



# SCIENCE MATTERS



The Academy of  
Natural Sciences  
of DREXEL UNIVERSITY

Annual Report  
2017/2018



—

*Our work is  
driven by a  
desire to provide  
meaningful  
solutions  
to real-world  
problems.*

—

*Dear Friends,*

In a world where real science is increasingly called into question, the Academy of Natural Sciences of Drexel University remains dedicated to the prioritization and advancement of rigorous scientific research and education. Science matters — to our everyday lives, to our children and grandchildren and to the future of our planet. By caring for and developing our scientific collections, Academy scientists create a firm foundation for research on a host of issues affecting the natural world. Our research has relevant, real-world implications, from measuring water quality to identifying disease vectors and beyond. As we share our discoveries, we strive to help citizens, educators and policymakers alike make informed decisions about issues that impact ecosystems throughout the world.

The Academy is committed to building knowledge and applying our learnings to ensure a healthy future for life on Earth. Our work is driven by a desire to provide meaningful solutions to real-world problems in ways that create measurable impact. In this annual report, you’ll learn more about how our scientists are spearheading innovative research into watershed ecology, how we are advancing care of our collections and how our programs are enabling members of our community to become deeply involved in our work. We hope you will take the time to explore our work more closely through in-person learning opportunities with our scientists, museum programming and more.

In addition to incredible scientific exploration, our past year brought to fruition an energetic strategic planning process. We posed essential questions about how the Academy can create a diversified slate of programs to better connect with our audiences — including those whom we’ve not yet reached — to realize our greatest value for the future. We sought ways to integrate the perspectives of those we serve by examining our role as a broker for difficult conversations around complex scientific issues. Further, we explored how we can engage locally, regionally and internationally to help people understand the complexity of the natural world and inspire them to become environmental stewards. We are excited to share our plan with you, our most loyal supporters, later in the spring.

We thank you for enabling us to continue to deliver robust, science-based knowledge in our community and well beyond.

Regards,



Scott Cooper  
President and CEO



Peter A. Austen  
Chair, Board of Trustees





SCIENCE  
MATTERS

# SCIENCE LEARNING IS OUR FUTURE

At the Academy of Natural Sciences, we strive to share our love of the natural world with our community, seeking to engage and enlighten through fun, interactive programs and exhibits focused on the natural world.



## WINS Receives Highest Honor

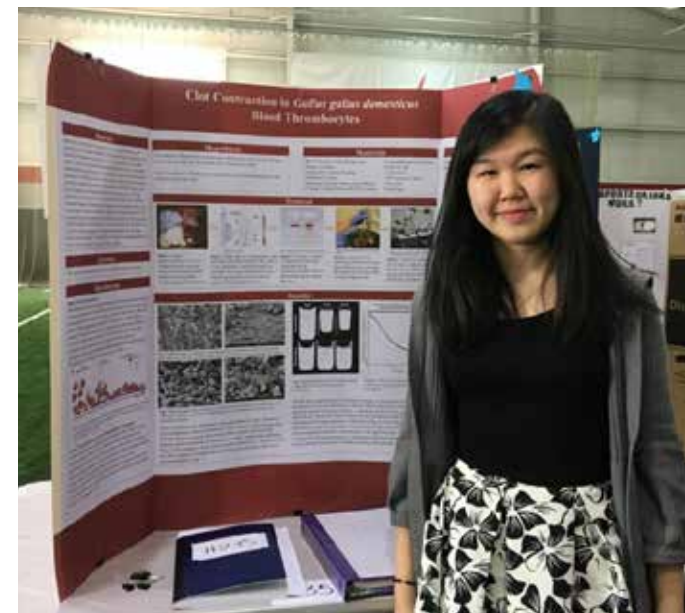
---



*Women In Natural Sciences (WINS) is the Academy of Natural Sciences' free summer and after-school mentoring and science enrichment program for high school women, particularly from underrepresented families and economically challenged schools in Philadelphia. The only program of its kind in the city, WINS encourages young women to pursue science, technology, engineering and math (STEM) in college and as a career.*



Last summer, WINS was thrilled to receive the prestigious *Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring Program* — the highest United States accolade for STEM mentoring — in recognition of its outstanding work. These awards, which recognize “outstanding efforts of mentors in encouraging the next generation of innovators and developing a science and engineering workforce that reflects the diverse talent of America,” are bestowed by the White House Office of Science and Technology Policy with the National Science Foundation. We are deeply honored to accept this amazing recognition.



In many ways, admission to the WINS program guarantees a lifetime of mentorship. Students bond with peers who support each other through life's ups and downs, receive guidance from empathetic staff and are automatically connected to a network of experienced alumnae. For Lynn Larabi, a sophomore at Central High School in the WINS II program, WINS helped her discover that she wants to fight for environmental equality and help people better their communities. Her WINS interactive learning experiences have given her the opportunity to apply what she learns in the classroom to the outside world.

*“Seeing a program that advocates for women to go into these male-dominated STEM fields was a big opportunity.”*



“Seeing a program that advocates for women to go into these male-dominated STEM fields was a big opportunity,” Larabi said. “As a first-generation [future college] student as well, I’m seeing a program that introduces me to all of these opportunities and [am] surrounded with people who love the same things that I do. It’s very encouraging.”





On Wednesday, May 9, 2018, WINS students gathered with Academy supporters and friends for a special event to commemorate 35 years of the program's success. During this special evening, Lisa Dyson, PhD, Founder and CEO of Kiverdi, received the first-ever WINS award to recognize an "outstanding female innovator in science, technology, engineering and math whose visionary contributions in science have made a positive impact on the world." More than 70 current and former WINS students attended the reception and presentation, helping pay tribute to Dyson and the success that WINS has had in creating a pipeline of women in STEM fields.

## SCIENCE MATTERS



**35**

*years of success for the Women In Natural Sciences program*

**65**

*students employed at the Academy through Drexel University's Cooperative Education program*

**23,606**

*hours of service contributed by 374 volunteers*

**2,000**

*wands made for Wild Wizarding Weekend*

**1,000**

*cricket cookies eaten by our visitors*

**28,542**

*schoolchildren visiting the Academy during field trips*

## Early Childhood Milestones

Through our partnership with Drexel University, the William Penn Foundation, the Institute of Museum and Library Services and Boeing, we have provided inquiry-based STEM professional development to over 100 early childhood educators mostly in the West Philadelphia promise zone. We have engaged over 2,000 students in age-appropriate STEM and literacy activities in their classrooms and community centers, with the Academy providing over 20 hours of direct instruction to each classroom. We held 12 hours of intensive STEM/Literacy family learning workshops, given in English and Spanish, in the community; four parent/caregiver STEM workshops per year; and three free Family Days at the museum where every family receives a special STEM/literacy learning kit to take home.





SCIENCE  
MATTERS

# **CLIMATE CHANGE IS HAPPENING NOW**

The earth is warming and climates are changing at an unprecedented rate — largely because of human activity. Because climate change has the potential to disrupt human and natural ecosystems, the Academy will continue its critical research to understand environmental conditions, processes and their impacts, as well as climate adaptation and mitigation strategies.



## Viewing Dioramas Through the Ecosystem Lens

*Throughout spring 2018, conservators, artists, taxidermists and other experts renovated two of the Academy's most important habitat dioramas thanks to generous contributions from our supporters.*



With a significant gift from the E. Rhodes and Leona B. Carpenter Foundation, the Academy restored the diorama of the Takin, a large mountain goat collected in 1931 from a richly diverse natural area on the Sichuan/Tibet border during an expedition led by Philadelphia-area naturalist/adventurist Brooke Dolan II. From the

Vandy Charitable Foundation, we received support to renovate the Gorilla habitat diorama, collected during George Vanderbilt's 1934 African Expedition. Our team also renovated the diorama labels, adding graphics and digital highlights that enable visitors to explore the entire habitat along with the featured animal.



Working alongside specialized art conservators, Academy Exhibition Designer Lauren Duguid spent most of her spring and summer cleaning plant models inside the dioramas. She cleaned every plant she could safely reach, including the branches and real leaves in the leaf litter. She repaired damage, dusted a background mural, washed rocks, rewired broken and sagging branches, collected new region-specific leaf-litter, vacuumed tree trucks and repainted certain plants. She is most proud of the paint job she did on the marble berries in the Gorilla diorama (below), which had an original color that looked far too dark in the scene. She repainted each berry, stained it with indigo and then covered it with a thick gloss coat.



*Now, the color  
feels electric.  
They're tiny  
superstars in  
that scene.*



"Now, the color feels electric," Duguid says. "They're tiny superstars in that scene." Gorillas and birds eat these berries, which are as much a part of the ecosystem as the gorillas. This is the first time that the Academy has highlighted the non-animal species in any of our dioramas.

"If visitors compare the before and after images, they'll notice how much more lush the spaces look overall. With the new lighting and that haze of dust cleared away, the scenes feel more alive," Duguid says.



7

*taxidermy  
specimens cleaned  
and re-dyed*

180

*fragile rhododendron  
blossoms cleaned  
by hand with  
cotton swabs*

8

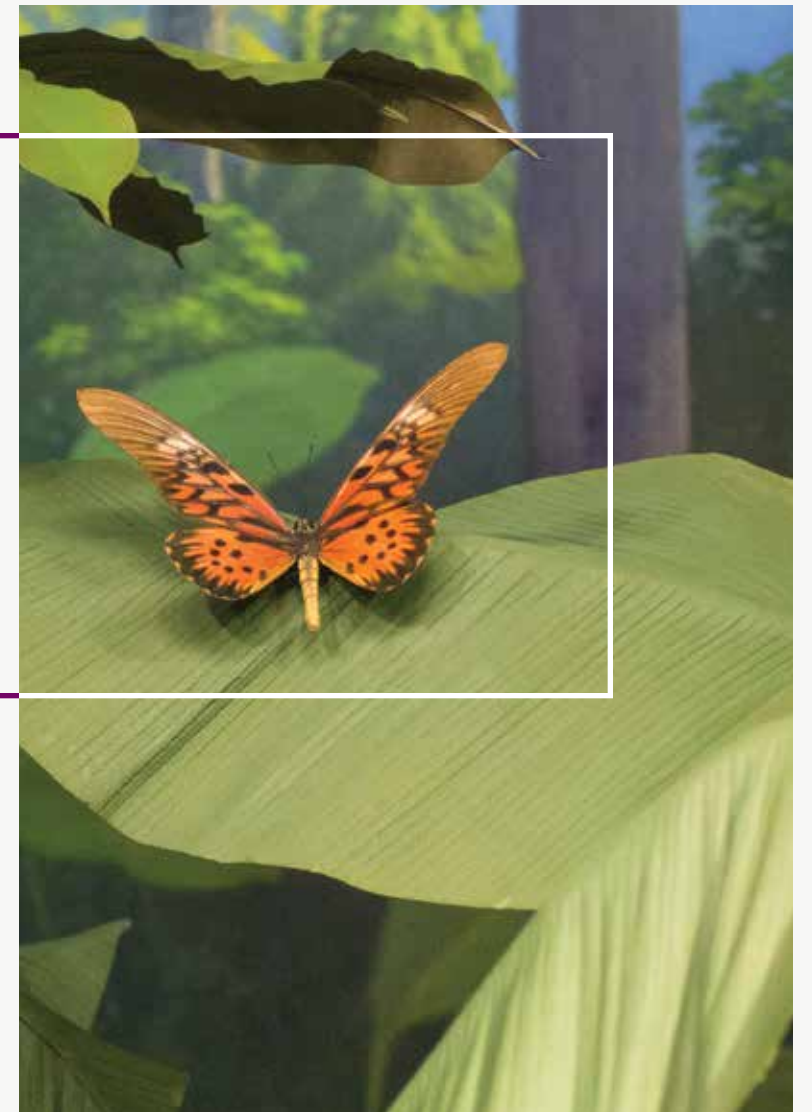
*garbage bags full of  
fresh rhododendron leaves  
collected, dried, frozen,  
painted and installed in  
the Takin diorama*

500

*protective suits worn  
during the diorama  
cleaning process*



## SCIENCE MATTERS



## Using Dioramas to Understand Climate Change

Dioramas preserve a snapshot of a specific location at a recorded time. The Academy can use these scenes to prompt conversations about alterations in biodiversity and habitat due to climate change or other impacts. The new interpretive graphics invite visitors to explore the animals, plants and ecosystems depicted in these captivating scenes and to think critically about how humans are impacting our environment.







SCIENCE  
MATTERS

# **WATER** **IS A** **CRITICAL** **RESOURCE**

The Academy has led vital water research and environmental outreach for over 70 years. We will continue to investigate the complex human and natural systems connected to water quality and quantity and to seek potential solutions for our threatened water resources.



## Innovative Water Research

*Almost 90 years ago, a young man in his mid-twenties traveled across the world in search of adventure — and scientific treasure. Philadelphia-area naturalist and adventurer Brooke Dolan II led extensive expeditions to western China and eastern Tibet. He collected about 3,000 birds, making the Academy's ornithological collection from the central Asian highlands one of the best in the United States. He also brought back rare high-altitude Asian mammals, including takin and giant pandas, now on display in the dioramas.*



At the opening of the Panda diorama, a 10-year-old boy stood in the crowd, in awe of the explorers before him. The young Thomas Dolan IV, Brooke Dolan's nephew, would follow in his uncle's footsteps by pursuing fieldwork on behalf of the Academy and Dr. Ruth Patrick, a pioneer in environmental research and aquatic ecology. Tom Dolan was part of a team that Dr. Patrick hired in the late 1940s to study the plants and animals living in Lancaster County's Conestoga Basin. Their goal was to determine the usefulness of these organisms as indicators of sanitary

and industrial pollution. To this day, Tom Dolan lives according to the work ethic, grace and values he observed in Dr. Patrick during his six years of employment at the Academy. The concept of using biodiversity to assess stream health anchored Dolan's studies of water quality, pollution of aquatic ecosystems, open space reservation and other environmental issues as he served in leadership positions in nonprofit and governmental environmental organizations, principally in Pennsylvania.



The Dolan family continues to demonstrate its confidence in the Academy's ability to carry on our scientists' legacies. Led by Tom Dolan and his son, Brooke Dolan of Chester Springs, Pennsylvania, the Dolan family (including Sarah Dolan Price of Philadelphia, Margaret Chew Dolan of Philadelphia and Thomas Dolan V of Oakland, Calif.) carried on their tradition of giving, establishing the Dolan Fund for Innovative Water Research.

The Dolan Fund will encourage groundbreaking research on watershed ecology and provide leading support for a new post-doctoral fellow position in watershed ecology that will be called the Dolan Fellow for Innovative Water Research.



*For more information or to make a gift, please contact:*

Meg North  
Vice President, Institutional Advancement  
215-299-3790 | [north@ansp.org](mailto:north@ansp.org)





## SCIENCE MATTERS



**220,000+**

*slides in the Academy's  
Diatom Herbarium*

**68**

*publications by Center for Academy  
Science staff and joint Drexel University  
Department of Biodiversity, Earth &  
Environmental Science faculty*

**15 million**

*people rely on the Delaware  
River Watershed as a source  
of drinking water*

## Watersheds Defined

A watershed is an area of land that drains rainfall and small streams to a common outlet, such as a larger stream or river, that eventually ends up at the mouth of a bay. The Delaware River Watershed is a source of drinking water for 15 million people in Pennsylvania, New Jersey, Delaware and New York.

In the last five years, the Academy has served as a key member of the coordinating committee of the Delaware River Watershed Initiative, a partnership of 50 environmental organizations funded by the William Penn Foundation. Through the Initiative, our scientists strive to monitor, protect and restore conditions in the streams, rivers and landscapes in targeted regions within the watershed.





SCIENCE  
MATTERS

# **BIODIVERSITY** **SUSTAINS** **LIFE**

Diverse ecosystems are healthy ecosystems, and measuring biodiversity is a critical means of gauging environmental health. Since its founding in 1812, the Academy has been studying the variety and distribution of living things, including their extinction, and has amassed a research collection of more than 18 million specimens. Caring for these specimens ensures that they remain a treasured resource for scientists around the world.



# Caring for Collections

*The Malacology Department has conducted a major overhaul of the freshwater mussels collection, the largest single component of the Academy's vast mollusk holdings and among the most ecologically and economically important animals of all.*



There are shells dating from before the Academy's founding in 1812 and an unusually large body of 19th-century material that represents a priceless record of pre-industrial environmental conditions in North and South America, Africa, Europe and the Far East.

With assistance from volunteers and students in Drexel University's Cooperative Education Program, our malacologists placed the shells in archival trays within the Academy's new cabinets and updated their systematic order to current standards. Updates to the digital catalog records and digital images of the most important specimens have enhanced the collection's online usefulness to researchers everywhere.

## CLEANING



Many shells and labels had to be carefully cleaned to remove layers of soot. For up to a century in an era when the only defense against summer heat was to open windows, the shells had been displayed in glass cabinets or open trays. A few blocks from the Academy's location on the Benjamin Franklin Parkway stood the gigantic Baldwin Locomotive Works, which ran coal-fired foundries day and night. A short distance in the other direction lay the Reading Railroad tracks, where dozens of steam trains passed through each hour.

*Many shells were carefully cleaned of a century's accumulation of urban soot.*

Cheap Pennsylvania coal also powered steam tractors, ferries, ships and cranes and for more than two centuries, houses and buildings throughout the city were heated with it. The air was black with fine soot, which drifted in the windows and oozed through the tiniest gaps in display cabinets to settle on the exhibits.





## SCIENCE MATTERS



**164,000**

*shells in the Academy's  
freshwater mussel  
collection*

**100+**

*terabytes of digital  
collection images*

**15,669**

*plant specimens from the  
Longwood Gardens Herbarium  
added to the Botany Collection*

**492**

*years, age of the oldest  
book in the Academy Library*

**250,000**

*titles held in  
the Academy Library*

## Freshwater Mussels

Mussels can live for up to 100 years, during which time they rarely move but continually add layers to their shells. The rate at which they grow reflects factors such as water temperature and oxygen levels and can be measured in shell layers down to individual days. They also incorporate into their shells substances in the surrounding water such as metals and chemical compounds. Unlike their counterparts in the salty ocean, however, these pearly shells are quickly dissolved by the water and vanish once the animals that make them die.

With their dates of collection known, therefore, the shells preserved in our collection form a priceless and irreplaceable archive of environmental conditions stretching back into the 18th century. In an effort to increase the numbers and diversity of mussels within the Delaware River watershed, Patrick Center staff Roger Thomas, Kathryn Longwill and Chris Vito are working with partners from the Partnership for the Delaware Estuary and the Philadelphia Water Department to propagate and restore these important mollusks to areas they once inhabited.





SCIENCE  
MATTERS

# EVOLUTION INFORMS SCIENCE

Evolution is a powerful concept that explains the order and coherence of life itself. Among other things, evolution informs how we treat human diseases, produce food crops and develop conservation plans for habitats and wildlife.



# Capturing Biodiversity in a Pristine Environment

*In February 2018, Academy ichthyologist Mark Sabaj joined an experienced team of Colombian biologists to explore the pristine waters of Sierra de la Macarena, an ancient plateau rising up to 1,200 meters above the forests and plains of central Colombia.*



The plateau marks the crossroads of the Amazonian rainforest, Orinoquían savannas and the Andean mountains, setting a unique stage for the evolution of exceptionally high biodiversity.

La Macarena became Colombia’s first national reserve in 1948, but the region has been largely off limits for decades as a rebel stronghold and therefore has been untouched by biologists for nearly 60 years.



Biologists at the Instituto de Investigación de Recursos Biológicos Alexander von Humboldt in Bogotá, Colombia, established a network of local authorities, guides and landowners who enabled the first expedition to the region in 2016.

In 2018, Sabaj joined the Colombian team to sample streams draining the eastern slopes of the plateau to illustrate the complex biodiversity of the region. This work is urgent, as the increased safety of the area has given rise to population increases and demands on the area’s natural resources, especially water. Mounting threats by agriculture, mining and tourism threaten to destroy these relatively pristine and fragile environments.



*Mounting threats by agriculture, mining and tourism threaten to destroy these relatively pristine and fragile environments.*





SCIENCE  
MATTERS

# Local Insect Sampling Reveals Invasive Species

The spotted lanternfly, *Lycorma delicatula*, was first detected in 2014 in eastern Berks County, Pennsylvania. The species of plant hopper is native to China, India and Vietnam and has successfully invaded South Korea, Japan and now America. The insects most likely came from stone imported from Asia that had egg masses attached. Our entomologists carried out ongoing surveys of urban insects in Logan Circle, at Eastern State Penitentiary and in Camden County, New Jersey, with over 90 samples collected in 2018. Spotted lanternflies first appeared at the two Philadelphia sites in 2018, and we expect them to be more widespread in Philadelphia in 2019.

25 field journals of scientists digitized for the Archives

71 presentations by Center for Academy Science staff at national and international meetings

\$4.7M in grants and contracts obtained by the Center for Academy Science

50,000 insect specimens collected by Drexel PhD candidate Stephen Mason to help understand the impact of controlled (prescribed) burns on the insect communities of the pine-oak forests in the New Jersey Pine Barrens





SCIENCE  
MATTERS

## **SUPPORTING** **REAL** **SCIENCE**

Gifts from our generous contributors help to protect the Academy's irreplaceable collections; support world-class research addressing today's most significant questions in environmental science, biodiversity and evolution; enable our educators to share our science with more than 80,000 schoolchildren each year; and fund outstanding exhibitions, educational programs and environmental forums for learners of all ages.



## Academy Members on a Mission

*In summer 2018, Karen and Wayne Lattuca and Wayne's daughter and son-in-law, Adrienne and Kevin Franklin, trekked into the Morrison Formation of the Big Horn Basin for a members-only fossil hunting expedition.*



They were headed for the border of Wyoming and Montana, a site where dinosaurs flourished 145 million years ago and where the Academy and the Bighorn Basin Paleontological Institute have been leading dinosaur digs for years. These expeditions focus on finding, collecting and documenting Jurassic, Cretaceous and Paleogene fossils, such as *Suuwassea* and *Stegosaurus*.

The Lattucas were in awe of their freedom to work within the site. They used screwdrivers, picks, brooms and brushes to clear dirt and stone; applied glue to broken fossil pieces; and even jacketed a fossil. They also got to know the staff — those fabled paleontologists with brushes in hand — which helped make the Academy's field research tangible.

The Lattucas have been Academy supporters for several years. In addition to a recent gift to our education and science programs, they just made a gift of appreciated securities, donating an appreciated stock or mutual fund to receive a tax deduction for the fair market value of their assets.



They distributed their gift over several years of membership, upping their membership to the Lewis and Clark Circle so they could take advantage of the benefits that were right for them. We are grateful to the Lattucas and the many other Academy supporters who make our work possible.



SCIENCE  
MATTERS



**1,195**

attendees at the 2018  
Members' Night

**43,637**

visits from members in  
fiscal year 2018

**167,583**

total visitors during  
fiscal year 2018

Highlights  
From the Field

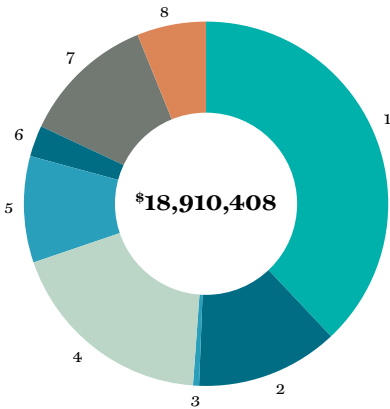
Academy Fossil Prep Lab Manager Jason Poole and his co-leader of the Bighorn Basin dinosaur dig, Jason Schein (Bighorn Basin Paleontological Institute), brought more than four tons of dinosaur fossils back to the Academy this summer. They found parts of *Allosaurus*, *Diplodocus*, *Suuwassea* and *Apatosaurus*, as well as crocodile and turtle specimens, all from the Jurassic period. Volunteers at the Academy are helping to open the fossil jackets and clean and stabilize the fossils in the Fossil Prep Lab, where visitors can ask questions and see the work unfold.



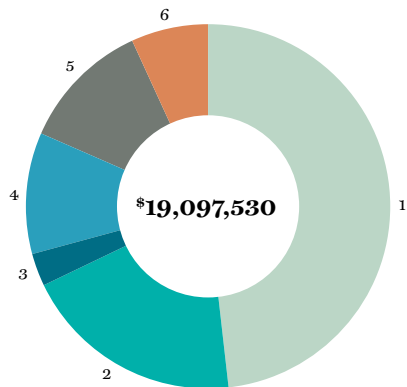


## Financial Report for the Year Ended June 30, 2018

1. Research - Grants and Contracts	\$7,173,662
2. Public Programs, including Admissions	2,406,999
3. Other Programs and Grants	63,797
4. Net Assets Released from Restriction - All Programs	3,542,911
5. Contributions, Bequests and Memberships	1,792,888
6. Endowment Income	530,424
7. Net Support from Drexel University	2,236,969
8. Other Income	1,162,758
<b>Total</b>	<b>\$18,910,408</b>



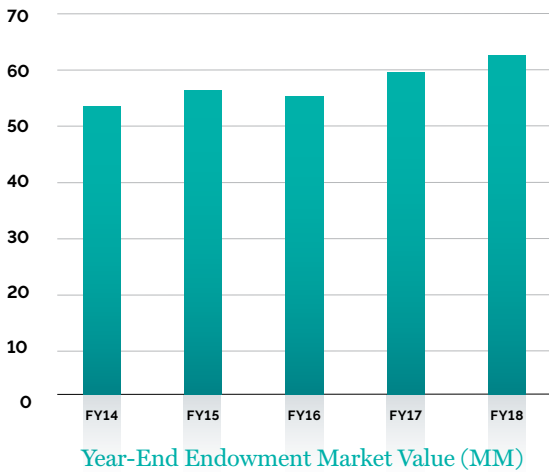
1. Collections and Research	\$9,212,725
2. Public Programs	3,756,902
3. Library	515,953
4. Fundraising and Communications	2,097,755
5. Building and Technology Services	2,187,974
6. General and Administrative	1,326,221
<b>Total</b>	<b>\$19,097,530</b>



<b>Depreciation and Amortization</b>	<b>\$(1,142,831)</b>
<b>Non-operating Activity, Net</b>	<b>\$2,630,984</b>
Net Assets, Beginning of Year	\$84,160,580
Net Assets, End of Year	\$85,461,611

<b>2018</b>	Jun 30	62.198
<b>2017</b>	Jun 30	59.741
<b>2016</b>	Jun 30	55.032
<b>2015</b>	Jun 30	56.380
<b>2014</b>	Jun 30	53.612

The groundbreaking academic department Biodiversity, Earth & Environmental Science (BEES), formed upon the affiliation of the Academy and Drexel University, had a full-time equivalent enrollment of 172 students in 2018. The department generated approximately \$2.5 million in tuition revenue net of financial aid.





# Thank You

*On behalf of the Academy's Board of Trustees, we wish to recognize and thank those supporters who contributed to the Academy between July 1, 2017, and June 30, 2018. Your generosity helps to fund the Academy's many research and education programs, and we are tremendously grateful for your support.*

## \$200,000 and up

Anonymous  
The Arcadia Foundation  
The Cotswold Foundation  
The Horace W. Goldsmith Foundation  
Martha H. and I. Wistar Morris III  
Mr. and Mrs. Gerald B. Rorer\*  
William B. Dietrich Foundation  
William Penn Foundation

## \$100,000 to \$199,999

Anonymous  
Rodney D. Day III\*  
Mr. and Mrs. George W. Gephart Jr.  
Kline & Specter, P.C.  
Leo Model Foundation, Inc.  
The McCausland Foundation  
Bonnie and Peter McCausland  
Mr. Allen J. Model and Dr. Roberta E. Gausas  
RJM Foundation  
Teva Branded Pharmaceutical  
Products R&D Inc.

\* Deceased  
\* Sustainers Society

## \$50,000 to \$99,999

The Albert M. Greenfield Foundation  
Joseph F. Baker and William Shaw Mulherin\*  
Jane and John Bales\*  
Ellen and Peter Evans  
Hamilton Family Charitable Trust  
Ellen Harvey and Tad G. Sperry\*  
Marshall-Reynolds Foundation  
SNAVE Foundation

## \$25,000 to \$49,999

Anonymous  
The Accuride Charitable Fund A  
Jean G. Bodine\*  
Amy Branch and Jeff Benoliel\*  
Elinor Hosterman Buck  
and James M. Buck III\*  
Mr. and Mrs. R. Kent Cadwalader  
The Charles E. Ellis Grant  
and Scholarship Fund  
Dana and Neil Cohen\*  
Comcast Corporation  
Patty and Rob Delany  
E. Rhodes and Leona B. Carpenter Foundation  
Jacqui and Dave Griffith  
Mr. and Mrs. Peter H. Havens  
Cynthia and Martin Heckscher  
Hess Foundation  
Jane C. MacElree Family Foundation  
Mr. Scott Jordan  
Courtney and Page Leidy  
Leslie Miller and Richard Worley Foundation  
Mrs. Jane C. MacElree  
Ms. Alexandra U. Moede  
Neubauer Family Foundation  
Jeanette Lerman-Neubauer and Joe Neubauer

Mrs. Lucille Vanderbilt Pate\*  
Mr. and Mrs. Seymour S. Preston III\*  
The Rorer Foundation, Inc.  
Judith Soltz and Richard Belas\*  
Mr. and Mrs. John Jeming Soroko\*  
Vandy Charitable Foundation  
Vertex, Inc.  
Western Pest Services  
Richard B. Worley and Leslie Anne Miller  
Mr. and Mrs. James W. Zug

## \$10,000 to \$24,999

100 Women Philadelphia  
2004 Carita Foundation, Inc.  
Tara Acharya and Devesh Raj  
Mary and Peter Austen  
Jeffrey A. Beachell  
The Brodsky Foundation  
Lois and Julian Brodsky  
Christian R. & Mary F. Lindback Foundation  
Amy and R. Putnam Coes III\*  
Ms. Maude de Schauensee\*  
Abbie and Patrick Dean  
Karen and Robert Drury  
The Edward W. Kane and Martha J. Wallace  
Family Foundation  
Marilyn Fishman and James MacElderry\*  
The George & Elizabeth Gephart  
Charitable Fund  
The Grace S. and W. Linton  
Nelson Foundation\*  
Latasha and Clifford Harling  
Mrs. Henry F. Harris\*  
Mrs. Nancy G. Harris\*  
Helen D. Groome Beatty Trust  
Hoxie Harrison Smith Foundation\*  
Jun Huangpu and Xia Li

Hufty Foundation  
Edward W. Kane and Martha J. Wallace  
Karen and Wayne Lattuca  
Mr. and Mrs. David P. Lazar Sr.  
The Legnini Family  
Ms. Frances H. Leidy  
The Lenfest Foundation  
Linda and Tom McCarthy\*  
The McEwen Family Scholarship Fund  
at Modern Group LTD.  
The McLean Contributionship  
Ms. Sandra Lee McLean\*  
Katie and Bill McNabb\*  
Edward A. Montgomery Jr.\*  
Barbara Oldenhoff\*  
Origlio Beverage  
Mr. and Mrs. Robert M. Peck\*  
The PFM Group  
Putnam and Amy Coes Family Charitable Fund  
Kathy and Ned Putnam  
Mr. and Mrs. Herbert T. Rorer  
Ivy Silver and Steven Leshner  
Mrs. Joly W. Stewart\*  
Urban Outfitters  
Bob Victor and Alexandra Edsall  
Victor-Edsall Family Fund  
VWR Scientific  
Walter J. Miller Charitable Trust\*  
Nancy and Kenneth Warren\*

## \$5,000 to \$9,999

AstraZeneca  
Sheila and Myron Bassman\*  
Chloe and Jay Beatty  
Brown Brothers Harriman & Co.  
Ms. Marie C. Carroll Jr.  
The Charles Wentz Carter  
Memorial Foundation  
The CHG Charitable Trust  
The Christopher Ludwick Foundation\*  
The Connelly Foundation  
Dolfinger-McMahon Foundation  
Robert and Renee Dubin  
Ralph C. Eagle Jr. M.D.\*  
Ms. Elizabeth H. Gemmill\*  
Carole Haas Gravagno  
Mr. and Mrs. N. Peter Hamilton  
Hamlin Family Foundation Inc.  
Lynn and Clay Hamlin  
Mr. and Mrs. Craig N. Johnson\*  
Lindsay Criswell, LLC  
Ms. Dagmar E. McGill  
Mr. and Mrs. Ranney Moran\*  
PECO  
The Philadelphia Foundation  
Post Brothers  
Maggie and Thomas Rassweiler  
The Scholler Foundation  
Southco, Inc.

Mrs. Corinne J. Stahl  
Mr. and Mrs. L. Pierre Teillon Jr.  
UnitedHealthcare  
Veritable, LP  
Ms. Patricia A. Warehime  
Suzanne and Robert Welsh  
Mrs. Harriet B. Wentz  
West Pharmaceutical Services, Inc.  
Linda and Brooks Zug

## \$2,500 to \$4,999

Affleck Family Charitable Trust  
Mr. and Mrs. John A. Affleck  
Ms. Sarah S. Alfadl  
Mrs. Carolyn R. Aller  
Mr. and Mrs. Pierce Archer\*  
Bryn Mawr Trust Company  
Sheryl and Bill Bullitt\*  
Jenny Rose and Gus Carey  
Catherwood Family Fund  
Susan and Cummins Catherwood  
Cheryl and Radcliffe Cheston  
Clean Tech Services, Inc.  
The Cliffe and Cheryl Cheston Charitable Fund  
The Cruit Family Charitable Fund  
Mr. and Mrs. Chuck Cruit  
Emily and Ted Daeschler  
Mrs. Edward V. Dillon\*  
Jane I. Earle\*





Mrs. June P. Felley  
Vernon Francis and Camille Paglia  
Dr. Janice T. Gordon\*  
Gretchen and Jay Riley Gift Fund  
Jane and Paul Heintz\*  
Jessie B. Hill  
Mr. and Mrs. W. Anthony Hitschler\*  
Patricia and John Imbesi  
J.H.D. Gift Fund  
Sally and Joe Layden  
Mrs. Elizabeth P. McLean\*  
Merz Family Foundation  
Pennoni Family Foundation  
Annette and Chuck Pennoni  
Sean Rhoads and Keri Fisher  
Gretchen and Jay Riley  
The Rittenhouse Foundation  
Mr. and Mrs. Joseph B. Scheller  
Staples  
Dr. and Mrs. Peter D. Utsinger  
Mr. and Mrs. James L. Van Alen  
Minturn T. Wright III\*

\$1,000 to \$2,499

Anonymous  
Franny and Franny Abbott  
The Albert Trust  
Mrs. Ellen Asplundh  
Austelle Foundation  
Drs. Gudrun and T. Peter Bennett\*  
Peter A. Benoliel and Willo Carey\*  
Mr. Christopher Bentley  
    and Ms. Wendy Wurtzburger  
Muriel V. and Alfred R. Berkeley  
Bluestone Foundation  
John A. Boose  
Susan and Mark Brousseau  
Mr. and Mrs. W. Thacher Brown  
Mr. and Mrs. William C. Buck\*  
Cannuscio Rader Family Foundation  
Capital Impact Partners  
The Center for Molluscan Studies  
Mr. and Mrs. Tristram C. Colket Jr.\*  
Shirley and Scott Cooper  
CRW Graphics  
Mrs. Nancy B. Davis\*  
Romulo L. Diaz Jr.  
Gene and Charles Dilks\*  
The Honorable and Mrs. Calvin S. Drayer Jr. \*  
Evelyn and Marc Duvivier  
The Edward and Michael Hauser  
    Charitable Fund  
Natalie and Alan Eisen  
Eleanor and Thomas Elkinton\*  
Exelon Foundation  
Marian and Harvey Forman\*  
Forney Family Foundation  
Mrs. Marilyn Forney  
Monica and Bradford Gallagher  
Mr. Thomas A. Grace

Mr. and Mrs. Richard Greenawalt  
Haldeman Family Foundation  
Ed and Barbara Haldeman  
Dr. Valerie A. Arkoosh  
    and Mr. Jeffrey T. Harbison\*  
Mr. and Mrs. Henry Harris  
Hassel Foundation  
Ted and Michael Hauser  
Dr. Gail W. Hearn\*  
Henry Foundation for Botanical Research  
Mr. and Mrs. Harry E. Hill III  
Nancy and Alan Hirsig\*  
Dr. Charles Hodge V  
Holt Weil Fund  
Mr. Dennis Hummel\*  
Mr. Pemberton Hutchinson\*  
Mr. and Mrs. Lee M. Hymmerling\*  
Ms. Alice W. Irwin  
The Jewish Community Foundation  
John Boose Leadership Fund  
Mr. and Mrs. John G. Johnson Jr.  
Solomon Katz and Pauline Candaux\*  
Katzenbach Family Charitable Fund  
Brooke and Tom Katzenbach  
Kenneth Kulak and Katherine Hovde\*  
John Lehman and Christine Carlson  
Mr. Carter R. Leidy  
Joel Levitt and Nancy Boxer  
Maxine S. Lewis  
Sarah and Ted Lodge  
Eric Luthi  
Susan and Samuel Madeira  
Lynn and Scott Magrane  
Malfer Foundation  
Elizabeth R. McLean\*  
Brian and Donna McNeill  
Karen and William Mestichelli  
Lisa and Jeff Miller  
Daniel Moerman and Claudine Farrand  
Mr. and Mrs. Jeffrey Moore  
Dr. and Mrs. Donald Morel  
Mr. and Mrs. Hugh G. Moulton\*  
National Marine Sanctuary  
National Philanthropic Trust  
Paul Nemeth and Jean Flood\*  
Mr. and Mrs. John J. Nesbitt III  
Mr. and Mrs. John Arthur Nyheim\*  
Mr. and Mrs. Edward W. O'Connor\*  
Mr. Joseph A. O'Connor Jr.  
Joseph O'Hare and Wallace Beard\*  
The Pennsylvania Trust Company  
Miguel Perez and Melissa Morris  
Philadelphia Botanical Club  
Philadelphia Shell Club  
Cindy Pizziketti and Katie Pizziketti  
Mr. and Mrs. George Putnam III\*  
Daniel Rader and Carolyn Cannuscio  
Margaret and Tom Ralph\*  
Ann and Frank Reed  
Michael Reed and Yalta Gilmore-Reed\*  
Remer Green Family Fund

Rosalind Remer and James Green  
Dr. Ann F. Rhoads and Mr. Paul L. Rhoads\*  
Jennifer Merves Robbins and Brian Robbins  
Gilroy & Lillian Roberts Charitable Foundation  
Bonnie and Elliott Rosenberg  
Andrea Rowe and Benjamin Stahl  
Rufe Family Fund  
The Honorable and Mrs. W. Hart Rufe III  
Samuel P. Mandell Foundation  
Jane and Scott Satterfield  
Anne and Fritz Schumann  
Dr. and Mrs. Alfred E. Schuyler\*  
Joanne and Bruce Shanzer  
Dr. Robert E. Silverman and Dr. Randi Leavitt\*  
Ann and Martin Avery Snyder  
Sidney and Stewart Spahr\*  
Sprague Foundation  
Mark Stein and Carol Baker  
Jamie Stewart  
Patricia Tyson Stroud\*  
Anna and Menno Tas  
John A. Terrill and Mary Jane Barrett  
Mrs. Susan Pepper Treadway  
Mr. and Mrs. Richard Tregerman  
Deborah Holt Weil  
Signe Wilkinson and Jon Landau\*  
Mr. and Mrs. Peter Wilmerding

\$500 to \$999

Ms. Ellen Anderson and Mr. Brantly Rudisill\*  
Ms. Jane N. Beatty\*  
Barbara and Clarke Blynn  
Rosanne and John Bornholdt  
Ms. Diane Burko and Mr. Richard Ryan  
Mr. G. Hayden Cadwalader  
Mr. and Mrs. Richard R. Carr  
The Cleveland Family Charitable Fund  
Robert and Nancy Cleveland  
Dr. Megan Clinthorne  
    and Dr. Graham Clinthorne  
Carol and Richard Collier\*  
Catharine and Gary Cox  
Virginia and Don Crawford  
Mr. and Mrs. Charles H. Davis\*  
Cynthia and Keith Day  
Mr. and Mrs. V. Richard Eales  
Frances and Bob Ellis  
Roberta and Saul Epstein  
Hadley and J. Dickson Ferguson  
Tranda S. Fischelis  
Drs. Pamela and Peter Freyd\*  
Steven Furber  
Ms. Galia Godel  
Elinor I. Goff\*  
Aaron Goldblatt and Laura Foster  
Howard Goldfine  
    and Norah Johnston-Goldfine\*  
Mrs. Page R. Gowen  
Tamar and Marshal Granor\*  
Drs. Vivian and Mark Greenberg

Greene Towne Montessori School  
Alice and Peter Hausmann  
Lois V. Hill\*  
Dr. Lesley A. Hughes  
JPMorgan Chase Foundation  
Robert L. Kaplan  
Dr. Charles Lane  
Dr. Egbert G. Leigh Jr.  
Mr. Thomas Lloyd  
Dr. Thomas E. Lovejoy\*  
Marlene and Preston Luitweiler  
Mr. and Mrs. William G. Lyons  
Dr. Berrell Mallery  
The Margaret Wolcott Fund  
Kate Mellinger and Erich Falke  
Mr. David Milne IV  
Mr. and Mrs. Chi Mo\*  
Morgan Stanley Global Impact Funding Trust  
Drs. Fran and Douglas Nadel\*  
Paul Nestor and Kathy Jones-Nestor\*  
Timothy Nugent and Rebecca Calder-Nugent  
Alyson Owen and Craig Oliner  
Barbara and Michael Perilstein  
Ms. Timshel Purdum  
Marlene and Joseph Ramsay\*  
Shirley and Van Reiner  
Renaissance Charitable Foundation  
Julie Stone and Michael Rueter  
Michelle and Jim Sage  
Michael V. Scalzo  
Mary Jane and Albert Schilling\*  
Doris S. Schoener\*  
Bonnie and Peter Schorsch  
Ms. Bonnie Schorske  
Kathleen and Frank Seidman\*  
Joseph Shapiro  
Drs. Karen and Robert Sharrar  
Mr. and Mrs. Charles R. Stauffer Jr.  
Mr. and Mrs. Morris A. Stout\*  
Joan and William Thomas  
Mrs. Margaret H. Wolcott  
Sara Woods and William Enscoe  
Mitchell Young and Anna Forrester\*

\$175 to \$499

Anonymous (2)  
Michele and Eric Almonte  
Christine and Alfred Altomari  
Jo and Dennis Ambrose\*  
Gricelda and Jason Archibald  
Drs. Maryann and Ronald Baenninger\*  
Dr. Elizabeth Bales  
    and Mr. Michael Dell'Angelo  
Kristin Beatty  
Benevity, Inc.  
Mr. and Mrs. James Bentley  
Drs. Marie and Robert Benz  
Dr. Richard Bierregaard  
Mr. Andrew Blittman  
    and Ms. Linda Zaleski



Judith Bluebond-Seelig  
Helen Y. and Daniel K. Bowman  
Paul Bracaglia  
Sara and Michael Brady  
Dr. and Mrs. Lawrence H. Brent  
Donna and James Brock  
James Bromley  
Mr. and Mrs. Bruce M. Brown  
DeDe and Tony Brown  
Mr. and Mrs. William R. Brydges  
Philip Buck and Lisa Mostovoy  
Laura T. Bullitt  
Barbara Buscaglia  
Jessica Cavaliere  
Marjorie Ceribelli  
Christopher B. Chandor  
Jillian Chapas-Reed and Tony Reed  
Gordon Chaplin and Sarah Teale\*  
Kai Chen and Mu Yang  
Joan and Joel Chinitz\*  
Mr. Joseph H. Chitwood  
David Christopher and Kayla Warf  
Gordon Clark and Veronica Tsang  
D. Walter Cohen, D.D.S.\*  
Rachael and James Condon  
Jason Connell and Susan McGill  
David W. Cooper  
Margery and Frank Cooper  
Dr. and Mrs. Adrian D. Copeland\*  
Raymond Cowan and Lindsey McMonagle  
Maria and Barry Craze  
Criterion Search Group  
Joseph Crouse and Brenda Schiff  
Susan Dando and Alexandre Costabile  
Robin Danforth  
Dr. and Mrs. James L. Dannenberg\*  
Rhoda and Michael Danziger  
Mr. Cody C. Davis  
Deborah and Jasen Degillio  
Mr. John C. Devereux

Christine and Drew Devitt  
Marc DiNardo and Elizabeth Drum  
Carla and Michael Durdan  
Mr. Jeffrey E. Edelman\*  
Karen Eifler and Alex Eifler  
Eileen and Lee Mathias Charitable Fund  
Drs. Howard J. Eisen and Judith E. Wolf  
Dr. Lauren Ellman and Dr. Matjaz Jogan  
Mrs. Alexandra Estey\*  
Mr. J. Morris Evans\*\*  
Lee Faden and Temi Allen  
Jerald Fagliano and Mara Natkins  
Dr. Jay L. Federman and Ms. Sylvia R. Beck\*  
Lindsay Fiesthumel and Tristan Michaleski  
Elaine and Robert Fitt\*  
Mr. and Mrs. Frank B. Foster III  
Taylor Fox and Lisa Fox Pfeiffer  
Drs. Barbara and Len Frank\*  
Dr. and Mrs. Kenneth Frank\*  
Frank and Terry Foster Family Fund  
Chanda and Todd Franzen  
Christine and Kenneth Frascella  
Mr. and Mrs. William H. Frederick Jr.\*  
William J. Frezel\*  
Robin and Glen Gaddy  
Susan and Peter Gagliardi\*  
John Garrity\*  
Mr. Gregory Garvin  
Dr. and Mrs. Jon K. Gelhaus

\* Deceased  
\* Sustainers Society





Mr. and Mrs. Mitch Gerstein  
The Gillis Family  
Lisa and Will Givner\*  
GlaxoSmithKline Foundation  
Mr. and Mrs. John Goodchild  
Mrs. Carole Chew Williams Green  
Irene and Aaron Greenhouse  
Tucker C. Gresh\*  
Julia Griffith and Savannah Koehne  
Harry C. Groome III  
The Groome Family Charitable Fund  
Mr. and Mrs. Andrew Hamilton  
Susan and Lauren Hansen-Flaschen  
Mary Alice Hartsock and Nathaniel Bordy  
Mr. and Mrs. Peter C. Hearn  
Marguerite Heckscher  
Mr. and Mrs. Herbert Henze  
Katherine and Fredrik Hiebert\*  
Mrs. Diane Hill  
Mr. and Mrs. J. D. Hucker  
Marianne Hulme  
Catherine Hunt and Family  
Kristen Hyland and Chris Moyer  
Mr. and Mrs. Thomas M. Hyndman Jr.\*  
Johanna and Rich Isaacs  
Thomas W. Jacobson  
Neil Jennings  
Angela Johnson and Shajanna Dean-Johnson  
Catherine and Michael Jordan  
Joseph Noreika Giving Fund  
Barbara and Charles Kahn Jr.\*  
Judith and Richard Kaplan  
Bettie Kehrt and Randall Kehrt\*  
Nancy Knoll  
Joyce and Michael Kolber  
Dr. and Mrs. Richard C. Kovach  
Rebecca Krasner and Abraham Friedman  
Peshe and Peter Kuriloff  
Ms. Lois Kuter  
Robert Lawler and Thomas Lawler  
Diane and Eric Leichter  
Dr. Cary Leung and Dr. Will Gryc  
Limbach, Inc.  
Bob and Betsy Lukens  
Paula and James MacCombie\*  
William and Lindsay Madway  
John Makara and Kathy Patterson  
Robin Mann  
Jessica and Stephen Marchewski  
Mrs. Rose M. Marinaro\*  
Francis Markey  
and Lindsay Goldsmith-Markey  
Irene Marks and Bruce Marks  
Roberta A. Martin  
Jeff Martis

Mr. Steven G. Maurer\*  
Maura McCarthy and Joseph Barber  
Debra McCarty and Richard Stasiorowski\*  
Alison and David Meehan  
Mr. Garry Messner  
Katherine Milkman and Noelle Milbourn  
Hydie and Michael D. Miller  
Lyn and David Montgomery  
Kasey and Kip Moore  
Lori and James Murphy  
Dr. Heather Murphy and Mr. John Murphy  
Gregory Murray and Connie Garcia  
Michael Neavear and Lisa Litz-Neavear  
Dan Negoianu and Katya Rascovsky  
Jennifer and Andrew Newcomb  
Mary Kay Nicolo\*  
Katherine and Frank Niesen  
Dr. Harvey Nisenbaum  
and Mrs. Sylvia Nisenbaum\*  
Joanne and Joseph Noreika  
Christina and Efrain Ortiz  
Dr. Nova Panebianco and Mr. Jeffrey K. Pettit  
Jeannine and André Payne  
Betsy Payne and William McGinnis  
Dr. Charles Perkins and Ms. R M Perkins  
Nancy and Kevin Peter  
Dr. Neha Plastaras and Dr. John Plastaras  
Laura Raab  
Republic Bank  
Sara Richman  
Renee Rosenau and Steven Rosenau  
Eric Rugart  
Tracy Russo and Mitchell Kelly  
Carrie and Edward Rydesky  
S. Spencer Scott Fund, Inc.  
Mr. Steven E. Saunders\*  
Susan and Dennis Schaeffer  
Mary and Kevin Schanbacher  
Susan and Lance Schnatterly  
Mordecai Schwartz and Kathy Fisher  
Brandy and Kevin Scott  
Mr. and Mrs. Peter H. Sellers\*  
Mr. and Mrs. John Seltzer  
Rebecca and David Selvin  
Shweta and Neal Shah  
Parisa Shahmehar and Robert Beck  
Dr. and Mrs. Paul Shaman\*  
David Shapiro and Sandra Wintner  
Brian Sherman and Sandra Lau  
Dr. Adrian Shieh and Ms. Kelly Stavrides  
Jay and Janet Silver  
Taije Silverman and Zack Lesser  
Caroline and Peter Sime  
Amy Sinden and Brenna Herpmann  
Mrs. Matthew Slap\*

Kristan and Jeffrey Slotterback  
Stephen Smith and Ellen Kurtz\*  
Mr. and Mrs. Marc J. Sonnenfeld  
Kristyn and Timothy Souder  
Dubravka and Alfred Spera  
Susan Stefanski  
Mr. Reid P. F. Stuntz  
Mr. James Suit and Ms. Danielle Ramos  
Mr. and Mrs. James M. Talbot II  
Dr. Page Talbott and Mr. James E. Gould  
Mr. and Mrs. Wesley Taylor  
Kirk J. Thieroff  
Mr. David Tristano and Dr. Janine Remillard  
Andrea and Alfred Trubin  
Diane and Edward Tryon  
Jane and Jack Turner  
Ms. Mary J. Vaux  
Karen and Alexander Vegega  
Margaret and Bob Wallis\*  
Margaretta T. Walton  
Catherine and Thomas Ward  
Annette Warriner and Peter Matrai  
Carol and Daniel Weil  
Mark Weiss\*  
Kristin and Daniel Wesley  
John Whitenight and Fred LaValley  
Anna and Jamie Whitesell  
Christopher Wild and Sonia Martin  
Mr. Stephen Willard and Dr. Adrienne Willard  
Elizabeth Williams  
Mr. Horace E. Williams\*  
David Wilmerding\*  
Mrs. Penelope Wilson\*  
Mrs. Carol M. Winkler  
and Mr. John B. Winkler\*  
Jean and John Witmer  
Loretta and Tom Witt\*  
Gordon Wong and Jennifer MacNaughton  
Richard Woosnam and Diane Dalto Woosnam\*  
Catherine A. Worrall  
Dr. and Mrs. David M. Wright\*  
Cathy and Frank Young  
Keita Young  
Barak Zimmerman

\* Deceased  
\* Sustainers Society



Honorary Gifts

Joseph F. Baker and William Shaw Mulherin♦,  
    *in honor of Dr. Douglass Dalton on his birthday*  
Mrs. Janice Diamond-Wolf, *in honor of Joseph F. Baker*  
    *and William Shaw Mulherin's Anniversary*  
Austin J. Hendy, *in honor of Dr. Jocelyn Sessa*  
Sarah Henry, *in honor of Dr. Gary Rosenberg*  
Brian and Donna McNeill, *in honor of Brooke K. Dolan*  
Hydie and Michael D. Miller, *in honor of Bernard Brown*  
Doris S. Schoener♦, *in honor of Gary Schoener*  
Mr. and Mrs. Bruce E. Silverman, *in honor of Arthur Silverman*  
Margaretta T. Walton, *in honor of Mr. and Mrs. Gerald B. Rorer*

In honor of Ted Daeschler and Robert M. Peck

Dr. Valerie A. Arkoosh and Mr. Jeffrey T. Harbison♦  
Muriel V. and Alfred R. Berkeley  
Mr. G. Hayden Cadwalader  
Mr. and Mrs. R. Kent Cadwalader  
The Edward and Michael Hauser Charitable Fund  
Barbara and Ed Haldeman  
Haldeman Family Foundation  
Lynn and Clay Hamlin  
Hamlin Family Foundation Inc.  
Mr. and Mrs. James Harbison  
Ted and Michael Hauser  
Holt Weil Fund  
Ms. Abby Kropp  
Nicholas Trott Long and Abigail Brooks  
Lynn and Scott Magrane  
Dr. Berrell Mallery  
Ms. Marian M. Pool  
Pam and Hobie Porter  
Mr. and Mrs. Gerald B. Rorer♦  
The Rorer Foundation, Inc.  
Mrs. Peter G. Smith  
Mr. and Mrs. Charles R. Stauffer Jr.  
Margie and Matt Strickler  
Mr. and Mrs. James M. Talbot II  
Ms. Patricia A. Warehime  
Deborah Holt Weil  
Mr. and Mrs. Peter Wilmerding  
Mr. and Mrs. James W. Zug  
Linda and Brooks Zug

In honor of George W. Gephart Jr.

Elinor Hosterman Buck and James M. Buck III♦  
Thomas Dolan IV♦  
Andrea Rowe and Benjamin Stahl

In honor of Jason Weckstein

The Cotswold Foundation  
Miguel Perez and Melissa Morris

♦ Deceased  
♦ Sustainers Society

Memorial Gifts

Benjamin and Libby Blank, *in memory of Cheryl Beth Silverman*  
Gordon Chaplin and Sarah Teale♦, *in memory of Charles C.G. Chaplin*  
D. Walter Cohen, D.D.S.♦♦, *in memory of Lynn Manko*  
Jane I. Earle♦, *in memory of Lawrence Jackson*  
Frances and Bob Ellis, *in memory of Al Visco*  
Ms. Linda V. Ellsworth, *in memory of Caryl L. Wolf*  
Mrs. Rose M. Marinaro♦, *in memory of Felix Marinaro*  
Roberta A. Martin, *in memory of Edward S. Martin*  
Ms. Sandra Lee McLean♦, *in memory of William L. McLean III*  
Ms. Paula M. Mikkelsen, *in memory of Dr. Robert Robertson*  
Dr. and Mrs. Alfred E. Schuyler♦, *in memory of Elizabeth Farley*  
A. W. Scott Jr., M.D. and Ms. Sandra B. Scott, *in memory of Dr. Robert Robertson*

Leadership Circles

*Leadership Circle members play a critical role in sustaining the Academy's scientific research programs, which explore today's most significant questions in environmental science, biodiversity and evolution. To learn more about giving at the Leadership Circles level, please contact our Office of Institutional Advancement at 215-299-1182 or leadershipcircles@ansp.org.*

Jefferson Circle

Mrs. Jane C. MacElree  
Mr. Allen J. Model and Dr. Roberta E. Gausas  
Ms. Alexandra U. Moede  
Mr. and Mrs. Seymour S. Preston III♦  
Connie and Sankey Williams

Darwin Circle

Tara Acharya and Devesh Raj  
Mary and Peter Austen  
Jeffrey A. Beachell  
Amy Branch and Jeff Benoliel♦  
Lois and Julian Brodsky  
Amy and R. Putnam Coes III♦  
Abbie and Patrick Dean  
Patty and Rob Delany  
Karen and Robert Drury  
Marilyn Fishman and James MacElderry♦  
Mr. and Mrs. George W. Gephart Jr.  
Jacqui and Dave Griffith  
Ellen Harvey and Tad G. Sperry♦  
Cynthia and Martin Heckscher  
Jun Huangpu and Xia Li  
Edward W. Kane and Martha J. Wallace  
Mr. and Mrs. David P. Lazar Sr.  
Courtney and Page Leidy  
Linda and Tom McCarthy♦  
Katie and Bill McNabb♦  
Mr. and Mrs. Ranney Moran♦  
Mrs. Lucille Vanderbilt Pate♦  
Mr. and Mrs. Robert M. Peck♦  
Mr. and Mrs. Herbert T. Rorer  
Dr. John P. Schmidt  
Ivy Silver and Steven Leshner  
Judith Soltz and Richard Belas♦  
Bob Victor and Alexandra Edsall  
Mrs. Jane W. Walker  
Nancy and Kenneth Warren♦



Leidy Circle

Anonymous  
Sheila and Myron Bassman♦  
Mrs. Wendy C. Calhoun  
Ralph C. Eagle Jr. M.D.♦  
Pamela and David B. Ford  
Mr. and Mrs. Walter L. Foulke  
Ms. Elizabeth H. Gemmill♦  
Carole Haas Gravagno  
Mrs. Henry F. Harris♦  
Meghan and Robert Kraut  
The Legnini Family  
Edward A. Montgomery Jr.♦  
Jeanette Lerman-Neubauer and Joe Neubauer  
Annette and Chuck Pennoni  
Mr. and Mrs. Matthew Pestronk  
Mr. and Mrs. Gerald B. Rorer♦  
Mr. and Mrs. John Jeming Soroko♦  
Mrs. Corinne J. Stahl  
Bayard T. Storey, PhD♦  
Suzanne and Robert Welsh  
Mrs. Margaret H. Wolcott

Lewis and Clark Circle

Mr. and Mrs. John A. Affleck  
Mrs. Carolyn R. Aller  
Mr. and Mrs. Pierce Archer♦  
Joseph F. Baker and William Shaw Mulherin♦  
Jean G. Bodine♦  
Sheryl and Bill Bullitt♦  
Mr. and Mrs. R. Kent Cadwalader  
Jenny Rose and Gus Carey  
Susan and Cummins Catherwood  
Emily and Ted Daeschler  
Rodney D. Day III♦  
Thomas Dolan IV♦  
Jane I. Earle♦  
Mrs. June P. Felley  
Vernon Francis and Camille Paglia  
Joanne T. Greenspun  
Jane and Paul Heintz♦  
Jessie B. Hill  
Mr. and Mrs. W. Anthony Hitschler♦  
Patricia and John Imbesi  
Karen and Wayne Lattuca  
Sally and Joe Layden  
Mrs. Elizabeth P. McLean♦  
Ms. Sandra Lee McLean♦  
Mr. and Mrs. John J. Nesbitt III  
Barbara Oldenhoff♦  
Mr. W. Gresham O'Malley III♦  
Sean Rhoads and Keri Fisher  
Gretchen and Jay Riley  
Mr. and Mrs. Joseph B. Scheller♦  
Mrs. Mary D. Starr  
Minturn T. Wright III♦



President’s Circle

Anonymous  
Franny and Franny Abbott  
Dr. Valerie A. Arkoosh  
    and Mr. Jeffrey T. Harbison\*  
Mrs. Ellen Asplundh  
Carol Baker and Mark Stein  
K. C. and Arthur Baldadian  
Jane and John Bales\*  
Drs. Gudrun and T. Peter Bennett\*  
Peter A. Benoliel and Willo Carey\*  
Ann and Richard Biddle  
Bluestone Foundation  
Sibby Brasler  
Susan and Mark Brousseau  
Mr. and Mrs. W. Thacher Brown  
Mr. and Mrs. William C. Buck\*  
Mr. and Mrs. Richard R. Carr  
The Honorable Ida K. Chen  
Cheryl and Radcliffe Cheston  
Nicholas and Kathleen Chimicles  
Mr. and Mrs. Tristram C. Colket Jr.  
Shirley and Scott Cooper  
Mr. and Mrs. Carl S. Cutler  
Mrs. Nancy B. Davis\*  
Romulo L. Diaz Jr.  
Gene and Charles Dilks\*  
Mrs. Edward V. Dillon\*  
The Honorable and Mrs. Calvin S. Drayer Jr.\*  
Evelyn and Marc Duvivier  
Mr. and Mrs. William B. Eagleson Jr.  
Mr. and Mrs. V. Richard Eales  
Eleanor and Thomas Elkinton\*  
Ellen and Peter Evans  
Ms. Helen H. Ford  
Marian and Harvey Forman\*

Mrs. Marilyn Forney  
Steven Furber  
Monica and Bradford Gallagher  
Scott Goldman and Maryalice Cheney  
Dr. Janice T. Gordon\*  
Mr. and Mrs. Richard Greenawalt  
Mr. and Mrs. N. Peter Hamilton  
Latasha and Clifford Harling  
Mr. and Mrs. Henry Harris  
Mrs. Nancy G. Harris\*  
Alice and Peter Hausmann  
Dr. Gail W. Hearn\*  
Nancy and Alan Hirsig\*  
Dr. Charles Hodge V  
Mr. Dennis Hummel\*  
Catherine Hunt and Family  
Mrs. Eleanor Ingersoll\*  
Mr. and Mrs. Craig N. Johnson\*  
Mr. and Mrs. John G. Johnson Jr.  
Mr. and Mrs. Peter Kellogg  
Kenneth Kulak and Katherine Hovde\*  
Mr. Carter R. Leidy  
Mrs. Marguerite Lenfest  
Joanna McNeil Lewis  
Maxine S. Lewis  
Sarah and Ted Lodge  
Susan and Samuel Madeira  
Karen and William Mestichelli  
Lisa and Jeff Miller  
Daniel Moerman and Claudine Farrand  
Mr. and Mrs. James O. Moore  
Mr. and Mrs. Jeffrey Moore  
Dr. and Mrs. Donald Morel  
Kathy and Chip Morgan  
Mr. and Mrs. Hugh G. Moulton\*  
Paul Nemeth and Jean Flood\*  
Mr. and Mrs. John Arthur Nyheim\*

Mr. and Mrs. Edward W. O’Connor\*  
Mr. Joseph A. O’Connor Jr.  
Joseph O’Hare and Wallace Beard\*  
Mr. and Mrs. Lanny R. Patten  
Kathy and Ned Putnam  
Mr. and Mrs. George Putnam III\*  
Daniel Rader and Carolyn Cannuscio  
Margaret and Tom Ralph\*  
Michael Reed and Yalta Gilmore-Reed\*  
Dr. Ann F. Rhoads and Mr. Paul L. Rhoads\*  
Jennifer Merves Robbins and Brian Robbins  
Bonnie and Elliott Rosenberg  
Andrea Rowe and Benjamin Stahl  
Michael Rueter and Julie Stone  
The Honorable and Mrs. W. Hart Rufe III  
Mr. John M. Ryan and Ms. Mary Gregg  
John and Nancy Ryan  
Jane and Scott Satterfield  
Anne and Fritz Schumann  
Joanne and Bruce Shanzer  
Dr. Robert E. Silverman and Dr. Randi Leavitt\*  
Karen and Stuart Skinner  
Sidney and Stewart Spahr\*  
Mrs. Edward Starr III  
Jamie Stewart  
Mrs. Joly W. Stewart\*  
Patricia Tyson Stroud\*  
Leon C. Sunstein Jr.  
Anna and Menno Tas  
Mr. and Mrs. L. Pierre Teillon Jr.  
John A. Terrill and Mary Jane Barrett  
Mr. and Mrs. Richard Tregerman  
Mr. and Mrs. John C. Tuten Jr.  
Dr. and Mrs. Peter D. Utsinger  
Mr. and Mrs. James L. Van Alen  
Signe Wilkinson and Jon Landau\*

1812 Society Members

*For many years, the Academy’s most dedicated supporters have invested in our future by including the Academy in their estate plans. The Academy’s Board of Trustees established the 1812 Society in honor of our most forward-thinking supporters whose contributions have sustained the Academy’s growth for the past two centuries. If you are interested in learning more about how to include the Academy in your estate plans, please contact the Office of Institutional Advancement at 215-299-1182 or email friends@ansp.org.*

Anonymous (4)  
Anonymous\*  
Joseph F. Baker  
Vivian K. Blank\*  
Jean G. Bodine\*  
Joel and Joan Chinitz\*  
Donald Cleaver\*  
Mr. Luther A. Clement\*  
Walter Coley\*  
Amy and George Dick  
Lenora and Brooke Dolan  
Margaret C. Dolan  
Mr. Thomas Dolan IV\*  
Thomas Dolan V  
Jane I. Earle\*  
Frances and Bob Ellis  
Lin Floyd  
Drs. Barbara and Len Frank\*  
Miss Julia W. Frick\*  
Mr. and Mrs. George W. Gephart Jr.  
Frank Gill and Sally Conyne  
Mrs. S. Page Hartley  
Cynthia and Martin Heckscher  
Lois V. Hill\*  
Mr. Edward A. Markart Jr.  
Ms. Jacqueline Markart  
Mrs. Elizabeth P. McLean\*  
Daniel Moerman and Claudine Farrand  
Mr. Robert M. Peck\*  
Mrs. Elizabeth P. Petit  
Mr. and Mrs. Seymour S. Preston III\*  
Mr. Francis Rasmus  
Ann and Frank Reed  
Sean Rhoads and Keri Fisher  
Mrs. Harriet H. Robertson  
Phyllis and Gary Rosenberg  
Mr. and Mrs. Nicholas Ruggeri  
Dr. John P. Schmidt  
Pamela and Philippe Serra  
Ivy Silver and Steven Leshner  
Carol and Art Silverman  
Patricia Tyson Stroud\*  
Minturn T. Wright III\*

Estate Gifts

H. Leidy Samson\*  
Caryl L. Wolf\*

Named Endowment Funds

*Endowment funds provide a source of sustainable support for a variety of Academy initiatives, from postdoctoral research to our annual lecture series. If you are interested in making a gift to a named endowment or establishing one in your name, please contact the Office of Institutional Advancement at 215-299-1182 or email friends@ansp.org.*

Albert Earl Gilbert Endowment  
The Albert M. Greenfield Technology Upgrade Endowment  
Anonymous Discretionary Fund  
Böhlke Memorial Endowment  
Botany Curator Endowment  
Botany General Endowment  
Brooke Dolan Archivist Endowment  
Carol Spawn Endowment Fund  
Chair of Environmental Initiatives Endowment  
Chaplin Chair of Ichthyology  
Charlotte C. Stokes Art Collection Endowment  
Cheryl Beth Silverman Memorial Fund  
Clark Operating Endowment  
Center for Systematic Biology and Evolution Endowment  
de Schauensee Endowment Fund  
The Dolan Initiative for Innovative Water Research  
The Don and Virginia Eckleberry Endowment for Wildlife Art  
Dr. Charles Hodge IV Memorial Endowment  
Education Endowment  
Elizabeth and James Abraham Garfield Rehn Endowment Fund  
Entomology Endowment  
Estuarian Research Center Endowment  
Exhibits Endowment  
Fellow of the Academy Chair Endowment  
Florence R. Foerderer Endowment Fund  
Frank and Ruth Patrick Endowment Fund  
Grace Tees Herbarium Maintenance Fund  
Hattersley Family Foundation Collections Care Upgrade Fund  
Hayden Memorial Geological Fund  
Hazel and Radclyffe Roberts Fund  
Henry A. Pilsbry Chair of Malacology  
Horace and Marie Richards Fund  
Ichthyology Endowment  
Invertebrate Paleontology Endowment  
Jessup-McHenry Fund  
Jane and John Bales Endowed Fund  
Joe Cadbury Scholarships Fund

John and Marjorie Foster Fund for Ornithology  
John J. and Anna H. Gallagher Fellowship  
Joseph Leidy Memorial Fund  
Leidy Sculpture Preservation Fund  
Library Technology Fund  
Macaleer Ornithology Expedition Fund  
Malacology Endowment  
Maurice Heckscher Endowment Fund for Ornithology  
McLean Acquisition Fund  
McLean Annual Fund Endowment  
Mildred Eckert Book Fund  
Mineralogy Endowment  
Mineral Sale Fund Endowment  
Morgan Hebard Fund  
Nolan Binding Fund  
Ornithology Endowment  
Patrick Center for Environmental Research Endowment  
President’s Strategic Initiative Fund  
Richard Hopper Day Memorial Fund  
Robert and Happy Robertson Fund  
Ruth Patrick Chair in Environmental Science  
Schuyler Herbarium Internship Endowment Fund  
Science Publications Endowment  
The Sherry E. Weiss Fund for *Outside In*  
T. Charleton Henry Memorial  
Theodore J. Cohn Endowment  
Vertebrate Paleontology Special Fund  
Vertebrate Zoology Fund  
VIREO Endowment  
The William L. McLean III Endowment Fellowship Fund  
Young People’s Explorer Series



\* Deceased  
\* Sustainers Society





WINS 35th Anniversary

On Wednesday, May 9, 2018, the Academy of Natural Sciences celebrated 35 years of the Women In Natural Sciences (WINS) program.

Anonymous  
Tara Acharya and Devesh Raj  
Christine and Alfred Altomari  
Mr. and Mrs. Pierce Archer\*  
Kathleen K. Armstrong  
Joseph F. Baker and William Shaw Mulherin\*  
Jane and John Bales\*  
Sheila and Myron Bassman\*  
Drs. Gudrun and T. Peter Bennett\*  
Mr. and Mrs. Lawrence H. Berger  
Jean G. Bodine\*  
Helen Y. and Daniel K. Bowman  
Paul Bracaglia  
Amy Branch and Jeff Benoliel\*  
James H. Bromley  
Elaine and Bruce Brown  
Marjorie Ceribelli  
Anthony S. Chigounis  
Ella and Richard Clemson  
Amy and R. Putnam Coes III\*  
Dana and Neil Cohen\*  
Margery and Frank Cooper  
Criterion Search Group  
Patty and Rob Delany  
Ellen and Peter Evans  
Aaron Goldblatt and Laura Foster  
Howard Goldfine  
and Norah Johnston-Goldfine\*  
Carole Chew Williams Green  
Jacqui and Dave Griffith  
Mr. and Mrs. Harry C. Groome  
The Groome Family Charitable Fund  
Hamilton Family Charitable Trust  
Latasha and Clifford Harling  
Ellen Harvey and Tad G. Sperry\*  
Cynthia and Martin Heckscher  
Carly Hellen  
Diane Hill

Lois V. Hill\*  
Mr. and Mrs. W. Anthony Hitschler\*  
Solomon Katz and Pauline Candaux\*  
Zoe C. Kuenstler  
Leo Model Foundation, Inc.  
Joanne C. Letwinch  
Limbach, Inc.  
Lindsay Criswell LLC  
Charles E. Mason  
Steven G. Maurer\*  
Dagmar E. McGill\*  
Elizabeth P. McLean\*  
Sandra Lee McLean\*  
Allen J. Model and Roberta E. Gausas  
Edward A. Montgomery Jr. °\*  
Joan and James Moore  
Mr. and Mrs. John J. Nesbitt III  
Barbara Oldenhoff\*  
Alyson Owen and Craig Oliner  
Irene Patterson and Denise Johnson  
PECO  
The Pennsylvania Trust Company  
Nancy and Kevin Peter  
The PFM Group  
Michael Reed and Yalta Gilmore-Reed\*  
Rosalind Remer and James Green  
Remer Green Family Fund  
Republic Bank  
Bonnie and Peter Schorsch  
Mordecai Schwartz and Kathy Fisher  
Judith Soltz and Richard Belas\*  
Mr. and Mrs. John Jeming Soroko\*  
Kerrill and Wesley Taylor  
Jeanne and James Van Alen  
Sara Woods and William Enscoe  
Barak Zimmerman

THE SUSTAINERS SOCIETY

Loyal donors and members are the cornerstone of the Academy’s success.

The Sustainers Society was formed to honor donors to the Academy who have renewed their support for 10 or more consecutive years.

\* Deceased  
\* Sustainers Society



Matching Gift Organizations

Exelon Foundation  
GlaxoSmithKline Foundation  
Johnson & Johnson Matching Gifts Program  
Merck Partnership for Giving  
The Philadelphia Contributionship Insurance Company  
Southco, Inc.  
Vanguard Matching Gift Program  
Veritable, LP  
William Penn Foundation

Government and Research Grants

Barnegat Bay Partnership  
Battelle Memorial Institute  
Cornell University  
Department of Army  
Eastman Chemical Company  
Elkhorn Slough Foundation  
Foundation for Pennsylvania Watersheds  
General Electric  
Geological Society of America  
The Institute of Museum and Library Services  
Louisiana State University  
National Science Foundation  
The Nature Conservancy  
Neon, Inc  
New Jersey Department of Environmental Protection  
New Jersey Sea Grant (NOAA)  
New York Botanical Garden  
Northern Arizona University  
Partnership for the Delaware Estuary  
Pennsylvania Department of Education  
Pennsylvania Department of Environmental Protection  
Pennsylvania Historical and Museum Commission  
The Philadelphia Cultural Fund\*  
Rhode Island Department of Environmental Management  
State of Connecticut  
Stroud Water Research Center  
Trust for Mutual Understanding  
University of Utah  
University of Vermont  
US Department of Environmental Protection Agency  
William Penn Foundation

Gifts to the Library and Collections

Paul Callomon  
Janet Evans  
Ms. Florence Fearington  
Dr. and Mrs. Jon K. Gelhaus  
Justin Jansen, J.F.J.  
Robert M. Peck\*  
Charles Poole  
Joseph Poole  
Harriet H. Robertson  
Norman J. Scott  
John A. Sime  
Colleen Skidmore  
Bernardo Urbani  
Paul R. Voss and Hope Horton

Gifts in Kind

Confessions of a Stay-At-Home Mom  
Wayne Hittinger  
CRW Graphics  
Longwood Gardens  
Albert J. Robb III

The Academy would  
especially like to thank all  
our Staff and Volunteers who  
have made gifts to support  
our work this year.

\* Deceased  
\* Sustainers Society

Board of Trustees

As of January 31, 2019

Chair of the Board

Peter A. Austen

Trustees

Tara P. Acharya, Ph.D., MPH  
Peter A. Austen  
John F. Bales III  
Jeffrey A. Beachell  
M. Brian Blake, Ph.D.  
Amy L. Branch  
Amy M. Coes  
Scott A. Cooper, Ph.D.  
Abbie Dean  
Robert J. Delany  
John A. Fry  
David E. Griffith  
Latasha D. Harling, CCP, SHRM-SCP  
Ellen D. Harvey  
Jun Huangpu, Ph.D., MBA  
Page R. Leidy  
Sandra L. McLean  
Allen J. Model  
Michael H. Reed, Esq.  
Van R. Reiner  
Gerald B. Rorer  
David Rusenko  
Ivy E. Silver  
Judith E. Soltz, Esq.  
John J. Soroko  
Robert S. Victor Sr.  
Kenneth J. Warren, Esq.

Emeritus Trustees

Cynthia P. Heckscher  
Edward A. Montgomery Jr.  
I. Wistar Morris III  
Seymour S. Preston III  
Minturn T. Wright III



Photo Credits

Cover: Mark Sabaj/ANS  
Inside Front Cover: Mark Sabaj/ANS; Page 1: Jeff Fusco for ANS, Jonathan Fried; Pages 2–3: WINS Staff/ANS; Page 4: Dan Leung for ANS, WINS Staff/ANS; Page 5: ANS, WINS Staff/ANS; Page 6: Dan Leung for ANS; Page 7: Denae Jackson; Pages 8–13: John Hutelmyer/ANS; Pages 14–16: Melissa Bross/ANS; Page 17: Sarah Stalcup for ANS, Arielle Webster/ANS, Melissa Bross/ANS; Pages 18–19: Kathryn Christopher/ANS; Pages 20–21: Roger Thomas/ANS; Pages 22–24: Paul Callomon/ANS; Page 25: Roger Thomas/ANS; Pages 26–30: Mark Sabaj/ANS; Page 31: Greg Cowper/ANS; Page 32–33: Mark Sabaj/ANS; Page 34: Adrienne Franklin; Page 35: Adrienne Franklin, Wayne Lattuca; Page 36–37: Five Five Collective for ANS; Page 38–49: Mark Sabaj/ANS; Page 50: Kathryn Christopher/ANS; Page 53: Wayne Lattuca

DESIGN: AGILECAT | EDITOR: MARY ALICE HARTSOCK





*Founded in 1812, the Academy of Natural Sciences of Drexel University is a leading natural history museum dedicated to advancing research, education and public engagement in biodiversity and environmental science.*



The Academy of  
**Natural Sciences**  
*of* DREXEL UNIVERSITY