

# NYBG

ANNUAL REPORT  
2017

NEW YORK BOTANICAL GARDEN







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## Letter from Maureen K. Chilton and Gregory Long



Dear Friends:

Fiscal year 2017 was a historic one for The New York Botanical Garden. For the third consecutive year, attendance surpassed the million-visitor mark, as more than 1.3 million people from New York City and around the world came to experience NYBG's renowned landscape and display gardens, breathtaking exhibitions, and exceptional educational programs. We are very happy to present you with a report that highlights the accomplishments you have helped to make possible.



For more than 126 years, the Garden has evolved in an effort to provide our visitors with the greatest opportunity to connect with nature and experience the wonders of the plant kingdom. Thousands gathered—and countless more watched online—to see a rare flowering of the fascinating and aptly named Corpse Flower, while massive plantings continued for the Million Daffodils project. We celebrated the dedication of the Judy and Michael Steinhardt Maple Collection as well as the openings of the East Gate and Green Materials Recycling Center.

A robust exhibitions program included annual favorites such as Kiku: *The Art of the Japanese Garden* and the beloved *Holiday Train Show*® as well as *The Orchid Show*, which featured an homage to the beauty and cultural history of the gardens of Thailand. *CHIHULY* wowed visitors with opportunities to experience the innovative sculptures of Dale Chihuly both indoors and across the grounds, both in daylight and at night, and *What in the World Is a Herbarium?* showcased the William and Lynda Steere Herbarium—a true scientific marvel. Additionally, *Redouté to Warhol: Bunny Mellon's Botanical Art* featured nearly 80 masterworks from one of the world's greatest private libraries devoted to the plant world.

As part of our three-fold mission, NYBG plays an integral role in the research and advancement of science-based plant conservation. The Garden's work has helped to protect some of the most important and/or threatened floras in the world, from Brazil to Myanmar, and has advanced forest management practices and capacity building in countries with the most biologically diverse and endangered habitats. NYBG's scientists are currently engaged in 250 international collaborations with 168 institutions in 49 countries, while conducting conservation programs in the Garden's own backyard. NYBG also renewed its commitment to training the next generation of plant scientists, with innovative education programs and unique learning facilities specially designed to teach children about plants.

Friends of the Garden make all of this happen. Because of you—dedicated Trustees, Patrons, and Members—the Garden continues to flourish as one of the world's most unique organizations.

Thank you!

A handwritten signature in black ink that reads "Maureen K. Chilton".

Maureen K. Chilton  
Chairman

A handwritten signature in black ink that reads "Gregory Long".

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

## NYBG Gold Medal Recipients



To recognize those individuals who have made remarkable contributions to botany, horticulture, or science education, or have shown extraordinary dedication to the Garden and its mission, NYBG periodically awards the Gold Medal. It is the highest honor that can be conferred by the Garden.

The Gold Medal, inspired by the seal of The New York Botanical Garden, is gold-plated silver and was created by Tiffany & Company. Tiffany's relationship with the Garden dates back to 1895, when the company was one of the Garden's first benefactors.



2017 Thomas J. Hubbard,  
posthumously  
Anne Hubbard



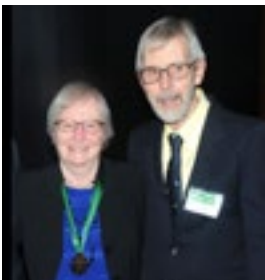
2016 Elizabeth Barlow  
Rogers



2015 Shelby White



2014 Thomas E. Lovejoy, Ph.D.



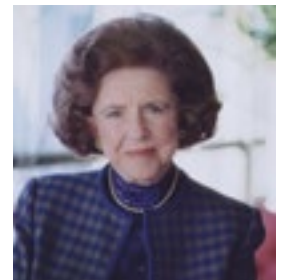
2013 Patricia K. Holmgren, Ph.D.  
Noel H. Holmgren, Ph.D.



2011 Lewis B. Cullman



2011 Oliver Sacks, M.D.



2010 LuEsther T. Mertz,  
posthumously



2008 Professor Sir Ghilleain  
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2002 Edward O. Wilson, Ph.D.

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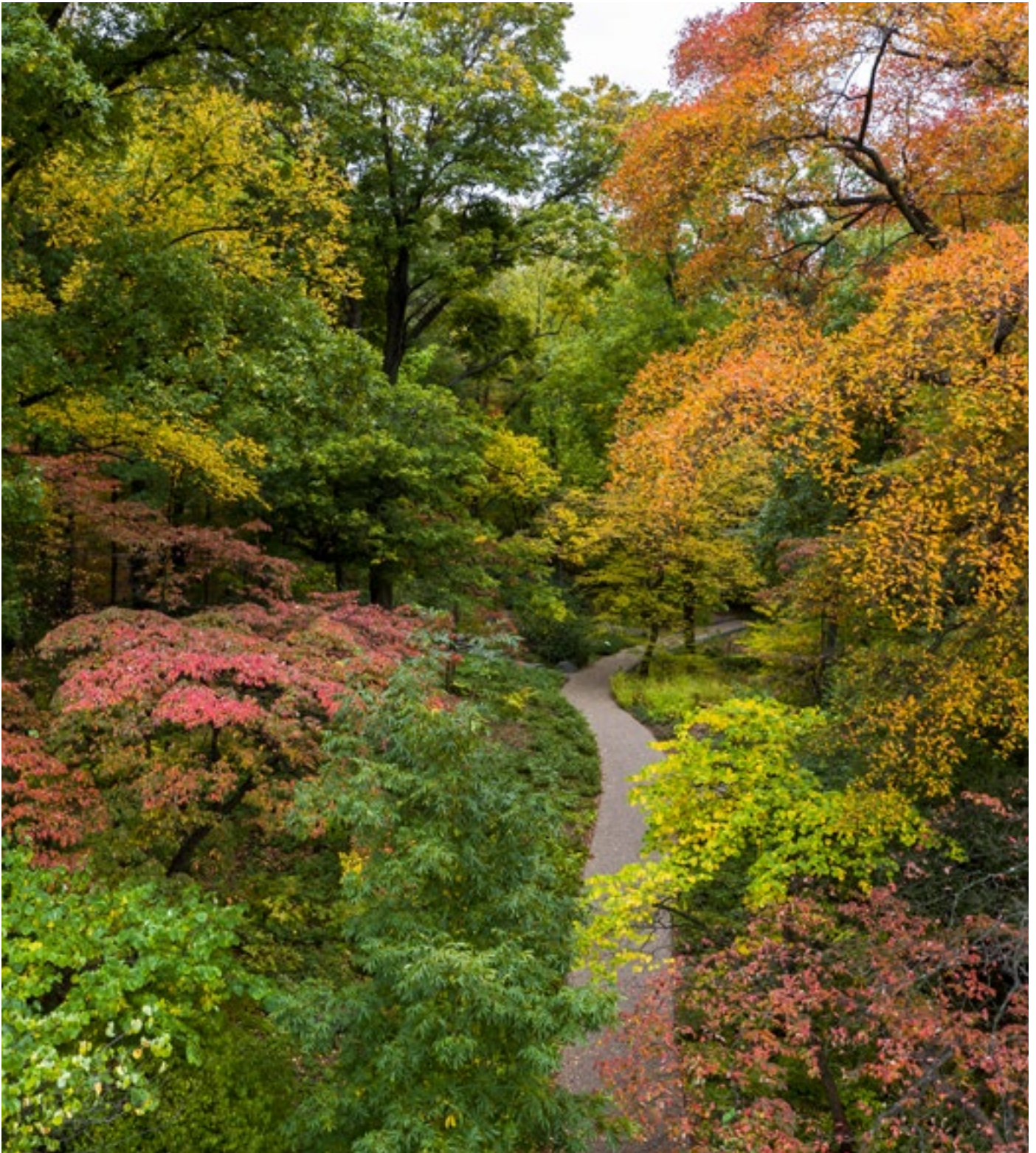
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Maureen K. Chilton, in her capacity as Chairman, is an *ex officio* member of all committees.

Gregory Long, in his capacity as President, is an *ex officio* member of all committees except the Audit Committee.

Wilson Nolen, in his capacity as Chairman Emeritus, is an *ex officio* member of all committees.



## CREATING A GREEN URBAN OASIS

The 250-acre National Historic Landmark landscape that is NYBG, its dramatic topography, and its collections of temperate-zone trees and plants provide a place for city dwellers where the stresses of urban life melt away. Arranged around a 50-acre, old-growth forest are 50 demonstration gardens and designed collections, interpreted for informal learning and content-rich enjoyment. These outdoor gardens are amplified by the global collections of tropical and desert plants displayed in the great Victorian-style Enid A. Haupt Conservatory. More than 1.3 million annual visitors depend on this institution for enjoying one of the world's most diverse and best curated exhibitions of plants—a unique cultural experience in a one-of-a-kind setting. NYBG's horticulturists and gardeners work tirelessly to maintain and improve the historic landscape and living collections in their ongoing stewardship of this green urban oasis.

Following are fiscal year 2017 highlights.



“The physical aura of  
The New York Botanical Garden  
has become almost luminous.”

—*The New York Times*

## CREATING A GREEN URBAN OASIS

### **Blooming of the Corpse Flower** (*Amorphophallus titanum*)

July 2016

In July 2016 the *Amorphophallus titanum* was in bloom at NYBG for the first time in nearly 80 years. Popularly known as the “corpse flower” for its infamous smell, like rotting meat, the *Amorphophallus titanum* is the largest unbranched inflorescence (a cluster of flowers on a spike) in the plant kingdom, growing 12 feet tall in its natural habitat and six to eight feet in cultivation. After 10 years of careful cultivation by horticulturists in the Nolen Greenhouses, NYBG’s budding plant was displayed in the Enid A. Haupt Conservatory for its brief yet extraordinary flowering cycle. This rare and celebrated event attracted more than 25,000 Garden visitors seeking to experience the bloom’s unusual fragrance for themselves, and a live webcam set up to capture the flowering cycle had an astonishing 1.7 million views. It will be several years before the corpse flower is ready to bloom again.



## Dedication of the Judy and Michael Steinhardt Maple Collection

October 13, 2016

First planted in the late 1930s, the Judy and Michael Steinhardt Maple Collection was significantly expanded and enhanced in 2016 with new plants, pathways, and interpretive signage thanks to the Steinhardts' vision and generosity. Today the Steinhardt Maple Collection comprises 135 different maple species, hybrids, and cultivars carefully chosen by NYBG curators. Although many species are represented, the Steinhardt Maple Collection features a world-class selection of Japanese maples (*Acer palmatum*), including dwarf varieties, forms with twisted trunks and pendulous branches, and cultivars selected for their brilliant fall color. To make the Maple Collection more welcoming and accessible, the Garden worked with landscape architect Shavaun Towers to create a network of gently sloped pathways that navigate the site's rocky terrain, and a gathering area with views of the adjacent Benenson Ornamental Conifers and Nolen Greenhouses for Living Collections. The completed renovation and expansion of the Steinhardt Maple Collection is another important step in NYBG's ongoing efforts to engage visitors, introduce contemporary gardeners to exciting new plants for their own gardens, and steward NYBG's 250-acre National Historic Landmark landscape.



(l-r) Gregory Long, Janet Ross, Marjorie Rosen, Susan Burke, Diane Katzin, Shelby White, Michael and Judy Steinhardt, Maureen Chilton, Lionel Goldfrank, Lynden B. Miller, Julie Sakellariadis



## CREATING A GREEN URBAN OASIS

### **A Million Daffodils**

November 2016

In November 2016, NYBG staff and contractors planted 163,000 daffodils to complete the second phase of A Million Daffodils, a project launched in honor of the Garden's 125th Anniversary. This dramatic expansion of the historic *Narcissus* plantings at Daffodil Hill began with the planting of 150,000 bulbs in 2015. Over the course of several years, a total of one million new bulbs will be added to the landscape to create New York's most extensive display of daffodils—a stunning four-acre floral spectacle that will herald the arrival of spring at the Garden each year. The new plantings will enhance and complement the existing plantings at Daffodil Hill, which date from the 1920s and include heirloom varieties no longer available in the nursery trade.



## Opening of the East Gate

April 27, 2017



(l-r) NYBG Trustee Joe Thompson; Arlene Drayton, Bronx Community Board II; Council Member Ritchie Torres; Iris Rodriguez-Rosa, NYC Parks Bronx Borough Commissioner; Gregory Long

The East Gate was officially opened on April 27, 2017, following a yearlong project to enhance community access to NYBG, and provides a convenient new entrance for residents of neighborhoods east of the Garden as well as visitors who come from other areas of the city by the number 2 subway line. Generously supported by private and public funding, the redesigned East Gate area now features a gently sloping, wheelchair-accessible walkway with new landscaping, and a pedestrian bridge leading to the Ruth Rea Howell Family Garden. From there, visitors can reach other areas on foot or via the Garden trams.

## Opening of the Green Materials Recycling Center

April 27, 2017



(l-r) NYBG Trustee Diane Katzin; Feniosky Peña-Mora, former Commissioner of the NYC Department of Design and Construction; Rose Harvey, Commissioner of NYC Office of Parks, Recreation and Historic Preservation; Bronx Borough President Ruben Diaz Jr.; Gregory Long

The pathway from the East Gate passes by the new Green Materials Recycling Center, where all plant materials produced at the Garden are recycled to produce mulches, compost, and soil for use throughout NYBG's landscape, gardens, and greenhouses. New interpretive signage at the site teaches visitors that composting and reusing green waste rather than sending it to a landfill reduces the number of trucks on New York streets, decreases NYBG's carbon footprint, and limits the need to purchase and apply expensive and environmentally unsustainable herbicides, pesticides, and fertilizers.





## CONNECTING GARDENING TO THE ARTS AND HUMANITIES

Gardening throughout the ages has been closely related to scientific exploration and innovation, the visual arts, architecture, and cultural and aesthetic movements. NYBG has always offered hundreds of courses and lectures each year for adult learners interested in diverse subjects related to plants. And more recently, through the development of pioneering interdisciplinary, multimedia exhibitions of plants, books and manuscripts, and works of art, NYBG exhibitions have revealed the inextricable links between plants and people and have illuminated the importance of gardens to human health and to the lives and work of renowned artists and thinkers. These awe-inspiring and visually arresting exhibitions, as well as their accompanying public programs, underscore the influential connections among gardening and the arts and humanities.

Following are fiscal year 2017 highlights.



“[The New York Botanical Garden] makes it an everyday priority to educate, inspire, and restore people’s connection to the natural world.” —*Ruben Diaz Jr.*

## CONNECTING GARDENING TO THE ARTS AND HUMANITIES

### Kiku: The Art of the Japanese Garden

*Kiku: The Art of the Japanese Garden* returned to the Enid A. Haupt Conservatory from October 8-30, 2016, continuing NYBG's longstanding annual showcase of the horticultural traditions of Japan. *Kiku*, the Japanese word for chrysanthemum, is one of the most celebrated plants in Japanese culture. For the 2016 exhibition, hundreds of intricately trained chrysanthemums in both modern and ancient styles were cultivated in a variety of stylistic interpretations and designs, including *ozukuri* (thousand bloom), *kengai* (cascade), and *ogiku* (single stem).

Using traditional techniques developed at Shinjuku Gyoen National Garden in Tokyo and contemporary approaches informed by these traditions, NYBG horticulturists trained hundreds of Japanese chrysanthemums into fantastic forms defying the sense of what is possible to achieve with living plants. From cascading sheets of color and composition to delicately grown bonsai, the exhibition provided equal measures of spectacle and sophistication to more than 80,000 visitors. The magnificent display was complemented by programs and activities highlighting the arts and culture of Japan, such as *taiko* drumming, *ikebana* demonstrations, meditation walks, *haiku* workshops, and more.



## Redouté to Warhol: Bunny Mellon's Botanical Art

Showcasing nearly 80 masterworks from one of the world's greatest private libraries devoted to the plant world, *Redouté to Warhol: Bunny Mellon's Botanical Art* was on view in the LuEsther T. Mertz Library's Art Gallery from October 8, 2016–February 12, 2017. Rachel Lambert “Bunny” Mellon, who died in 2014 at age 103, was an accomplished garden designer, legendary art collector, and noted philanthropist. She is perhaps best known for having designed the White House Rose Garden during the administration of John F. Kennedy and for her contributions to the restoration of the *Potager du Roi*, the vegetable garden created for Louis XIV at Versailles, for which she was awarded the *Ordre des Arts et des Lettres* medallion by the French government in 1995. Over the course of decades, Mrs. Mellon assembled a distinguished collection of botanical artwork and more than 10,000 volumes on botanical subjects for the Oak Spring Garden Library, which she founded on her estate in Upperville, Virginia.

Many of the exhibition's featured works, which ranged from the 14th to 20th centuries, had never before been exhibited publicly. They included rare masterpieces by renowned botanical artists such as Jacques Le Moyne de Morgues (ca. 1533–88) and Pierre-Joseph Redouté (1759–1840), as well as 20th-century paintings by Pablo Picasso (1881–1973) and Andy Warhol (1928–87). The exhibition also featured medieval books of hours; the art and economics of “tulipmania,” the craze for tulips that seized Holland in the 17th century; and works by prominent female masters of botanical art such as Maria Sibylla Merian (1647–1717) and Elizabeth Blackwell (ca. 1700–58).

Presented in partnership with the Oak Spring Garden Foundation, *Redouté to Warhol* was accompanied by a fully illustrated catalog and a series of public programs, including a full-day study session and colloquium hosted by the NYBG's Humanities Institute focusing on the theme of great American collectors and their exceptional botanical collections.



## CONNECTING GARDENING TO THE ARTS AND HUMANITIES

### Holiday Train Show®

NYBG's beloved *Holiday Train Show*® (November 19, 2016–January 16, 2017) celebrated its 25th year by paying tribute to a true New York summer in Coney Island. The exhibition's first roller coaster—the famous Cyclone—made its debut, along with the Wonder Wheel and the Elephantine Colossus, a gigantic elephant-shaped hotel from the 1890s. These new additions were displayed in the Reflecting Pool of the *Palms of the World Gallery* in the Enid A. Haupt Conservatory, along with other Coney Island favorites already in the show, such as the Galveston Flood Building, the Luna Park Arch, the Luna Park Central Tower, and the Luna Park Ticket Booth.

The Ed Koch Queensboro Bridge also made its first exhibition appearance, joining NYBG's collection of more than 150 replicas of iconic New York buildings and structures entirely made out of plant parts. Adding to the delight were more than 25 G-scale model trains and trolleys humming along nearly a half-mile of track, underneath overhead trestles, through tunnels, across rustic bridges, and past waterfalls cascading into flowing creeks.

In honor of the 25th Annual exhibition, NYBG co-published a new book with Prestel entitled *The Holiday Train Show: A City Within a City*, which features dazzling full-page views of the entire spectacle and essays exploring the history of this beloved New York holiday tradition, the artistry of the buildings rendered in plant parts, and the engineering of the tracks and bridges. Seasonal events and programming accompanying the exhibition included Bar Car Nights, Evergreen Express for children, the Holiday Tree Lighting, an annual poetry reading with NYBG Poet Laureate Billy Collins, Winter Harmonies Concerts, All Aboard with Thomas and Friends™ mini-performances, and much more.



## The Orchid Show: Thailand

NYBG's *Orchid Show* (February 19–April 9, 2017) celebrated its 15th year with an homage to the wealth of orchids and the rich cultural history of Thailand, which is home to more than 1,200 native orchid species. The Enid A. Haupt Conservatory was transformed into a lush tropical garden showcasing thousands of orchids in a classic Thai garden setting. The centerpiece of the display was a grand facade of a *sala*, a traditional pavilion used for shade and relaxation, with a signature sweeping gabled roofline festooned with exquisite orchids.

The show's design recalled the ancient Thai garden tradition of *mai dat*, in which trees and shrubs are pruned and trained over time to form fanciful shapes. Throughout the exhibition, small ponds and pools created a tranquil atmosphere while colorful flowers floated in large glazed water jars, and Thai lanterns swayed overhead, providing moments of beauty and reflection. To create this irresistible paradise of fragrance and color, NYBG horticulturists assembled thousands of plants from the Garden's research collections as well as the finest growers across the country. Orchids of seemingly every conceivable color, shape, and provenance, including rare and iconic specimens, were on display. Visitors were charmed by spirit houses, traditional elements of many Thai gardens that are home to *phra phum*, unseen guardian spirits that protect specific pieces of land, which were hand-carved by Thai artist Pirot Gitikoon, who is inspired by historic Buddhist temple architecture.

Traditional Thai dancers, orchid care demonstrations, and guided tours complemented the exhibition. Orchid Evenings also brought a unique experience to nighttime visitors of *The Orchid Show*.



## CONNECTING GARDENING TO THE ARTS AND HUMANITIES

### What in the World Is a Herbarium?

*What in the World Is a Herbarium?*, on view in the Ross Gallery from March 4–October 29, 2017, showcased the central role that the William and Lynda Steere Herbarium plays in NYBG's plant research. Containing 7.8 million preserved plant and fungal specimens, the Steere Herbarium is the largest of its kind in the Western Hemisphere, and has been lauded by the National Science Foundation as a "national treasure."

The exhibition told the story of how NYBG scientists collect plant specimens from as near as New York City's Central Park and the Garden itself, to as far away as the remotest regions of Amazonia in South America and the pristine forests of northern Myanmar in Southeast Asia. Displays explained how the specimens are pressed and dried, usually by scientists in the field, and then, after arriving at the Herbarium, are mounted on archival paper, labeled, and stored in climate-controlled conditions to preserve them for future study. Using examples from current Garden research projects, the exhibition demonstrated that meaningful research about plant biodiversity, ecology, and conservation would be impossible without herbarium specimens, and taught visitors about how this research is applied and disseminated.

NYBG conservationists also led plant collection and preservation workshops and behind-the-scenes tours of the Herbarium for Garden visitors over the course of the exhibition, as well as Citizen Science workshops to give guests the opportunity to get work with NYBG scientists.



## CHIHULY

World-renowned artist Dale Chihuly and his glass sculptures made a triumphant return to NYBG in 2017 in his first major exhibition in New York in over 10 years, and his first appearance at NYBG since 2006. *CHIHULY*, on view from April 22–October 29, featured more than 20 installations, including pieces created specifically for the Garden. NYBG served as a canvas for Chihuly's hand-blown glass sculptures, which beautifully complemented the plants and flowers in the Enid A. Haupt Conservatory and across the grounds. Record numbers of visitors experienced *CHIHULY* during its six-month run, making it the most successful arts and culture exhibition in the Garden's history.

The water features in the Native Plant Garden and the Haupt Conservatory Courtyard's Tropical Pool showcased new pieces created by Chihuly specifically for NYBG to complement the landscape and architecture. These new works—*Koda* studies—used colored glass panels to play with reflection and light in fascinating ways. The LuEsther T. Mertz Library's Art Gallery featured an exhibition of works on paper as well as a collection of early glass works. It was a fascinating look at Chihuly's process as well as his personal evolution, and a way for visitors to forge a deeper connection to the artist.

An Interactive Mobile Guide delivered content to users' handheld devices that was dynamically customized to their location, transforming how visitors were guided through the exhibition. Each installation appeared as an icon on a virtual map. As visitors approached the installation, the mobile guide triggered additional rich contextual information about the artwork or the process of its creation. Visitors could also share their own photographed images of the sculptures.

To accompany the exhibition, the Garden co-published a new book with Prestel entitled *Chihuly*, which features dazzling full-page views of the entire spectacle at NYBG and essays exploring the artist's career with particular emphasis on his work in public gardens and the history behind the legacy works that were included in the NYBG exhibition.

Public programs surrounding the exhibition included live acoustic music, glass blowing demonstrations, a kids' poetry competition, and film screenings. *CHIHULY* Nights infused the Garden with magical energy as Chihuly's sculptures were spectacularly illuminated, emphasizing the remarkable colors and shapes under the night sky. Live music, cocktails, and food made the evenings unforgettable. An Earth Day celebration was held on Opening Weekend with arts and crafts, lawn games, and a parade throughout the Garden featuring special artists such as FogoAzul, an all-women Brazilian drumline.



Dale Chihuly, *Water with Flowers*, 2017, 13 x 5 x 5', The New York Botanical Garden, © Chihuly Studio.



Dale Chihuly, *Sapphire Star*, 2010, 92 x 98 x 99", The New York Botanical Garden, installed 2017, © Chihuly Studio. Photograph by Scott Mitchell/Leen.

## CONNECTING GARDENING TO THE ARTS AND HUMANITIES

### Adult Education

NYBG's Adult Education Program is the largest and most diverse continuing education program at any botanical garden in the world, with annual registrations exceeding 10,000 and more than 700 classes offered at the Botanical Garden, the Midtown Education Center in Manhattan, and off-site locations in Dutchess County and Connecticut. Responding to the needs of career changers and learners at all levels, Certificates are offered in eight program areas: Botanical Art & Illustration, Botany, Floral Design, Gardening, Horticultural Therapy, Horticulture, Landscape Design, and a newly created Urban Naturalist Program.

The recurring lecture programs remained a popular draw, with waitlists for the Landscape Design Portfolios Lecture Series and the Winter Lecture Series, and a 25% increase in registration over the previous year for the Landscape Design Students and Alumni Series. New symposia were offered by the Horticulture and Science Departments and the Humanities Institute, covering subjects such as the history of oak trees, biodiversity, and climate. Nearly 100 Adult Education students registered for the Andrew Carnegie Distinguished Lecture, *A Rothschild Evening: An Intimate Look at Two English Rothschild Gardens*, almost doubling attendance from the previous year.

### School of Professional Horticulture

For more than 80 years, NYBG's School of Professional Horticulture has been training the world's leading horticulturists. Students receive hands-on training alongside NYBG staff in botany, landscape design, communications, horticulture, and more. With a job placement rate of 100% over the past seven years, graduates go on to exciting and successful careers worldwide.





## Public Education

Public Education programs help visitors engage with the Garden in new and exciting ways, combining the arts and culture with Garden activities to enhance the visitor experience. Recurring events such as Orchid Evenings, Bar Car Nights, and the *Summer Concert Series* bring guests back year after year, while new offerings such as the Plein-Air Invitational and Blues, Brews, & Botany Weekend attracted new and diverse audiences. Connecting to larger special exhibitions such as *CHIHULY*, Public Education offerings made learning fun and engaging while visitors enjoyed the beautiful Garden grounds.

Blues, Brews, & Botany, a new program that took place in September 2017, highlighted the connections between beer and botany. Visitors sampled beers from local breweries, enjoyed live music by The Paul Josephs Blues Project, and heard from Garden scientists on the botanical side of beer: techniques and challenges for growing hops and barley for beer, Herbarium displays of important beer-making plants, and fermentation. Experts from Empire Brewing Company gave a presentation on the brewing process, highlighting the ingredients that produce various colors, aromas, and flavors of beer and the difference among brewing ales, lagers, and ciders.

*Impressionism: American Gardens on Canvas* (May–September 2016) provided multiple opportunities for Public Education programs, including live music from a diverse range of performers, such as traditional Sousa marches and New Orleans brass bands, as well as a professional tap dancers showcase. Plein-Air Drop-Ins at the Home Gardening Center gave visitors the opportunity to show their creative side with watercolor paints, pencils, charcoal, and pastels available for use, and instruction on how to draw and paint people in gardens from professional artist instructors. Poetry readings, film screenings, and crafting stations also added to the experience.





## SAVING THE PLANTS OF THE WORLD

Despite several hundred years of study, there is still a lot we do not understand about plants and fungi, but we know that they are under threat from expanding human population, invasive species, and climate change. There is not a moment to lose in trying to understand and mitigate those threats to species and their habitats. With advances in cutting-edge botanical research and the remarkable resources we have built over more than 125 years—the 7.8 million specimens documenting plant biodiversity in the William and Lynda Steere Herbarium, our unrivaled LuEsther T. Mertz Library, the millions of digitized images and plant records of the C.V. Starr Virtual Herbarium, our growing ability to understand the botanical world at the molecular level through the Lewis B. and Dorothy Cullman Program for Molecular Systematics, and most importantly, the expertise and global relationships of our nearly 100 Ph.D. scientists—NYBG has all the capabilities to expand its leadership role in the fight to save the plants of the world.

Following are fiscal year 2017 highlights.



“The New York Botanical Garden encompasses the history and the future of the botanical sciences, and it does so now in a manner that fully justifies its standing as one of the greatest institutions of its kind.” —*The New York Times*

**Lewis B. and Dorothy Cullman Program for Molecular Systematics and Plant Genomics Program**

Now in its 24th year, the Lewis B. and Dorothy Cullman Program for Molecular Systematics is a mainstay of NYBG scientific research programs. A world leader in molecular research, the Cullman Program conducts a variety of laboratory work and field studies exploring plant molecular systematics and genomics. The Program's ultimate aim is to assemble and understand an all-encompassing "tree of life"—the evolutionary blueprint for all plant-life on Earth. Along the way, researchers seek answers to fundamental questions in plant science such as: How did the first plants evolve? Why did they evolve in so many disparate ways? And what facilitated their spread around the globe? Cullman scientists, graduate students, and interns use the most modern methods of DNA fingerprinting to explore population-level genetic variation faster and more effectively than ever before. Scientists in the Cullman Program are also leading the way to develop new open-source bioinformatics tools, such as Monographia, to help automate the labor-intensive tasks associated with systematic studies.

A crucial outgrowth of NYBG's research activities is a greater understanding of how DNA influences structure, function, and reproduction in plants, all of which have essential applications in the medical and nutritional sciences. NYBG scientists in the Plant Genomics Program investigate hundreds of millions of years of plant evolution to unravel the solutions that plants have evolved to survive, in part because these same solutions are tightly linked to humanity's own survival. The Garden has led the way in developing scientific terminology and common gene-annotation standards for a universally accessible language that links plant anatomy, morphology, and growth to plant genomics data, in order to simplify and encourage international, cross-disciplinary collaborations on today's most important scientific issues. NYBG scientists are also collaborating on a groundbreaking effort to discover the genes that allow plants to survive in extreme habitats such as deserts, and tolerate drought and low-nutrient conditions. Eventually, these genes can be used to produce plants that need less water and fertilizer and thus can be grown in marginal habitats not currently used for farming of food or biofuel crops.



NYBG Life Trustee Lewis B. Cullman chats with 2017 Plant Science Research Laboratory Interns at the Cullman Intern Luncheon, (l-r): Carly Zelner, Olga Khmel'nitsky, Ally Anderson, and Julia Martino.

## Commodore Matthew Perry Graduate Studies Program

The New York Botanical Garden is a preeminent center for biodiversity research and conservation, and a primary mission is the education of future scientific leaders through the Commodore Matthew Perry Graduate Studies Program. More than 300 students have received Ph.D. and Master's degrees in partnership with NYBG's affiliated programs (currently the City University of New York, Columbia University, Cornell University, Fordham University, New York University, and Yale University). The strength of the program lies in its blend of classroom study, traditional fieldwork, collections-based research, and the cutting-edge molecular technologies used in the Pfizer Plant Research Laboratory. The need for trained biodiversity specialists is extremely acute, and the program is one of the few that provides specialized training in specimen- and field-based research to meet this need. The Garden trains students in diverse academic disciplines in the plant sciences, from systematics and ethnobotany, to agroforestry and genomics, supervising research activities and providing research facilities for approximately 20 students annually.

The Graduate Studies Program has continued to produce students of the highest caliber, successfully place these students in jobs all over the world, and maintain an influx of promising new arrivals to replace our graduates. The program serves a diverse student body, and NYBG students have come from Asia, Africa, Europe, and Latin America. After graduating, most foreign students return to their home countries to hold positions in government agencies, research centers, universities, and botanical gardens, where they have a direct impact on conservation, education, and biodiversity research.



## SAVING THE PLANTS OF THE WORLD

### Center for Conservation Strategy

NYBG's Center for Conservation Strategy (CCS) aims to maximize the reach and impact of scientific programs and catalyze conservation action that will help save the plants of the world. The CCS emphasizes projects in Areas of Botanical Concern: regions where conservation action is urgent and NYBG is well positioned to have a major influence on conservation outcomes, including North America, Amazonia, and the Caribbean. CCS scientists work locally, regionally, and internationally on more than 30 projects with direct conservation impacts.

Recently NYBG collaborated with the Central Park Conservancy and the New York City Department of Parks and Recreation to document the wild flora of Central Park. An up-to-date botanical inventory of the Park will aid with restoration, conservation, education, and recreation programs and provide a baseline for future conservation work. For example, during the three-year *Central Park Flora project*, NYBG botanists confirmed the occurrence of two pumpkin ash trees, an endangered species in New Jersey and Pennsylvania which was only recently discovered in New York.

*Strategy for Conserving Ash Trees in the Northeast: Collection, Analysis, and Outreach* is another core project of the CCS. NYBG scientists are collaborating with other organizations as part of a multi-disciplinary research team to investigate the genetic diversity of ash trees in an effort to protect them from the Emerald Ash Borer (EAB), an invasive species of beetle. The goal of the project is to determine the relationships of North American Ash species and study patterns of susceptibility to EAB, enabling adoption of appropriate conservation strategies. Additionally, citizen scientists are being trained in ash identification and data collection, allowing them to contribute to the project as well as further conservation initiatives and closely monitor the spread of the EAB.



## Institute of Economic Botany



The Institute of Economic Botany (IEB) focuses NYBG's scientific expertise and assets on understanding the relationship between plants, people, and culture. This includes the uses of plants, such as for traditional plant-based medicines, and the sustainable management of plant resources.

Recent accomplishments include a decade-long research project in the South Pacific islands of Vanuatu, a region previously poorly known in terms of plant and fungal diversity. Thus far the IEB project team has collected more than 12,000 specimens, more than half with documentation of traditional uses and language names. The project also trained local people, so that communities in Vanuatu are empowered to conserve their own biological and cultural heritage. Through another project, the IEB has established a sustainable forest resource management program in Myanmar, a country just recently opened to the international scientific community.

The IEB also assists local people in the Caribbean to document their herbal remedies and traditional sustainable agricultural practices, and pass this knowledge on to the next generation. In addition, in New York City, IEB scientists transformed their research on traditional medicine into curricular materials to train physicians and other health care providers to communicate with cultural sensitivity and an understanding of the botanical remedies used by their patients from underserved, immigrant communities. In all of this work, the IEB conserves biodiversity, while improving livelihoods, the local quality of life, and enhancing community and environmental resiliency in the face of global change.

## Institute of Systematic Botany



Scientists in the Institute of Systematic Botany (ISB) explore, discover, and document plant and fungal diversity in the world's most biologically diverse habitats, from the Amazon and the endangered Atlantic Coastal Forest of Brazil to the largest standing forest in Southeast Asia. Their expertise covers all of the major plant groups, from fungi, lichens, and algae, to mosses, ferns, and seed plants. Through field exploration, collections research, inventories, and floras, NYBG scientists advance understanding of global plant diversity, contribute to the World Flora Online's open-access resource for comprehensive data for all the Earth's 400,000 known plant species, and ensure that sound science guides conservation initiatives.

In the Tapajós River basin in the Brazilian Amazon Rain Forest, an area that has exceptionally high biodiversity and pressing ecosystem threats such as climate change and deforestation, NYBG researchers are filling a critical gap in knowledge by compiling plant inventories that are critical to the study, conservation, and management of biodiversity. This project builds on collaborations with Brazilian scientists and enhances NYBG's longstanding leadership in Amazonian botany.

NYBG scientists are also gathering plant diversity data in Myanmar's Northern Forest Complex, a biodiversity hotspot with an estimated 6,000 species, including 1,500 species estimated to exist nowhere else. The data will provide the baseline information required to make planning decisions affecting the Northern Forest Complex ecosystem and facilitate broad scale analysis of plant diversity patterns within Southeast Asia.

## SAVING THE PLANTS OF THE WORLD

### William and Lynda Steere Herbarium and C.V. Starr Virtual Herbarium

The William and Lynda Steere Herbarium is the largest of its kind in the Western Hemisphere and second largest in the world. A National Systematics Research Resource Center, the Steere Herbarium holds significant collections of all groups of plants and fungi from around the world—currently 7.8 million dried specimens—and is a key resource for the international research community. It places geographical emphasis on the plants and fungi of the New World. An estimated 3.1 million specimens are from North America; 3.1 million are from tropical America; and the remaining 1.1 million are from Africa, Asia, Europe, and the Pacific region. The collections of the Herbarium are constantly being updated through field research conducted by Garden scientists, and through gifts, acquisitions, and exchanges of specimens from other herbaria. During the past five years, the Steere Herbarium has grown by 64,000 specimens per year on average. On average, 15,000 specimens are sent on loan to 28 states in the U.S. and 26 countries, and the Steere Herbarium receives 217 scientific visitors per year who spend on average 14 days each using the collection. The Steere Herbarium is the most active in the world in terms of new accessions and use by the scientific community.



The C.V. Starr Virtual Herbarium is an extension of NYBG's William and Lynda Steere Herbarium with the goal of making information on the Garden's specimens accessible to the widest audience possible. In fiscal year 2017, nearly 300,000 specimens were newly digitized and added to the Virtual Herbarium's more than three million digital records. The Virtual Herbarium's web interface was also updated, improving functionality and making the site easier for visitors to use.

The digitization of approximately 700,000 specimens has been completed for the Macrofungi Collection Consortium, along with 500,000 ancillary items such as photographs, field notes, and field book pages. NYBG is collaborating with other U.S. institutions to establish a Macroalgal Herbarium Consortium, for which the Steere Herbarium is managing the data portal as well as digitizing 175,000 specimens. In fiscal year 2017, Herbarium scientists georeferenced approximately 100,000 specimens from the Amazonian region of Brazil for a collaborative project alongside about 15 Brazilian and U.S. institutions working to determine how the modern Amazonian biota was developed.





## LuEsther T. Mertz Library and the Humanities Institute

The LuEsther T. Mertz Library is the largest, most comprehensive botanical and horticultural library in the world. It collects, preserves, and shares written and visual documents that are essential to the study of our relationship with the plant kingdom. The Library's holdings cover 800 years of botanical and horticultural history, and include more than 550,000 volumes and nearly 12,000 serial titles, and over 11 million archival items.

Demand for Mertz Library services remains high as more scholars, students, and plant enthusiasts from across the U.S. and world rely upon its vast and treasured resources. The Library enhanced its rich historic collections, resulting in more than 221,000 searches by Library Catalog users online and nearly 32 million records retrieved. Answering plant questions is an important Library role, and in 2017 the Library had 13,586 on-site visitors and responded to more than 6,236 reference questions. In addition, more than 6,062 items were checked out by Library users. In 2017, 2,208 books were added to the Collection, including important acquisitions such as the first edition of Johann Nicolas Pechlin's treatise on the medicinal properties of tea, *Johannis Nicolai Pechlini, Med. D.P. serenissimi Cimbriae principis reg. archiatri, Theophilus Bibaculus sive De potu theae dialogus*, published in 1684.

The Mertz Library is an international leader in the digitization of botanical and horticultural literature. In 2017, staff continued to modernize and exploit all technologies to facilitate research for Library users and digitize and add digital content from the Library Collection into Mertz Digital and the Biodiversity Heritage Library (BHL).

Supported by The Andrew W. Mellon Foundation, the Humanities Institute continues to strengthen NYBG's stature as an academically directed research center focused on the environmental humanities and significantly increased awareness and use of the unique historical collections in the Library and Archives. Partnerships with the City University of New York, Fordham University, Columbia University, the New York Academy of Medicine, The Metropolitan Museum of Art, and Bard Graduate Center, and area community colleges and high schools expanded the field of available research fellowships and internships. The work of these scholars and experts is shared at regularly scheduled scholarly symposia, colloquia, and seminars.





## TEACHING SCIENCE TO CITY KIDS

NYBG is an internationally recognized leader in informal science education. On a local level, New York City teachers, schoolchildren, and families depend on NYBG for authoritative, hands-on, curriculum-related teaching in the life sciences. Content includes plant biology and ecology, conservation, organic gardening, vegetarian cooking, and healthful eating. Student internships for young people are offered in the Everett Children's Adventure Garden, the Ruth Rea Howell Family Garden, and in many NYBG scientific facilities, including the molecular systematics and plant genomics laboratories. Serving 300,000 visitors, 90,000 students, and 3,200 teachers annually, this is the most extensive program of children's and family education in any of the world's botanical gardens. For almost a century, NYBG has been a pioneer in this field, and its educational facilities set standards for institutions across America and the globe in teaching science to city kids.

Following are fiscal year 2017 highlights.



“Most encouragingly of all, [NYBG] has established gardening and natural history in local school curriculums, teaching both to hundreds of children aged three and upwards.” —*The Times of London*

### Children's Education

For more than two decades, the Everett Children's Adventure Garden (ECAG) has served as a living classroom for children and their caregivers to learn about and explore the wonders of the plant kingdom. Sporting artfully designed mazes and whimsical topiaries, ECAG offers an array of attractions and seasonal activities—such as *Ecology Escapades*, *Evergreen Express*, *Plant Parade*, *Scarecrows & Pumpkins*, and *Seed Go Round*—that encourage visiting families and school groups to practice observation, categorization, and journaling skills. As always all such programming is carefully developed in line with city, state, and national educational standards.

Youth development and educational offerings continue with the ever-growing Explainers Program, NYBG's highly regarded internship program which, every year, trains more than 150 high school and college-aged participants as bona fide field instructors. Coordinating with seasonal exhibitions, Explainers offer hands-on, science-based lessons to NYBG's younger visitors and school groups while expanding their knowledge of plant science and ecology and gaining practical skills in public speaking and teaching.

NYBG also trained 3,200 teachers through the Professional Development Program for Teachers. The Program provides high-quality pedagogy through week-long institutes, customized workshops, and content partnerships with the NYC Department of Education, New York University, CUNY Lehman College, Manhattan College, and alongside garden-based programs, including NYC Compost Project, Bronx Green-Up, and Grow to Learn. Moreover, the Garden's Pathway and Youth Programs offer nearly 4,000 qualified New York City youth the opportunity to explore a variety of science and education careers through a constellation of mentorship and academic experiences.

Complementing the exhibitions in the Enid A. Haupt Conservatory, the GreenSchool offers visiting student groups a "living laboratory" to explore and examine natural specimens. In the process, students learn about botany, ecology, and the humanities all while gaining exposure to current scientific research and horticultural practices.

Additionally, science- and nature-themed camps for children in Grades K–8 are a seasonal constant on the NYBG grounds. These fun-filled camp programs serve more than 1,400 children each year, featuring outdoor explorations, science investigations, and behind-the-scenes tours throughout the Garden's 250-acre landscape. Each week takes full advantage of the Garden's vast plant collection, state-of-the-art technology, and unique habitats such as the 50-acre Thain Family Forest, Mitsubishi Wild Wetland Trail, and Native Plant Garden.



## Edible Academy and Ruth Rea Howell Family Garden

Opening in June 2018, NYBG's new Edible Academy will elevate and extend existing garden-based educational programs through the addition of a state-of-the-art, three-acre complex inclusive of a LEED-certified environmentally sustainable building with a green roof, two high-tech classrooms, new display gardens, a teaching greenhouse, cooking classroom, and a terraced amphitheater. Innovative programming and hands-on workshops aim to teach visitors of all generations the important connections among plants, gardening, nutrition, and the benefits of a healthful, sustainable, and eco-friendly lifestyle.

At the heart of the campus is the award-winning Ruth Rea Howell Family Garden, which will continue to serve as the central hub of the Edible Academy's garden-based curricula. From its Seasonal Garden Workshops to the ever-popular *Dig, Plant, Grow!* program, the Family Garden provides daily activities to engage children and adults of all ages.

Together the Edible Academy and Ruth Rea Howell Family Garden's expanded programming will double the number of on-site learners from 50,000 to 100,000 annually and offer crucial life-changing opportunities to children from the Bronx and the Greater New York City area.





## ANCHORING THE COMMUNITY

The New York Botanical Garden's reach as a cultural and scientific institution is international, but entwined within its mission is a dedicated effort to bettering its neighboring community, particularly the Bronx. According to the most recent census, the Bronx is the poorest Congressional District in the United States, with 30.5% of families and 42.5% of its children living below the poverty line. The Bronx continues to be the unhealthiest county in the United States as well, with high rates of obesity and related diseases. Fortunately, community gardens and urban farms, as well as edible gardening-based youth development programs, can improve neighborhood health outcomes by increasing the availability of nutritious, affordable food, creating safe public spaces, and offering strong educational and civic institutions.

NYBG's primary community outreach vehicle is Bronx Green-Up (BGU), which was founded in 1988. This horticultural training and outreach program provides Bronx residents with the knowledge, tools, and resources to cultivate and transform vacant, abandoned lots into vibrant neighborhood and school gardens and urban farms. BGU offers educational workshops and certificate programs in organic vegetable gardening, composting, and pruning.

In fiscal year 2017, BGU completed 250 workdays, workshops, site visits, and materials deliveries for 64 sites, reaching 4,000 people. NYBG is committed to providing opportunities for local engagement and economic development, as well as beautifying the urban landscape in the Bronx, through its role as a community anchor.



“The New York Botanical Garden started the Bronx revitalization program, and they helped plant hundreds of school and community gardens in struggling neighborhoods so that families could grow their own fresh produce.” —Michelle Obama

## Financial Report

### Revenue and Expenses

Fiscal year 2017 marked the 29th consecutive year that The New York Botanical Garden has balanced its operating budget.

In aggregate, revenue increased by more than 4% or approximately \$3,200,000 over FY 2016. Private Fundraising and Endowment Income were relatively flat year over year with the growth coming from Government Support and Earned Income.

While the market value of the Endowment grew by more than \$27,000,000, from \$256,800,000 to \$284,000,000, as a result of a fiscal year investment return net of fees of 16.3%, the income drawn on the endowment for FY 2017 remained fairly constant. This is due to the smoothing effect inherent in the spending rate formula, which averages the market value over three years.

Government Support saw improvements at the City, State, and Federal levels, the first year we have experienced such a trifecta in many years. City general operating support increased, State funding through the Zoos, Botanical Gardens, and Aquaria program improved, and funding for research grants awarded by the Federal National Science Foundation was on the rise.

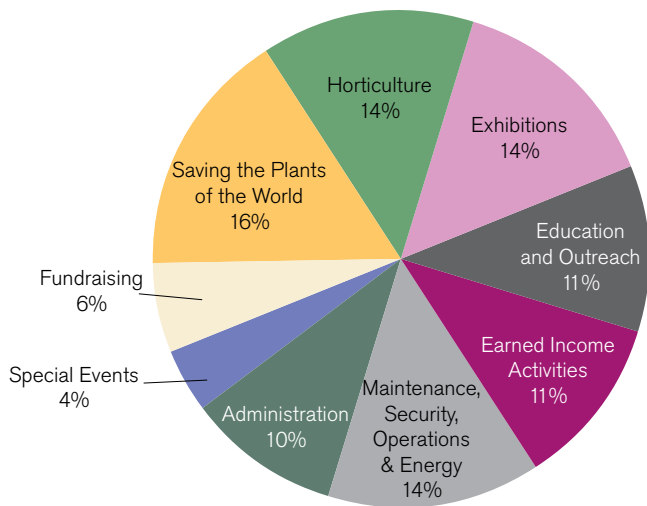
The ongoing growth in Earned Income activities continues to be the major development in the Garden's revenue mix. For the second straight year, the Garden's exhibitions, programs, and community activities attracted more than 1,000,000 visitors, and while the majority of these visitors purchased a ticket or bought a Membership, thousands visited the Farmers Market, wandered the 250 acres of gardens and collections, or participated in sponsored events free of charge.

In 2017 all Earned Income activities generated approximately \$25,700,000 in gross revenue. Our principal businesses, including Admissions, Parking, Membership, Group Sales, Retail Sales, Food Service, and Adult Education, grossed \$24,400,000 and netted 53% or \$12,900,000 to support the Garden's programs. The Membership base grew to 60,000 households, and the Garden's perennial favorites, *The Orchid Show* and *Holiday Train Show*<sup>®</sup>, were as popular as ever, accounting for 40% of the Garden's annual attendance. *CHIHULY* opened in early spring to great fanfare and helped propel visitation over the 1,000,000 mark. The show, which spanned two fiscal years, 2017 and 2018, would be the most-attended exhibition in Garden history with 850,000 visitors.

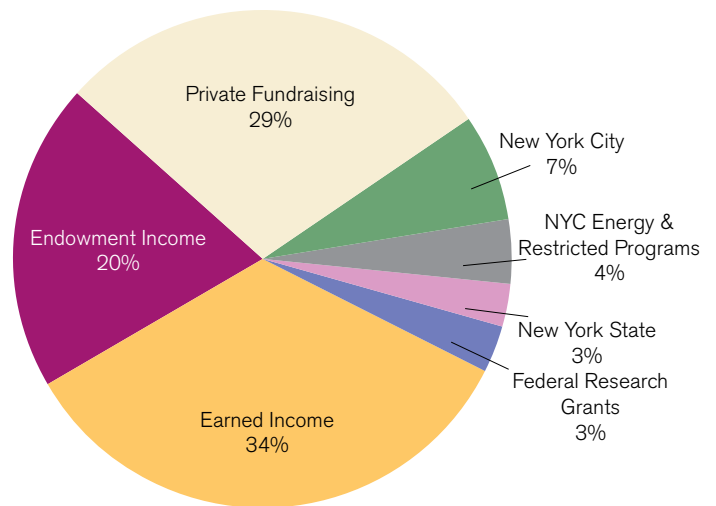
In aggregate, expenses increased by 4% over the previous year, but the mix of expenses remained relatively constant with approximately 80% going toward programs and public services and 20% toward administration and fundraising. Within programs and public services, it is not surprising that exhibitions claimed a modestly larger share of the expense base due to the cost of mounting the expansive *CHIHULY* exhibition and the need to accommodate our growing audiences.

Finally, on February 3, 2017, Standard and Poor's Rating Services affirmed the Garden's A+ Stable credit rating, citing the Garden's solid financial resources, fundraising capabilities, steady membership, and increasing attendance.





Fiscal Year 2017 Expenses \$75.8 Million



Fiscal Year 2017 Revenue \$75.8 Million

### Net Assets

Net assets include the total book value of land, buildings, and equipment constructed or purchased by the Garden net of accumulated depreciation and debt, as well as endowment funds and other long-term investments. In fiscal year 2017, the net assets of The New York Botanical Garden increased 8.2% or approximately \$36,800,000 due primarily to favorable investment returns for the year.

The Board and the management staff of the Garden, as fiduciary stewards of these assets, understand that responsible financial management is a critical obligation to the institution and its donors. The Garden's President and CEO, the Director of the Garden, the Chief Financial Officer, and the Controller are responsible for maintaining internal control over financial reporting for the Garden and have designed and instituted such internal controls to provide reasonable assurance that financial reporting is accurate and reliable.

We thank the members of the Investment Committee, chaired by John Bernstein, and the Budget Committee for their efforts in overseeing the Garden's financial management. A special thanks goes to Gil Maurer, who is stepping down as Chairman of the Audit Committee after two decades of dedicated service to the well-being of the Garden. We appreciate his leadership and the members of the Audit Committee for their wisdom and support through the many years of Mr. Maurer's chairmanship.

J. Barclay Collins II  
Chairman, Budget Committee

J.V. Cossaboom  
Director of the Garden

## How You Can Make a Difference

The New York Botanical Garden is an iconic living museum. An oasis in this busy metropolis since its founding in 1891, the Garden is a dynamic, leading New York City cultural institution. A National Historic Landmark, the 250-acre site's verdant landscape supports over one million living plants in extensive collections. More than one million annual 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 Enid A. Haupt Conservatory and LuEsther T. Mertz Library 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; 90,000 of those visitors are children from underserved neighboring communities, while more than 3,000 are educators 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 200 staff members—including nearly 100 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.

There are numerous ways in which you can help NYBG continue to flourish:

- A gift to the **Annual Fund** provides essential support for all of NYBG's programs in horticulture, education, and plant research and conservation. Gifts of \$25,000 or more are recognized through our President's Circle. To make a contribution, or for more information, please contact Molly Hermes at 718.817.8557 or [mhermes@nybg.org](mailto:mhermes@nybg.org)
- Join the **Garden Patrons Program** by making a tax-deductible gift of \$1,500 or more. In addition to Member benefits, Patrons receive invitations to exclusive lectures featuring scientists, world-renowned horticulturists, and landscape designers, as well as special viewings of exhibitions. For more information, please call 718.817.8553 or e-mail [gardenpatrons@nybg.org](mailto:gardenpatrons@nybg.org)
- Become a **Member** and enjoy benefits that include free admission, guest passes, parking passes, and discounts at the NYBG Shop and on extensive education programs. Please contact Gale Page at 718.817.8696 or [gpage@nybg.org](mailto:gpage@nybg.org)
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## NEW YORK BOTANICAL GARDEN

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