶ Increase private and corporate donations to \$5 million per year
- ▶ Rebuild the Board and strengthen its role in relevant areas, focusing on resource development

### Central Smithsonian Support

- ▶ Increase allocation from central Smithsonian Institution funds through competitive proposals

### Earned Income

- ▶ Increase earned income by 50 percent over five years, including initiating new revenue-generating activities related to the NMNH mission
- ▶ Seek increased business partnerships



# Measuring Success

While clearly laying out where we want to go is an enormous and important task, establishing how we will measure our success is also critical. We have established the measures below as our guideposts to help us determine our progress. We intend to benchmark ourselves with other natural history museums and science institutions and conduct periodic reviews. Over the next five years, these measures will be evaluated based on challenging national needs, scientific and technological advances, and what we learn from our colleagues.

## By 2009, we will:

- ▶ Publish 1,500 scientific contributions
- ▶ Host 25 million visitors to NMNH
- ▶ Host 50 million visitors to our Web sites
- ▶ Recruit 15 new research curators
- ▶ Train 150 promising scientists
- ▶ Create a highly motivated and diverse workforce
- ▶ Host 5,000 research visitors/users to collections
- ▶ Improve storage conditions for, and access to, 125 million specimens
- ▶ Complete the expansion of the Museum Support Center
- ▶ Make 10 million collection records available on the Web
- ▶ Place information on all biological type specimens on the Web
- ▶ Complete the new Ocean Hall
- ▶ Design and begin construction of the Human Origins Hall
- ▶ Design a new suite of paleobiology halls, including a Dinosaur Hall
- ▶ Host 25 new temporary exhibits
- ▶ Reach 5 million students nationwide through electronic outreach
- ▶ Raise \$75 million to support Museum programs

Chip Clark

Making a facial reconstruction of Lt. George Dixon, officer in charge of the HL Hunley, the first submarine to sink an enemy ship. The Hunley disappeared February 17, 1864, with no survivors.



Smithsonian  
*National Museum of Natural History*

[www.nmnh.si.edu](http://www.nmnh.si.edu)

Evening shot  
of campsite at  
archeological  
excavation site,  
Olorgesailie,  
Kenya

Chip Clark

