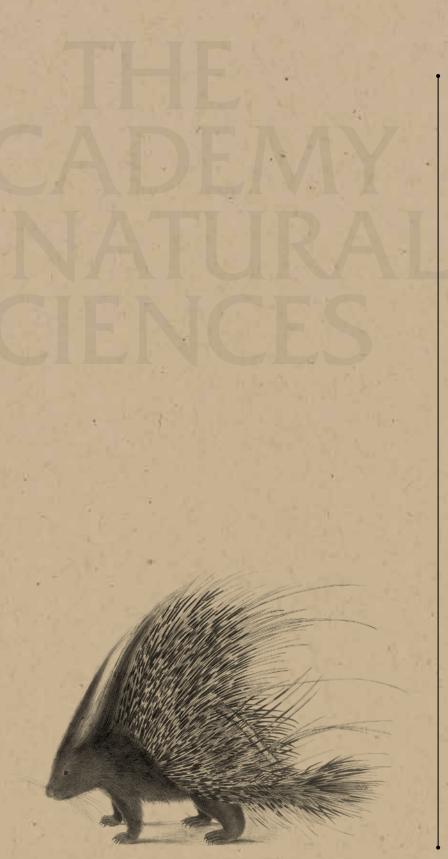
# THE ACADEMY OF NATURAL SCIENCES

- PHILADELPHIA -







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Vertebrate Zoology Collection Manager Ned Gilmore viewing specimens in the collections.

The official registration and financial information of the Academy of Natural Sciences may be obtained from the Pennsylvania Department of State by calling toll-free, within Pennsylvania, 1-800-732-0999. Registration does not imply endorsement.

# Dear Friends of the Academy,



IT IS TRULY AN HONOR FOR ME to write to you as the new President and CEO of the Academy of Natural Sciences. I joined this remarkable institution last August, and am continually impressed with the depth, breadth, and quality of the scientific and educational work that takes place here every day.

As the nation's oldest natural history museum, we have been leaders in the study of biodiversity and environmental science for nearly 200 years. Our collections of over 17 million specimens constitute an unparalleled "library of life" that records the extraordinary diversity of life on earth and

preserves a long-term record of environmental change. Nearly 200,000 people each year experience our innovative exhibits and educational programs.

From investigating today's most critical issues in the natural and environmental sciences to inspiring the next generation of scientists through our exhibits and educational programs, our staff works each day in furtherance of our mission—the encouragement and cultivation of the sciences. In this year's Annual Report, we touch on some of our significant recent accomplishments: the discovery of John James Audubon's first published illustration, providing objective, science-based research into the effects of natural gas drilling in the Marcellus Shale, an expanded new Art of Science gallery, new programming for adults and families, and more.

In 2010, the Academy's senior leadership and Board of Trustees began a thoughtful strategic action planning process to chart the course of the Academy's third century and beyond. As we tallied up the Academy's significant strengths—from our location on the Benjamin Franklin Parkway, one of the best cultural destinations in the country, to the tremendous resources represented by our scientists and collections—we recognized that we needed a partner to fully maximize our potential. On May 19, 2011, we announced a historic affiliation with Drexel University, one that will allow us to advance our science and our museum more comprehensively and innovatively than we could on our own. Through this exciting new partnership, the Academy will benefit from incredible new resources, including teaching opportunities for our scientists and tapping into Drexel's technology and media arts programs for our exhibitions, among others. This new affiliation will secure and expand on the Academy's future as we embark on our third century.

We are especially grateful to the many members, donors, foundations, corporations, and funding agencies whose generous support helps make all of our many programs possible. Support for our Annual Fund and programs remains critically important, and we rely on your continued support as we grow. Thank you for being such an integral part of this wonderful place, and we look forward to sharing our exciting future with you.

All the best

George W. Gephart, Jr.
President and CEO

# **ACADEMY BY THE NUMBERS**

General Visitors	123,448
Schoolchildren	37,574
Outreach Programs	21,207
Evening Programs	9,274
TOTAL SERVED	191,503
New Species Described	7
Research Publications*	42
Research Presentations	43
Educational Conference Presentations	14
Technical Reports	4
New Specimens Accessioned into the Collections	14,914
Specimens/Lots Loaned to Other Researchers	10,762
Library Information Requests	1,894
Visiting Researchers and Students in the Library	650
Library Researchers Supported	3,800 from 25 countries
Academy Members	4,854 <sup>†</sup>
National News Stories	22
Number of Volunteers	488
Number of Volunteer Hours Contributed	43,500
Standing in the Best of Philly Hot List	
Best Museum Contest, 2010	1 <sup>ST</sup> out of 30 nominated

<sup>\*</sup> For a complete listing of all 2010 Academy publications please visit ansp.org/academy-publications.

<sup>†</sup> As of December 31, 2010

# 2010 IN REVIEW

WITH THE HIRING of new President & CEO George W. Gephart, Jr. in August 2010, the Academy's Board of Directors signaled an exciting new approach to museum leadership. With his deep roots in the Philadelphia community, strong financial and management background, passion for the natural world and extensive knowledge of nonprofit governance, George brings a wealth of experience and enthusiasm to the Academy. The addition of Vice President for Strategic Initiatives, Sara Hertz, in November—along with the internal promotion of two key staff members, Director of the Center for Environmental Policy, Roland Wall, and Senior Director of Education, Jacquie Genovesi—completed the Academy's management team. Under George's leadership, the Academy undertook a strategic action planning process to chart the course for the Academy's near- and long-term future, and added several new members to its Board of Trustees. We're pleased to share some of our most significant accomplishments in 2010 below.

In July, oyster shells from the Academy's Malacology Collection were called into service to help study the impact of the Deepwater Horizon oil spill in the Gulf of Mexico. These specimens, which date back to 1887, hold a historical record of pollution in the Gulf and are helping scientists to understand how the recent oil spill is working its way through the food chain. This type of research highlights the incredible scientific value of the Academy's collections and how they help to answer questions about today's most pressing environmental issues.

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In August, the Academy announced the discovery of John James Audubon's first published illustration. Co-discoverers Robert M. Peck, senior fellow of the Academy, and numismatic scholar Eric Newman found a detailed drawing of the now-extinct heath hen on a banknote sample sheet in a private collection. Their discovery solved a mystery that has confounded Audubon scholars for more than a century. Audubon was a member of the Academy, and the Academy holds a collection of his birds as well as a rare double elephant folio edition of his monumental work, *The Birds of America*.



SCIENCE LIVE: Dr. Nate Rice, Ornithology collection manager, and volunteers Dana Cohen and Jan Brotman prepare bird specimens with Academy visitors at *Science Live*.

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In October, the Academy released a preliminary study of the impacts of Marcellus Shale gas drilling on small subwatersheds in the Upper Susquehanna River basin. The pilot study, conducted by Dr. Jerry Mead and Frank Anderson, found that there may be a correlation between gas drilling well density and the water quality of neighboring streams and rivers. Further work is planned for 2011 to expand this study, and demonstrates the Academy's ability to provide timely, objective scientific research on relevant topics.

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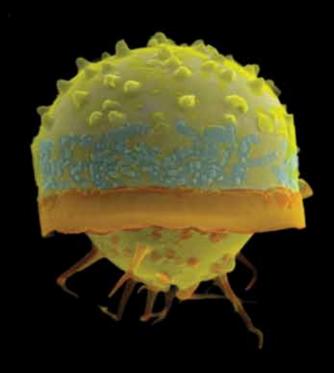
In 2010, the Academy also launched a popular new gallery program that brings the real work of Academy scientists into public view—*Science Live*. At *Science Live*, visitors have the opportunity to interact with Academy scientists as they bring their work out to share with the public. On any given day, you may have the chance to speak with an ornithologist preparing bird study skins, an archivist caring for antique lantern slides, an entomologist sorting insect specimens, or a phycologist analyzing samples of algae from a local stream—to name a few. This program highlights what makes the Academy special—the real, world-class science that takes place here every single day. Be sure to stop by *Science Live* on your next visit to learn more about Academy science from an Academy scientist.

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The Academy of Natural Sciences was voted Philly's Best Museum in 2010, topping MyPHL17's Best of Philly Hot List and beating out 30 other museums nominated by readers.

JOHN JAMES AUDUBON'S FIRST PUBLISHED ILLUSTRATION: In 2010, Academy Senior Fellow Robert M. Peck co-discovered this delightful drawing of a heath hen, Audubon's long-sought illustration.





A MANY COLORED GLASS: Incredible colorized images of diatoms and dinoflagellates by artist Fay Darling graced the walls of the Art of Science gallery during the exhibit A Many Colored Glass: Ethereal Images of Microscopic Marine Life.

# **PUBLIC PROGRAMS**

THE ACADEMY'S PUBLIC OFFERINGS were greatly expanded in 2010, with a tremendous lineup of exhibits, programs, workshops, festivals, and events. Academy educators provided unique, innovative learning experiences for people of all ages, from daily program offerings for the casual visitor to standards-based educational classes for schoolchildren. The Academy's exhibit team produced nearly twice as many experiences for visitors than 2009, including several acclaimed art shows in the newly revamped Art of Science gallery. Some of our highlights from the past year are listed below.

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With four traveling exhibits—*George Washington Carver* (Nov. 14, 2009–Feb. 28, 2010), *Looking at Animals* (Mar. 13–May 16, 2010), *Creatures of the Abyss* (June 5–Sept. 6, 2010), and *Cruisin' the Fossil Freeway with Artist Ray Troll and Paleontologist Kirk Johnson* (Oct. 23, 2010–Jan. 2, 2011), the Academy offered something for everyone in 2010, from a historical perspective on an early American scientist to an exploration of the deepest reaches of the sea.

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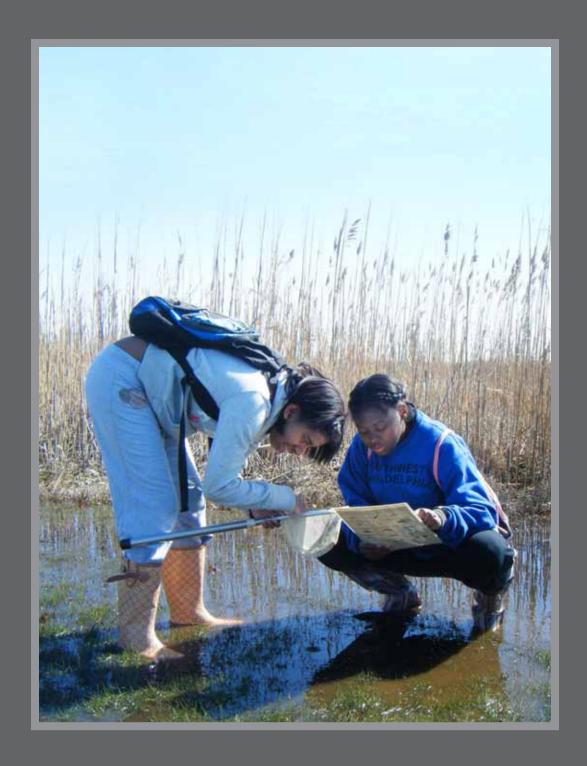
Exhibits staff renovated the Art of Science Gallery, more than doubling the Academy's display space for science-inspired works of art. The inaugural show in the renovated space, *First Impressions*, showcased the work of native Philadelphian Thomas Horsfield, who traveled to Java in 1800 and created a remarkable botanical record of the island's plant life by making inked impressions of plants on rice paper. Other Art of Science exhibits in 2010 included *All Types of Fishes: X-ray Images of Type Specimens from the Academy's Ichthyology Collection* (May 15–August 1, 2010), *A Many-Colored Glass: Ethereal Images of Microscopic Marine Life* (Aug. 7–Oct. 31, 2010), and *Ned Smith's Pennsylvania* (Nov. 6, 2010–Jan. 9, 2011).

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The Academy's Education Department launched several new programs for adults and families. New fieldtrips and workshops gave adult participants the opportunity to work directly with Academy scientists and experts on topics ranging from beginning nature photography to conserving native pollinators. The mega-popular Mega-Bad Movie Night also debuted in 2010 with *Mega-Shark vs. Giant Octopus*, an evening of hilarity and bad science featuring an awesomely awful movie.

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The Academy's Education Department worked with teachers from Friends Select School in Philadelphia and Torah Academy in Wynnewood to develop specialized curriculum and programming for their students. Students from Friends Select had the opportunity to visit the Academy's collections and even participate in a paleontological dig in New Jersey.



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"A Head Start on Science," a partnership between the Academy, the Please Touch Museum, and the School District of Philadelphia and funded by the Barra Foundation and the PNC Foundation's Grow Up Great With Science Initiative, provided approximately 200 area preschool educators with hands-on training in inquiry-based science for the early childhood classroom. This innovative program reached 2,160 students from across the city in 2010, with over 1,100 attendees to the Academy's Family Science Day in June.



Academy educator Mike Kaczmariczik shows a butterfly to a visitor in *Butterflies!* (above); students from the Academy's Women in Natural Sciences (WINS) program working on an experiment in the field (left).



# CENTER FOR SYSTEMATIC BIOLOGY AND EVOLUTION

SCIENTISTS IN THE CENTER for Systematic Biology and Evolution were all over the map in 2010, carrying out fieldwork in Chile, Mongolia, Singapore, Tanzania, the Bahamas, Peru, Venezuela, the Philippines, Vietnam, Canada, and across the United States. The Academy continued to add to its world-renowned collection of over 17 million specimens, and loaned thousands of specimens out to assist scientists in their work around the world. Some of the most significant happenings over the past year are listed below.

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The George M. Feirer Collection of over 800 specimens of amphibians and reptiles was donated to the Academy. The Feirer Collection was amassed in the 1940s and 50s both locally and internationally.

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Dr. John Lundberg, Chaplin Chair of Ichthyology, received the Robert H. Gibbs Jr. Memorial Award for Excellence in Systematic Ichthyology from the American Society of Ichthyologists and Herpetologists (ASIH), one of the highest honors in ichthyology.

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The Academy's Visual Resources for Ornithology (VIREO) project, the most comprehensive bird image bank in the world, uploaded its 80,000th image online.

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Dr. Gary Rosenberg, Pilsbry Chair of Malacology, and Dr. Jerry Mead, Watershed Systems and Ecology, visited Jamaica in March to begin collaborative geographic information system (GIS) studies of Jamaican snails with faculty at the University of the West Indies (Mona) and the Jamaican Forestry Department.

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Dr. Mark Sabaj Pérez, Department of Ichthyology, was honored when two Brazilian students who conducted part of their research at the Academy named a new species of thorny catfish for him, *Leptodoras marki*.

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Dr. Ted Daeschler, Department of Vertebrate Zoology, was awarded a three-year National Science Foundation grant supporting a variety of research projects on *Tiktaalik roseae*, a Devonian-age fossil considered the "missing link" between fish and limbed animals. Through this project, the Academy will also develop public programs on transitional fossils like *Tiktaalik* at the museum, and will provide local students with the opportunity to participate in a paleontological dig in Pennsylvania.



# **EWELL SALE STEWART LIBRARY**

THE ACADEMY'S EWELL SALE STEWART LIBRARY is internationally recognized as one of the top natural history libraries in the world, with an extraordinary collection of rare and historic books, journals, art, artifacts, manuscripts, photographs, and papers. With over 200,000 volumes—including some dating back to the 1500s—and well over 1 million archival items, the Library is a tremendous resource for scientists and the general public alike. Some of the most significant happenings of 2010 are listed below.

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The Library and Archives staff supported a variety of research projects in 2010, including the Academy's history to be published in 2012, *A Glorious Enterprise* by Robert M. Peck and Patricia Tyson Stroud; biographies on Rafinesque, Witmer Stone, Earle Poole, and Samuel Rhoads; late 17th-century insect illustrations; the 1912 Academy centennial; the artwork of Ned Smith; the paper trail of insects bequeathed by Thomas Say; and more.

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The Academy is one of several partners with the California Academy of Sciences to be awarded an Institute of Museum and Library Services grant to develop a system for integrating biological researchers' field and specimen notes with museum specimens and related electronically published literature. The Archives will digitize the earliest-known field notes in our collection, those of John Kirk Townsend from the Wyeth Expedition, Philadelphia to the Oregon Territory, 1834–1835.

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The library's online catalog is now available through PACHS, the Philadelphia Area Center for the History of Science. Researchers can go to the PACHS web site (pachs.net) and search several library catalogs at once, including that of the Academy.



"Large-tailed skunk", plate 102 of John James Audubon's *Viviparous Quadrupeds of North America* (left); the Ewell Sale Stewart Library reading room (right).



# PATRICK CENTER FOR ENVIRONMENTAL RESEARCH

SCIENTISTS IN THE ACADEMY'S Patrick Center for Environmental Research are devoted to better understanding aquatic ecosystems and applying this knowledge to assess ecosystem health, developing strategies for enhancing environmental quality, and working with diverse stakeholders to improve environmental stewardship. In 2010, Patrick Center scientists conducted studies around the world—from Chile to Mongolia and across the United States—as well as local investigations of our own streams, rivers, and estuaries in Pennsylvania, New York, New Jersey, and Delaware. Some of our most significant accomplishments from 2010 are listed below.

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Patrick Center scientists investigated the impacts of land use and climate change on Tinicum Marsh, Barnegat Bay, and several Delaware River tidal freshwater wetlands; sampled fish in Delaware Bay and the Housatonic River (Connecticut) for chemical contaminants; and, working with staff from the Partnership for the Delaware Estuary, discovered species of freshwater mussels in the Delaware River that were previously thought to be extirpated from the river between Trenton, New Jersey and Philadelphia, with important implications for water quality in the Delaware River estuary.

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Dr. Clyde Goulden spent two summer months in Mongolia interviewing nomadic Mongolian herders on their perceptions of how climate change is impacting their lives, while Dr. Ling Ren initiated a project in China with Zhejiang Ocean University, investigating the impacts of human activities on the productivity and biodiversity along the East China Sea coast.

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Dr. David Velinsky and Paula Zelanko teamed up with Dr. Nate Rice from the Academy's Ornithology Department to test the isotopic composition of Delaware Bay osprey feathers from the Academy's collection. These birds, which were collected from the 1860s to the present, can help identify ecosystem changes in the Delaware River estuary from the mid-1800s to today, as well as migration patterns.

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Phycologists Dr. Don Charles and Frank Acker co-authored a research article published in *Environmental Science and Technology* that was honored with an Editor's Choice Award and named the runner up as the best paper of the year in the journal.



# CENTER FOR ENVIRONMENTAL POLICY

THE ACADEMY'S CENTER for Environmental Policy is a key player in the environmental and sustainability community in the greater Philadelphia region. Bringing together top scientists, policy makers, and the general public around issues of critical environmental importance, the CEP provides non-partisan, science-based information on key environmental issues, promotes solutions, and builds awareness. A few of our most significant happenings are highlighted below.

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The Center hosted more than 40 public programs in 2010, through the Town Square series, Urban Sustainability Forums, and special programs. Prominent speakers included famed explorer and oceanographer Dr. Sylvia Earle, musician/writer David Byrne, Representative Allyson Schwartz, author and activist Dr. Vandana Shiva, author Bill McKibben, and wildlife conservationist Iim Fowler.

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The Center acts as a logistical hub for groups organized around sustainability issues, bringing national and regional leaders together with local leadership to solve specific problems through sharing of best practices, new perspectives, and innovative ideas. In 2010, the Center hosted public programs for the Green Condo/Co-op Initiative on microturbines and how to transform older condos into healthier, more environmentally friendly spaces, as well as a workshop on energy efficiency for the Interfaith Environmental Network.

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CEP also piloted its Profitable Pathways to Sustainability initiative in 2010. This ongoing series of dynamic events is designed to support local business leaders in creating sustainable organizations by providing informative, results-oriented forums that offer sound advice and practical solutions.



Wildlife conservationist Jim Fowler spoke at the Academy in November 2010.

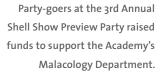
# INSTITUTIONAL ADVANCEMENT

THE ACADEMY MADE GREAT STRIDES in its communications efforts in 2010. An audit of the Academy's marketing program resulted in a clear and consistent design for all Academy materials, from the Academy's website to brochures and flyers. The Academy received strong local, national, and international media attention in 2010, with five frontpage Philadelphia Inquirer articles, national coverage for 22 major stories, five of which were picked up by the international news wire service Reuters.

The Academy saw a great improvement in its fundraising programs in 2010 as well. The Academy's 3rd Shell Show Preview Party, held on October 8, 2010, was co-chaired by Sarah and Eric Bazilian and Francie Ingersoll and Matt Taylor with Young Friends Co-Chairs Lesley and Frank Coulson and Colby and Matt Paul. More than 200 party-goers enjoyed a sneak peek at the 28th annual Philadelphia Shell Show, the largest shell show in the Northeast, and raised nearly 20% more than the previous year in support of the Academy's malacology department. Other highlights include:

- A 9% increase in Academy memberships, with nearly 5,000 membership households at the close of the year;
- A 7% increase in Annual Fund revenues;
- A 38% increase in Leadership Circle donors;
- Significant increases in online donations, with a 63% increase in number of online donors over the prior year and a 31% increase in number of online members over the prior year; and
- A 16% increase in restricted and endowment giving over the prior year.







# FINANCIALS

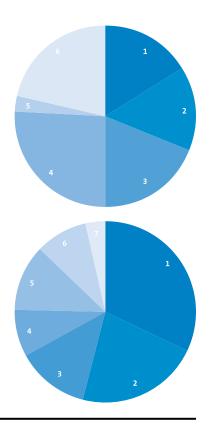
(as of December 31, 2010)

# **Revenue and Support 2010**

The state of the s	
1. Admissions, Sales, and Fees	2,692,453
2. Contributions, Bequests, and Memberships	2,478,687
<b>3.</b> Endowment Income	3,160,366
4. Research and Education Funding	4,273,910
<b>5.</b> Other Income	447,164
Total Revenue	\$ 13,052,580
<b>6.</b> Investment Activity	+ 3,550,398
Total Revenue and Investment Activity	\$ 16,602,978

# Expenses 2010

Total Expenses	\$ 14,111,731
<b>7.</b> Library	500,838
<b>6.</b> Depreciation and Other	1,309,777
<b>5.</b> General and Administrative	1,666,448
<b>4.</b> Fundraising and Communications	1,180,554
<b>3.</b> Building	1,833,008
<b>2.</b> Education and Exhibits	3,098,136
1. Collections and Research	4,522,970
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# **Endowment Growth (in millions)**

Year-End Endowment Value (MM)

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2000	42.690	70 –													
2001	39.794	60 –													
2002	41.146										П				
2003	47.463	50 –						-							
2004	51.066	40 -											-		
2005	53.230														
2006	57.827	30 -											-		
2007	64.743	20 -													
2008	43.115	10 –													
2009	47.439														
2010	\$ 50.024	0 -	FY00	FY01	FY0	2 FY	03	FY04	FY05	FYC	6 F	Y07	FY08	FY09	FY10

# Net Assets 2010

Change in Net Assets	\$ 2,491,247					
End of Year	69,064,810					
Beginning of Year	66,573,5					



# THANK YOU!

ON BEHALF OF THE ACADEMY'S BOARD OF TRUSTEES, we wish to recognize and thank those supporters who have contributed to the Academy between January 1 and December 31, 2010. Your generosity helps to fund the Academy's many programs of research and education, and we are tremendously grateful for your support.

#### \$200,000 and above

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The Horace W. Goldsmith Foundation
John C. and Chara C. Haas
Charitable Trust

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Anonymous

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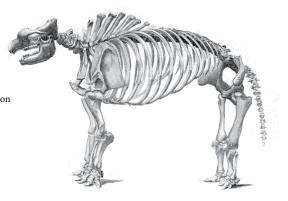
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Stephanie Zuppo, a student intern from Moore College of Art, digitizes an image of a 19th century botanical print in the Academy's Albert M. Greenfield Digital Imaging Center.

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Volunteers Gerrie Schmidt and Jay Weiss prepare for their next volunteer shift.

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THE WORK OF THE ACADEMY simply could not be done without the support of our dedicated and inspiring volunteers. In 2010, 488 volunteers contributed 43,500 hours of work, which ranged from assisting with scientific research to teaching visitors about the life cycles of butterflies. We were also lucky to have groups of volunteers from Price Waterhouse Coopers, Philadelphia University, and the Gamma Sigma Sigma service groups at Drexel University and the University of Pennsylvania pitch in for one time needs. Long-term volunteers and volunteer interns were active in all areas of the museum, and the 134 volunteers who contributed at least 100 hours of service to the Academy in 2010 are listed below.

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