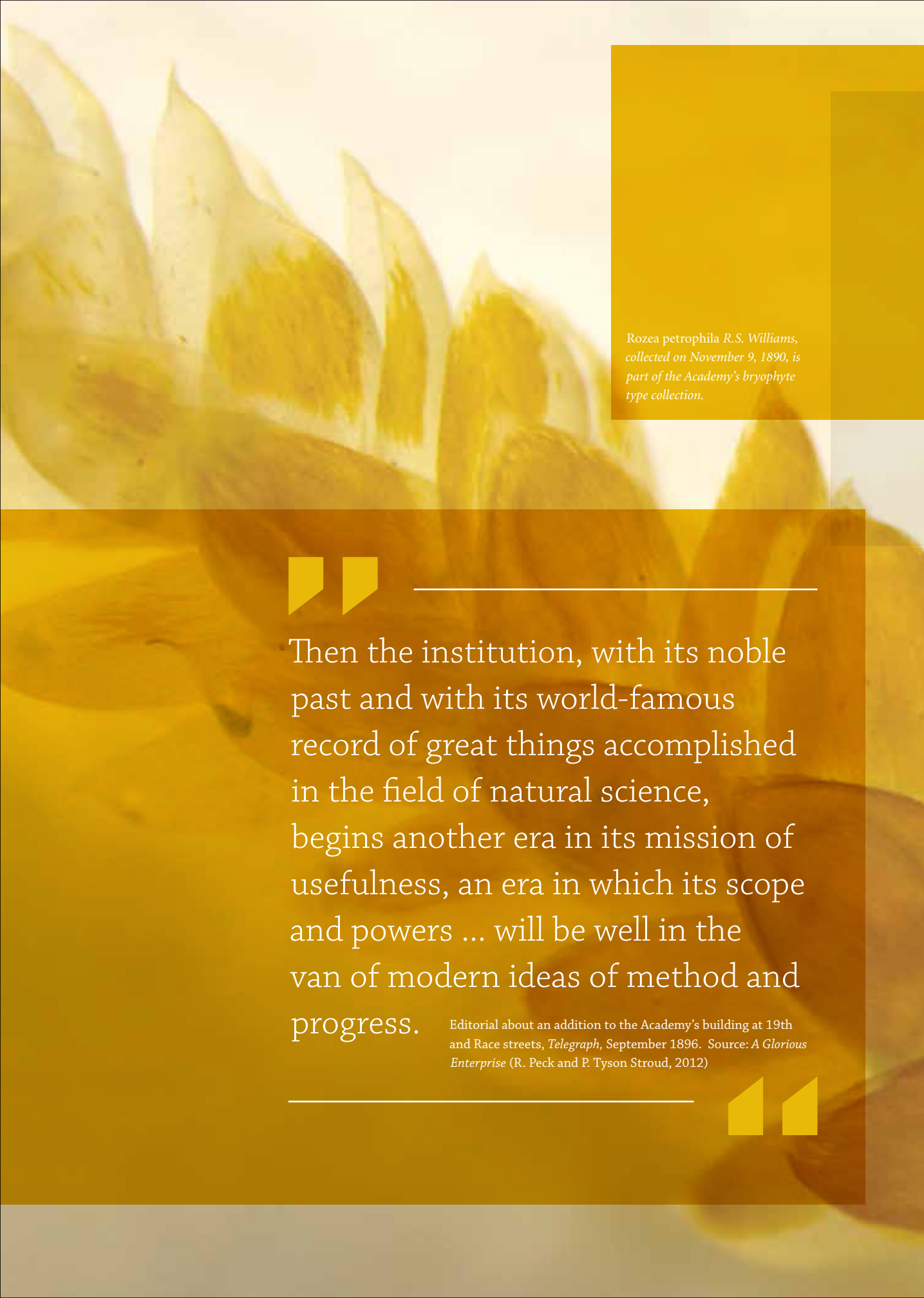




**TELLING OUR STORY**  
**DEFINING OUR FUTURE**

2012/2013 ANNUAL REPORT

**THE ACADEMY**  
**OF NATURAL SCIENCES**  
*of DREXEL UNIVERSITY*



*Rozea petrophila R.S. Williams, collected on November 9, 1890, is part of the Academy's bryophyte type collection.*



Then the institution, with its noble past and with its world-famous record of great things accomplished in the field of natural science, begins another era in its mission of usefulness, an era in which its scope and powers ... will be well in the van of modern ideas of method and progress.

Editorial about an addition to the Academy's building at 19th and Race streets, *Telegraph*, September 1896. Source: *A Glorious Enterprise* (R. Peck and P. Tyson Stroud, 2012)



# DEAR FRIENDS,

The Academy of Natural Sciences of Drexel University began its Third Century in a position of strength. After 200 years of cutting-edge scientific discovery, we were searching for new ways to enhance our programs of research and education, our collection of 18 million scientific specimens, and our public museum. In 2011, we had formed a new partnership with Drexel University to further establish Philadelphia, the birthplace of modern science in North America, as a city central to the advancement of the natural and environmental sciences. While celebrating our Bicentennial, we began mapping our future and envisioning the many collaborative possibilities now conceivable through our affiliation with Drexel.

To plot our course, we embarked on a 10-month strategic planning process. Completed in 2012, the exciting and ambitious new Sustainable

**We advance research, education, and public engagement in biodiversity and environmental science.**

Strategic Plan identifies ways for us to build upon our relationship with Drexel and maintain our leadership in biodiversity and environmental science research. One outcome is our bold new mission statement: *We advance research, education, and public engagement in biodiversity and*

*environmental science.* This mission will guide us in our efforts to become the public stage for science in the Philadelphia region. We will achieve our goals through the creation of innovative exhibits, compelling and fun visitor experiences, and relevant research, all of which work together to help us understand the evolution of life on Earth and how we can sustain our planet for future generations.

*continued on next page...*



ACADEMY DIRECTOR OF VISUAL RESOURCES FOR ORNITHOLOGY (VIREO) Doug Wechsler photographed this white-vented plumeleteer (*Chalybura buffonii*) in Soberania National Park, Panama Province, Panama. This hummingbird lives in the understory and mid-levels of the tropical rainforest and in forest clearings. It is found from Panama to northern South America.

As visitors explore the Academy and interact with our scientists and staff, we hope they'll consider history and sustainability through a scientific lens. But the memories of our past and the stories we have yet to write are meaningful to the future of the Academy as an institution as well. How did the work of past Academy scientists, administrators, and supporters bring us to where we are today? How can we ensure a sustainable future for our research and museum so that we can continue to share our discoveries for centuries to come?

This 18-month annual report offers a chance to review the accomplishments of our Bicentennial alongside the successes and challenges of our first 200 years. With our history as a guide, we are driving our museum toward a sustainable future of financial health, employee engagement, and scientific discovery. We have set our sights high, as expressed by this key vision statement: *The new Academy of Natural Sciences will be the destination in the region to interact with our changing world.*

We implemented this vision in 2012 and 2013 as our scientists guided the first cohort of students in Drexel's Department of Biodiversity, Earth and Environmental Science through coursework and field experiences. We created a breathtaking new exhibit to commemorate our 200th birthday,

The new Academy of Natural Sciences will be the destination in the region to interact with our changing world.

hosted fun collection-themed months and behind-the-scenes tours, celebrated the 30th Anniversary of our WINS program, and launched our bicentennial book, *A Glorious Enterprise*, by Senior Fellow Robert Peck and historical biographer Patricia Tyson Stroud. We traveled

to Mongolia, Vietnam, the Amazon, and other distant destinations to examine the effects of climate change and human intervention on various ecosystems. Closer to home, we examined the effects of Hurricane Sandy on Barnegat Bay and rehoused and renovated our entire Entomology Collection.

As we begin our third century, we extend our warmest gratitude to the members, contributors, volunteers, staff, and visitors who have helped make the Academy a go-to resource in biodiversity and environmental science. We look forward to working with you to advance our museum as we turn the page into our third century.

All the best,

  
**George W. Gephart, Jr.**  
President and CEO

  
**Cynthia P. Heckscher**  
Chair, Board of Trustees



## THE BICENTENNIAL IN REVIEW

**DURING OUR BICENTENNIAL**, the Academy offered an entire slate of programming, from a stunning special exhibit to behind-the-scenes tours that helped our visitors delve into our science and collections like never before. Below are just a few of the highlights.

March 21, 2012, marked the Academy's 200th anniversary. We hosted a major celebration where guests, including distinguished speaker Mayor Michael A. Nutter, had the opportunity to preview the bicentennial exhibition, attend a reception, meet costumed re-enactors portraying famous Academy personalities, and view a laser and light extravaganza.

*The Academy at 200: The Nature of Discovery*, a dynamic yearlong exhibit, incorporated rarely seen artifacts and up-close encounters with Academy science through reconstructions of scientists' research environments. An 80-foot-long specimen wall displayed beautiful, weird, scary, and rarely seen marvels from our storied collections.

A different collection-based theme or field of study was on display at the Academy each month. Visitors built collection boxes, took behind-the-scenes tours, watched scientists at work, and attended monthly Discovery Weekends.

*A Glorious Enterprise: The Academy of Natural Sciences of Philadelphia and the Making of American Science*, the first complete history of the Academy, launched in April 2012. Written by Senior Fellow Robert M. Peck and historical biographer Patricia Tyson Stroud, the book features images by noted photographer Rosamond Purcell.

2012 also marked the 30th Anniversary of Women In Natural Sciences (WINS), our competitive science education, life skills, and mentoring program for young women from Philadelphia public and charter high schools. In June 2012, we celebrated this milestone with a special event held at the Union League of Philadelphia.

Our bicentennial town square series, "New Questions for an Old Planet," explored how human behavior impacts the earth and its natural systems.

The Academy's most prestigious award, the Leidy Medal, was presented to Douglas Futuyma at a special Bicentennial Scientific Symposium, *Biodiversity: From Evolutionary Origins to Ecosystems Function*, held in October 2012.

Cuisine from the Collections, a new annual fundraiser, previewed in October 2012. The fun, fresh experience showcased the Academy's diverse collections through food and drink.

The Academy expanded its reach to new audiences with two off-site exhibits: a display of stunning birds from the institution's Exhibits Collection at the Philadelphia International Airport, and an exhibit featuring art inspired by the natural and environmental sciences at City Hall.

The Academy  
celebrated 200 years  
of discovery with  
365 days of stunning  
exhibits and special  
programming.

# COLLABORATIVE

The Academy and Drexel University affiliation provides real-world experience for students and countless resources for scientists and staff.

## PARTNERSHIP DEVELOPMENTS

The historic affiliation of the Academy of Natural Sciences and Drexel University has been extremely well-received in the community; many view it as a model for other nonprofit and cultural institutions considering collaboration in the new economy. Together, the Academy and Drexel have raised more than \$3.6 million in support of the transition and the new opportunities presented by the affiliation.

### Here are a few ways Drexel students, faculty, and staff helped to enhance the Academy's public experience:

- Adding a soundscape to North American Hall
- Developing a video for the Bicentennial
- Creating a diatom art installation
- Upgrading the gift shop and café
- Helping us launch a new and improved website, [ansp.org](http://ansp.org)
- Building a smartphone and tablet app for Academy visitors
- Displaying images of our bicentennial exhibit on Drexel shuttle buses

### The Academy has taken many steps to enrich the learning environment at Drexel. Below are just a few examples:

- Contributing staff expertise in Drexel's new Department of Biodiversity, Earth and Environmental Science
- Creating student co-op positions across the institution
- Helping students develop field skills during expeditions to Barnegat Bay and Mongolia
- Opening our collections to students of science, art, and the humanities
- Providing speakers for Drexel events and classes
- Providing articles and information for Drexel communications materials



## BEES: A STUNNING SUCCESS

Drexel University student Emily JoÚson has always been passionate about nature, but a field trip to the Barnegat Bay Field Station in Ocean Township, New Jersey, completely changed the way she saw her relationship with the natural world. In just three short days, she found herself knee-deep in a bog, collected plants in the New Jersey Pine Barrens, and plunged into the bay to sample crabs.

Johnson is one of nine environmental science majors who spent the beginning of the 2012–2013 academic year far away from the pre-term campus festivities. As members of the initial cohort to enter the University's new Department of Biodiversity, Earth and Environmental Science (BEES), she and her peers benefitted instantly from the program's determination to place fieldwork at the center of each student's learning experience.

"Seeing yourself as a consumer of plants and animals and a producer of waste, and seeing yourself as an organism that is part of the whole biosphere makes you feel much more valuable," JoÚson says. "I think people need to pay attention to that and realize that you're also a much different organism from other ones, and you're much more damaging and harmful."

A product of the affiliation of the Academy of Natural Sciences and Drexel, BEES provides students a comprehensive understanding of the environment through interdisciplinary education and research. As of the 2013–2014 academic year, the department is offering undergraduate majors in environmental science, geoscience, and environmental studies, as well as master's and doctoral degrees, through Drexel's College of Arts and Sciences.

Led by Department Head and Vice President of Academy Science David Velinsky, BEES professors help students develop expertise in everything from systematic biology and paleontology to aquatic and terrestrial ecology and conservation. Joined under the motto, "Field Experience, Early and Often," these scientists are working to cultivate environmental advocates at a crucial time in our planet's history.

The BEES Department began with a cohort of nine environmental science majors. With students transferring from other majors and the addition of the undergraduate environmental studies and geoscience majors, the Department had grown to nearly 130 students by the beginning of its second year.



# educate

With live animals, specimens, and experts, the Academy's public programs make natural science accessible to people of all ages, education levels, backgrounds, and abilities.

**THE ACADEMY'S PUBLIC PROGRAMS** inspire schoolchildren, families, and adult visitors to develop a genuine, sustained interest in exploring the natural world. Whether our educators are introducing schoolchildren to our live animals, hosting exciting festivals and special weekends for families, or guiding an adult field study group through the Pine Barrens, we strive to spark questions about nature and the environment. In fiscal year 2013, the Academy increased general admission by 10 percent and served more than 75,000 schoolchildren through outreach programs. More than 10,000 people attended our four annual festivals.



## ADDITIONAL HIGHLIGHTS FROM 2012 AND 2013:

All 2013 graduates from the Women In Natural Sciences (WINS) program, our competitive science education, life skills, and mentoring program for young women from Philadelphia public and charter high schools, are attending college. Thanks to her hard work in WINS, one senior is studying in Drexel's Department of Biodiversity, Earth and Environmental Science—a department formed as a result of the Academy's historic affiliation with Drexel University.

Award-winning Philadelphia game developer Cipher Prime visited the Academy during the Philadelphia Science Festival for a collaborative program highlighting games made for individuals on the autism spectrum.

The Philadelphia Geek Awards, hosted with popular blog Geekadelphia, drew 525 adults and recognized achievements in science, art, social media, engineering, and more during its annual black-tie event.

Students from the Academy's Women In Natural Sciences program seine the bay near Cape Henlopen, Delaware.



## TIME CAPSULE

### JODIE THE COATI

Our white-nosed coati (*Nasua narica*) came to the Academy in 2001 when she was less than one year old. Wildlife authorities found her on the streets of New Jersey, and she received treatment for starvation and dehydration before she found a permanent home in the Academy's Live Animal Center. Native to southeast Arizona, Mexico, and parts of Central and South America, coatis are powerful, inquisitive animals with sharp claws and canine teeth. Jodie's caretakers think she may have been an illegal pet that escaped or was released by her owner. Now she charms visitors with her cleverness and cuteness during live animal shows and outreach programs.

## ACCESS TO SCIENCE

On a Saturday in June 2013, our doors opened early for 180 specially invited guests. Armed with visual maps and museum schedules, they were attending the museum's first Access to Science event, designed to help guests on the autism spectrum and their families have an educational and stress-free morning to gaze at dinosaur skeletons, animals, and butterflies.

This Access to Science event was part of an ongoing project called CATAAlysis (Changing Attitudes Towards Autism Access). The Institute of Museum and Library Services awarded a grant to the Academy of Natural Sciences, the New Jersey Academy of Aquatic Sciences, and the University of the Sciences in Philadelphia to undertake CATAAlysis. The goal of this project is to improve access to museums, workshops, and volunteer opportunities for individuals on the autism spectrum. In the coming months and years, education staff plan to provide Academy-wide staff training for working with visitors on the autism spectrum. Staff members also hope to make museum stories available as phone and tablet apps and share successful tools with other museums.

# inspire

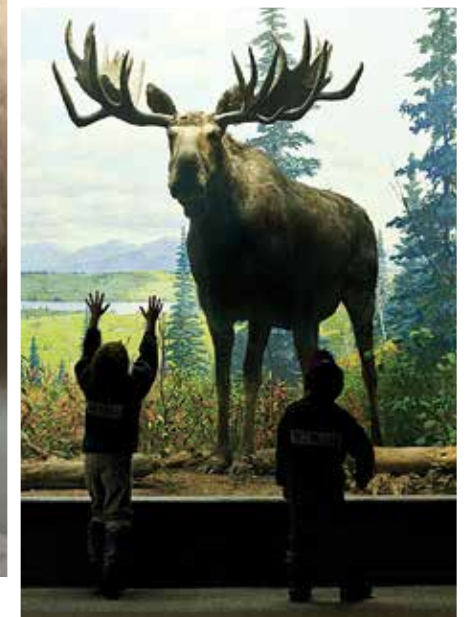
New and signature exhibits immerse visitors in the natural world, providing opportunities for interactive, hands-on learning.



*Scamandra thetis* (Stål) [Hemiptera: Fulgoridae]

**THE ACADEMY BRINGS** natural science to life through three floors of signature exhibits, including dinosaurs and other ancient creatures, *Butterflies!*, *Outside In*, our children’s nature discovery room, live animals, and classic dioramas. To celebrate 200 years of discovery, the Academy, together with exhibit designers Remer and Talbot, created *The Academy at 200: The Nature of Discovery*. The exhibit featured a beautiful 80-foot-long wall of Academy specimens and artifacts, immersive environments that brought visitors face-to-face with current Academy field research, and authentic touchable items.

In 2012 and early 2013, the Art of Science Gallery displayed noted photographer Rosamond Purcell’s images of Academy specimens taken for our bicentennial book, *A Glorious Enterprise*; photographs from the Academy’s Visual Resources for Ornithology (VIREO), the most comprehensive bird image bank in the world; and life-size watercolor paintings of ocean fishes by renowned artist and author James Prosek. In February 2013, *Drawn to Dinosaurs* featured a life-size chalk drawing of *Hadrosaurus foulkii* alongside a full cast skeleton. *Hadrosaurus* was discovered in 1858 in Haddonfield, N.J., by an Academy member and later reconstructed by the artist Benjamin Waterhouse Hawkins based on Academy research. In 1868, the Academy unveiled *Hadrosaurus*, the world’s first fully mounted dinosaur to be displayed in a museum.



## SECRETS REVEALED

*Secrets of the Diorama*, a signature exhibit created entirely in house, opened February 4, 2012. Plans for the exhibit were underway as early as 2011 when a series of adult education classes revealed attendees’ intense fascination with the expeditions, taxidermy, and artistry that went into building our dioramas.

Academy experts in exhibit development, exhibit design, graphic design, exhibit fabrication, writing, and audiovisual technology came together to create a one-of-a-kind display that allows visitors to experience the dioramas with fresh eyes. The permanent exhibit is the first at the Academy to combine lush, large-scale graphics that help tell the story of our dioramas with touchable items, such as tongues and eyeballs; interactive taxidermy learning opportunities; taxidermy tools; a video and a slideshow on diorama history; and more.

## TIME CAPSULE

### ANTLER SWAP

Look closely at the Academy’s moose—the body belongs to one animal, and the antler rack belongs to another. Back in the early 1930s, New York’s American Museum of Natural History and Chicago’s Field Museum had impressive moose mounts on display. The Academy wanted an equally outstanding specimen, so in 1933, Academy benefactor Nicholas Biddle traveled to Alaska in search of such a moose. The one he collected was very good, but its antlers were a tad smaller than the moose antlers at the other two museums.

The taxidermist commissioned to mount the moose, Louis Paul Jonas, and the Academy’s Director of Exhibits, Harold Green, found a larger pair and secured them to the head of the moose. When the diorama opened in 1935, we could confidently say that the Academy had the largest moose mount on display in North America. The mount stands today in North American Hall.



# collect

Globe-trotting scientists bring back evidence of new species and preserve specimens for future generations.

**ACADEMY SCIENTISTS** conduct research around the world, collecting specimens that help them document biodiversity, trace evolution, and track environmental changes over time. Through festivals, Members' Night, behind-the-scenes tours, and popular publications, these scientists share their discoveries, enabling their colleagues, visitors, and members to gain further insight into life on Earth and how to sustain it in the future.

In the past 18 months, our scientists produced more than 50 peer-reviewed publications. They also continued cultivating our collections and traveling outside the museum for research on dozens of field trips and expeditions. Academy Senior Curator of Entomology and grasshopper expert Dan Otte described 80 new *Melanoplus* species from the United States—an extraordinary feat published in *Transactions of the American Entomological Society*.

*Melospiza (Hirundinidae: Corvidae), Drosophila (Drosophilidae: Drosophilidae), Crotalaria (Fabaceae: Papilionales)*

*Eupholus schoenherrii*  
(Guérin-Ménéville)  
[Coleoptera: Curculionidae]



## HERE ARE JUST A FEW ADDITIONAL EXAMPLES OF OUR WORK:

- In summer 2012, Academy entomologists, fisheries biologists, and watershed scientists conducted interdisciplinary research on Mongolia's biodiversity and the impacts of climate change. The Mongolian Aquatic Insect Survey continued an ongoing project dedicated to the research and inventory of the country's aquatic insects and their habitats.
- Our Ichthyology Department spearheaded a collaborative effort to sample the fish in Brazil's Xingu River, thanks to a National Science Foundation grant. A huge dam to be built in the near future threatens the unique ecosystem.
- The Malacology Department began to create digital images of many irreplaceable specimens thanks to a grant from the National Science Foundation. A remarkable new imaging facility and a new scanning electron microscope purchased with the Academy's Hattersley Family Collections Care Upgrade Fund will enable the Academy to make many images available online.



IN A RIVER DRAINING MONGOLIA'S HANGAY PLATEAU, scientists set an eight-foot seine to catch minnows, loaches, and graylings. The fishes' genetic differences are helping geologists assess the timing of the plateau's uplift. Dr. Tamra Mendelson (center, University of Maryland, Baltimore County) invited Academy ichthyologist Dr. Mark Sabaj Pérez (right) to assist the project because of his extensive knowledge of Mongolian fishes.

## ENTOMOLOGY REHOUSES COLLECTION

Until recently, the Academy's approximately 4 million insect specimens were stored in cabinets built during the 1970s. At the time, the compact, wooden cabinets offered room for growth, but they did not provide ideal protection for the specimens from pests and the environment, and the thick wooden shelves limited the storage space. Scientists soon struggled to find specimens in the growing collection. To address these problems, in 2012 and 2013 our entomologists undertook an extensive rehousing and inventory project funded by the National Science Foundation and the Institute of Museum and Library Services.

Entomologists transferred specimens into new boxes, identified and labeled them, and pinned them into place. These specimens were then placed into state-of-the-art, temperature-controlled cabinets that will prevent any light, pests, and moisture from damaging the specimens. The cabinets are made of thin steel, freeing up 15 to 20 percent more space for new specimens. Entomologists also recorded insect data in an online resource that will allow naturalists to easily locate specimens and examine our collection online.

## TIME CAPSULE

### ERNEST HEMINGWAY'S FISH

In 1934, Academy Managing Director Charles M.B. Cadwalader requested the aid of writer and skilled fisherman Ernest Hemingway for an important research project in Cuban waters. The Academy's Chief Ichthyologist, Henry W. Fowler, headed the Gulf Stream Marine Test of 1934–1935, and Hemingway, who had become an Academy member in 1929, jumped at the chance to assist.

The research project studied the life histories, migrations, and classifications of Atlantic marlin, tuna, and sailfish. In August 1934, Fowler, Cadwalader, and Hemingway spent a month on Hemingway's boat the *Pilar*, catching, measuring, and classifying numerous fishes. Correspondence between Cadwalader and Hemingway after the trip illustrates that the latter party's assistance enabled Fowler to more accurately classify the marlin of the Atlantic Ocean. More than 40 letters between Cadwalader, Fowler, and Hemingway are housed in the Academy's Archives, and the Academy's Ichthyology Collection holds several of Hemingway's game fish specimens.



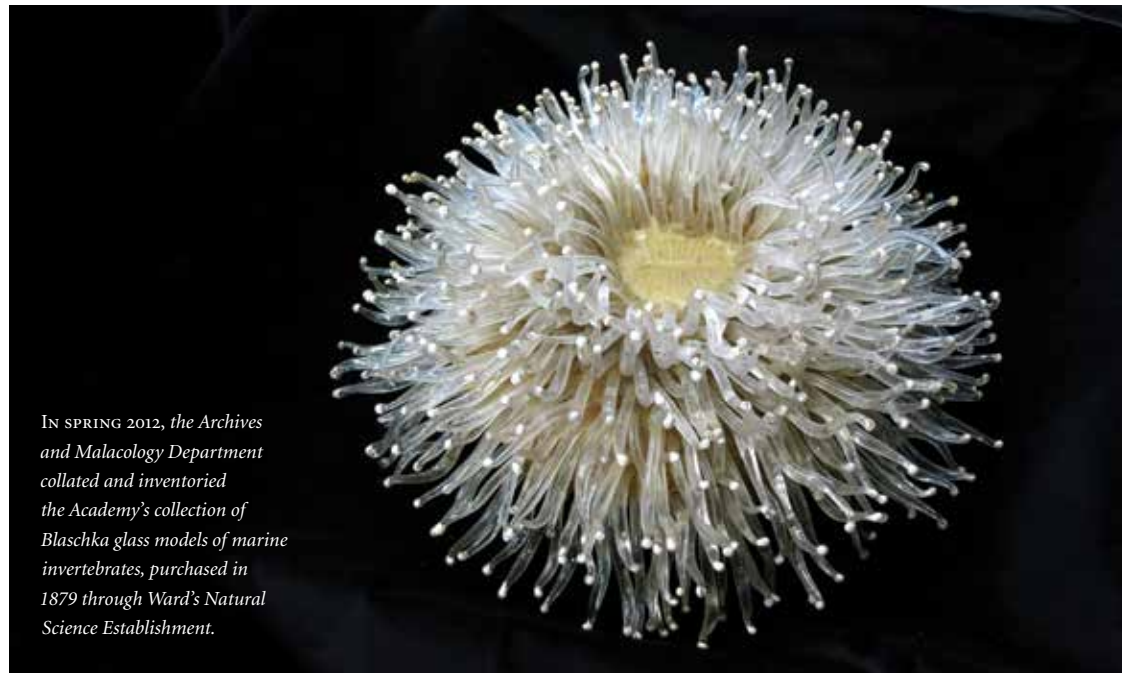
# preserve



Pages and pages of stories, plus rare artifacts, hold court in the Academy's Library and Archives—and they have a lot to tell us about our past and present.

**THE ACADEMY LIBRARY AND ARCHIVES** is internationally recognized for its rare and historic books, journals, art, artifacts, manuscripts, photographs, and the unique papers and research of Academy members and staff. The Library holds more than 250,000 titles that span five centuries. Our Archives collections contain over a million items, including manuscripts, correspondence, field notebooks, films, journals, and photographs.

In 2012, the Library and Archives increased visitation by 58 percent. Book conservator Nancy Nitzberg completed the restoration of the prized first-edition copy of our 1777 Cook Atlas. We also began plans to process the extensive Ruth Patrick papers through a Philadelphia Area Consortium of Special Collections Libraries (PACSCL) project, *Uncovering Philadelphia's Past: A Regional Solution to Revealing Hidden Collections*. This work is supported by a grant from the Council on Library and Information Resources & Andrew W. Mellon Foundation and is hosted by the University of Pennsylvania.



In spring 2012, the Archives and Malacology Department collated and inventoried the Academy's collection of Blaschka glass models of marine invertebrates, purchased in 1879 through Ward's Natural Science Establishment.

## MOVING PICTURES

To the Academy Library, the situation was win-win: the Exhibits Department had been preparing a new permanent display called *Secrets of the Diorama* and was looking for classic footage of the art of taxidermy, background painting, molding and casting, and related skills. The Academy Archives, home to about 400 reels of film, holds a fantastic piece of history in its 16-mm film, *To Africa for a Habitat Group: 1955 Carpenter Expedition*. The content was perfect for the exhibit, but the film was badly in need of restoration.

The catch? Only that it costs about \$4,000 to professionally clean, properly restore, and digitize just one reel. The Library and Archives and Exhibits Department brought together departmental funds to bring our classic Academy film into an accessible digital format. Now the restored, hour-long DVD is cataloged in the Library and readily available to anyone intrigued by this collecting expedition. A seven-minute version showing the expedition, fabrication, taxidermy, and artistry behind the Desert of Borkou diorama is now on display in the exhibit.



Film stills from *To Africa for a Habitat Group: 1955 Carpenter Expedition*, restored for the *Secrets of the Diorama* exhibition. ANS Archives Coll. 2012-11



## TIME CAPSULE

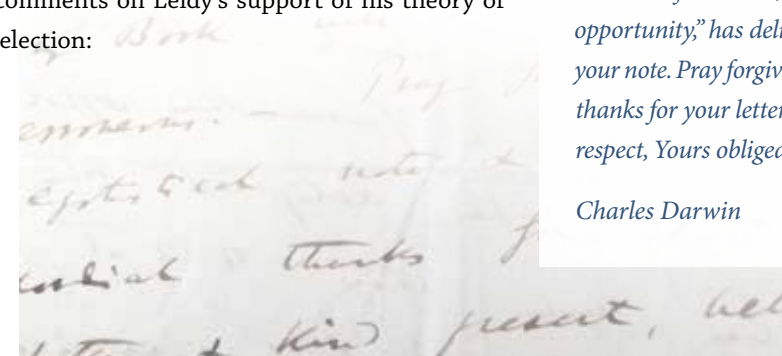
### CORRESPONDING WITH DARWIN

Dr. Joseph Leidy (1823–1891), the preeminent scientist of his time, was an expert in fields as diverse as vertebrate paleontology and parasitology. As an Academy curator for decades and Academy president from 1882 until his death, he corresponded with a diverse group of scientists whose nearly 3,000 handwritten letters remain in the Academy Archives. One of Leidy's most legendary correspondents is the father of evolutionary theory, Charles Darwin. Darwin comments on Leidy's support of his theory of natural selection:

March 4, 1860

*Dear Sir, Your note has pleased me more than you could readily believe; for I have during a long time heard all good judges speak of your palaeontological labours in terms of the highest respect. Most palaeontologists (with some few good exceptions) entirely despise my work; consequently approbation from you has gratified me much. Your sentence that you have some interesting facts "in support of the doctrine of selection, which I shall report at a favourable opportunity," has delighted me even more than the rest of your note. Pray forgive this egotistical note and with cordial thanks for your letter... Believe me Dear Sir, With sincere respect, Yours obliged,*

Charles Darwin

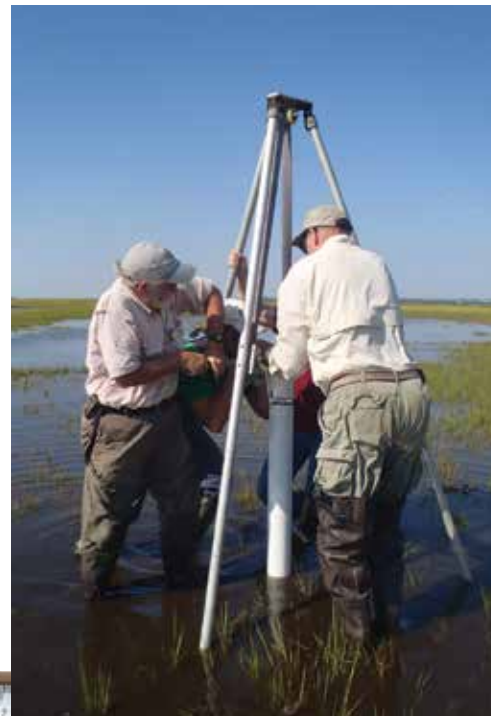


# explore and evaluate

**FOR DECADES**, the Academy has been at the forefront of environmental research. Academy scientists research, monitor, and evaluate water quality in the northeast corridor and farther afield; analyze water and sediment samples; and study life within aquatic ecosystems. In 2012, fisheries and watershed scientists traveled to Mongolia to study how climate change has affected stream health and ecology. Closer to home, the Academy's Patrick Center was awarded a significant grant from the William Penn Foundation to continue to evaluate the potential ecological impacts of Marcellus Shale drilling activities on small streams in northeast Pennsylvania.

During our bicentennial Town Square series, the Academy explored the influence of human activities on the planet. Topics included climate change, energy, and population; food and public health; water; and green building. Internationally known consumer activist and nutritionist Dr. Marion Nestle discussed the politics around food processing, marketing, and sales in the U.S., and noted biologist and environmental advocate Sandra Steingraber explored the links between environmental toxins and human health.

From communicating potential health effects of environmental toxins to exploring impacts of Hurricane Sandy, the Academy's environmental programs and research studies dig deeply into critical real-world problems.



Academy fisheries biologists traveled to Lake Hövsgöl, Mongolia, in summer 2012 to study how fluctuating water conditions linked to climate change affect breeding and growth rates of Hövsgöl grayling.



## HURRICANE SANDY HITS NEW JERSEY WETLANDS

Tracy Quirk has spent years monitoring changes in wetland elevations at sites in New Jersey's Barnegat and Delaware Bays. The Academy wetland scientist and assistant professor in Drexel's Department of Biodiversity, Earth and Environmental Science looks at changes in plant communities, plant biomass, and soil and water chemistry to understand wetland health and how human activities contribute to wetland changes. Her goal is to understand whether wetlands, which are crucial to protecting communities from storms, will be sustainable given projected rates of sea level rise.

The recording instruments she uses to track these variables were at work when Hurricane Sandy crashed into the Jersey coast in October 2012, logging water levels throughout the storm. Combined with data collected before and after the storm, the data will shed new light on how storms like Sandy can impact the sustainability and function of wetlands. The information will be invaluable to residents of the Jersey coast and other seashore communities.

## TIME CAPSULE

### REMEMBERING DR. RUTH PATRICK (1907–2013)

In the book *A to Z of Biologists*, you'll find the entry on Dr. Ruth Patrick sandwiched between Louis Pasteur and Linus Pauling.

They are in good company. Dr. Patrick's pioneering research, begun in the 1940s, led to the development of the Patrick Principle, the fundamental principle on which all environmental science and management is based. Dr. Patrick proved that biological diversity holds the key to understanding the environmental problems affecting an ecosystem.

Born in Topeka, Kansas, in 1907, Ruth Patrick spent most of her childhood in Kansas City, Missouri. Her interest in the natural sciences was shaped by her father's passion for the natural world. As a young girl, she accompanied her father and sister on collecting excursions into nearby woods. She went on to earn a degree in biology from Coker College, South Carolina, in 1929, and advanced degrees from the University of Virginia.

Throughout her long and distinguished career at the Academy of Natural Sciences (which began in the early 1930s), Dr. Patrick pioneered the study of freshwater and the organisms that depend on it. She positively affected the quality of life of both humans and wildlife



by providing policymakers with accurate information about the environment and the benefits derived from its protection. Dr. Patrick mentored generations of young scientists and served as a remarkable role model for women eager to establish professional careers in the natural sciences.

On September 22, 2013, we learned with great sadness of the passing of Dr. Patrick at age 105. She will continue to inspire us for generations to come. Her friends and colleagues at the Academy extend their deepest sympathy to her family.



Entering its third century, Philadelphia's natural history museum received international press coverage, a surge in social media following, increases in contributions, and even kudos from its youngest supporters—Academy Kids Club members.

**THE ACADEMY'S INSTITUTIONAL ADVANCEMENT DEPARTMENT** spent 2012 and 2013 working to enhance the Academy's reputation and support the efforts of our scientists, educators, and museum. The Academy earned Charity Navigator's coveted 4-star rating in April 2013, recognizing the institution's fiscal health and commitment to transparency and accountability. In fiscal year 2013, the cost to raise a dollar was an excellent 12 cents. In 2012 and 2013 we caught the attention of the international press, with coverage of the Academy's Bicentennial in *The New York Times*, *The Wall Street Journal*, *International Herald Tribune*, and other major publications.

On the eve of the Bicentennial, we launched a redesigned website featuring eye-popping graphics, smooth navigation, information about sustainability, and breaking news and events. In Membership, the Academy rolled out a host of new benefits, including the Academy Kids Club, which attracted more than 2,700 members by June 2013. We were ranked America's number two science museum by American Mensa, an organization open to anyone who scores in the top 2 percent on an accepted, standardized intelligence test.

In fiscal year 2013 we raised more than \$4.9 million in philanthropic support, including unrestricted contributions, bequests, and memberships, and private support for research and education.

**ADDITIONAL FISCAL YEAR 2013 HIGHLIGHTS INCLUDE:**

- 8 percent increase in annual fund giving
- 10 percent increase in restricted/endowment giving
- 31 percent increase in membership households
- 33 percent increase in corporate partners
- 74 percent increase in Twitter followers
- 85 percent increase in likes on our Facebook page

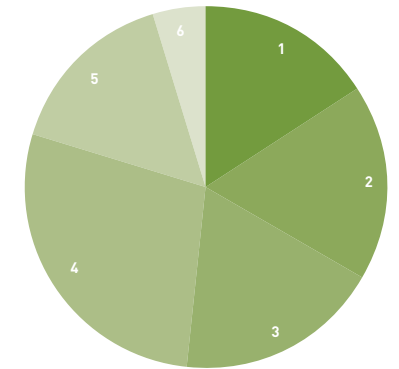


**Financials**

(As of June 30, 2013)

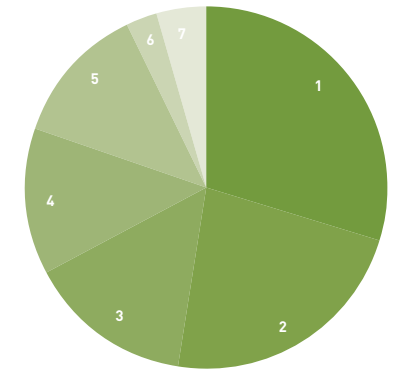
**Revenue and Support Fiscal Year 2013**

1. Admissions, Sales, and Fees	\$ 2,510,757
2. Contributions, Bequests, and Memberships	2,796,139
3. Endowment Income	2,894,970
4. Research and Education Funding	4,431,978
5. Net Support from Parent: Drexel University	2,441,352
6. Other Income	734,920
<b>Total Revenue</b>	<b>\$ 15,810,116</b>
Investment Activity	2,813,100
<b>Total Revenue and Support</b>	<b>\$ 18,623,216</b>



**Expenses Fiscal Year 2013**

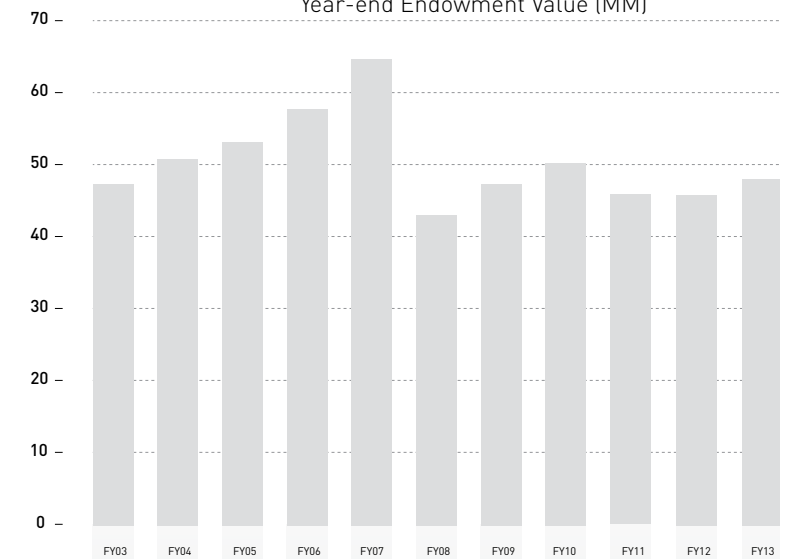
1. Collections and Research	\$ 3,711,791
2. Education and Exhibits	2,821,793
3. Building	1,823,174
4. Fundraising and Communications	1,608,415
5. General and Administrative	1,562,488
6. Depreciation and Other	357,645
7. Library	526,882
<b>Total Expenses</b>	<b>\$ 12,412,188</b>



**Endowment Growth (in millions)**

2003	\$ 47.463
2004	51.066
2005	53.230
2006	57.827
2007	64.743
2008	43.115
2009	47.439
2010	50.024
2011	45.794
2012	45.681
2013	\$ 48.096

Year-end Endowment Value (MM)



**Net Assets Fiscal Year 2013**

Beginning of Year	\$ 67,316,966
End of Year	73,527,994
<b>Change in Net Assets</b>	<b>\$ 6,211,028</b>

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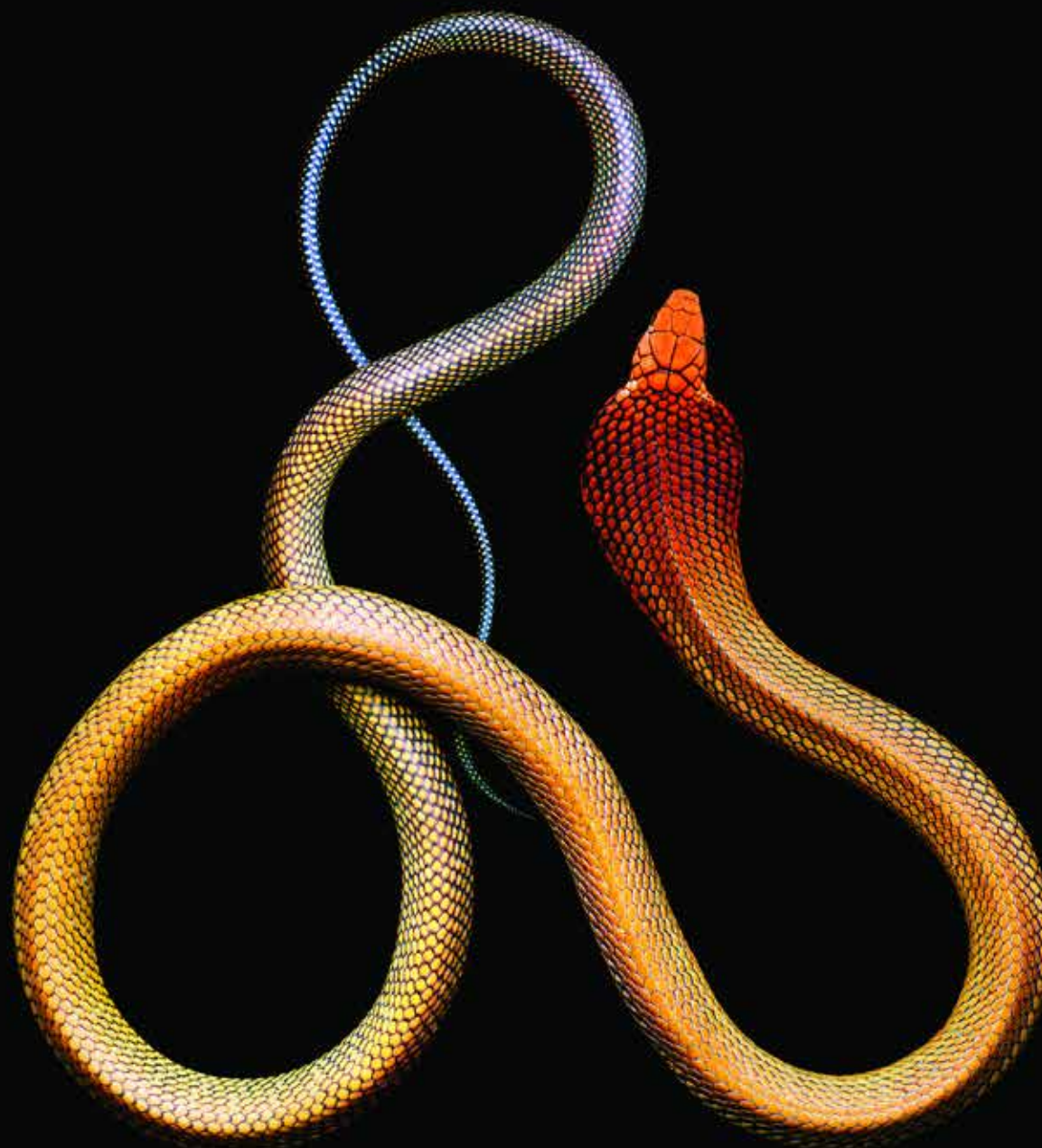
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*January 2012–June 2013*

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