NYBG

GARDEN NEWS
SPRING–SUMMER 2017

New York Botanical Garden

Board of Trustees
As of March 31, 2017

Chairman
Maureen K. Chilton

Chairman of the Executive Committee
Amy Goldman Fowler, Ph.D.

Chief Executive Officer
The William C. Steere Sr. President
Gregory Long

Vice Chairman for Strategic Planning
Mrs. Nicholas J. Sakellariadis

Secretary/Treasurer
Craig Vosburg

Vice Chairmen
Edward P. Bass
Larry E. Condon
Amy Goldman Fowler, Ph.D.
Lionel Goldfrank III
Marjorie G. Rosen
William C. Steere, Jr.
Shelby White

Chairman Emeritus
Wilson Nolen

Executive Committee
Amy Goldman Fowler, Ph.D., Chairman
Edward P. Bass
John W. Bernstein
Maureen K. Chilton
J. Barclay Collins II
Larry E. Condon
Lionel Goldfrank III
Diane Katzin
Gregory Long
William B. O'Connor, Esq.
Marjorie G. Rosen
Deborah Goodrich Royce
Mrs. Nicholas J. Sakellariadis
William C. Steere, Jr.
Carmen M. Thain
Craig Vosburg, Ex Officio
Caroline A. Wamsler, Ph.D.
Shelby White

Trustees
Leonard Abess
Mario Batali
Gary A. Beller
Mrs. Jeremy H. Biggs
Mrs. Coleman P. Burke
Mrs. Harry Burn III
Mrs. Jonathan C. Clay
José Luis Cruz, Ph.D.
Mrs. Marvin H. Davidson
Florence A. Davis
Jacqueline H. Dryfoos
Mrs. Edith B. Everett
Robert F. Gossett, Jr.
Mrs. Thomas J. Hubbard
Weslie R. Janeway
Henry P. Johnson
Jill Joyce
Karen Katen
Edith W. Kean
Thomas E. Lovejoy, Ph.D.
Susan E. Lynch
Serafin U. Mariel
Susan E. Kay Matelich
Gilbert C. Maurer
Lynden B. Miller
George M. Milne, Jr., Ph.D.
Hidemoto Mizuhara
Janet M. Montag
Malcolm C. Nolen
Jessye Norman
Susan R. Palm
Marc Porter
Hon. Dianne T. Renwick
Mrs. John R. Robinson
Mrs. Arthur Ross
Gillian Steel
Michael H. Steinhardt
Eleanor F. Sullivan
Sally Susman
John A. Thain
Douglas Dockery Thomas
Joseph A. Thompson
Mish Tworkowski
Karen Washington
Sigourney Weaver
Michael A. Zarcone

Life Trustees
Lewis B. Cullman
Mrs. Andrew Heiskell
Kenneth Roman

Trustees Emeriti
William S. Beinecke
Mrs. Thomas H. Choate

Distinguished Counsellors to the Board
Sir Peter R. Crane, FRS
Helen Dillon
Vartan Gregorian, Ph.D.
Penelope Hobhouse, Hon.D.Litt. VMH
Professor Sir Ghillean Prance, FRS, VMH
Edward O. Wilson, Ph.D.

Ex Officio Trustees
Hon. Bill de Blasio
Hon. Ruben Diaz Jr.
Hon. Carmen Fariña, Ph.D.
Hon. Tom Finkelpearl
Hon. Melissa Mark-Viverito
Hon. Mitchell Silver
Hon. Scott M. Stringer

Board of Advisors
R. Ellen Avellino
Cynthia D. Brodsky
Susan Cohen
Cristina Cuomo
Patricia Fast
Aramina Vega Ferrer, Ph.D.
Mrs. Robert C. Graham, Jr.
Mai Hallingby Harrison
Mrs. Wm. Mitchell Jennings Jr.
Mrs. Charles B. Johnson
Nathalie Kaplan
Alexandra Lebenthal
Lawrence Lederman
Peter R. McQuillan
Gillian Miniter
Mrs. Andrew Safran
Nicholas J. Sakellariadis
Kate Solomon
Mrs. B. Robert Williamson, Jr.

On the cover: The Native Plant Garden was designed by Oehme, van Sweden to harmonize a stunning designed terrain with the diversity of microclimates across the 3.5-acre site. The layout, in the middle of NYBG's historic grounds, is both sustainable and visually inventive, a radical blend of modern sensibilities along with environmentally friendly elements.

President's Perspective

Dear Friends:

While significant investments and great strides continue to be made in the diversity and quality of NYBG's public exhibitions and education programs, behind the scenes the horticulturists, engineers, and other professionals who steward the Garden have transformed the way they care for more than one million living plants and 750,000 square feet of building space. We have substantially reduced dependence on chemical pesticides and fertilizers by incorporating sustainable horticultural practices into every aspect of our work. Simultaneously, NYBG's net carbon emissions have decreased significantly by incorporating energy-efficient technologies ranging from trams and boilers fueled by natural gas to installing LED light fixtures throughout the Garden.

We also offer many opportunities to be part of the public discourse and action to help discover and document biodiversity, engage and inspire the next generation of responsible stewards, and conserve and protect Earth's natural resources. On the pages that follow you will learn about some of the green initiatives that make NYBG a leader in environmental education for adults and children alike as well as the central role NYBG plays both locally and globally to save the plants of the world.

I hope you will bring your family and friends often to enjoy nature's ever-changing spring and summer palette and visit our current exhibitions on view through October 29: *What in the World Is a Herbarium*?, providing fascinating insight into the importance of our renowned collection of dried specimens for research and study, and *CHIHULY*, presenting a larger and more in-depth experience of Dale Chihuly's spectacular artwork since it premiered at NYBG in 2006. All the details about these and other offerings can be found at **nybg.org**

As always, thank you for your ongoing commitment and support that allow NYBG to make valuable contributions to the quality of life in New York City and to global awareness and conservation of plant life, which is vital for human survival.

Gregory Long
Chief Executive Officer
The William C. Steere Sr. President

CHIHULY Is Back! Through October 29, 2017

By Karen Daubmann, Associate Vice President for Exhibitions and Public Engagement

Dale Chihuly, *Red Reeds on Logs*, 2017, The New York Botanical Garden

For the past 11 years, there is one question that I have been asked consistently from visitors and colleagues alike, "When is Chihuly coming back?" I was excited (and relieved) to be able to finally answer it when we announced in March 2016 that a new Chihuly show would open in April 2017.

Behind the scenes, we have been working diligently with Team Chihuly for the past three years to craft an experience that is larger and more immersive than our 2006 exhibition. It is also Dale Chihuly's first major garden exhibition in New York in more than a decade. During the intervening years, Chihuly has continued to experiment and innovate in a variety of media. So too has the Garden advanced its commitment to presenting interdisciplinary exhibitions that reveal the inextricable links between art and nature as well as artists and gardens.

Expanding the footprint of the 2006 exhibition, which was displayed within and around the Enid A. Haupt Conservatory and across the historic landscape, two additional venues embolden this year's show: LuEsther T. Mertz Library Building and Native Plant Garden.

The Mertz Library Building features legacy works from the Chihuly collection. Small glass works and works on paper grace the Art Gallery on the 6th floor while the *Palazzo Ducale Tower* enlivens the Britton Rotunda on the 4th floor. Displaying these works indoors, in intimate spaces, has enhanced our ability to tell the story of Chihuly's progression in his art form, relayed through informative panels and archival photos that reveal the range of pieces as well as locations around the world that have hosted the artist's work.

The Native Plant Garden's 230-foot-long boardwalk is the perfect vantage point for viewing *Koda Study #1* and *Koda Study #2,* the Chihuly works that grace the weirs and waterways. The two forms contained in this space are quite different than the forms seen in other parts of the Garden and other exhibitions. The large gridded panels serve as a focal point for those taking in the long view of the Native Plant Garden from the entrance pavilion and accentuate the transition between the central water feature's three basins. The grids of colored panels—and their reflections in the water below—take on different characteristics throughout the day and with the changing light of each season.

This form—gridded sheets of colored translucent panels—was originally conceived as a temporary display in which Dale Chihuly and his colleague Seaver Leslie were able to hone their craft as artists in residence during the summer of 1975 at Artpark in Lewiston, New York. After returning to NYBG in 2015,

Dale Chihuly, *Sol del Citrón*, 2017, The New York Botanical Garden

Chihuly was inspired to revisit the Artpark concepts and create the works on view in the Native Plant Garden. Another version of the Artpark installation, *Koda Study #3*, features the upright translucent panels positioned in the Tropical Courtyard of the Haupt Conservatory. Here, too, as you explore the form from every angle, you grasp the full impact of the colorful combination of panels with the Conservatory's glass panes as a backdrop; it is truly a stunning vignette.

I hope you will agree that the 2017 exhibition has been well worth the wait!

Lead Sponsor: Bank of America

Sponsors: Mastercard, Gillian and Robert Steel, LuEsther T. Mertz Charitable Trust, Celebrity Cruises, Grand Hyatt New York, Tequila Avión

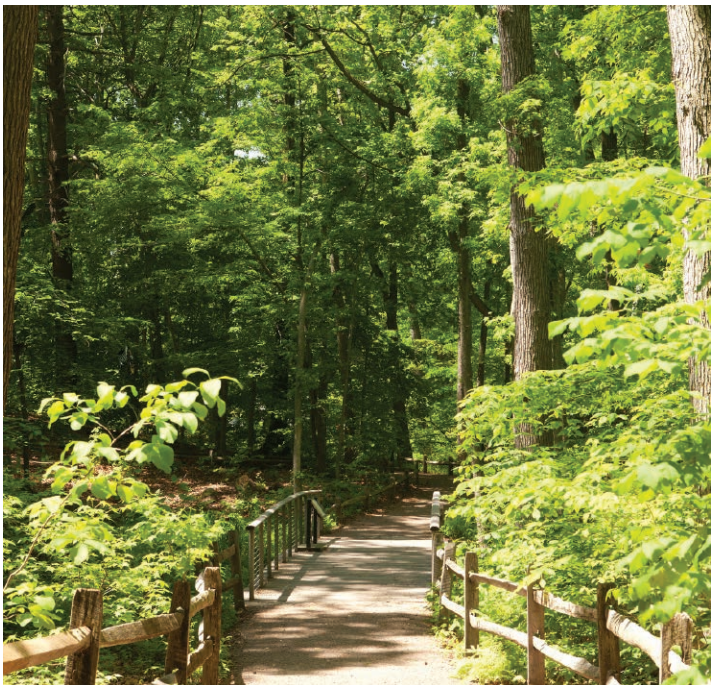
Mobile Media supported by Bloomberg Philanthropies

Additional support: Allwin Family Foundation, Art Alliance for Contemporary Glass, Milton and Sally Avery Arts Foundation, The Kurt Berliner Foundation, E.H.A. Foundation, Inc., Jacob's Creek, and Anna-Maria and Stephen Kellen Foundation

Exhibitions in the Enid A. Haupt Conservatory are made possible by the estate of Enid A. Haupt.

Exhibitions in the Mertz Library are made possible by the LuEsther T. Mertz Charitable Trust.

Early works, including glass series and works on paper, are on display in the Art Gallery.



NYBG plants hundreds of new trees every year in the Thain Family Forest, in our historic woody plant collections, and in our gardens and displays.

Volunteers from NYBG's partner corporations work on grounds April through October to improve our collections, rejuvenate the landscape, and clear invasive species.

NYBG strives to maintain a position at the cutting edge of sustainably operated institutions. All across our 250 acres you will find efforts underway to reduce our carbon footprint, streamline our use of natural resources, and educate both the public and future horticultural and botanical experts in the effective stewardship of our environment.

Protecting and Restoring Nature in the City
From its thousands of native species—both plant and animal—to its meandering waterways, nature is alive and well in New York City. Each year NYBG experts work not only to protect the environment that we have, but also restore it to its full potential.

Engaging Future Stewards of the Environment
NYBG's renowned Graduate Studies Program, School of Professional Horticulture, and Adult Education offerings produce some of the most capable plant and landscape specialists in the world, while our Children's Education Programs teach thousands of children, parents, and teachers the value of caring for our environment. Citizen scientists volunteer their time at NYBG, providing valuable research hours that help us understand the health of our forests and waterways.

Creating a More Energy-Efficient Garden
By minimizing our impact on the city's electrical grid and working year after year to streamline our use of resources, NYBG has become a leader in institutional sustainability. Ongoing work to modernize our buildings and infrastructure is making the Garden a cleaner, more efficient part of New York's cultural landscape.

Developing Alternatives to Chemical Pesticides and Fertilizers
Maintaining 250 acres of indoor and outdoor collections spanning over one million plants comes with its fair share of challenges. To address the threat of pests and disease among our plants and trees, NYBG works to maintain a proactive, green approach to chemical applications Garden-wide.

Partnering with Like-Minded Corporations, Government Agencies, and Individuals
NYBG receives support from many corporate, government, and individual partners who make our greening efforts possible.

To join us in our efforts and learn how you can help, please visit **nybg.org/sustainability**

Before the Green Is Gone: June 14, 2017

The central pool in the Native Plant Garden's 230-foot-long water feature is fed by recycled stormwater captured on site and filtered by aquatic plants.

Seeking to create a platform for global conversations between individuals and businesses alike about key sustainability issues and conservation challenges facing the world today, NYBG is hosting BEFORE THE GREEN IS GONE: 2017 Sustainability Summit and Dinner at the Garden on Wednesday, June 14, honoring the Royal Bank of Canada and Diane Katzin, Sustainability Advocate and NYBG Trustee.

The Summit will offer informative and engaging peer-led sessions with experienced thought-leaders from corporations, joined by professionals from NYBG, NGOs, and foundations, on subjects in three critical sustainability areas:

Water: Explore the latest implementations in successful water strategies, from water's use in the manufacturing process to sustainable management in resource ecosystems.

Forestry: Examine what businesses are doing to mitigate the effects of deforestation on climate change and the relationships they are leveraging with government and NGO partners to achieve success.

Energy: Learn how businesses are crafting policies and developing models to achieve new levels of efficiency across operations from green buildings to office energy use.

The conversation will be led by independent moderators from media and academia with attendees participating in a sharing of experiences, challenges, and practical solutions to critical issues. These information-packed talks will be hosted at active conservation sites throughout the Garden where attendees can see first-hand how corporations are working with NYBG to effect change and sustainably preserve green spaces.

To learn more and register, please visit **nybg.org/bgg**

Reducing reliance on fossil fuels and switching to sustainable, environmentally friendly alternatives such as CNG for trams is a top priority at NYBG.

What in the World Is a Herbarium?

With more than 7.8 million preserved specimens, NYBG's William and Lynda Steere Herbarium is the second-largest herbarium in the world and the largest in the Western Hemisphere. This special exhibition, on view in the Arthur and Janet Ross Gallery through October 29, celebrates the Steere Herbarium as the centerpiece of the Garden's botanical research program and a priceless resource for scholars from around the world. Through this exhibition, learn how the Garden staff create and preserve herbarium specimens and how they are used to understand and save the plants of the world.

This exhibition was made possible in part by the Institute of Museum and Library Services [MA-10-15-0133-15].

Become a Citizen Scientist!

By Barbara M. Thiers, Ph.D., Patricia K. Holmgren Director of the Herbarium, Vice President for Administration, Global Plant Research and Conservation Division

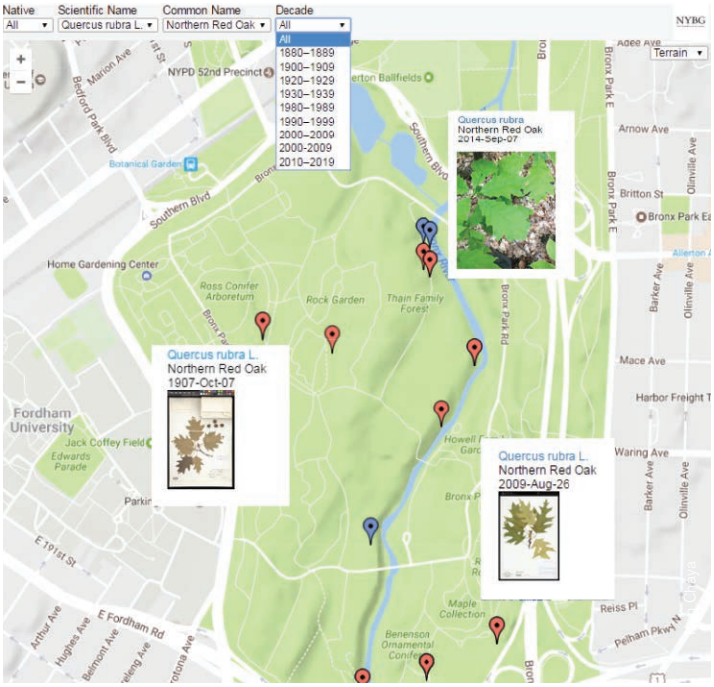
GIS Laboratory Manager Elizabeth Kiernan with citizen scientist Maura Flannery

The scientific mission of the William and Lynda Steere Herbarium is to preserve a record of Earth's vegetation. Scientists consult our plant and fungal specimens both in person and electronically through the C.V. Starr Virtual Herbarium for a wide variety of research and conservation projects. Citizens help us carry out our scientific mission in a variety of ways. Some help prepare the 40,000 new specimens we receive each year and others help us digitize those specimens to share online. Volunteers also help us capture digital images of older specimens from the Herbarium as part of retrospective projects, for example, capturing images and data from all our specimens from the New York City metropolitan area and New England as well as specimens of plants that are invasive in the Great Lakes. We hold events every few months where teams of volunteers come together to transcribe data from specimens into a structured database for the Virtual Herbarium. Some enjoy this work so much that they continue it on their own at home! Finally, citizen scientists sometimes work in our Geographical Information Systems (GIS) Laboratory, where we use data from Herbarium specimens to determine which species are most at risk for extinction.

If you are interested in becoming a Herbarium Citizen Scientist, please contact Volunteer Services at 718.817.8765 or **volunteer@nybg.org**. You'll have the chance to see many interesting plants from all over the world, expand your knowledge of geography, and gain an insight into the science behind the effort to conserve biodiversity and maintain healthy ecosystems.

New York City EcoFlora Launches 2017 Pilot Project

By Daniel Atha, Director of Conservation Outreach, and Brian M. Boom, Ph.D., Vice President for Conservation Strategy, Director of NYBG Press, Bassett Maguire Curator of Botany



Map of one test species, Northern Red Oak (*Quercus rubra*) from the NYBG grounds, showing specimen-based and observation-based records in different colored markers.

The pilot phase of a recently announced new project, New York City EcoFlora, is underway. The project's goal is to create an online, scientifically vetted, dynamic repository for all of the information already known about the City's plants and their ecological relationships, and to combine these data with up-to-date observations made by citizen scientists across all five boroughs. This project will increase the environmental literacy of citizens and provide them with the opportunity to contribute to conservation-based planning, the sustainable stewardship of New York City's plants and the species, and habitats upon which they depend.

This year, the project will focus on 30 test species. Distribution maps for each of these species are being developed, based both on records from herbarium specimens and on observations made by citizen scientists. On the maps for the test species, red markers indicate specimen-based records from the NYBG's Steere Herbarium; blue markers indicate observational records by citizen scientists from the iNaturalist website. A dynamic map of the 30 test species can be explored online at the New York City EcoFlora website; click on any of the markers, and the data behind that record will be revealed in a pop-up balloon. Citizen scientists will be testing observation protocols on these species this summer in NYBG's Thain Family Forest.

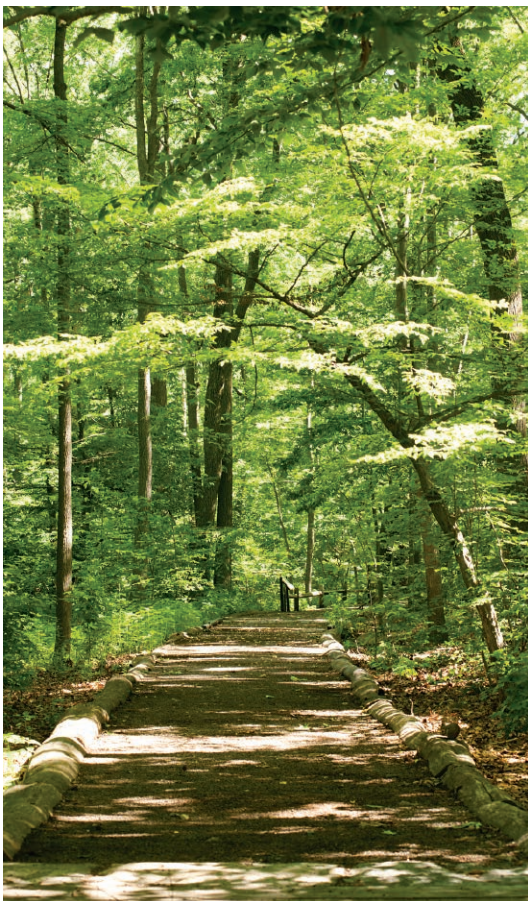
This project was made possible in part by the Institute of Museum and Library Services [MA-10-16-0420-16].

6th Global Botanic Gardens Congress

The New York Botanical Garden will actively participate in the 6th Global Botanic Gardens Congress in Geneva, Switzerland, in late June 2017. Our focus there will be on the Congress' plant conservation theme, within which we will make two presentations.

In *Creation and Goals of the Center for Conservation Strategy at The New York Botanical Garden* we describe the rationale, as well as the programmatic and geographic foci, of this new NYBG initiative, providing examples of vital projects from the Bronx to Brazil.

In *Restoring an Old Growth Urban Forest in the Heart of The New York Botanical Garden* we present as a case study from the NYBG's grounds of the ongoing, successful restoration and management of the 50-acre Thain Family Forest, the largest remaining tract of old-growth forest in New York City.



Thain Family Forest

Integrated Pest Management at NYBG

By Todd Forrest, Arthur Ross Vice President for Horticulture and Living Collections

Replacing disease-prone roses in the Peggy Rockefeller Rose Garden with tough and beautiful cultivars such as *Rosa* 'Belinda's Dream' has allowed us to significantly reduce our use of fungicides.

Don Gabel, NYBG's Director of Plant Health, spends most of his time at work looking for trouble. He moves from the Peggy Rockefeller Rose Garden to the Nolen Greenhouses for Living Collections to the Enid A. Haupt Conservatory, magnifying glass in hand, turning over leaves, digging around roots, or scrutinizing flower buds in search of insects or diseases that threaten our plants. Given that more than one million plants representing approximately 15,000 different species, hybrids, and cultivated varieties grow outdoors and under glass at the Garden, Don usually finds what he is looking for.

Don has been instrumental in developing the Garden's Integrated Pest Management (IPM) program, which combines sound horticultural practices, careful observation, and good pest management science to keep the Garden's plants beautiful while reducing our dependence on pesticides. The foundation of an effective IPM program is a commitment to growing healthy plants capable of fighting off infestations. To that end, Don and his colleagues in Horticulture must understand the preferences, tolerances, and susceptibilities of an extraordinary range of plants, from ancient oaks to rare tropical orchids.

To reduce our use of pesticides, we focus on proper irrigation, pruning, and improving soil with compost from our new Green Materials Recycling Center. We replace disease-prone plants with disease-resistant varieties. We encourage beneficial insects and apply substances such as chitin, which promote plants' natural defenses. With these and other sustainable practices in place, when Don finds trouble, more often than not, our plants are already taking care of it.

Turning Green Waste into Black Gold

By Kurt Morrell, AP Farm Associate Vice President for Landscape Operations

NYBG's highly anticipated Green Materials Recycling Center (GMRC) is now in operation. Since the 70,000-sq.-ft. composting facility was completed this past fall, we have already processed and cured thousands of yards of green material (grass clippings, leaves, woodchips, and other organic materials) collected throughout the landscape and the greenhouses. Approximately 1,000 yards of leaves have been collected, processed, and added back into the landscape in various areas, including the Azalea Garden, Native Plant Garden, and the newly renovated Judy and Michael Steinhardt Maple Collection. Residue logs and wood chips from tree work are ground into hundreds of yards of high-quality hardwood mulch, which is used in garden beds and around mature trees.

Compost is the key tool used to keep the Garden beautiful while reducing the use of chemical fertilizers and pesticides. After being processed in the *Diamond Z* tub grinder, green material is stored in long windrows on the newly created gravel composting area, where the curing process takes place. Staff monitor temperatures and moisture content throughout the procedure. Once fully cured, the compost, otherwise known as black gold, is combined with potting soil to produce plants for exhibitions, applied directly to planting beds, or used to make compost tea, which is combined with kelp, fish emulsion, and other natural products and applied throughout the living collections. The GMRC enables us to advance our green horticultural practices and serves as an international model for efficient green recycling practices in public gardens.

The Green Materials Recycling Center is a gift of Diane Katzin with additional support from Bronx Borough President Ruben Diaz Jr.

New Urban Naturalist Certificate Program Launched

By Barbara Corcoran, Vice President for Continuing and Public Education

Using NYBG's grounds and select city parks as living labs, the new Urban Naturalist Certificate Program focuses on vascular and non-vascular plants, invertebrates and vertebrates of New York City's uplands and coastal wetland ecosystems, emphasizing the critical conservation issues facing each habitat.

NYBG launched its new Urban Naturalist Certificate Program in spring 2017. This unique program equips students with the formal skills they need to observe, interpret, and document the plant and wildlife that abound in our teeming metropolis. Led by former NYC Parks Chief Naturalist Mike Feller, NYBG's team of expert naturalists use the Botanical Garden's grounds in the Bronx and select city parks as living labs to investigate the complex interrelationships among species, and to discover how the urban environment sustains our upland and coastal wetland ecosystems.

The Urban Naturalist Certificate Program combines classroom sessions, guest lectures, hands-on activities on the Garden grounds, and weekly field excursions. Specifically designed to train people to become citizen scientists committed to conservation and environmental stewardship, the Certificate is also valuable for those engaged or interested in starting interpretive, educational tours of urban wild areas or parks.

The Program focuses on vascular (having tissues to transport nutrients, water, and minerals) and non-vascular plants, and invertebrates and vertebrates of New York City's uplands and coastal wetland ecosystems, emphasizing the critical conservation issues facing each habitat. Program Coordinator Mike Feller spent 31 years as Chief Naturalist for NYC Parks Natural Resources Group, where he supervised the design and execution of numerous ecological restorations. Feller also spearheaded the creation of the Forever Wild Program that established 51 nature preserves throughout New York City.

"We believe The New York Botanical Garden's Urban Naturalist Certificate Program is the first of its kind to offer a general comprehensive introduction to natural history—both flora and fauna—in an urban context," said Feller. "It will provide a primer in 'ecological literacy' and observation and identification skills using premier New York City natural areas. We're looking forward to getting out in the field with the students."

During the course, students employ all five senses to observe the natural world; utilize scientific tools, including a metric ruler, loupe, dichotomous key, and binoculars, to identify plant and animal species; create scientifically useful written descriptions and photographic records of observation; interpret nature by leading walks, uploading to iNaturalist or NYBG's New York City EcoFlora project, or presenting independent observations and experiences; explore phylogeny (the evolution of organisms) and genetic connections on the evolutionary Tree of Life; identify key environmental conservation issues that affect New York City; and hear specialized talks by renowned Garden scientists.

For more information about the next Urban Naturalist Certificate Program session this fall, please contact Lisa Whitmer, Director of Adult Education, at 718.817.8595, or visit **nybg.org/adulted**

Urban Advantage: Partners in Citizen Science

By Judith Hutton, Manager of Teacher Professional Development, and Tai Montanarella, Marian S. Heiskell Associate Director of School and Out-of-School Programs

Children and teachers observe carefully and collect data about the timing of seasonal changes in species.

After you take a moment to think about the concept of a "cycle," try to imagine teachers and students conducting a similar exercise—creating lists based upon their interpretation of this word, and discussing the natural cycles around us, including the life cycle of a plant. What does phenology (study of seasonal change) and citizen science have to do with the life cycle of a plant? Everything! Plant phenology requires identification and close observation of plant parts, as well as an understanding of leaf-out, flowering, and fruiting in plants. Citizen science allows teachers and students to participate in the scientific process: to observe and collect data about the timing of these seasonal changes in species during the year.

Through the Urban Advantage (UA) program, a partnership among NYC Department of Education, schools, and science-rich cultural institutions, NYBG provides both teacher education and student workshops to improve scientific literacy. The Garden's Professional Development Program provides teachers with the tools necessary for conducting outdoor science, while their students practice citizen science during guided field investigations with GreenSchool staff. Through these authentic field science experiences, students and teachers begin to understand the cyclic change in plants, and the impact of weather and climate change on these processes. Most importantly, they continue the cycle of conservation, becoming allies in the fight for maintaining biodiversity in native plant communities and ecosystems. To learn more about Urban Advantage, please visit **urbanadvantagenyc.org/what-is-ua**

Green Technologies and Stewardship of the Bronx River

By Toby Adams, Gregory Long Director of the Edible Academy

The Edible Academy campus is situated adjacent to the Bronx River, the only freshwater river in New York City. The water spills over a dam originally built by the Lorillard family in 1800 and cascades through a gorge of Fordham gneiss rock, a route well traveled by the Lenape Native American tribe over many generations. The Edible Academy's overlook pavilion and classrooms will have spectacular views into the canopy of the Thain Family Forest and down to the river and will inspire us to be mindful of our gardening practices. The proximity to this natural resource and our place in the river's watershed means our actions can impact the health of the river's ecosystem. Our practice of organic gardening techniques and lessons focusing on the Bronx River watershed have introduced this to the participants in the Children's Gardening Program, the next generation of stewards of our environment.

The inclusion of green technologies in the Edible Academy infrastructure will add to our effort to care for the sensitive landscape. The classroom building will include a 2,100-square-foot green roof featuring an array of perennial succulents and edible plants, including thyme and chives, which along with the planting medium will help to absorb rainwater that would otherwise run off the roof and into the river. Pathways will be constructed with porous materials, allowing water to permeate and be absorbed into the underlying soil, diverting even more water from the river. Together these technologies will reduce our impermeable surfaces and prevent stormwater from carrying organic matter into the Bronx River and negatively impacting the freshwater ecosystem.

The Bronx River runs through the heart of NYBG's Thain Family Forest.

NYBG & The Bronx: Nurturing Homegrown Talent

By Henry Cabrera, Associate Vice President for Visitor Experience

NYBG's Visitor Experience division was created in 2012 to optimize the Garden experience by consolidating key visitor-facing areas. We work systematically and efficiently to excel in all aspects related to the experience of more than one million annual visitors—many visiting for the first time—and strive to shape and make a lasting impression on every single person.

The Visitor Services (VS) department also serves the neighboring community by offering local residents opportunities for jobs, training, career development, and personal growth. People who are unskilled or newly employed can get access to the training needed to succeed. Currently 50% of full-time NYBG staff is from the Bronx, while 80% of our part-time VS workforce hails from the Bronx. Hiring locally ensures we have a steady stream of reliable talent to meet the ever-growing needs of the Garden. Today we train approximately 175 VS staff members annually.

Our diverse pool of staff members creates a unique environment that encourages learning and engagement between cultures and generations. Three-quarters of our staff are high school and college age, and one-quarter of the team are adults and seniors. In sharing mutual job responsibilities and a break room, the team works closely together to create a cohesive experience for our visitors.

All in all, a group with varied backgrounds is stronger and more effective as a whole. No matter the age, an important cornerstone of our Visitor Services training foundation is the **SEED** approach: **S**mile, **E**ngage, **E**quip, and **D**eliver.

We look forward to continuing our local recruitment and outreach success by leveraging key partnerships and forging new alliances with community organizations, high schools, and higher learning institutions. The result will continue to impact all parties at interest: NYBG, Bronx residents, and the community and visitors we are honored to serve.

The Visitor Services department is proud to be a part of the personal and professional development of each team member. Here are a few of our recent success stories to celebrate:

Lizette Baldeo-Wilson discovered an opportunity to work at the Garden through a career fair at Lehman College. She began in October 2015 as a part-time seasonal attendant in Visitor Services. She particularly appreciated hearing the positive visitor feedback and loved being able to engage directly with guests and encourage their continued support. It was NYBG's overwhelming beauty throughout the seasons that led her to consider a permanent position. In April 2016, she became a full-time Senior Membership representative, capitalizing on her exemplary skills with Membership and visitor relations. Lizette looks forward to seeing and supporting the Garden every day on her current career path.

Christian Naber attended Fordham Preparatory High School. As an employee of the Garden since June 2011, he worked as a seasonal attendant in Visitor Services, regularly returning each summer for two months before returning to college in Wisconsin. In June 2016, after graduating from Marquette University, he retained a permanent position as a tram driver at the Garden. He plans to attend graduate school this fall to study environmental law. Christian appreciates and enjoys interacting with the Garden's wide-ranging and diverse audience from many walks of life.

Miguel Hernandez joined the Garden in September 2012 as an attendant. He advanced within Visitor Services, developing into an accomplished Team Leader who was particularly visible during the annual *Holiday Train Show*. In January 2017, he transferred to the Operations department, where he currently serves as a full-time Jr. Botanical Garden Custodian. Miguel says that working at the Garden has improved his self-confidence and ability to interact with many different people.

Final Volume: Intermountain Flora

NYBG President Gregory Long with Drs. Patricia K. Holmgren and Noel H. Holmgren at a reception celebrating the publication of the final volume of *Intermountain Flora*.

One of NYBG's most iconic floristic projects came to a spectacular conclusion in February 2017 with the publication of the final volume of *Intermountain Flora*, eight decades after the initiative first was envisioned in the early 1930s. This project, an encyclopedic compendium of the vascular plant species of the Intermountain West, U.S.A., has received scores of testimonials from conservationists, scientists, and natural area managers about how vital this series of books is to their efforts to conserve, understand, and manage the plant resources of the Intermountain West. The co-authors of Volume Seven, Noel H. Holmgren, Ph.D. and Patricia K. Holmgren, Ph.D., were recently honored at a reception in celebration of this milestone.

For more information about *Intermountain Flora*, please visit nybg.org/press_releases/IntermountainFlora--VolumeSeven022317.pdf. The books may be obtained at **nybgpress.org**

Board Welcomes New Members

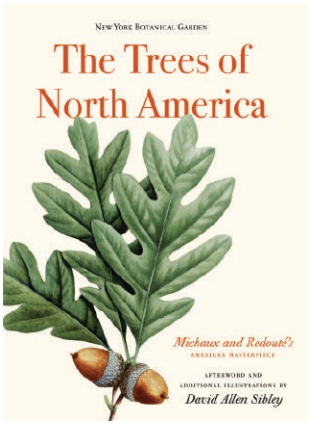
José Luis Cruz, Ph.D., is President of Lehman College of The City University of New York. He was appointed as Lehman's third President by the CUNY Board of Trustees in June 2016 and began his tenure on August 15, 2016. Prior to his appointment, Dr. Cruz served as Provost and Vice President for Academic Affairs at California State University, Fullerton; Vice President of Higher Education Policy and Practice at The Education Trust in Washington, D.C.; Vice President for Student Affairs of the University of Puerto Rico system; and Chair of the Electrical and Computer Engineering Department and Dean of Academic Affairs at the University of Puerto Rico-Mayagüez. He is a board member of The Education Trust, a senior member of the Institute of Electrical and Electronics Engineers, a past recipient of the National Science Foundation Career Award, and a patented inventor. He graduated magna cum laude with a bachelor's degree in electrical engineering from the University of Puerto Rico-Mayagüez and earned master's and doctorate degrees in electrical engineering from the Georgia Institute of Technology. Dr. Cruz is a national leader in and advocate for inclusive excellence and student-focused, equity-driven higher education policies and practices.

Susan Rollo Palm has long been a staunch advocate on behalf of NYBG's Children's Education programs. Elected as a Member of the Corporation in 2006, Susan has served on the Garden's Education Committee since 2015. She is an active patron of the Special Events program, having supported the Orchid Dinner, Rose Dance, and the Antique Garden Furniture Fair, and has traveled with the Garden to England, Italy, and France.

Susan is a Founding Fellow of the Royal Horticultural Society and has also been involved with several New York City's cultural institutions, including The Frick and The Metropolitan Museum of Art.

Born and raised in the United Kingdom, for more than 25 years she was a director of an architectural practice based in London. Susan maintains her family garden in Wiltshire, England. She and her husband, Gregory Palm, Executive Vice President and General Counsel of the Goldman Sachs Group Inc., also have an extensive garden in New Jersey, and are raising their two children there and in New York City.

Newly Published:
The Trees of North America: Michaux and Redouté's American Masterpiece



This magnificent new publication (Abbeville Press) contains the remarkable selection of American forest trees surveyed by François-André Michaux and Thomas Nuttall from *The North American Sylva*, held in NYBG's LuEsther T. Mertz Library, featuring illustrations by celebrated botanical artists such as Pierre-Joseph Redouté and Pancrace Bessa.

François-André Michaux (1770–1855) was a French botanist whose work on the trees of North America gave the world's first illustrated account of American trees east of the Mississippi. From 1841 to 1849 Thomas Nuttall (1786–1859), an English botanist and one of the greatest plant explorers of North America, prepared supplementary volumes to Michaux's landmark work, *The North American Sylva*.

NYBG President Gregory Long looks at the book in the context of The New York Botanical Garden; Mertz Library Director Susan M. Fraser examines this landmark of American botanical history; award-winning garden writer Marta McDowell recounts the two botanist-explorers uncovering the continent's arboreal riches; and best-selling ornithologist and natural history artist David Allen Sibley offers an aesthetic appreciation.

For the first time, full-color reproductions of all 277 plates are now included in a single volume, which also includes capsule summaries of every tree species featured, written by NYBG staff, along with reference illustrations by David Allen Sibley.

Purchase your copy today: available at NYBG Shop or online at **nybgshop.org**

Perennial Society Profile

Arlynn Cagan Hilton discovered NYBG while in need of a retreat during a very stressful career. Like many other visitors, she found our 250 acres to be tranquil, peaceful, and relaxing. Eventually she became a NYBG docent in the Enid A. Haupt Conservatory. "I always looked forward to my visits and found volunteering to be a very rewarding experience."

Arlynn loves the annual *Orchid Show* and *Holiday Train Show.* "All of NYBG's exhibitions are fabulous, and when I am in Connecticut in the summers, the Garden is still one of my favorite places to visit. NYBG was and always will be a magical place for me."

When it came time for Arlynn to think about her estate planning, she included NYBG as one of the beneficiaries of her trust. "I didn't think twice about making NYBG one of my beneficiaries. In fact, NYBG was my first choice." Arlynn has so many wonderful memories of the Garden, and she knew that she wanted to be able to make a contribution to benefit the Garden for years to come, and "help ensure that future generations would have as much enjoyment there as this most special place gave to me."

"There are many worthy causes, but in my opinion, making NYBG part of a planned gift ranks right up there. It is a place where nature is shown in all her splendid glory. It is a place of beauty and serenity, a haven to get away from all of life's stresses—even for just a little while. It is a place that deserves to be preserved for future generations."

For more information about how you can include a gift to NYBG in your estate plans, please contact Lisa Sifre, Director of Planned Giving, at 718.817.8545, e-mail at lsifre@nybg.org, or visit NYBG's Planned Giving website at **nybgplannedgiving.org**

A Unique Gift That Will Last for Years to Come…

Dedicating a bench in someone's honor or memory at NYBG is a meaningful gift for any plant lover or avid gardener. Our staff will assist you in choosing one of the select benches throughout our 250 acres, and help you create an inscription to honor a special person or occasion.

For more information about dedicating a bench, please contact Lisa Sifre at 718.817.8545 or lsifre@nybg.org, or visit **nybg.org/join-support/honor-memorial-gifts**

Recent Grants Support NYBG's Wide-Ranging Work

The New York Botanical Garden is delighted to announce several important grants that it has recently received to support work in plant research, children's education, public programs, and horticulture.

- The **LuEsther T. Mertz Charitable Trust** has made a significant pledge toward the essential restoration of the Enid A. Haupt Conservatory's iconic dome. The Mertz Trust's gift will underwrite soft costs associated with this project, which already has nearly $12 million in funding pledged by the City of New York and the State of New York.

- NYBG has also recently received two generous gifts from members of the Board of Trustees. **Lewis B. Cullman** has renewed his very important operating support that creates the Cullman Vice President for Laboratory Research position currently held by Dennis Wm. Stevenson, Ph.D., while **Susan R. Palm** has made a wonderful gift in support of the Fund for the Garden.

- NYBG has received a new grant for $350,000 over three years from **100Kin10**, a national network of organizations that is committed to improving STEM education by adding 100,000 more STEM teachers to America's classrooms by 2021. With this funding, NYBG will develop a Mobile Science Tool for caregivers and teachers to use in the Everett Children's Adventure Garden to promote children's self-guided nature exploration and to encourage active science investigation.

- NYBG received a grant of $215,000 from the Office of the Attorney General administered through the **National Fish and Wildlife Foundation's Bronx River Watershed Initiative** for the Conservatory Permeable Paver Stormwater Detention Lot Project. This project will significantly reduce stormwater runoff entering the Bronx River from the Garden's parking area.

- The **Ambrose Monell Foundation** renewed their generous support of the Fund for the Garden and Plant Genomics Program with a grant of $200,000. The Fund for the Garden provides the flexible funding that is essential to the Garden's financial and operational stability, while the Plant Genomics Program combines NYBG's research expertise in plant systematics and economic botany with the most cutting-edge genomic techniques, breaking ground for the new fields of molecular biodiversity and genome evolution.

- NYBG received a grant of $150,000 from the **Institute of Museum and Library Services** to support the first phase of the New York City EcoFlora Project. This major, citywide initiative will leverage citizen scientists, local natural history collections, and biodiversity data to understand the dynamics of New York City's native plant species.

- As part of its commitment to arts, culture, and education, **Celebrity Cruises** has donated $105,000 to NYBG's *CHIHULY* exhibition that includes the underwriting of Nature's Sculptures in the Everett Children's Adventure Garden—an enriching, hands-on STEAM opportunity for visiting children and their families.

- NYBG has received a new grant of $100,000 from the **Carnegie Corporation of New York** to support the digitization and transcription of the LuEsther T. Mertz Library's John Torrey Papers. This support also provides matching funds for a National Endowment for the Humanities grant for this project. John Torrey is widely regarded as one of the fathers of American science and central figure in the professionalization of botany in 19th-century America. His personal herbarium formed the basis of the Steere Herbarium, and his extensive library helped form the basis of the Mertz Library.

- **The Starr Foundation** has awarded a new grant of $100,000 to the Maurice R. Greenberg Scholarship Fund in the Graduate Studies Program. Currently, the Greenberg Scholarship Fund is supporting the research of Carlos Rodrigues, who is enrolled in NYBG's joint Ph.D. program with CUNY and working under the supervision of Gregory M. Plunkett, Ph.D., Director of the Cullman Program for Molecular Systematics.

- The **Wallace Genetic Foundation** awarded an additional $100,000 to support the Jean W. Douglas School Demonstration Garden in the Edible Academy. This grant, in addition to their $200,000 capital grant to build and name the School Demonstration Garden, will provide a wonderful resource that encourages teachers to incorporate school gardens into their classroom.

- **Victoria Zoellner** renewed her major annual gift toward the *Holiday Train Show*. The Zoellners began supporting the show 24 years ago, and their generosity has helped NYBG make the exhibition into a New York holiday tradition. In 2016 Mrs. Zoellner visited the 25th Annual *Holiday Train Show* with her son, who had attended with her as a child, and for the first time, her grandson.

In Memoriam:

Thomas J. Hubbard (1924–2017)

By Gregory Long
Chief Executive Officer, The William C. Steere Sr. President

Tom Hubbard celebrating his 90th Birthday at the 123rd Annual Meetings of the Corporation and Board of The New York Botanical Garden on November 20, 2014

It is with profound sadness that we share the news of the recent death of Thomas J. Hubbard, one of The New York Botanical Garden's greatest friends, leaders, and champions. Tom was a remarkable advocate for NYBG for nearly half a century. He and his wife, long-serving Garden Trustee Anne Hubbard, have been central figures in the Garden's renaissance and have made a tremendous impact on global plant research and conservation through their intellectual leadership and philanthropy.

Tom was elected to NYBG's Board of Trustees in 1975 and joined the Executive Committee in 1977. He had a keen interest in the Garden's operations, and throughout the '70s and '80s, when the Garden and all NYC cultural institutions were operating under severe fiscal constraints, he would visit weekly to meet with staff and offer his expertise as well as encouragement and reassurance.

In 1991 Tom was named Chairman of the Board, and he worked closely with the staff to lay the foundation for a reinvigorated NYBG that now welcomes more than one million visitors each year.

During Tom's tenure as Chairman, NYBG restored the Enid A. Haupt Conservatory, opened the 12-acre Everett Children's Adventure Garden, established the Lewis B. and Dorothy Cullman Program for Molecular Systematics, and built the International Plant Science Center. Tom retired as Chairman of the Board and was elected Chairman Emeritus in 2000, and continued in that role until his death on March 20.

Tom and Anne's philanthropy has been vital to the Garden, and together they established seven endowed chairs. Their interest in the institutional history of NYBG, particularly its research, is evident as all of the chairs carry the names of central figures of the Garden's botanical legacy. Through their generosity, one of the best known, most iconic books on North American plants, the *Manual of Vascular Plants of Northeastern United States and Adjacent Canada* (NYBG Press, 1991) by Garden scientists Henry Gleason and Arthur Cronquist, is currently being completely updated. The Hubbards' largesse also helped to found the Garden's new Center for Conservation Strategy.

Earlier this month, the Executive Committee voted to bestow the Gold Medal of The New York Botanical Garden, the institution's highest honor, to Tom and Anne for their unwavering service and dedication to the Garden's mission.

Tom was an anchor in our lives and a figure of historical importance in this institution. We will miss his wise counsel, humor, and Yankee candor, and we extend our deepest sympathies to Anne, their children, extended family, and friends.

Eugene P. Grisanti (1929–2017)
By Dennis Wm. Stevenson, Ph.D.
Cullman Vice President for Laboratory Research

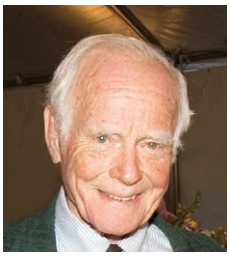
Eugene P. Grisanti was a great friend to and wonderful supporter of The New York Botanical Garden. He served on the NYBG Board for more than 25 years. During this distinguished tenure, Gene was a member of the Executive Committee, serving as Vice Chairman. Gene was well known in New York City as a passionate supporter for the arts, serving on several prominent cultural institutional Boards.

At NYBG, however, he always had an enthusiastic interest in our Plant Research Program and was committed to making sure that we stayed on the forefront of innovations in plant science. Gene joined the Garden's Plant Research and Conservation Advisory Council in 1993, and over the years, helped to facilitate many important grants for the Fund for the Garden and the Plant Genomics Program through the Ambrose Monell Foundation. Because of his largess, we were able to become the world's leader in the field of plant genomics at a research botanical garden.

My favorite memory of Gene is from the opening of an exhibition in the Enid A. Haupt Conservatory in 2011. Usually these events involve the exchange of general pleasantries, but on this occasion, Gene inquired very directly about the status of our computational infrastructure given the massive amounts of molecular data that he knew we were producing. He questioned how we could possibly analyze those data in a meaningful fashion. I told him we had a National Science Foundation grant that would address our need for a state-of-the-art computer cluster for science and indeed for the Garden as a whole. He asked, "Doesn't federal funding require matching funds from the public?" After I said, "Yes," he smiled and replied, "You now have it."

That was Gene; he understood our needs intuitively and pursued them tirelessly for the good of all. Our Plant Science Program today is much stronger because of him. We extend our warmest condolences to his wife, Gretchen, and the entire Grisanti family.

David L. Andrews, M.D. (1930–2016)
By Stephen Sinon
Head of Special Collections, Research and Archives



David L. Andrews, M.D., was elected to the NYBG Board in June 1992 and to the Board of Advisors for the Horticulture Division in 1998. An avid bibliophile, he served as Chairman of the Library Visiting Committee from 1991 to 2003. In 2002 the LuEsther T. Mertz Library's Rondina and LoFaro Gallery displayed a selection of works from Dr. Andrew's superb book collection in *America's Cornucopia: A Collector's View of American Botany and Horticulture*, which interpreted the history of the exploration, classification, and development of America's botanical and horticultural riches. After retiring from his orthopedic surgery practice in June 2001, he prepared to donate his extensive collection to the Mertz Library, which he began to do in December 2002.

Dr. Andrews maintained an expansive garden and collection of bonsai and woody plants on his New Jersey estate, and in June 2005 received a gold medal from the Garden Club of America for his work with bonsai as well as his "unrivaled collection of American botanical history." In addition to his interest in collecting, the ideas in the books were a kind of story that created a picture of the author. He came to know many authors, their thoughts and personalities, and spoke as if he had known them personally. Documenting the history of American botany and horticulture in print had been the guiding light of his collection, influenced by botanist Joseph Ewan's dictum that rarity and condition were subservient to "would one be happier with the item or without."

Dr. Andrews cultivated a great interest in the publication history of the first illustrated book to document the trees of North America, François-André Michaux and Thomas Nuttall's *The North American Sylva*. He collected many copies of the work's variant editions and supplements, forming one of the most comprehensive collections of its kind and now greatly enriching the holdings of the Mertz Library (see p. 15). In donating his collection, Dr. Andrews continued the tradition of other great benefactors who have played key roles in solidifying the Garden's position as a major international botanical and horticultural research center. We extend our sincere sympathies to his wife, Nancy, and the entire Andrews family.

The New York Botanical Garden is an iconic living museum. As an oasis in this busy metropolis since its founding in 1891, we look forward to the Garden's continued leadership as a dynamic New York City cultural institution.

A National Historic Landmark, this 250-acre site's verdant landscape supports over one million living plants in extensive collections. Each year more than one million visitors enjoy the Garden not only for its remarkable diversity of tropical, temperate, and desert flora, but also for programming that ranges from renowned exhibitions in the Haupt Conservatory to celebrations on Daffodil Hill.

The Garden is also a major educational institution. More than 300,000 people annually—among them Bronx families, schoolchildren, and teachers—learn about plant science, ecology, and healthful eating through NYBG's hands-on, curriculum-based programming. Over 90,000 of those visitors are children from underserved neighboring communities, while more than 3,100 are teachers from New York City's public school system participating in professional development programs that train them to teach science courses at all grade levels.

NYBG operates one of the world's largest plant research and conservation programs, with nearly 200 staff members—including 80 Ph.D. scientists—working in the Garden's state-of-the-art molecular labs as well as in the field, where they lead programs in 49 countries.

All of this could not be possible without your support. Learn more about NYBG's 125th Anniversary Campaign at **nybg.org/125**

NYCulture The New York Botanical Garden is located on property owned in full by the City of New York, and its operation is made possible in part by public funds provided through the New York City Department of Cultural Affairs. A portion of the Garden's general operating funds is provided by The New York City Council and The New York State Office of Parks, Recreation and Historic Preservation. The Bronx Borough President and Bronx elected representatives in the City Council and State Legislature provide leadership funding.

Exhibitions in the Enid A. Haupt Conservatory are made possible by the Estate of Enid A. Haupt.

Exhibitions in the LuEsther T. Mertz Library are made possible by the LuEsther T. Mertz Charitable Trust. Additional support for Mertz Library exhibitions has also been provided by The Andrew W. Mellon Foundation and by a Challenge Grant from the National Endowment for the Humanities.

Exhibitions in the Arthur and Janet Ross Gallery are made possible by the Arthur and Janet Ross Fund.

Garden News is published by The New York Botanical Garden.

May 2017. Volume 51, Number 1

CONNECT nybg.org/online

New York Botanical Garden
2900 Southern Boulevard
Bronx, NY 10458-5126
nybg.org