



# Public Garden

THE JOURNAL OF THE AMERICAN PUBLIC GARDENS ASSOCIATION VOL. 33, ISSUE 3, 2018



A GARDEN REBRANDS

MODERN AGRICULTURE

CAREERS IN HORTICULTURE



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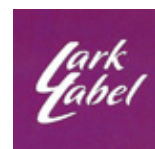
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# Public Garden



THE JOURNAL OF  
THE AMERICAN PUBLIC GARDENS ASSOCIATION  
VOLUME 33, ISSUE 3, 2018

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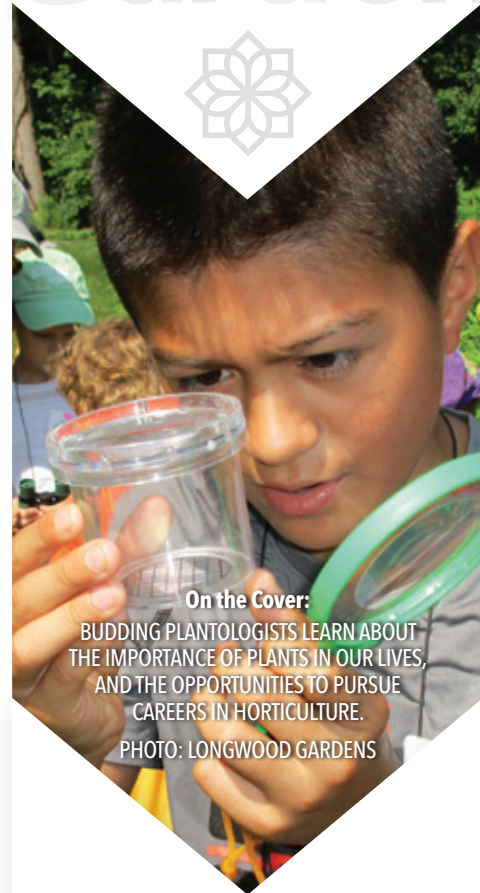
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# Public Garden



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## EDITOR IN CHIEF'S NOTE



The horticulture staff at the Naples (Florida) Zoo tell the world—and the giraffes—how much they love their jobs.

Photo: Naples Zoo at Caribbean Gardens



I had the opportunity to attend my first American Public Gardens Association Conference at Disneyland this past June.

This year's Conference (photos pages 28–29) set a record for attendance, with over 900 garden professionals and their guests coming together for an exciting week of workshops, sessions, community meetings, and incredible tours of Southern California's wealth of gardens and arboreta.

But what really struck me about the experience were the people. My wife Amy, who joined me for the last two days of Conference, just said "Everybody's so nice!" Now, it's not a surprise for many of you that garden professionals are friendly sorts, but the degree to which everyone took the opportunity to engage, share, and learn was particularly evident.

Of course, not everyone is able to join us at Conference—the 900+ in attendance represent just 10% of your Association's 9,000+ members. That's one of the reasons your Association has been working to improve the resources on our website, **publicgardens.org**. Community Forums are a way for our members to interact with each other every day. Our ever-growing, easily searchable Library/Media Center has hundreds of publications, presentations, reports, and videos—including many of the presentations given at this year's Conference with more added every week. And we've added a list of upcoming professional development events curated for each Specialty.

We hope you'll take the opportunity to interact with us as we Connect, Protect, and Champion the public garden industry. If you haven't been to the website recently, drop by and take a look. Find Your Specialty. Join a Community. See what's available in the Library/Media Center. Find interesting professional development opportunities from your Association and outside organizations.

Everybody's so nice!

Best regards,

RAD

Richard A. Doran



BEHIND-THE-SCENES: A BRAND BLOOMS AT



**LEWIS  
GINTER  
BOTANICAL  
GARDEN**

*Beth Monroe*

IN THE SUMMER OF 2016, LEWIS GINTER BOTANICAL GARDEN WAS PRESENTED WITH AN OPPORTUNITY THAT LED TO A REBRANDING OF THE GARDEN. AS THE GARDEN WAS EMBARKING ON MASTER SITE PLANNING, WE PARTNERED WITH MULTIDISCIPLINARY DESIGN FIRM 3NORTH TO CHART A COURSE FOR FUTURE DEVELOPMENT.

As part of the master site planning process, we assembled internal and external stakeholders to envision what the Garden could be for the community. Participants represented a range of diverse groups, including staff and volunteers, community leaders, and even fourth-graders. Some had close relationships to the Garden, while others had visited rarely or never.

Part of 3North's process was an activity called an IQ Charrette, in which all project stakeholders meet to map solutions while considering intangible qualities (IQ). Part of the exercise was for participants to choose colors, fonts, and other visuals to express themselves. At the end of the day, we had developed a three-pronged vision to be a Garden of:

- 1) **Timeliness:** A Garden of All Ages
- 2) **Community:** A Garden for Cultivating Community
- 3) **Awakening:** Mind, Spirit, Body

**IDEAS TAKE ROOT**

In its over-thirty-year history, the Garden had never had a brand platform. Instead, we only had a logo featuring the Conservatory and a one-page document with guidance on fonts and color. The Conservatory logo was designed by Elevation, the Garden's integrated marketing agency, in 2003 when the Conservatory opened.

Since that time, the Conservatory has become a focal point and one of the most recognized landmarks in the Richmond region. It is tied to the development of the Garden and its consistent ranking among the top ten public gardens in the United States.

However, the Garden of today is much different than that of 2003; for instance, we have added a children's garden and have become increasingly involved in community gardening. Accordingly, around the same time as the Garden embarked on its master site planning, Elevation had been suggesting that we consider a brand refresh.

At the beginning of this process Executive Director Shane Tippet and Elevation both agreed that the Conservatory should remain as the Garden's logo, citing the value of the brand equity that had been built around this image.

Then something remarkable happened. The Garden, 3North, and Elevation met to discuss the IQ Charrette results. They discovered that participants identified with many different aspects of the Garden and envisioned a community role extending beyond a physical space. Clearly what the Garden is today and what the community wants the Garden to be in the future have changed since 2003. The results of the IQ Charrette were the basis for a brand refresh for Lewis Ginter Botanical Garden.



Above: Research from master site planning helped inform the brand refresh. Photo: Josh Lopez

Left: The brand refresh includes a wordmark and colorful illustrations, including flowers.

## A FRESH LOOK EMERGES

Elevation went to work. Principals Aaron Dotson and Frank Gilliam presented the challenge and Art Director Scott Vadas and Account Manager Sydney Stoddard led the project.

Elevation created approximately fifty different concepts based on the research, then narrowed these down to half a dozen. Then they invited Tippet and others from the Garden to Elevation's offices and put the six concepts on the wall. Each was considered and discussed at length.

Perhaps the most dramatic departure was the suggestion to not have a logo, but to use a wordmark instead. A wordmark is a distinctive, text-only typographic treatment of an organization's name. There were strong reasons for this, both philosophical and practical.

The Conservatory is certainly a centerpiece building that has helped propel the growth of the Garden. At the same time, this growth has made the Conservatory part of a bigger whole. The Conservatory logo of 2003 emphasized one building; now there are opportunities to show the many facets of the Garden using a natural and organic feel. In addition, the Conservatory is almost always featured as the Garden's "hero shot" anyway; this "two Conservatories" approach—featuring the building in both the logo and a feature photo—was redundant.

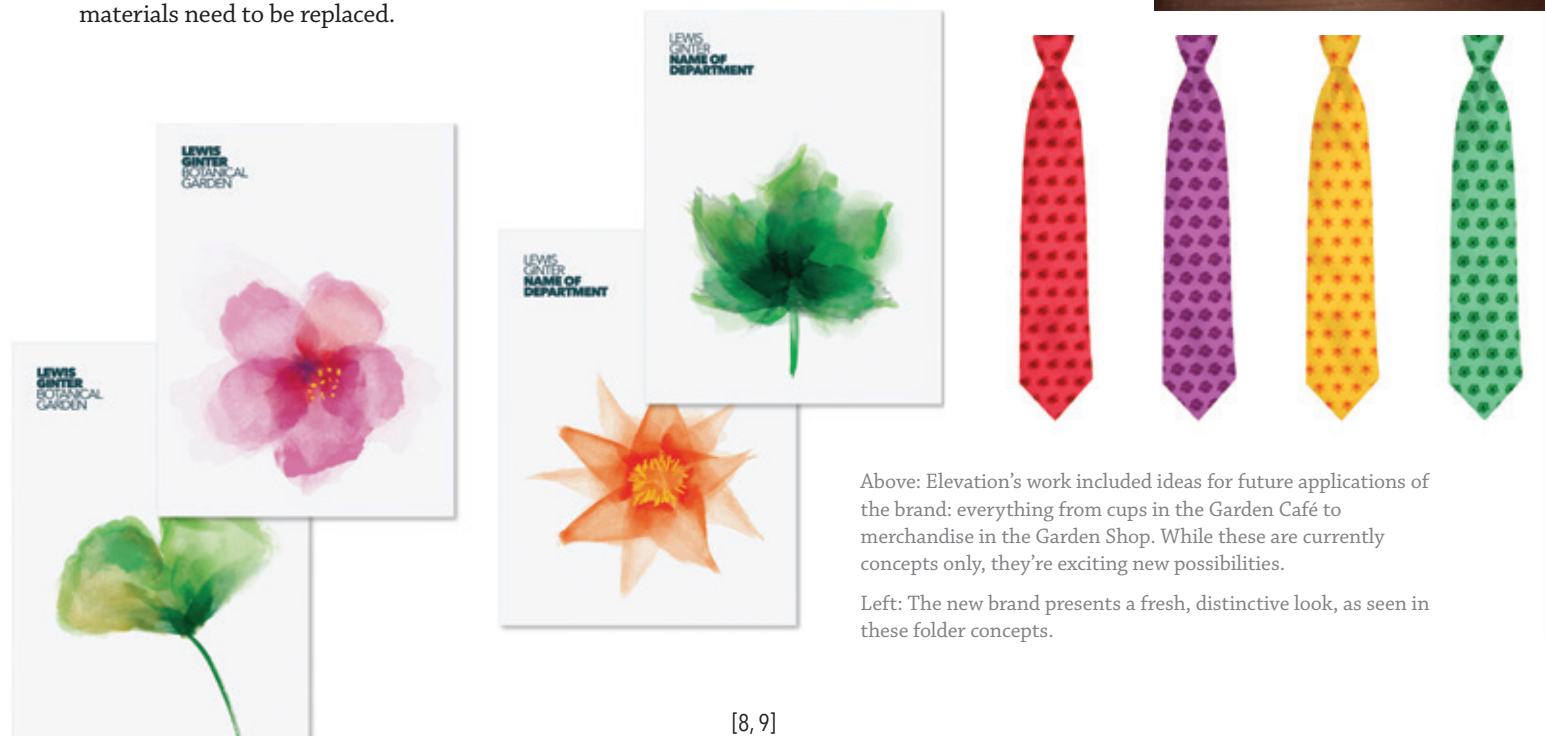
From a practical standpoint, the media landscape is more competitive and complex than ever before. The Garden needed its name to stand out on everything from billboards to digital ads on smartphones. The new wordmark allows the Garden's name to be read more easily in all these contexts.

## A BRAND BLOOMS

The Garden chose a graphic direction supported by the IQ Charrette feedback: a look that was colorful and natural, appealing to all ages, and, most of all, welcoming.

As part of the brand platform, Elevation included illustrations that can be used in combination with the wordmark, depending on what and how the Garden is trying to communicate. This "toolkit" approach provides incredible flexibility and brings a freshness and variety to all Garden materials. A 44-page Brand Standards document helps the Garden maintain the consistency of the brand. Although such consistency is extremely important in today's business world, it is difficult for many nonprofits to achieve.

Because the Garden does not have the resources to undertake an immediate, comprehensive brand refresh, it is being implemented throughout 2018 as opportunities occur and branded materials need to be replaced.



Above: Elevation's work included ideas for future applications of the brand: everything from cups in the Garden Café to merchandise in the Garden Shop. While these are currently concepts only, they're exciting new possibilities.

Left: The new brand presents a fresh, distinctive look, as seen in these folder concepts.

## TIPS FOR PUBLIC GARDENS

### IDENTIFY THE CHALLENGE OR OPPORTUNITY.

- Assemble your materials, both printed and digital. Do they have a cohesive brand identity?
- Does your current brand identity reflect who you are, or more importantly, who you want to be?
- What are your resources in terms of staffing and budget? Are you doing other work, such as strategic planning, that can help inform the process of a brand refresh?
- What are your overall goals and objectives for your brand identity?

### FOUR STEPS TO GUIDE THE PROCESS:

#### 1. Research

- Decide whether you will do the brand refresh internally or use an outside agency.
- Do a situational analysis. What are peers doing? How can you stand out?
- Use research to inform your decisions. Make sure your audiences (staff, volunteers, board, members, community leaders, guests) are represented.
- Start broadly and narrow to a half-dozen strong graphic directions. Choose a direction based on your goals and research.

#### 2. Planning

- After choosing the graphic direction, share with your stakeholders. Plan a series of informal meetings in small groups. Remember, internal audiences such as staff, board, and volunteers are the most important, as they are the brand ambassadors.
- Train staff and provide the tools required; for instance, purchase any special fonts or software needed. Have question-and-answer sessions as staff work through real-life scenarios.

- Use the opportunity to make additional changes. For instance, the brand refresh gave Lewis Ginter Botanical Garden the chance to transition its newsletter to a magazine format, allowing for more mission-related stories in support of fundraising efforts.
- Build in ways to measure effectiveness such as before-and-after surveys.

### 3. Implementation

- Develop a strategy for implementing the brand. Be realistic; it may take 12–18 months. Prioritize. Start with outward-facing materials: website, social media icons, nametags, staff uniforms, and business cards/stationery.
- Leverage the reveal of the brand for media coverage.
- Continue to work with staff. This is a process and will include an investment of time; however, it is worth it to ensure the integrity of the brand.
- Provide appropriate files to vendors and work with them to make sure they follow brand guidelines. Set up systems, such as online ordering portals, for consistency.

### 4. Evaluation

- Listen to what your audiences are saying in response to the new look.
- Conduct research (such as the reader survey mentioned above) to get feedback.
- Are you reaching your goals and objectives?
- Periodically revisit your materials to insure brand guidelines continue to be followed. 🌸

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Discuss this article in the Marketing & Communications Community Forum on the Association website.



In addition to flowers, the brand includes illustrations that can be used to represent Garden structures, events and exhibits, and seasons.

**MODERN  
AGRICULTURE  
IS CONTROVERSIAL:**

# HOW SHOULD PUBLIC GARDENS ENGAGE?

*Ari Novy and Peter H. Raven*

For many, modern agriculture seems to epitomize the dangers of science run amok, with large corporations seemingly in control of the world's food supply and complicit governments in their pockets. GMOs (Genetically Modified Organisms) are the poster children for the negative public perception of modern agriculture. Yet GMOs are among the most rapidly adopted plant technologies of all time. Careful analysis of the science of GMOs reveals little risk to public or environmental health and a host of realized and potential benefits. In fact, there is virtually the same level of scientific consensus that GMO agriculture is safe as agreement that global warming is real. Still the majority of Americans feel GMOs are unsafe.

For the public garden community, the scientific consensus that GMOs are safe combined with strong public mistrust of the technology is problematic. Gardens are faced with the challenge of representing scientific truth, as best it can be determined, while separating the scientific facts from the cultural values that may impact societal decisions about technology adoption. With regards to agriculture, it should be understood that modern agriculture is primarily a response to our recent population explosion, which has seen humankind grow *tenfold* during the past two centuries to its present 7.6 billion, with a projected population of 9.8 billion by mid-century (just thirty-two years from now!). There are ecologically sound and unsound ways to conduct the agriculture that now consumes approximately one-third of the terrestrial surface of the planet, and it should be continuously improved. However, we can find no reason within evidence-based science to single out GM technology, one of many used for plant breeding, as uniquely damaging or potentially evil. And so, we pose the question: *Should public gardens engage general audiences on the topic of GM and, if so, how?*

A concise review of the underlying science about GM techniques may prove helpful here. Despite intensive and extensive investigation for almost three decades, no academy of sciences of any country in the world has ever found a single scientific reason that the products of transferring genes from one kind of organism to another should be treated as harmful in any particular way.



Illustration: Wenceslao Almazan, Cornell Alliance for Science

Transgenes are in fact abundant in nature with, for example, more than 145 having been detected in humans. The transfer of each transgene from one kind of organism to another is different from any other such event, and so there is no valid rationale to conclude that all GMOs are dangerous as a class.

In the United States, more than 80% of the foods we consume come from GM crops. Hundreds of millions of people have been consuming them for decades, along with billions of farm animals. Not a single case of any illness has been reported as a consequence in any human or other animal. U.S. farmers and those in a growing number of other countries grow GM corn, soybeans, and cotton almost exclusively due to important reductions in cost and

improvements in yield. Notwithstanding the very real environmental costs of modern agriculture, it is critical to recognize that farming practices resulting from GM agriculture have had positive effects on the environment including decreasing expansion of agricultural land, decrease in toxicity of applied agricultural chemicals, and reduction in greenhouse gas emissions.

Many of our medicines, including all insulin, are developed and manufactured by GM technology but then taken with no hesitation and no legal restrictions beyond the same regulations applying to all human drugs and therapeutics. Virtually all beer and all cheeses are manufactured using GM organisms as enzymes, and again, no case of illness or other problem has ever been ascribed to their consumption.

None of this is to say that there are never any risks from novel products, and one could certainly create dangerous products using almost any kind of technology. What is of great importance, however, is that there is nothing in common to all products derived from GM plants that could cause all of them to pose some common danger. Therefore, labeling GM products fails to provide meaningful consumer information, at least from a scientifically informed, risk-based approach.

Challenges do abound in modern agriculture. The spraying of pesticides, which is common with certain GM and non-GM crops, can certainly have negative outcomes if not conducted properly. Pesticide chemistries and application methods both need to be evaluated continuously so that management practices can be made as safe as possible. Insect and weed resistance issues are critically important as well and should not be minimized. However, these are general issues of agriculture and should not be conflated with GMOs as a class. Finally, the issue of transgenic escape to the wild, while certainly a valid concern, has not proven to be a tangible problem. In fact, the widespread misperception that GMOs are constantly leaping into natural communities provides clear evidence that public gardens need to become involved in such discussions as publicly-facing educational institutions with respected expertise.

Public gardens should engage robustly with the public on agriculture and GMOs precisely because it is a consequential issue of our time that we have unique expertise and credibility to discuss. It is also a flashpoint topic where misinformation and groupthink dominate polite conversation. As education and research institutions, we have a responsibility to relentlessly pursue objective truth to the best of our ability while being sensitive to diverse human values that may interact with objective facts. As the late Senator Daniel Patrick Moynihan famously stated, “Everyone is entitled to his own opinion, but not his own facts.” Public gardens are critical public forums for the promulgation of facts about plant science, horticulture, and conservation, and intense discussion and sharing of related opinions. Although avid rosarians have different opinions about what constitutes the most beautiful award-winning rose, they also rely on the basic science of photosynthesis, flower formation, and plant nutrition—areas that are not subject to modification by opinion, but which are important in growing outstanding rose plants.

Public gardens can take the same approach to educating about GMOs—and other agricultural technologies—as we have for evolution, global warming, and even cultivating prize roses. That is, we can make clear what we know from empirically-derived science. We can inform the public using all of our considerable powers of education based upon the best available information, particularly as promulgated by the most esteemed and trusted bodies of scientific knowledge. We should also seek to familiarize our visitors with an understanding of the policy issues around

agricultural technology. In essence, we should engage the public about agriculture and GMOs the same way we treat all other topics where there is strong scientific consensus and a vast array of values-based societal responses.

Given the strong mismatch between public perception of modern agricultural and well-demonstrated scientific conclusions and empirical facts, we believe public gardens should put more effort into educating our often largely urban visitors about agriculture generally and modern agricultural methods in particular. Gardens throughout North America engage visitors to better understand the science behind such topics as global warming, evolution, pollinator decline, and biodiversity loss, and doing so is considered a general good. Agriculture, keeping in mind sustainability and the environment generally, can be added in the same way as these other complex scientific topics of great interest to the public. As the public’s primary means of accessing cultural, aesthetic, and science-based information about plants, public gardens have a clear responsibility to present even controversial topics in the plant sciences to the general public based on the best available science, and with respect for individual opinions. Despite the considerable emotionality and misunderstanding of complex and polarized topics like GMOs—and perhaps precisely because of these perceptions—the public needs to be able to depend on public gardens as a solid source for comprehensive and accurate information about plants.

**Note:** *This article was partially written as a follow-up to our session “GMOs 101” in Hamilton, Ontario, in June, 2017. At that session, several prominent scientists from the public sector, including Richard Olsen of the U.S. National Arboretum, Maggie Smith and Sarah Davidson Evanega of Cornell University, and Farzad Taheripour of Purdue University, discussed the basic scientific consensus around the safety and benefit of GMO agriculture. In general, the conference attendees appreciated the expert opinion presented on the subject but confessed unease given the strong public mistrust of GM technology and the challenges of separating science from policy and values. This article is inspired by the comments we received after that 2017 conference. We hope it serves to continue to clarify the scientific consensus on this topic and demonstrate that educating about GM technology, and other forms of agriculture, is really no different than educating about global warming, evolution, or growing prize roses.* 🌸

Ari Novy, PhD is Chief Scientist at Leitchtag Foundation in Encinitas, California, and a research associate at San Diego Botanic Garden, Smithsonian Institution, and University of California, San Diego.

Peter H. Raven, PhD, is President Emeritus of Missouri Botanical Garden in St. Louis, Missouri.



For further reading, please see <http://bit.ly/supp3303>

Discuss this article in the Food and Agriculture Community Forum on the Association website.



## GROWING PLANTOLOGISTS AT YOUR GARDEN **SEED YOUR FUTURE**

WE ARE LIVING IN A TIME OF GREAT DISCONNECTION FROM PLANTS. PLANTS ARE EVERYWHERE—YET PLANTS ARE NOWHERE ON THE MINDS OF MOST AMERICANS. THIS “PLANT-BLINDNESS” IS ESPECIALLY SIGNIFICANT AMONG OUR NATION’S YOUTH. SEED YOUR FUTURE IS THE HORTICULTURE INDUSTRY-WIDE COALITION TO HELP CHANGE THIS CRITICAL TREND. YOUR PUBLIC GARDEN IS ONE OF THE BEST PLACES FOR PEOPLE TO ENJOY AND LEARN ABOUT THE IMPACT AND BEAUTY OF NATURE—AND WE HAVE NEW TOOLS FOR YOU.

Informed by research examining the right time to reach young people about the wonder of plants and fulfilling plant careers, Seed Your Future is focusing our first campaign on tweens. But first, we needed to know what kids had to say.

The middle-schoolers in our focus groups said they don’t know what “horticulture” is. After sharing with them how plants impact our lives every day, and the diversity of careers across the art, science, technology, and business of plants, kids were pretty clear: They want us to stop using “weird” words like “horticulture,” show them through video and social media content how plants can change the world, and have “cool” young people tell them about their fun (**#ILoveMyPlantJob**) careers. They coined the term “plantologist” instead of “horticulturist” and urged us to connect plants to what they are already interested in such as sports, fashion, medicine, technology, and art.



### CHALLENGE ACCEPTED!

([www.WeAreBLOOM.org](http://www.WeAreBLOOM.org)) was launched in April. Through eye-catching content delivered both inside

and outside the classroom, BLOOM! is educating and inspiring young people about the endless possibilities in horticulture, and your public garden can utilize all of the new resources in your education programs to help grow the next generation of plantologists.

Download the free new resources at [www.Scholastic.com/BLOOM](http://www.Scholastic.com/BLOOM) (educator resources) and [www.WeAreBLOOM.org/partners](http://www.WeAreBLOOM.org/partners) (your toolkit of materials). Included are infographics, lesson plans, videos,

games, a student plant hybrid contest, and an online learning module. And, if you’re already doing something terrific, we want to share what you’re doing with others and add to the toolkit.

Co-founded by Longwood Gardens, Seed Your Future has quickly grown to more than 150 partners including the American Public Gardens Association, horticulture industry companies, gardening organizations, schools, colleges and universities, public gardens, and youth organizations, all united by our confidence in the power of plants to change the world.

We invite you to join in the movement to teach the plant-blind to see and open young minds to the possibilities of a future in horticulture. It’s time for Americans to wake up and see the roses—and the trees—and the tomatoes. Together, we can show them how. 🌸



Left: Students at Lincoln Memorial Middle School in Palmetto, Florida, grow strawberries and share them with other students and staff by making strawberry shortcake for everyone.

Right: At the school’s Urban Farm students grow their own gardens in Earth Boxes.

Photos: Seed Your Future

Susan E. Yoder is the Executive Director of Seed Your Future, a coalition of more than 150 horticulture partner organizations united in their mission to cultivate the next generation of horticulturists and plant enthusiasts. The coalition recently launched its first major initiative, BLOOM!, designed to educate youth about the power of plants and careers in horticulture.

Discuss this article in the Education Community Forum on the Association website.





# CAREERS IN HORTICULTURE: ENGAGING THE NEXT GENERATION IN BOTANIC GARDENS

Mary Hockenberry Meyer, Susan L. Capley, and Tim Kenny

As traditional higher education programs in horticulture and botany continue to see decreasing enrollment, public gardens must act to ensure that our industry has access to new and emerging talent. The Minnesota Landscape Arboretum and New Orleans Botanical Garden are inspiring middle and high school students to consider jobs in the green industry with special 90-minute Career Tours, highlighting the diversity of opportunities offered at public gardens.

While each garden has implemented the program in its own way, many features are the same at both sites. At both the Minnesota Landscape Arboretum and the New Orleans Botanical Garden, tours are advertised specifically to teachers, along with other field trips and classes online and in educational brochures. A nominal registration fee of \$25 per class (eight to thirty students) is charged.

At the **Minnesota Landscape Arboretum** the Career Tour involves four to six stops at key garden locations that each highlight a specific career including landscape architect, plant curator, plant breeder, Integrated Pest Management specialist, plant pathologist, and arborist. Through a lively discussion with the students, we discuss what each career involves and what college classes or special skills are required for each job.

Students next participate in an activity that introduces the concept of plant blindness. By comparing their plant identification knowledge with their ability to recognize corporate logos (see sidebar), students are challenged to be aware of plants. The activity also serves as a springboard for discussion about the potential impacts of plant blindness on neighborhoods, communities, and the future of our planet. We ask the students, “If you cannot name a plant, can you value it?”

The class concludes with a short video on horticultural careers at the Seed Your Future website, [www.seedyourfuture.org](http://www.seedyourfuture.org). A national initiative to advance horticultural careers and raise awareness of the profession, Seed Your Future recently launched BLOOM!, a new Scholastic curriculum, with career videos for middle school teachers and students ([www.scholastic.com/BLOOM](http://www.scholastic.com/BLOOM)). (Editor’s note—see article on previous page.) Seeing young professionals working in different areas of horticulture can enable students to envision their own future careers.

Since we began offering Career Tours, we have conducted about one tour per month with high school and community college students. We recommend that gardens offer similar tours to schools that may already be coming to their gardens, charge a nominal fee, allow flexibility in scheduling, and keep groups to a size of approximately twenty-five students in order to facilitate participation.

Above left: Students on a Career Tour at the Minnesota Landscape Arboretum learn about the diversity of trees and how they could have a career as an arborist in a public garden.

Photo: Minnesota Landscape Arboretum

Right: Donaldsonville High School in Ascension Parish in Louisiana is a 90-90-90 school (90% in poverty, 90% minorities, 90% graduation rate). Their school’s vision is that “Students will graduate college- and career-ready with a quality diploma.”

Photo: New Orleans Botanical Garden

In our plant blindness exercise, students are first asked to identify ten common native plants by looking at a set of botanical illustrations. Students determine the amount of time needed to complete this exercise, usually taking two to three minutes. On average, participants are able to correctly identify three plants, and even then, only to a general level. For example, a student may identify a plant as a “pine tree,” not “white pine,” and never *Pinus strobus*. Students then do the same exercise with black and white line drawings of corporate logos, such as Target, Hello Kitty, Apple, and Twitter. Students can identify the logos with no problem, and usually need less than one minute to do so. We discuss why their knowledge is strong for logos but not for plants. A common observation is, “But logos are in front of us every day. They are in all the ads to us... nobody is telling us about plants.”

**The New Orleans Botanical Garden’s Career Tour** is offered for high school and college students in the south coast area of Louisiana. Our tour introduces botanical gardens and arboreta as living museums. We talk about why public gardens and parks are important to a city or region, why people visit them, and the importance in serving our diverse range of visitors, especially in a tourist city such as New Orleans. We describe the various types of gardens, from research gardens to pleasure gardens, and discuss career opportunities ranging from executive director to researcher, horticulturist, and even volunteer. Our tour gives insight into how a garden is funded and the daily activities that pay our bills; as part of this conversation, we show students our facilities, explain what they are used for, and describe our many events held in the garden. We talk passionately about plants along the way because that is why we are really working in this career. I always have a student say, “You love your job!” and I respond, “Yes I do, and whatever you do, always be passionate and pick something you love to do every day.” At the end of the day, I hope they fall in love with plants, whether it be through a career in public gardens, becoming a volunteer, planting a home garden, or most importantly, by introducing public gardens to their future children and grandchildren. 🌸

I ALWAYS HAVE A STUDENT SAY, “YOU LOVE YOUR JOB!” AND I RESPOND, “YES I DO, AND WHATEVER YOU DO, ALWAYS BE PASSIONATE AND PICK SOMETHING YOU LOVE TO DO EVERY DAY.”

Plant blindness is defined as “the inability to see or notice the plants in one’s own environment, leading to the inability to recognize the importance of plants in the biosphere and in human affairs.” See:

Wandersee, James, and Elizabeth E. Schussler. 2001. Toward a theory of plant blindness. *Plant Science Bulletin* 47: 2–7. [www.botany.org/bsa/psb/2001/psb47-1.html#Toward a Theory of Plant](http://www.botany.org/bsa/psb/2001/psb47-1.html#Toward a Theory of Plant)

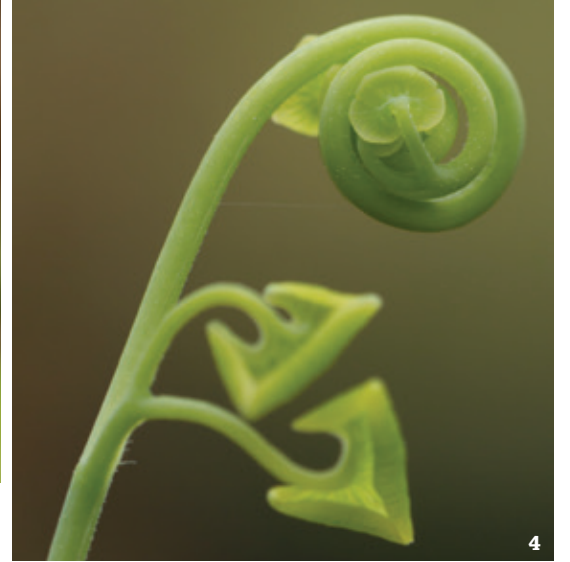
Balding, Mung, and Kathryn J.H. Williams. 2016. Plant blindness and the implications for plant conservation. *Conservation Biology* 30 (6): 1192–1199. [www.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.12738](http://www.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.12738)

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Susan L. Capley is Education Director at New Orleans Botanical Garden. She may be reached at [scapley@nocp.org](mailto:scapley@nocp.org).

Tim Kenny is Director of Education and Statewide Director of the Extension Master Gardener Volunteer Program at University of Minnesota Landscape Arboretum. He may be reached at [kenny003@umn.edu](mailto:kenny003@umn.edu).

Discuss this article in the Education Community Forum on the Association website.



## FILICINEAN FANCY



The designs of new fronds are wondrous, unfurling quietly in a myriad of shapes and forms recalling more familiar things like wood shavings, Halloween cobwebs, and shepherd's crooks. The ❶ *Osmunda regalis*, royal fern, seems almost protectively maternal as her foliage cradles the fertile portions of the frond. The ❷ *Pteridium aquilinum*, bracken fern, conjures up a vision of three verdant fists ready to stretch out and welcome the sun. Others such as ❸ *Adiantum pedatum*, maidenhair fern, and ❹ *Lygodium palmatum*, climbing fern, possess a smooth elegance in their emergence. *Lygodium palmatum* is uncommon in the Northeast, and is listed as of special concern in several states. It was once gathered for Christmas decorations with such zeal that Connecticut, in 1869, passed a law banning the practice, the first plant protection law in the United States. ❺ *Asplenium scolopendrium* var. *americanum*, American hart's tongue fern, with its crook-like crosiers, is federally listed as endangered with 90 percent of the global population occurring in New York State. Ferns face many of the same threats as other uncommon plants, such as loss of habitat, pressures from non-native species, and over-collection. ❻ *Deparia acrostichoides*, silver false spleenwort, ❼ *Diplazium pycnocarpon*, glade fern, ❽ *Woodwardia areolata*, netted chain fern, and ❾ *Asplenium rhizophyllum*, walking fern, are considered exploitably vulnerable in New York State.

ULI LORIMER CURATOR OF NATIVE FLORA BROOKLYN BOTANIC GARDEN



Plant Collections Network

AMERICAN PUBLIC GARDENS ASSOCIATION



THE CHRYSANTHEMUM COLLECTION AT

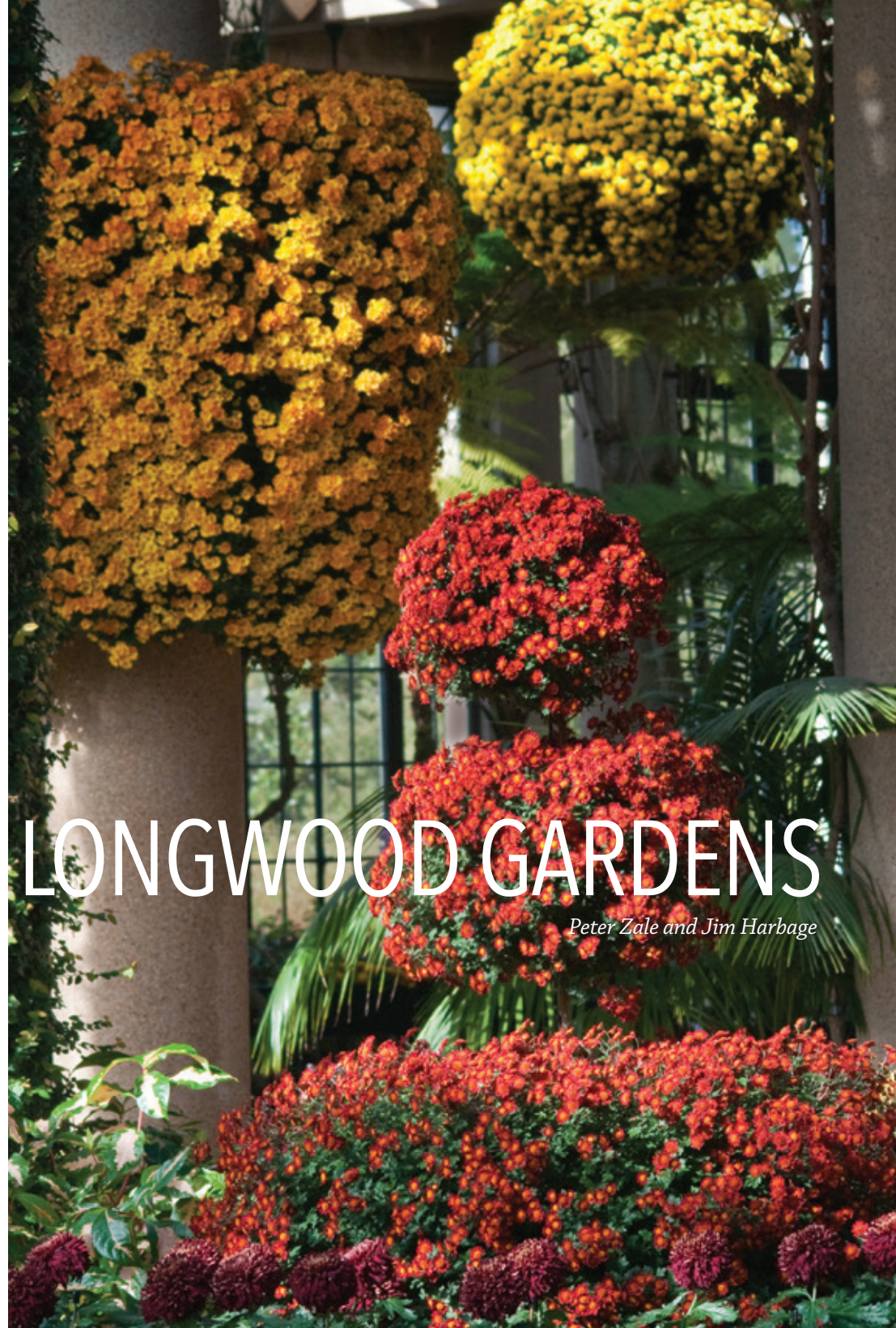
LONGWOOD GARDENS

Peter Zale and Jim Harbage



Above: A tissue-cultured chrysanthemum plant growing *in vitro*

Right: An image from a past Chrysanthemum Festival showing three different growth forms



CHRYSANTHEMUMS WERE AMONG THE FIRST PLANTS TO BE GROWN AND EXHIBITED IN THE CONSERVATORY AT LONGWOOD GARDENS WHEN IT OPENED IN 1921. THIS LONGWOOD GARDENS TRADITION, THE ANNUAL CHRYSANTHEMUM FESTIVAL, HAS EVOLVED OVER THE DECADES. THIS UNIQUE HORTICULTURAL FEAT MELTS MODERN PRODUCTION PRACTICES WITH CENTURIES-OLD GROWTH AND TRAINING TECHNIQUES DEVELOPED IN JAPAN AND CHINA. IT IS MADE POSSIBLE BY ONE OF THE LARGEST COLLECTIONS OF JAPANESE AND CHINESE CHRYSANTHEMUM CULTIVARS ASSEMBLED AND MAINTAINED AT A U.S. PUBLIC GARDEN.

Preservation, maintenance, and display of the chrysanthemum collection is a labor-intensive activity spanning four divisions of the horticulture department. At least one year in advance, the design division completes and approves the design, including specific requirements for cultivars and growth forms. The research division maintains the collection *in vitro* using standard tissue culture techniques for routine collection maintenance, meristem isolation to eliminate virus from infected stock plants, and virus indexing to continually monitor for virus infection. The production division is responsible for the meticulous care, maintenance, and development of these disease-free cuttings into the needed forms, which often require specialized training and careful attention to detail. It produces the crown jewel of the festival, the Thousand Bloom Mum, which takes eighteen months of painstaking growing and training to complete. The conservatory division implements the festival's planting design, showcasing and maintaining plants within the conservatories.

More than two hundred cultivars are currently included in the chrysanthemum collection at Longwood. Our Core Collection, accredited by the Plant Collections Network, includes forty-seven of these. (Core Collections are defined as those that are given the highest priority for preservation, development, and display use.) The Core Collection chrysanthemums are those obtained from breeders and nurseries in Japan and China and used to create the specialty forms that are the basis for the Chrysanthemum Festival. Each cultivar can be placed in one of four broad classifications: Cascade, Bonsai, Thousand Bloom, or Doll.

Chrysanthemum are susceptible to a bevy of viruses, including Chrysanthem White Rust (*Puccinia horiana*), and other diseases that can make long-term maintenance of such a collection difficult. Although these diseases may not kill the plant, they can reduce vigor, ruin display qualities, and serve as a source of infection for other plants in the collection. To combat disease issues, researchers here adapted meristem isolation as a means to clean virus from infected stock. This procedure has been extremely effective at keeping the collection healthy, vigorous, and virus-free. Additionally, long-term preservation in tissue culture helps conserve clean stocks by eliminating contact between the plants and virus-vectoring insects that can be found in greenhouse and nursery environments. Single chrysanthemum tissue cultures can be maintained for six to twelve months in a growth chamber at a temperature of 4 to 6° C (40 to 44° F). Chrysanthemum tissue cultures maintained at room temperature must be re-cultured every two to four weeks. Although labor intensive, maintenance of the collection in tissue culture is critical to the health and longevity of the collection.

Since there is already a robust chrysanthemum collection at Longwood Gardens, future development of the collection will be methodical and systematic, targeted to meet specific design or production needs. Importation of chrysanthemum from Japan is prohibited by USDA-APHIS due to Chrysanthemum

White Rust. However, Longwood Gardens was able to secure a permit allowing importation of five cuttings each of up to five cultivars, provided they first entered quarantine in Beltsville, Maryland. The first batch of plants cleared quarantine and was released in 2017. There are now plans to establish Longwood Gardens as an off-site quarantine location for future shipments of small lots of rooted chrysanthemum cuttings from Japan. Once received at Longwood, the plants enter the same protocol as for others in the collections to ensure they are free of virus and backed up *in vitro*.

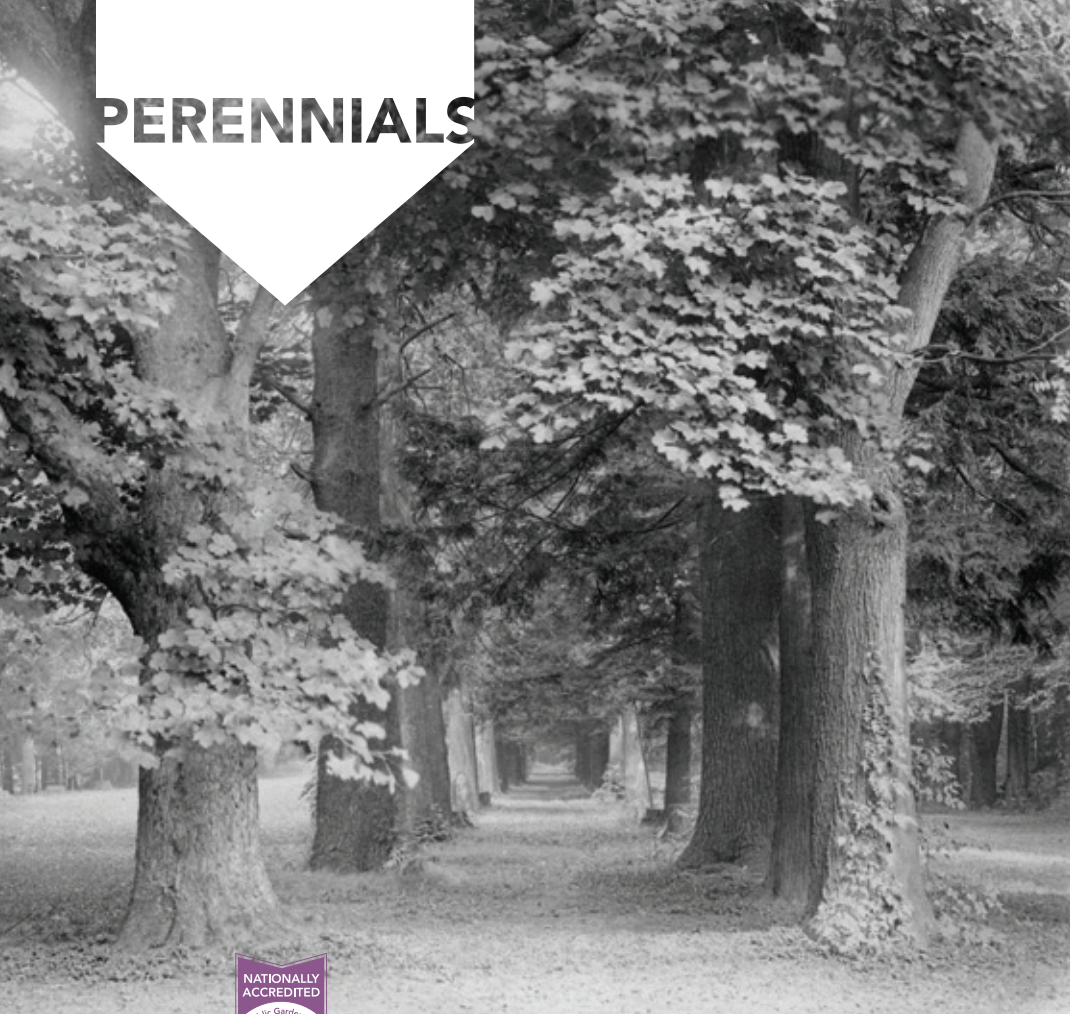


The Thousand Bloom Chrysanthemum is the highlight of the Chrysanthemum show. Only two cultivars in the Longwood collection can be used to create this form.

The legacy and tradition of the Chrysanthemum Festival has grown since 1921. The range of selection and use of different growth forms has continued to develop into a streamlined production system employing a unique array of difficult-to-obtain and -maintain Japanese and Chinese chrysanthemum cultivars. This collection will continue to be maintained at Longwood using advanced germplasm preservation techniques, and will continue to grow through addition of new cultivars from Japan. ❁

Peter Zale, PhD, is Associate Director, Conservation, Plant Breeding and Collections, at Longwood Gardens. His primary roles include plant collections development and curatorial activities, advancement of the plant breeding programs, leadership of the plant exploration program, and development of the recently initiated plant conservation program focused on propagation and horticultural research of U.S. native orchids.

Dr. James (Jim) Harbage leads the Floriculture and Conservatories division at Longwood Gardens which includes management of five acres of seasonal plant production and the four-acre conservatory complex.



# THE PEIRCE'S TREES COLLECTION AT LONGWOOD GARDENS

Peter Zale and Scott Wade

In 1906, when Pierre S. du Pont purchased the property where he would create Longwood Gardens, his initial goal was simple: Conserve an historic tree collection planted by the Peirce family from the late 1700s until the mid-1800s. These trees became the namesake for the gardens, and showcase a rich horticultural history and legacy that started 200 years before Longwood Gardens and continues today. In 1700, George Peirce purchased 402 acres in Chester County, which he transformed into a farm. In the late 1700s, his twin great-grandsons, Joshua and Samuel, became avid tree collectors. Their interest resulted in the development of a fifteen-acre arboretum composed primarily of trees that were collected from the roadsides and forests of Chester County, Pennsylvania. As their interest grew, so did their savvy as plant collectors. They became friends with well-known contemporary horticulturists and plant collectors, such as William Bartram, and began to expand the taxonomic diversity of the collection. New and cutting-edge tree species of the time, such as *Franklinia alatamaha*, *Ginkgo biloba*, and *Magnolia acuminata* var. *subcordata*, were added to the collection. By the mid-1800s the arboretum was considered to be one of the finest tree collections in North America and many specimens still remained in good condition when du Pont purchased the property. Today, these trees are known as the Peirce's Trees collection. The collection receives substantial maintenance and attention and will continue to be curated with an historically accurate and conservation-minded approach.

The Peirce's Trees collection was accredited for inclusion in the Plant Collections Network in 2017. It represents a new collection type and expansion of the scope of the Plant Collections Network. Rather than focusing on a particular taxonomic group, it includes a broad taxonomic diversity of tree species that were commonplace in landscapes and plant collections during the time period within which they were planted. There are also some unusual plants for the time period, which is part of what sets this collection apart from other similarly aged historic tree collections. For example, a collection of *Magnolia acuminata* var. *subcordata* is thought to have come from Bartram's nursery, and may be one of the original propagules of trees collected by Michaux from the type location for this species. The unique history and lineage of the tree resulted in it being given the cultivar name 'Peirce's Park' followed by introduction to the nursery trade as a superior

form of the species. This commercial introduction not only highlights the history of this particular collection, but also serves as a means of *ex situ* conservation.

Many of the trees in the collection are around 200 years old and some are showing signs of their age. By developing and establishing a Specimen Tree Replacement Plan, Longwood now has a mechanism in place to ensure that specimen trees that are important to its legacy—and/or which might represent superior genotypes of a given species—are part of a routine propagation schedule so their genotypes are not lost from the collection. Staff suggest trees to be included in the program, and then a decision-making matrix is used to prioritize propagation efforts. Prioritization ensures that the production nursery has ample time and space to make sure propagules can be grown to sufficient size before being replanted in the gardens. The propagation program also produces plants that are made available to other public gardens with similar historic tree collections or other collections needs.

In the future, the taxonomic diversity of the collection will also grow in a novel way. The collection's curator has spent the last several years surveying similarly-aged trees in Pennsylvania forests, landscapes, and collections. Through his efforts superior specimens have been identified and are in various stages of being propagated for inclusion in the Peirce's Trees collection. Many of these trees are from historic landscapes in southeastern Pennsylvania that were planted during the same period as the original specimens in Peirce's Trees collection. This curatorial work will allow us to expand the range of species in the collection while retaining its historical authenticity.

Historic tree collections can be found at many public gardens throughout the United States. The Peirce's Trees collection is the first of its kind to receive accreditation through the Plant Collections Network, and we hope this new precedent will provide motivation and a template for other public gardens. 🌸

Photos from top left:  
A view of the Peirce's Trees collection circa 1910

The yellow flowers of *Magnolia acuminata* var. *subcordata* 'Peirce's Park', one of the signature trees of the Peirce's Trees collection

A specimen of *Ginkgo biloba* in the Peirce's Trees collection thought to be among the first of the species to be planted in the United States.

An herbarium specimen of *Franklinia alatamaha* collected between 1825 and 1830 from one of the specimens planted by the Peirce brothers.

Scott Wade is the state coordinator of the Pennsylvania champion tree program. Scott is the curator of the historic Peirce's Trees collection and a certified arborist at Longwood Gardens. He is a graduate of the Pennsylvania State University



DIGGING DEEPER

# CULTIVARS WORTH KEEPING

Emily Russell and Andrew Bunting

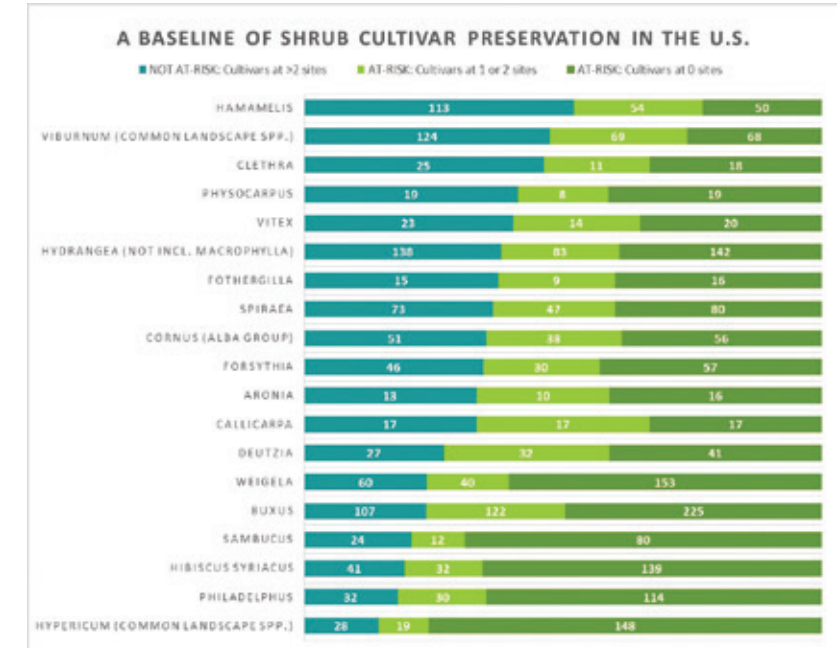
Ornamental shrubs are the backbone of our planted landscapes. It's hard to imagine American gardens without hydrangea, boxwood, or viburnum, but it's easy to take these workhorse shrubs for granted. Plant trends come and go (picture the purple-leaf elderberry or golden spirea), but as the industry gets carried away with the hottest new thing, favorite old cultivars can slip out of commerce unnoticed. All we need is a new pest, disease, or drought to make us sit up and pay attention to these faithful companions. What if a forgotten cultivar carries the resistant genes we need?

Cultivars are a necessary complement to wild-collected accessions to represent the full genetic diversity of a genus. Since the varying traits of cultivars can be described and consistently reproduced, they're especially valuable to plant breeders. As public gardens face the challenges of climate change and pursue sustainability, we rely on ornamental plant breeders to create attractive plants that meet these needs. Yet breeders are struggling to locate and access germplasm. According to a survey by the Chicago Botanic Garden, 70 percent of ornamental plant breeders have been unable to secure desired plant material. In this survey, plant breeders agreed that public gardens are essential in serving as germplasm repositories, especially for cultivars. "Botanical gardens should strive to maintain genetic diversity over time to serve as a breeding resource as environmental and pest

problems change. USDA is doing a good job with agronomic and fruit crops but not landscape plants," said Cecil Pounders of Innovative Plants LLC.

With a desire to raise awareness of this issue and take action, the Chicago Botanic Garden set out to establish a baseline of cultivar preservation at public gardens in the United States. The research team, led by Andrew Bell, PhD, compiled published cultivar names for nineteen genera of ornamental shrubs and then surveyed over 100 public gardens to locate them in living collections. Two-thirds of cultivars were found at two sites or fewer and were designated as potentially "at-risk." Please visit our website for full results by genus, including lists of potentially at-risk cultivars: [www.chicagobotanic.org/collections/curation/shrub\\_cultivars](http://www.chicagobotanic.org/collections/curation/shrub_cultivars).

The Collections staff is now following up on each of the at-risk cultivars held onsite at the Chicago Botanic Garden: investigating nomenclature and history, checking the health of existing plants, propagating as needed, and forging connections with plant breeders, nurseries, and other gardens so that worthy cultivars don't vanish from horticulture. *Philadelphus* × *cymosus* 'Mer de Glace' was discovered to be one of the rarest cultivars in our collection. This Lemoine mock orange hybrid was described as "exquisite" in *The Garden Magazine* in March, 1919. We were unable to



## A RESOURCE FOR CULTIVAR RESEARCH

A newly discovered resource for our research team was *Hatch's Cultivars of Woody Plants* by Lawrence C. Hatch. This encyclopedia is offered for purchase on the website [Cultivar.org](http://Cultivar.org) and is frequently updated with the newest introductions. It was incredibly helpful when amassing lists of all known cultivar names and checking their dates of introduction.

## NATIONAL GERmplasm SYSTEM

The National Plant Germplasm System (a part of the U.S. National Arboretum) is a valuable resource for plant breeders. It funds a great deal of work for germplasm preservation and houses the largest collection of germplasm in the United States.



locate plants elsewhere in the United States, or internationally in the BGCI PlantSearch database.

On the other hand, it's true that not every cultivar is worth keeping. Some cultivar names may be synonyms or invalid, and more work is needed on nomenclature. Only four of the nineteen genera in this study have a published checklist of cultivars (*Buxus*, *Hamamelis*, *Philadelphus*, and *Weigela*), and only five have a Nationally Accredited Plant Collection™ for reference (*Buxus*, *Cornus*, *Hamamelis*, *Hydrangea*, and *Spiraea*). Other cultivars may still be easy to find commercially, though they are not well-represented in public garden collections. Further research could include a review by experts in each genus to help prioritize preservation efforts. Inspiration for this process can be found in Plant Heritage's Threatened Plants Project in the United Kingdom ([www.nccpg.com](http://www.nccpg.com)), where threatened cultivars are scored on horticultural merit, heritage value, and usefulness to people. From these results, cultivars that have been found to be both threatened and worthy have been targeted for active conservation.

By sharing the lists of at-risk cultivars, we hope to enable other gardens to identify rare cultivars in their collections

and take action to preserve valuable germplasm. If each garden with at-risk cultivars followed up on the material in their own collection and shared it with another site, we could achieve tangible impacts. If your garden is interested in acquiring germplasm of at-risk cultivars from the Chicago Botanic Garden to aid in preservation efforts, please contact Phil Douglas, Curator, Woody Plants, at [pdouglas@chicagobotanic.org](mailto:pdouglas@chicagobotanic.org). We hope you are inspired to get out there and take a new look at some old plants! 🌸

Photos, left to right:

*Forsythia* 'Maluch' was brought to the Chicago Botanic Garden from Poland by Kris Jarantoski in 2000.

*Weigela* 'Abel Carriere' is a Lemoine hybrid which has stood the test of time.

Photo credits: Kenneth Krebs

Acknowledgements:

This project was envisioned and initiated by Andrew C. Bell, PhD. Research was carried out by Whitney Phillips, MS, and Emily Russell and was supervised by Andrew Bunting, Assistant Director of the Garden and Director of Plant Collections at the Chicago Botanic Garden. This project was made possible in part by the Institute of Museum and Library Services MA-30-14-0336-14.

Discuss this article in the Plant Collections Community Forum on the Association website.

GARDEN EXHIBIT

## FOLLIES:

ARCHITECTURAL WHIMSY IN THE GARDEN *Chris Strand*

Winterthur is a multi-disciplinary institution that includes a museum, library, conservation labs, and graduate programs in addition to the historic garden and wider estate. Because of the museum, and specifically because of our galleries building, we are already familiar with creating conventional, indoor exhibitions. *Follies: Architectural Whimsy in the Garden*, on the other hand, has been an entirely new experience for us. As a landscape exhibition that combines new construction and the restoration of historic structures, *Follies* presented new interpretive challenges and new opportunities for Winterthur staff and visitors.

*Follies* opened this spring after two-and-a-half years of planning and development. The exhibition interprets the use of architecture in our historic garden by highlighting our historic structures and by incorporating new architectural constructions with historic roots. The garden at Winterthur is approximately seventy-five acres, and *Follies* takes advantage of nearly every acre. This was one of our goals: We wanted to use a landscape exhibition to entice visitors to explore the breadth of the garden. There are six historic and seven newly constructed follies in all, which guests can reach by walking a looped 1.1-mile path. Visitors can also take our garden tram for a narrated tour of the follies or join a drop-in tour for an interpreted walk from our Visitor Center to our Galleries.

Each folly includes an interpretive sign that highlights its history or explains its origin. These signs, guided tours, tram tours, lectures, themed *Follies* walks, and a *Follies* app ([Winterthur.oncell.com](http://Winterthur.oncell.com) and available on iTunes and Android app stores) are all being used to help explain the follies to our visitors. Nevertheless, there are moments of confusion. One point of confusion is the very word folly—a word with which many Americans are unfamiliar. This expansion of our guests' vocabularies has been a fun part of the exhibition experience. It is very common, for example, for visitors to reflect on similar structures they have seen at other gardens in the region, such as the Morris Arboretum or Longwood Gardens. This is one of the ways the exhibition has been expanding guests' concepts about the role of



Above: This folly is an interpretation of an Ottoman tent, a reflection of the fashion for tents and other decorative arts inspired by the Ottoman Empire.

Left: The Green Folly is constructed of tree trunks, beech twig thatching, and other woodland embellishments that reflect the Winterthur landscape.

Photos: Rob Cardillo Photography

architecture in the garden. Once they have that “ah-ha” moment, they realize that as different as they might seem, the gazebo in their backyard and the Latimeria summerhouse at Winterthur have elements in common with famous and grand structures like the Palladian Bridge at Stowe Gardens in England.

On reflection, while *Follies* has been successful in meeting our primary goal of luring people out to explore the garden, it has been this expansion of visitor knowledge—introducing them to new visual experiences and new concepts—that has been the most rewarding. ❁

Chris Strand is the Brown Harrington Director, Garden & Estate, at Winterthur Museum, Garden & Library. He and Project Manager Carol Long began working with an interdisciplinary team on *Follies* back in 2015. With the assistance of Linda Eirhart, Senior Curator of Plants; Jeff Groff, Estate Historian; Erica Anderson, Assistant Curator of Education; and many other staff and craftsmen, *Follies* opened on time, on April 1, 2018.

Discuss this article in the Arts and Exhibitions Community Forum on the Association website.

## GARDEN PROFESSIONAL SPOTLIGHT



## ATSUKO GIBSON

ASSISTANT CURATOR  
RHODODENDRON SPECIES BOTANICAL GARDEN  
FEDERAL WAY, WASHINGTON

## TELL US ABOUT YOUR JOURNEY IN THE GARDEN INDUSTRY.

Growing up in Japan, I always enjoyed learning about plants. My grandparents influenced me a lot, teaching me the joy of touching soil. After graduating from a high school in Tokyo, I decided to learn floriculture in Japan while many of my friends majored in business or marketing in college. I got the chance to participate in a summer exchange program for three weeks in Arkansas and fell in love with the nature there, which made me decide to go back to attend a language school. I eventually received a degree in horticulture from the University of Arkansas in 2010. Upon completing an internship at the Royal Botanic Garden Edinburgh during my sophomore year, I knew I wanted to pursue a career at a botanical garden. During my internship, I worked with amazing professionals who had an unbelievable amount of knowledge about plants. I wanted to become one of those people. I decided to move to the Pacific Northwest after graduating from college. There, I would be able to grow a greater variety of plants than I could in Arkansas and I would be closer to my family in Japan. During that process, I was in the right place at the right time, resulting in my position at the Rhododendron Species Botanical Garden (RSBG) where I have worked since 2010.

I'm proud to work for the RSBG, which is home to the largest collection of *Rhododendron* species in the world. This is a very unique botanical garden. How many botanical gardens do you know of that devote their primary collection to a single genus? My career in rhododendrons started with learning about the genus as a whole, as well as learning to grow the wild-collected species regularly added to the collection.

## TELL US ABOUT A PARTICULARLY FUN OR FULFILLING DAY ON THE JOB.

Perhaps the most exciting time is when I witness the flowers of wild-collected plants for the first time. Keying out a plant is something I am starting to learn with the help of the curator of the RSBG, Steve Hootman. The language used in that process is truly “a foreign language” to me! Working for any botanical garden is a continuous learning process.

## WHAT DO YOU FIND TO BE MOST REWARDING ABOUT WORKING IN THIS FIELD?

After eight years in, I am still learning about not only species rhododendrons but also other plants that interest me. Sometimes I feel like the more I learn, the less I know. My father always said, no matter what the subject is, if you devote your career to one field, you will be called a professional in that field. Visitors to the garden call me “Rhody Lady,” and I am okay with that. I know I am one step closer to those people with whom I worked during my internship. ❁



Top left: Rutherford Conservatory  
Photo: Vicky Costakis

# THINGS WE LOVE THIS SUMMER

## PLANNING A SOLSTICE GATHERING

Now, in the waning days of summer, is the time to plan a winter solstice gathering. These resources offer ideas on how to make the longest night of the year shine brighter in your garden.

#solsticegardengatherings @solsticegardengatherings

<https://www.facebook.com/solsticegardengatherings>

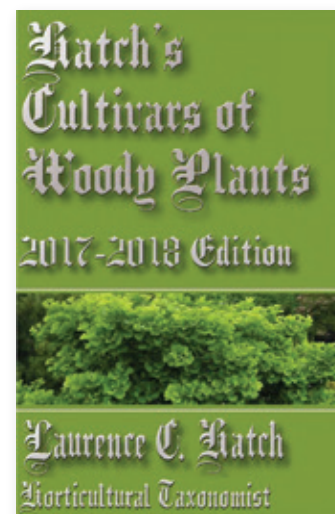
Submitted by Sue Nevler, Seattle Garden Advocate



## HATCH'S CULTIVARS OF WOODY PLANTS

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Submitted by Emily Russell, Assistant Curator, Chicago Botanic Garden



Thanks for visiting us at the Annual Conference in Southern California!

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svanloon@bhsins.com

Kim Slager CRM, CIC  
kslager@bhsins.com

**Ribbit the Exhibit**

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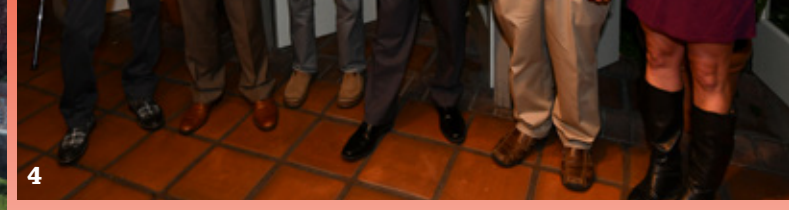
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# CULTIVATE YOUR CREATIVE NATURE SoCal 2018

## CONFERENCE HIGHLIGHTS



1. SCHOLARSHIP AWARDEES
2. LEADERSHIP FORUM, WEDNESDAY
3. THE GETTY GARDEN
4. DIRECTOR'S DINNER
5. SAND SCULPTURE, SHERMAN LIBRARY & GARDENS, DIRECTOR'S DINNER
6. WELCOME RECEPTION, MAGIC KINDGOM LAWN, TUESDAY
7. CASA ROMANTICA CROWD, FRIDAY
8. SAN CLEMENTE PIER FROM CASA ROMANTICA, FRIDAY
9. DR. URSULA K. HEISE, PLENARY SPEAKER, TUESDAY
10. CASEY SCALAR WITH SERVICE AWARD WINNER CATHERINE HUBBARD
11. LIVING WORLD ENTERTAINMENT'S WALKING TREE
12. RON FINLEY, PLENARY SPEAKER, WEDNESDAY
13. LAWRENCE WESCHLER AND ROBERT IRWIN AT THE GETTY, THURSDAY
14. POSTER SESSION AND RECEPTION
15. HARRY JONGERDEN (L) AND CASEY SCALAR (R) WITH MARK WOURMS, CEO, BERNHEIM ARBORETUM AND RESEARCH FOREST, OPERATIONAL SUSTAINABILITY AWARD
16. INTERNATIONAL SESSION, MONDAY NIGHT
17. CASEY SCALAR ADDRESSES THE PLENARY LUNCH, TUESDAY
18. HARRY JONGERDEN (L) AND CASEY SCALAR (R) WITH SARADA KRISHNAN, DIRECTOR OF HORTICULTURE, DENVER BOTANIC GARDENS, GARDEN EXCELLENCE AWARD
19. EXHIBITORS HALL





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Contact Ed Lyon,  
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