



life.changing.



California  
Academy  
of Sciences  
2010 Annual Report





CALIFORNIA  
ACADEMY OF  
SCIENCES

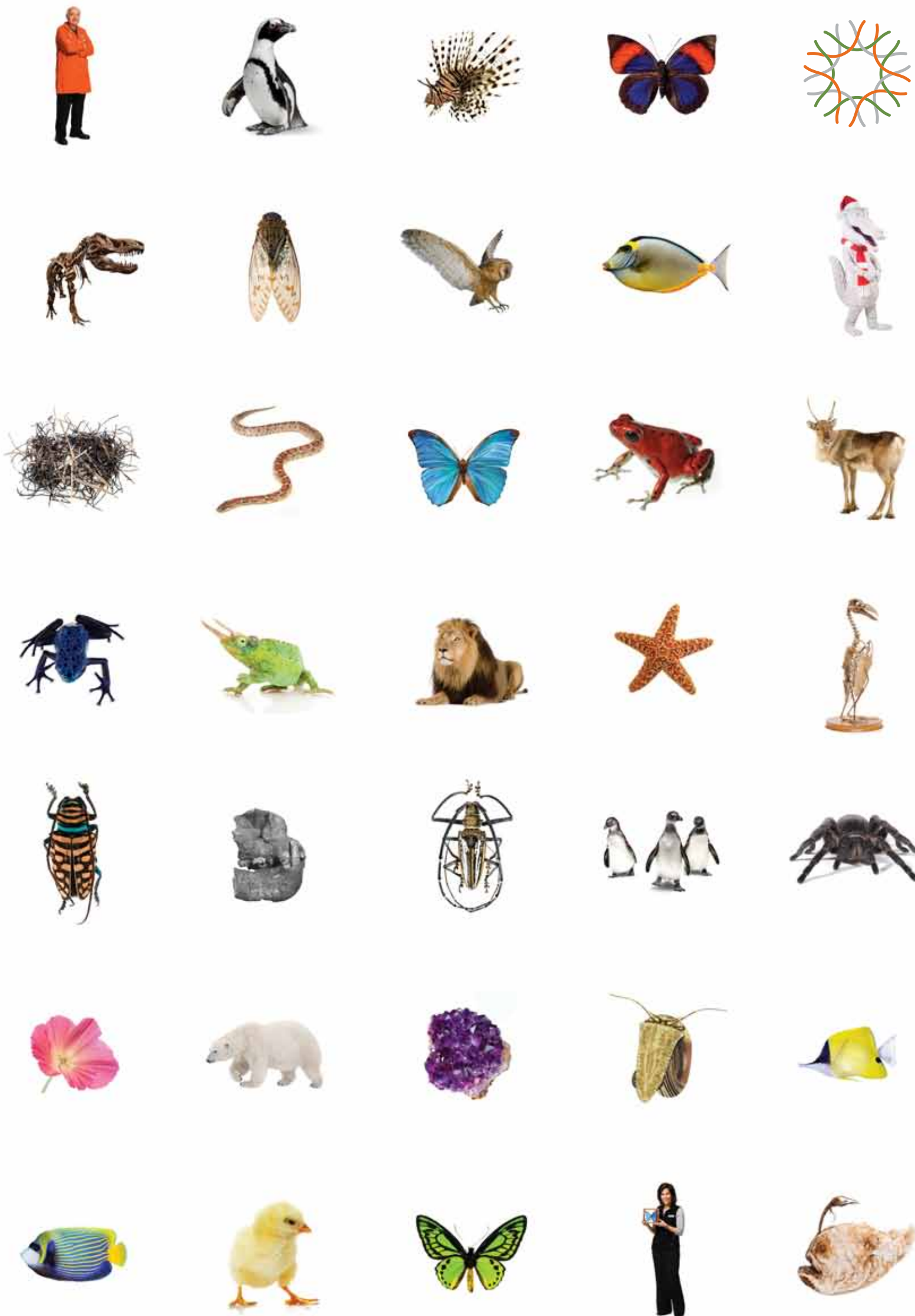
Kinship Natural History Museum

Steinhart Aquarium



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At the California Academy of Sciences, life changes every single day. And the 365 days of 2010, full of discovery and wonder, were no exception.

In one year, the trees in our rainforest grew an average of 12 inches. Our scientists added more than 114,000 specimens to our research collections—and discovered 113 new species. To the delight of thousands of wide-eyed children, a pair of reindeer visited for the holidays. And more than 100 green mantella frogs—a critically endangered species—hatched through our Species Survival Plan breeding program.

These were just a few of the changes to the fabric of life at the Academy during a year in which our work became more urgent than ever. Ours is an era of extraordinary change on many fronts, from technology to ecology—change that will shape our lives and the footprint we leave for the future. The Academy’s mission is to positively impact that future by shifting the way people think, act, and relate to the natural world today.

As Academy friends know, another change over the last year was the untimely passing of Bill Patterson. As chairman of the

board of trustees from 2007 to 2010, Bill helped lead the Academy into a landmark new home. Brilliant, gracious, and passionate, Bill was both dynamo and dreamer, the kind of person who could—and did—change the world. The Academy he championed will be a guiding force in the years ahead—changing lives in changing times.

**Life. Changing.** That’s the theme of our report for 2010. It describes the challenging era in which we live, and the challenge we face as an institution committed to shaping attitudes through the power of research, education and unforgettable experiences. If you’ve played a part of our mission, thank you! With your support, we will continue to make every visit to Academy truly transformational.

**Dr. Greg Farrington**

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# life.changing.



We inhabit a Universe in constant flux—aging, evolving, expanding. In fact, the nature of life itself is change.

Today, however, the change around us is accelerating, endangering our planet and our way of life. Plant and animal species are vanishing at a rate unmatched since the age of the dinosaurs. Precious natural resources are dwindling. And people are divorced from science at a time when science is more important than ever.

What will it take to navigate tumultuous change and preserve life on Earth as we know it? It will take a commitment to discovery, and to making new knowledge relevant to people of all ages. It will take passion—the kind that inspires respect for the natural wonders that surround us. A look at the events of 2010 reveals compelling evidence that the Academy is up to the task.

965 scientists and students visited the Academy's research collections in 2010.

3,607 birds in the Academy collections were used to track the spread of avian pox.



Over 114,000 new specimens were added to the Academy's library of life.

Over 300 Academy specimens helped scientists chart an emerging amphibian disease in Asia.

# Changing times

Never in human history has our global ecosystem undergone a period of such dramatic transformation. That urgency guides Academy scientists as they document Earth's threatened biodiversity and share their discoveries.

Just think: Scientists say they have identified less than 10 percent of the species in the interconnected web of life on Earth. Many species will disappear before we know their names, their ecological roles, or what they have to teach us. Last year, such projections motivated more than a dozen Academy expeditions to biodiversity hot spots around the globe, where our scientists uncovered more than 100 new animals and plants, created species distribution maps, and advanced our understanding

of life's diverse manifestations. Their mission: discover, document, and protect as many unknown species as possible before they vanish. Meanwhile, back in Golden Gate Park, where the Academy maintains a library of more than 26 million specimens (38,000 of them living), our scientists provided data to guide conservation decisions that will shape our lives and the future of our planet as we address a changing climate and other ecological challenges.

Photo: Parrots from the Academy's ornithology collections.

To learn more about supporting these programs, visit [www.calacademy.org/cs2011/research](http://www.calacademy.org/cs2011/research)

## 2010 RESEARCH HEADLINES

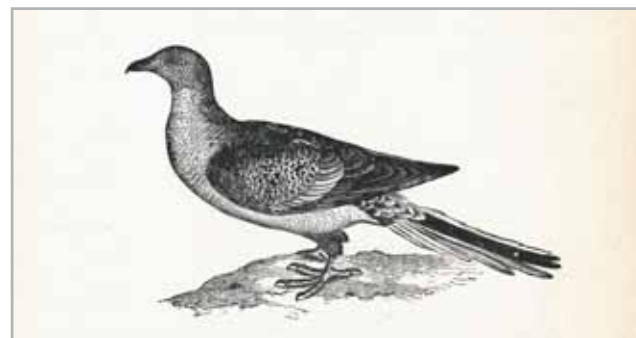
### INVERTEBRATE ZOOLOGY & GEOLOGY

Academy researcher Peter Roopnarine launched a study to determine how harmful compounds from the Deepwater Horizon oil spill are affecting the **Gulf of Mexico's marine food web**.



### CENTER FOR COMPARATIVE GENOMICS

Academy DNA analysis revealed complex evolutionary forces behind the **daredevil tactics of the mimic octopus**, which escapes predators by impersonating other creatures.



### ORNITHOLOGY & MAMMALOLOGY

Dr. Jack Dumbacher and colleagues used century-old Academy specimens to find **a place for the extinct passenger pigeon** in the family tree of pigeons and doves.



### BOTANY

Several members of the **shrimp plant family** have proven effective in treating Asthma. Academy botanist Tom Daniel documented two new members of this family from Guatemala.

### AQUATIC BIOLOGY

Dr. John McCosker and colleagues expanded the Academy's world-leading collection of Galapagos Islands specimens with the discovery of a **new species of scorpionfish** (*Scorpaenodes rubrivinctus*).



### ANTHROPOLOGY

Dr. Zeray Alemseged discovered evidence in Ethiopia that **human ancestors were using stone tools and consuming meat from large mammals** nearly a million years earlier than previously documented.



### CENTER FOR APPLIED BIODIVERSITY INFORMATICS

An Academy team charted the **velocity of climate change worldwide**, finding that, on average, ecosystems will need to shift about a quarter-mile per year to keep pace with warming temperatures.



### ICHTHYOLOGY

Academy scientists surveyed and documented **the fish off the coast of São Tomé and Príncipe**, an area that is about to be transformed by oil drilling.



### ENTOMOLOGY

Academy arachnologists used sophisticated DNA sequencing to identify a **new family of spiders**, Penstomidae, helping to fill in another branch of the tree of life.



### HERPETOLOGY

Academy scientists completed a **13-year survey of the reptiles and amphibians of Myanmar**, uncovering dozens of new species—creatures threatened by habitat loss and use as food and folk medicine.



40 Careers in Science interns logged 13,000 hours learning and teaching science

60 teachers from 24 schools participated in the Teacher Institute on Science and Sustainability

Up to 720 students visit the Academy on a typical school day.

More than 1,000 Teacher Workshop participants added new hands-on activities to their science curricula

Classroom kits helped nearly 8,000 students learn about evolution, biodiversity, and conservation

# Open minds

The Universe is in our hands. How can we cultivate the knowledge and the passion necessary to steward it? Through education programs that immerse people of all ages in natural-world wonders and open minds to science.

At the Academy, we know that life-changing relationships with the natural world begin with a sense of wonder. And for many, wonder grows with a childhood visit to the Academy. In 2010, thousands of kids, ages 5 through 18, got closer to the Universe on a school field trip to the Academy. Once inside, they were transformed into virtual space travelers, exploring the Solar System through special planetarium shows, or rainforest explorers, studying Borneo's bat caves or a flooded Amazonian

landscape. They became biologists, peering at the world through a microscope in the Academy's Koret-Taube Education Center. But the learning didn't stop there. Back in the classroom, teachers, inspired by Academy workshops and seminars, used Academy lesson plans and classroom kits to keep science alive and relevant. And young people from diverse backgrounds became Careers in Science interns—changing their own futures.

Photo: Students from the Academy's Rock Program for Enhanced Museum Visits pose during a break in activities in the Classroom.

To learn more about supporting these programs, visit [www.calacademy.org/cs2011/education](http://www.calacademy.org/cs2011/education)

## 2010 EDUCATION PROGRAMS



### Field Trips

San Francisco school groups can visit the Academy for free, and other California school groups are eligible for significantly discounted admission.

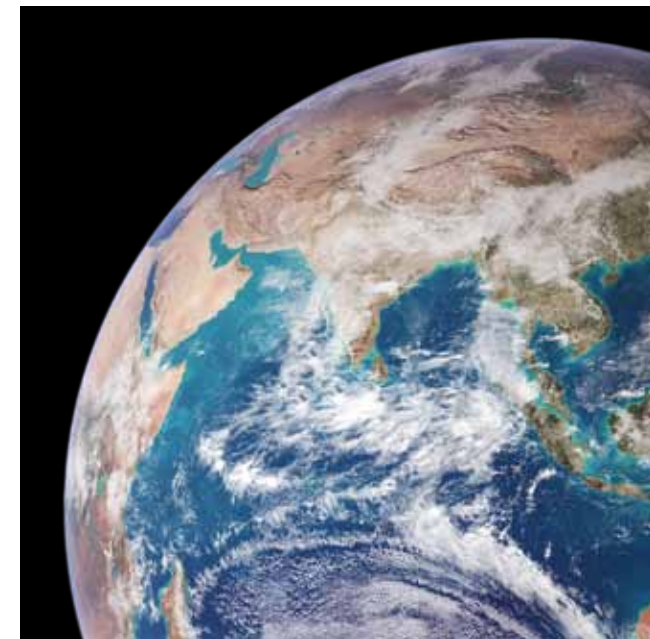
### Careers in Science

This internship program for high school and college students celebrated its 14th year in 2010.



### Rock Program

The Arthur and Toni Rembe Rock Enhanced Museum Visits for Students program supports 4th and 5th grade field trips from San Francisco schools, providing free transportation, admission, and educational materials.



### Planetarium Student Shows

Students in 3rd to 8th grades can visit the Moon, Mars, and the rest of the Solar System inside the world's largest all-digital planetarium.



### Classroom Kits

These portable containers are filled with all the materials a teacher needs to do fun, engaging science activities in the classroom. They include complete lesson plans and background information on a wide range of topics. Hands-on activities, educational games, books, DVDs, and more provide a range of learning opportunities.



### Lesson Plans

Teachers can choose from more than 90 standards-based lesson plans.



### Student Labs

Ninety-minute lessons in the Education Lab focus on microscopes, geology, the scientific method, electricity, and ocean chemistry.



### Teacher Institute on Science and Sustainability

The Teacher Institute on Science and Sustainability is an intensive two-year professional development opportunity for 3rd- to 5th-grade teachers, in which they learn how to incorporate sustainability themes into their science curriculum. TISS participants receive an annual stipend, a membership to the Academy, a class set of science journals, classroom support, and more.





500 docents engage with visitors on the public floor.

6,500 questions were fielded at the Naturalist Center during the year.

The Golden Gate Park iPhone app has been downloaded 35,000 times.

More than 1.5 million people visited the Academy in 2010.

# Transformed lives

Only at the Academy can you time-travel to the birth of the planets, adopt a penguin, experience four rainforests at once, and learn how what you eat affects the health of the planet. Arrive open to adventure. Leave inspired to live differently.

Although we work on a global scale—championing biodiversity, sharing new knowledge, modeling sustainability in the world’s largest LEED Platinum public building—the most important changes at the Academy happen one life at a time. And they begin with the kind of immersive experience, sparking curiosity and wonder, that’s possible only when visitors are able to interact with some of nature’s best ambassadors—charismatic live animals and the people who are passionate about studying

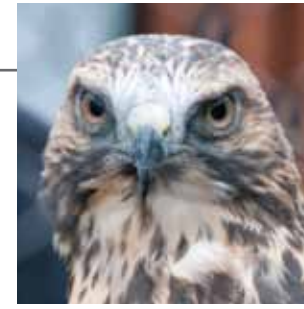
and caring for them. In 2010, the Academy cultivated positive change by helping people of all ages make eye-opening connections, whether between a penguin and his threatened habitat, or between personal choices—local produce or imported? compost or landfill?—and Earth’s future. Our goal is nothing less than changing the way we, as a species, inhabit our home planet, catalyzing the evolution of human attitudes and behaviors while we explore the nature of our changing world.

Photo: One of the Academy’s most popular exhibits, the Philippine Coral Reef tank hosts thousands of colorful fishes and dozens of species of coral.

To learn more about supporting these programs, visit [www.calacademy.org/cs2011/exhibits](http://www.calacademy.org/cs2011/exhibits)

# 2010 MUSEUM HIGHLIGHTS

**January** The "Live Birds of Prey" program allows visitors to meet live raptors.



**February** Docents delight visitors during a Valentine's Day "Sex and Science" tour.

**March** Academy scientist **Jack Dumbacher** gives a lecture about his research in Papua New Guinea.



**April** *Extreme Mammals: The Biggest, Smallest, and Most Amazing Mammals of All Time* opens.

**May** *Pierre the Penguin* children's book hits bookstores nationwide.



**June** The Academy celebrates World Oceans Day with the debut of "Ocean Voices."



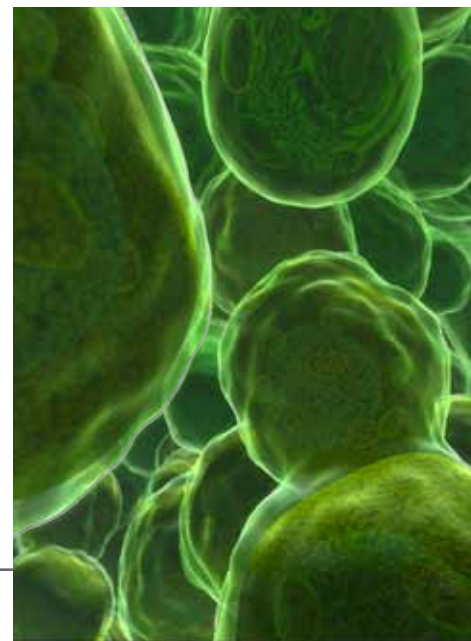
**August** The Naturalist Center invites "citizen scientists" to participate in the Bay Area Ant Survey.



**July** NASA Scientist **Gordon Squires** lectures about the latest discoveries made by space telescopes.



**September** **Claude, the albino alligator**, turns 15. Visitors help make fish-flavored cupcakes for him.



**October** The Academy debuts a film and exhibit about the **Farallon Islands**.



**November** *Life: A Cosmic Story* debuts in the planetarium, and the Academy launches the **Golden Gate Park iPhone app**.

**December** *'Tis the Season for Science* opens, complete with snow flurries in the Piazza and two live reindeer in the East Garden.



# Donors

A fast-changing world makes the Academy's mission ever more urgent. The generosity of community partners brings that mission to life—for that, the Academy is deeply grateful.



Executive Director Greg Farrington with Gretchen Kimball.

When my husband, Bill, and I made the lead gift to the Academy's campaign in 2003, we had no idea the new Academy would prove to be so popular. Now it's such a joy to walk through the Kimball Natural History Museum and see people of all ages enjoying the wonderful exhibits.

—Gretchen Kimball

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A community is only as healthy as its individual members. Academy scientists discovered over 100 new plant and animal species in 2010. They are listed here.

*Calibelemnon* sp.  
*Chimaera bahamaensis*  
*Chimaera notaficana*  
*Chlaenius rotundithorax*  
***Contia longicaudae***  
*Cruriraja hullelyi*  
*Darkoneta quetzal*  
*Darkoneta reddelli*  
*Draconarius adnatus*  
*Draconarius anceps*

sea pen  
ghostshark  
ghostshark  
beetle  
**sharp-tailed snake**  
skate  
spider (also new genus)  
spider (also new genus)  
spider  
spider



*Draconarius catillus*  
*Draconarius curvus*  
*Draconarius duplus*  
*Draconarius euryembolus*  
*Draconarius gigas*  
*Draconarius guoi*  
*Draconarius improprius*  
*Draconarius kavanaughi*  
*Draconarius laticavus*  
*Draconarius latusincertus*

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*Draconarius levyi*  
*Draconarius longlingensis*  
*Draconarius mikrommatos*  
*Draconarius olorinus*  
*Draconarius paraspiralis*  
*Draconarius pseudoagrestis*  
***Draconarius pseudoaspiralis***  
*Draconarius quattour*  
*Draconarius renalis*  
*Draconarius spiralis*

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Chris Goode

EMC is pleased to support the Academy's Teacher Services program, which enables students to pursue an interest in science, technology, engineering and mathematics. Such experiences help establish strong foundations for educating future technology innovators and fueling the science and engineering pipeline.

—Chris Goode

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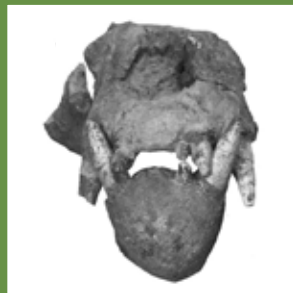
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*Draconarius tridens*  
*Draconarius xuae*  
*Draconarius yani*  
***Enhydriodon dikikae***  
*Eviota karaspila*  
*Eviota nigrispina*  
*Eviota rubrisparsa*  
*Eviota shimadai*  
*Eviota toshiyuki*

spider  
spider  
spider  
spider  
**otter**  
goby fish  
goby fish  
goby fish  
goby fish  
goby fish

*Eviota winterbottomi*  
*Flabellina goddardi*  
*Justicia velizii*  
***Nippononebria changbaiensis***  
*Nitela constructor*  
*Okenia felis*  
*Ophichthus alleni*  
*Ophichthus aniptocheilos*  
*Ophichthus congroides*  
*Ophichthus hirritus*

goby fish  
sea slug  
herb/shrub  
**beetle**  
wasp  
sea slug  
eel  
eel  
eel  
eel



*Ophichthus humanni*  
*Ophichthus ishiyamorum*  
*Ophichthus lentiginosus*  
*Ophichthus microstictus*  
*Ophichthus tomioi*  
*Pandava ganessa*  
*Pandava ganga*  
*Pandava kama*  
*Pandava sarasvati*  
*Pandava shiva*

eel  
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spider  
spider

*Parapatrechina brunnella*  
*Parapatrechina concinnata*  
*Parapatrechina gnoma*  
*Parapatrechina myops*  
*Parapatrechina ocellatula*  
*Parapatrechina oreias*  
*Parapatrechina splendida*  
*Parapatrechina umbrantia*  
*Penestomus egazini*  
*Penestomus kruger*

ant  
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spider (also new family)  
spider (also new family)

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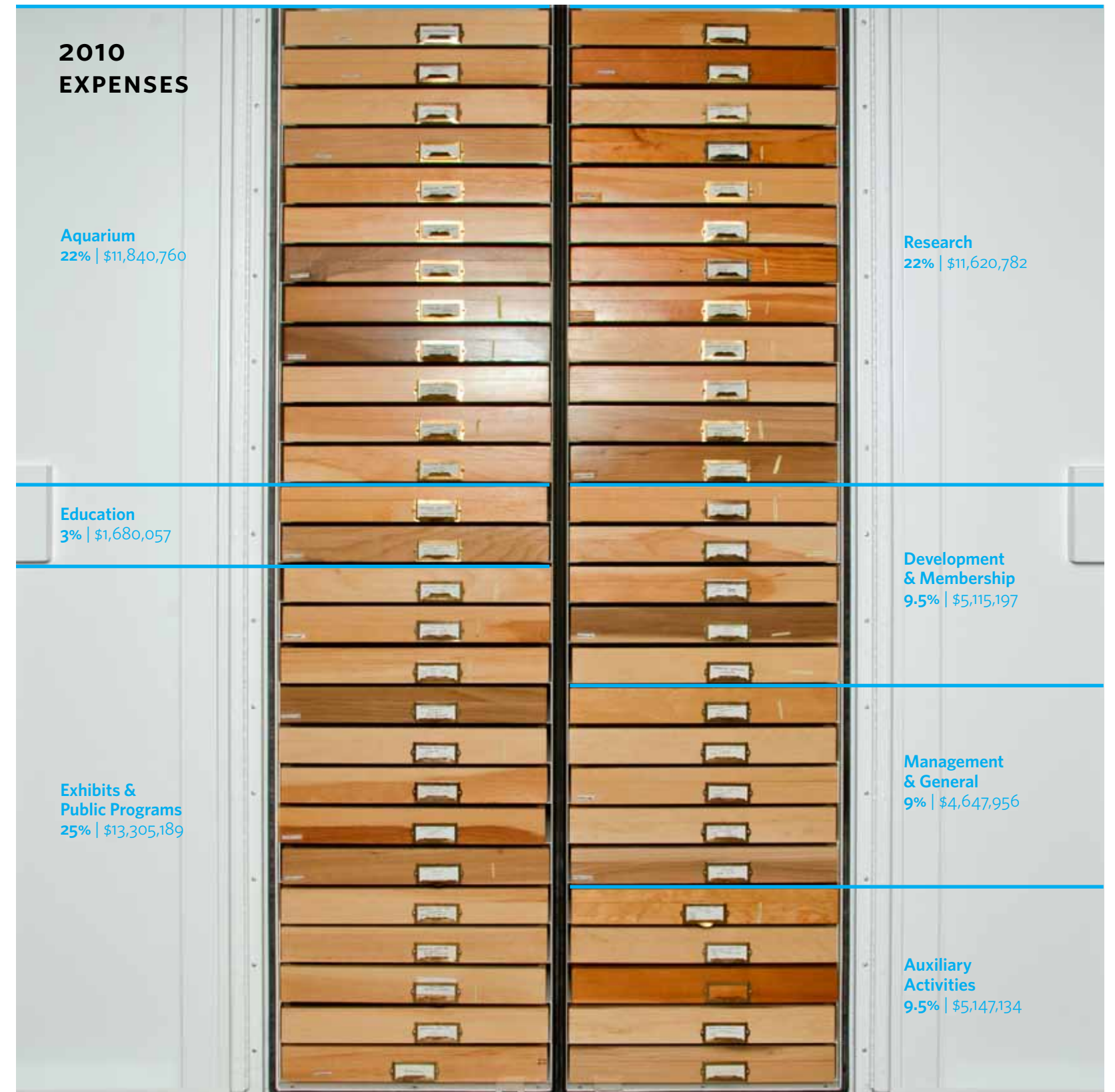
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# Financial report

The Academy's financial performance reveals an institution committed to careful stewardship of resources and growth, sustaining research and public engagement for generations.



## Revenues and Expense

	2010	2009
<b>Revenue</b>		
Earned Revenue	26,004,039	24,600,106
Contributions & Membership	14,866,897	15,852,167
Government Grants	5,363,622	8,032,412
Investment Income	7,144,207	(14,901,325)
Net assets released from restrictions	6,430,493	5,079,824
<b>Total Revenue</b>	<b>59,809,258</b>	<b>38,663,184</b>
<b>Expenses</b>		
Research	11,620,782	12,276,837
Exhibits & Public Programs	13,305,189	12,730,521
Aquarium	11,840,760	13,086,725
Education	1,680,057	1,841,226
Development & Membership	5,115,197	5,926,651
Auxiliary Activities	5,147,134	4,972,203
Management & General	4,467,956	3,187,791
<b>Total Expenses</b>	<b>53,177,075</b>	<b>54,021,954</b>

## Financial Position

	2010	2009
<b>Assets</b>		
Investments	156,601,006	143,693,326
Receivables	4,994,973	7,749,062
Other	1,064,827	1,309,725
<b>Total Assets</b>	<b>162,660,806</b>	<b>152,752,113</b>
<b>Liabilities</b>		
Accounts Payable	5,488,524	6,650,890
Deferred Income	3,581,957	6,076,340
Other Long-term Liabilities	287,745	229,692
<b>Total Liabilities</b>	<b>9,358,226</b>	<b>12,956,922</b>
<b>Unrestricted Net Assets</b>	<b>67,760,327</b>	<b>61,688,007</b>
<b>Temporarily Restricted</b>	<b>24,252,551</b>	<b>20,508,192</b>
<b>Permanently Restricted</b>	<b>61,289,702</b>	<b>57,598,992</b>
<b>Total Net Assets</b>	<b>153,302,580</b>	<b>139,795,191</b>
<b>Total Liabilities &amp; Net Assets</b>	<b>162,660,806</b>	<b>152,752,113</b>

9,908,693

Photos: A glimpse into the Academy's entomology collections. On the left, a selection of various specimens. On the right, a cabinet of recently collected Madagascar ants.

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Academy leaders embody our mission to explore, explain, and protect the natural world. Their vision and commitment inspire others and ensure the Academy's enduring impact.

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This report would not have been possible without the support of the following individuals:

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**Rachel Diaz-Bastin**  
**Alicia Goode**  
**Jeffrey Towner**

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Printed in San Francisco by Watermark Press on Neenah Environment PC 100 White, a 100% post-consumer recycled paper manufactured in the USA.

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