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Flora editor: Orla Swift

Cover photo: Blue fescue (*Festuca ovina* var. *glauca*). Centerfold: Water lettuce (*Pistia stratiotes*). Both photos from the Terrace Gardens. Photos by Maegan Burns, Class of 2019. See p.31 for more about Maegan.

Additional photos by: Stefan Bloodworth, Elliot Blumberg, Cathi Bodine, Sally Bornbusch (Duke Ph.D. student), Clarence Burke, Richard Chen, Laura Daly, Rick Fisher, Cole Halbert T'18, Katherine Hale, Jeff Hale, Chris Holaday, Jason Holmes, Rose James T'20, Paul Jones, Matthew King, Natasha Berrios Laguerre, Sue Lannon, Suzanna Larkin, Jonathan Ley, Lindsey Luks, Annabel Renwick, Lori Sullivan, Orla Swift G'06, Karen Webbink, Brian Wells, Yijie Zhu.

dear friends,



Welcome to the 2018 edition of *Flora*, a publication initiated by the late Professor William Louis Culberson in 1979, during his first spring as director of Duke Gardens. Issue number 1 ran four pages and reported on topics including the studies and planning that led to the creation of the Asiatic Arboretum dam and pond in the area of the Gardens later to be named in Dr. Culberson's honor.

In these 44 pages you will read how we captured a stunning new "iconic" view of the Gardens in an area previously overrun with invasive plants. We shine a spotlight on staff, including Doris Duke Center Gardens curator Jason Holmes and education program team member Kati Henderson, just two of the talented and dedicated professionals who make this one of the top gardens in the country both horticulturally and programmatically. We also share a heartwarming essay by horticulturist Lindsey Luks on her family's tradition of passing down plants from generation to generation.

Staff from the Blomquist Garden of Native Plants take a deep dive into our expanding work in plant conservation with articles by Blomquist curator Stefan Bloodworth, Blomquist horticulturist Annabel Renwick and plant conservation intern Katherine Hale. What they have done with our Piedmont Prairie and endangered species conservation, especially with Florida nutmeg, *Torreya taxifolia*, is inspiring and important work.

We also introduce you to new some faces, celebrate some promotions and bid farewell to longtime director of volunteer services Chuck Hemric, who ended his 33-year career here earlier this year.

Our staff and volunteers take time out from their other duties each spring to share what they do here with you, our friends and supporters. It is just one small way in which we say thank you for all you do to make what we do possible.

Please visit soon and often. And as always, thank you for your support of Duke Gardens and Duke University.

Sincerely,

A square box containing a handwritten signature in black ink, which appears to be "W. LeFevre".

William M. LeFevre
Executive Director



A View Beyond:

evolution of a new garden feature

By Paul Jones, Curator, Culberson Asiatic Arboretum

It's an iconic vista now, but when Rick Fisher created his breathtaking image of the arched bridge in the Asiatic Arboretum from the north side in 2013, he had to brave vicious overgrowth in an undeveloped verge of the arboretum pond. Now that view is accessible to all, sans overgrowth, thanks to a generous gift from Carmen and David Durack.

With every project in the Asiatic Arboretum, ideas begin as seeds of imagination and grow into mature pictures, albeit still in our “mind’s eye,” over time. We’ll live with a space, frequent it again and again until focus emerges. Design possibilities for Travel Hopefully, the designated name for this new seating area, evolved for several years prior to donor interest.

LETTING THE BOULDERS SPEAK

The final expression of the project was largely governed by intuitively placing many tons of boulders and stones into convincing positions where they would rest comfortably, *naturally*, within the site. It’s impossible to predict these placements beforehand. Some would claim stones have a voice and speak for themselves. And to a great extent they do rule a project site—they both offer opportunities and dictate the placement of other features. Large boulders must complement each other, viewed from within and without, and in doing so they appeal and engage simply with their presence. The

challenge of constructing such a project might be likened to taking puzzle pieces from many different boxes and creating a unified picture.

THE APPEARANCE OF AGE

Some of the visual goals we aim for upon finishing a project are that it presents as harmonious with its surroundings, that the disturbance of recent construction is not evident, and that there's a feeling of maturation. Where naturalistic is the driving mantra, the appearance of age, of maturity, is a virtue. Although the ruse of greater age can be contributed to in the final stages of a project—through plant choices, plant size, plant placement, plant posture, and pruning—a more complete attainment requires diligent people at every turn and reaches further afield than one might assume. For example, the companies that supply us with boulders may receive from us an order described thus: “20 tons of Tennessee Crab Orchard boulders in a variety of sizes from 750 lbs. to 3 tons, with live surface mosses and lichens, if possible, and treated with TLC throughout the delivery process, i.e. *please minimize scratches as they are loaded and transported from the quarry to our site.*” Lichens, especially, and mosses grow slowly, and their healthy, unmarred presence suggests stability and permanence. Many hands and forklifts handle our boulders before we ever see them.



CONSIDERING VARIED PERSPECTIVES

Another integral contributor is the equipment operator, who minimizes his footprint on the existing landscape by conscientiously maneuvering machinery into positions for which it is ill-designed, and who displaces earth and positions boulders with precision, regarding all the while the extant trees and shrubs that we want to preserve. As a side note, the observations of machine operators while placing boulders are extremely useful. Their alternative vantage point from an elevated cab provides extra detail to those of us directing the process from ground level. Operators with an eye for detail are ones you want to develop a long-term relationship with.



THE LOGIC OF IRREGULARITY

And about those trees that we later plant: the stature of an understory small tree or shrub in a forested landscape is more often than not irregular, sparsely limbed, and perhaps arching or one-sided as it reaches for light pouring through a distant canopy opening. Plant nurseries tend to grow beautiful, symmetrical, dense and well-formed specimens. Such plants are great, and what buyers demand. But, if your end landscaping goal is to present as naturally occurring, finding healthy but somewhat irregular nursery specimens can sometimes be a challenge.

FRAMING THE VIEW

The jewel in the crown of Travel Hopefully, the feature that “spoke” to the Duracks and beckoned them to join the Gardens’ family, is a modest view, a picture worth a thousand words. Thinking again about Rick’s beautiful image, one reason that it allures is because of the interplay between that which is associated with nature—the water and reflections, bamboo, and distant brightness—and the contrasting human component, the arched red bridge. Perhaps, as with color schemes, humans appreciate contrasting forms that complement one another, whether they be purely of nature, purely human, or a partnership. In creating Travel Hopefully we introduced a couple



of additional patently “human” elements, and sought to design and site them to *complement*. For example, because the pond embankment drops off precipitously, a low fence fashioned of cedar and bamboo courses along the edge to protect visitors, especially children, from accidentally tumbling into the pond. Its design was borrowed from other wooden fences located in the arboretum, and although it now reads as fresh and new, we’ve added no protective chemicals so that soon, like the boulders, it too will be encrusted with lichens and wear the patina of age.

And then there is seating. Before the first stone was placed, before stones were even imagined, the question of where to place a bench was being appraised. Once determined, that space was honored during every step of construction. Even boulders didn’t take precedence. Driven by “the best view,” seating was the first piece of the puzzle, and the last—first to be considered, last feature to be placed. Travel Hopefully actually has three wooden benches, crafted from native white oak and sustainably harvested mahogany. All three benches are integrated among the boulders and reliant upon them for support. The design involved no small effort between staff and very talented crafts persons who fashioned a work of art that draws you to sit, admire the detail, and rub the palm of your hand across the smooth texture.

CONTINUING EVOLUTION

Rarely is a project ever consider finished. Just as ideas are mulled over before a shovel ever touches the soil, so too is the continuing review and fine tuning of details afterward. A 3-ton boulder may not be moveable once set in place, but

Above: The view from Travel Hopefully. Photo: P. Jones. Facing page: Mosses growing on boulders add to the feeling of age. Photo: Jones. Blooming camellias (*Camellia sasanqua* ‘Dream Team’). Photo: O. Swift. P. 3: the 2013 photo by Rick Fisher that inspired Travel Hopefully.

there are always alternative plant choices one can make, or another possible view to consider. The visual footprint of a bench is not limited to its immediate vicinity but includes distant features and activities as well. Far along in the process of constructing Travel Hopefully, we discovered that by slightly adjusting the entry steps, and removing a few choice branches, a small window could be opened to view the waterfall in the Japanese garden 100 yards away. Evaluation never ends. Plants come and plants go. In our attempt at creating a naturalistic feature, we’ve initially offered up a botanical palette of ferns, woodland peonies, fairy wings, mosses, and other diminutive gems common to the shady forest floor. Cherries have been added, and stewartias, Japanese maples, viburnums and camellias. Some will excel, others will in time wane. Such is a garden. An enticing view has driven an idea, which led to a collaboration, and the result is a beautiful space that many will enjoy.

Grow with us

Would you like to support the creation of a new garden feature? Please contact our development office at 919.684.5579 to discuss opportunities.



staff spotlight:

Jason Holmes

Curator, Doris Duke Center Gardens

The Doris Duke Center Gardens features several gardens that are distinct from each other. What are the rewards and challenges of being curator of this part of Duke Gardens? The Doris Duke Center Gardens is the first Duke Gardens experience that most of our visitors encounter when they arrive. We always want to make that first impression a lasting one and start to excite visitors about the rest of the beauty and inspiration that is Duke Gardens. We also play host to many of the events that are held throughout the year. We take great pride in that and know that for people who attend many of these events, these spaces may become lasting memories, and therefore our attention to detail is paramount.

You first came to Duke Gardens as a summer intern in 2003. Were there any defining moments during your internship, or unique qualities about the Gardens, that inspired you to pursue a career here? Since my internship, I have been a part of so much that Duke Gardens offers. Working in each area of Duke Gardens has given me an appreciation of the hardworking, dedicated staff members. I have seen the passion that all of our staff members put into their areas of expertise and it drives me to do the same.

What additional education and experience led you to a career in horticulture? As I think back, my mother's love of gardening really ignited the fire. In high school I started working at a garden center in Roxboro, which was like throwing gas on the fire. I could recall plants and everything I learned about them in an instant. I cannot sell a car, but I can sell plants! It was after going to the State University of New York at Cobleskill to study horticulture, and traveling around to gardens, that I really became hooked on the botanic garden world.

The Doris Duke Center Gardens have changed significantly in your time as curator, and you were promoted to that role at age 27, which is relatively young. In what ways has this significant challenge shaped you? I have always been a member of a team, and in many ways I will always be a member of a team. But as curator I am also a team leader, and that is an honor and privilege that I enjoy and do not take lightly. It is exciting to work with a self-driven staff, dedicated volunteers and fun-loving work study students. I am here to ensure that my team's needs are met, that we are pushing the envelope in everything that we do, and that through it all we maintain our highly important attention to detail. I find that with talented team members—horticulturist Lindsey Luks and assistant horticulturist Nick Schwab—I merely mention an idea and step away and Lindsey



and Nick make that idea come alive. That is hard for me, since for so long I was the hands-on person who brought our ideas to life. With that said, however, it is a joy for me to come to work and help create a garden aesthetic for all to enjoy.

Are there aspects of Duke Gardens that are reflected in your home garden, or vice versa? I love a woodland garden. I find myself seeking shade during our hot summer days, so I value every tree that provides shady respite. My home garden certainly reflects my love for a woodland with various layers of trees, shrubs, ferns, hellebores and woodland ephemerals. I have included stroll paths that lead to intimate spaces such as a hammock to enjoy and my son Evan's playhouse. That's certainly nothing new to any gardener, as we are always thinking about ways we can make the garden peaceful and enjoyable. So it is in my own garden that I find myself thinking about new ways to include shaded, intimate and enjoyable spaces for respite and relaxation within the Doris Duke Center Gardens.

You are known among your colleagues for your encyclopedic plant knowledge. Is your memory just as sharp in other areas, or is there something about plants that makes it easier to retain so many facts? Wow, I am blown away that I am thought of in that manner. I feel my ability to retain plant knowledge just comes naturally. All people have something that they excel in, and mine

is a love for plants. I love to learn where plants come from—their native range in the world and their habitat. Once I have that information, the rest is just physical characteristics. I have always struggled with subjects like math but loved the sciences. I guess I have made up for my math deficiency by learning all I can about plants.

What are some of your interests outside of gardening? Civil War reenacting and teaching others about Civil War history, traveling to national park sites with my family, leading Cub Scouts, antiquing with my wife, traveling to gardens, collecting coins from around the world, and collecting toy tractors.

In your studies of Civil War history, have you learned anything surprising about plants and gardens of that era? Well, certainly gardens were less about aesthetics and more about functionality and necessity. Gardens in America up through the early 1900s were more about growing food for sustenance in everyday life rather than botanically interesting or pretty displays. I find myself often thinking about the task of growing, harvesting and processing everything that I would need from the garden in order to sustain my family for a year, and I think that would

be a daunting task. Few people today possess that knowledge and ability to provide for their families like our ancestors did centuries ago—to plant the seeds, to care for the plants, to harvest the produce, to process and store the produce long-term, and to prepare a delicious feast from that harvest. So many, including myself, find it much easier—with good reason, of course—to go to the grocery store or to dine at a restaurant for a delicious meal.

The Page-Rollins White Garden is particularly interesting for its focus on shape and texture rather than an array of colors. What is your approach to this garden as a curator, and what do you hope visitors see in it? You are absolutely right; since the color has already been decided—white—we rely upon the use of textures and forms to create an amazing display. It is within this lush green setting that white flowers can best present their purity of form and their light-reflecting qualities. We also rely upon silvers, greens and blue hues to enhance the purest form of white. The White Garden is best viewed in the morning, in the late evening and on cloudy days. That is when the color white is most pleasing to the human eye and becomes an illuminating display.



Above: the Doris Duke Center Gardens team, from L-R, assistant horticulturist Nick Schwab, horticulturist Lindsey Luks, curator Jason Holmes. Facing page: Jason poses with a blooming corpse flower (*Amorphophallus titanum*) on loan to Duke Gardens from Duke University's greenhouse collection during its rare bloom period.



Back from the brink of extinction

By Katherine Hale, *Duke Gardens intern*

Duke Gardens horticulturists are bringing the Florida torreya back from the brink of extinction, and the tree seems to like North Carolina better than its native home. The torreya, a spiky-leaved conifer reminiscent of a Christmas tree on steroids, is thriving in Tarheel conservation areas such as Duke Gardens in ways it hasn't in Florida.

In fall 2016, staff members from the Blomquist Garden of Native Plants, in partnership with the Atlanta Botanical Garden, planted large numbers of Florida torreya to preserve the species, with plans to harvest the seed for use in restoration efforts. But in order to grow a species on a large scale, it's helpful to understand its ecological niche so horticulturists here know how to keep them happy. As the inaugural Steve Church Conservation Intern at Duke Gardens and a graduate student

in the University of Vermont's Field Naturalist program, which specializes in environmental and ecological problem-solving, I was enlisted to find out.

In late February 2016, I embarked on a whirlwind road trip to Florida to find this unusual tree in a decidedly unusual place. The torreya tree has only been found on the bluffs along the Apalachicola River, 50 miles east of Tallahassee and 75 miles north of the Gulf of Mexico. In this liminal location, suspended seemingly out of place and time with its surroundings, you'll find beeches, birches, oaks, maples and holly reminiscent of forests in North Carolina.

Although it looks like a spruce or a fir from a distance, the torreya tree is more closely related to yews, bearing fleshy



“A mysterious fungal blight appeared out of nowhere, killing more than 98 percent of the mature trees over the next several decades.”

cones that squirrels adore. Botanist Hardy Bryant Croom put them on the map when he encountered them in the 1830s, dubbing them *Torrey taxifolia* in honor of colleague John Torrey and their yew-like foliage. While some trees were milled for rot-resistant lumber and fence posts, and others enjoyed a brief vogue as a landscaping plant in the Tallahassee area, the torrey was mostly treated as a local oddity. Its strangest brush with fame came in the 1950s, when local preacher E.E. Callaway claimed that the Apalachicola was one of the rivers emerging

from the Garden of Eden as described in the Bible, and that torrey was the “gopherwood” that Noah used to build the ark.

By the 1960s, the Florida torrey was getting more attention, but the news wasn’t good. A mysterious fungal blight, later identified as a novel *Fusarium* species, appeared out of nowhere, killing more than 98 percent of the mature trees over the next several decades and reducing the rest to tiny basal sprouts, perpetually dying back before they could reproduce. By 1984, the Florida torrey was the first plant species on the federal Endangered Species List. Under the leadership of Ron Determann, the Atlanta Botanical Garden took up the task of preserving torrey germplasm by growing new plants from clonal cuttings. Fast forward to 2016, when my chance encounter at a conference with Blomquist curator Stefan Bloodworth and horticulturist Annabel Renwick sparked the idea of collaborating with Duke Gardens on this latest endeavor to preserve the torrey.



Thus I found myself perched on the edge of a steep, hundred-foot slope above the Apalachicola River—no small matter in the flattest state in the union, where the highest “peak” tops out at 345 feet. This abrupt elevation change leads to some dramatic ecological gradients. Alligators and knock-kneed cypresses populate the floodplain, and fire-adapted pines dominate the plateau at the top, stretching for miles—once in wild stands, now in plots owned by timber companies. But in between exists a narrow zone—called ‘slope forest’

Clockwise from facing page: A torrey sapling; pollen cones; Katherine with a torrey at Biltmore Estate (Photo: Jeff Hale). P.10-11, L-R: a torrey bud at Duke Gardens; a torrey seed at Atlanta Botanical Garden; Katherine and Blomquist curator Stefan Bloodworth construct a torrey seed cage (Photo: Laura Daly). Photos by Katherine Hale except where noted.





“Most of the surviving wild torreyas are off the beaten path, involving a laborious scramble up and down the twisting slopes to find them.”

trees send up more shoots, which get knocked back over and over again. Deer don’t eat torreyas—the leaves are too prickly for them to bother—but they love to rub against them, snapping them in the process. Seeing those damaged, beleaguered trees struggle to reach the light was heart-rending.

Happily, the Florida torreyas appear to do well when planted outside of its native range. *Fusarium* blight is still an issue, but good drainage, full sun, and adequate water and nutrients appear to let cultivated trees in northern Georgia and western North Carolina thrive. Several trees at the Biltmore Estate in Asheville, N.C., are approaching their hundredth birthday and still going strong. They represent some of the oldest and largest torreyas in existence—the elders of their species. Strolling through the grove of elders in the Spring Garden at the Biltmore on my way home from Florida was a hint of what the slope forests along the Apalachicola looked like when Hardy Bryant Croom first discovered the torreyas there—and perhaps a glimpse of the future to come here in Durham.

by local naturalists—where the flora is an instant transport to Appalachia. (Given that Spanish explorers named the Appalachians after the Apalachicola River, perhaps we should say that the mountain flora is distinctly Apalachicolan!)

For gardeners acquainted with the flora of North Carolina, a Florida slope forest feels just like home. Oaks, maple, sweetgum, tulip poplar, hickory and American holly predominate; hop-hornbeam and ironwood are common. Wild grape vines hang from the trees, and patchy clumps of rivercane are everywhere, creating a lush jungle of green. In late February, the forest floor was covered with variegated trilliums just starting to bloom. With blooming Carolina silverbell and flowering dogwood trees overhead—plus brilliant flame azalea in the drier areas—it was easy to believe I was in North Carolina in April, instead of 700 miles to the south and two months earlier.

Most of the surviving wild torreyas are off the beaten path, involving a laborious scramble up and down the twisting slopes to find them. Guidance by park staff and Annie Schmidt, a botanist from the Florida Nature Conservancy, was necessary if I wanted to actually find their needles in a giant, sprawling haystack.

The majority of surviving torreyas are unobtrusive saplings, coming up to my knee. Those that are bigger tend to get knocked back by the blight, which kills the branches and oozes dark fungal spores from cracks in the bark. Undeterred, the

With its disease issues, recalcitrant seeds, and fierce rodent predation during germination, the Florida torreyas represent a significant challenge to establish on a large scale. We at Duke Gardens believe it’s worth the effort. In the meantime, visitors curious to see the Florida torreyas can save themselves a road trip and check out the labeled specimen tree in the Steve Church Endangered Species Garden in the Blomquist—hopefully the first in a thriving grove to come.





Planting Memories

Pass-along plants grow enduring bonds

By Lindsey Luks, *Horticulturist, Doris Duke Center Gardens*

My home garden is a constant reminder of the love and support I have from my family and friends who have cared enough to share a plant with me, and it is my greatest source of joy. These plants connect us on a heartfelt level through the memories and stories they hold. And they become bonds that we foster through generations or even centuries.

My grandmother on my dad's side, Madeline Fleetwood, has the most stunning, giant, red flowering hibiscus lining the side of her home in eastern North Carolina. They have been her pride and joy since my grandfather planted them sometime in the 1990s, before I was even a teenager. Now that I'm 30 and own a house in Durham, guess what I have growing in my yard? My grandmother's prized hibiscus, which she gave me when I purchased the home. I was able to divide it into four big, beautiful plants that now line the sidewalk to my front door. I think of her every morning when I see the new flower buds unfurling in the rising summer sun.

There's another plant that I associate with my grandma Fleetwood that has a slightly darker story. I grew up admiring the bright blue flowers of spiderwort (*Tradescantia virginiana*) that decorated the shade of my parents' back yard. There must be hundreds and hundreds of these drought tolerant perennials lighting up their shady areas all summer long. My mom recently told me that my grandmother had first seen this plant at a gravesite in eastern North Carolina sometime in the 1980s. She dug up a small sprig of it and brought it back to her house. From there, my dad took a piece of it and brought it to the house I grew up in, where year after year he would

"Even though I never met my great grandma Furr, I still feel a connection to her when all of these perennials start emerging in my garden every spring."

divide and replant until there were hundreds of spiderwort all over the yard. I've left this particular plant at every house I've lived in since leaving home, and now I have multiple "cemetery spiderworts" in my yard in Durham.

My mother's grandmother, Minnie Furr, died before I was born, but I've heard from all of my family how much she loved her garden. She grew up during the Depression and never took anything for granted that came from the earth. I've heard stories of her postage stamp-sized backyard, which was filled to the brim with perennials such as phlox, iris, daylilies and beebalm growing alongside vegetable plants that produced enough to feed her family. Even though I never met my great grandma Furr, I still feel a connection to her when all of these perennials start emerging in my garden every spring. Her love for gardening has found its way down through the generations and is shared with me in her plants. She passed these plants down to my mother, who is growing them in her yard in Edenton. Now my mother has passed them down to me. We don't know the varieties of her beloved perennials, but to us they are known as "Grandma Furr's daylilies" or "Grandma Furr's irises." Someone once told me that even though you may



never get to some people who have meant a lot to you, you can meet them in the flowers.

Mine is just one small story of a few plants that have been dug up, divided and dispersed to family members through generations. The beauty of plants is that there are so many stories like this, and so many bonds we can nurture through this great web of horticulture and gardening that connects us all.

Clockwise from top left on facing page: Beebalm growing in Lindsey's garden; Lindsey with her grandmother, Madeline Fleetwood; Lindsey's "cemetery spiderwort"; Lindsey with her hibiscus. Photos by or courtesy of Lindsey Luks.

Grow a Duke Gardens memory

Are there certain Duke Gardens plants that prompt fond memories for you? Maybe an azalea near a bench where you have spent many afternoons with a loved one, or an osmanthus that always puts peaceful thoughts in your head when you smell it?

You can nurture those memories in your own garden by visiting the "Duke Gardens Plants" section of our Fall Plant Sale on Sept. 29. Our volunteer propagation team works all year to create new plants from those growing in Duke Gardens. Think of them as pass-along plants infused with love and care from your friends at Duke Gardens. Info: gardens.duke.edu/events/plant-sales



Returning the Park to Prairie

Research Triangle Park firm Syngenta finds inspiration in Blomquist

By Annabel Renwick, *Horticulturist, Blomquist Garden of Native Plants*

When Stefan Bloodworth first conceived the creation of a native grassland landscape at Sarah P. Duke Gardens, it was a bold concept. We knew that insects and birds would be delighted to encounter this new instance of an endangered ecosystem, but its wild appearance could also prove to be visually challenging for some garden visitors.

The positive feedback to the Piedmont Prairie in the Blomquist Garden of Native Plants has exceeded all of our expectations. Visitors from Duke, Durham and beyond have been highly supportive of this pioneering horticultural display, as have landscape architects, home gardeners, developers, homeowners' associations, and staff from public gardens across the nation. It's clear that the Piedmont Prairie is an ideal catalyst for the kind of community partnerships that are central to Duke Gardens' and Duke University's missions.

During this past year we've shared our knowledge and seeds harvested from the prairie, consulted with many groups on native plant propagation, and presented our work on the prairie

at a wide variety of venues. Yet perhaps the most successful endeavor to date has been a collaboration with Syngenta RTP in Research Triangle Park, the technology hub just south of Durham. Following their construction of a new research facility in 2016, there was a strong drive from Syngenta's staff to create a surrounding landscape that would not only attract pollinators and birds but that would reflect the natural environment of the North Carolina piedmont.

"It's clear that the Piedmont Prairie is an ideal catalyst for the kind of community partnerships that are central to Duke Gardens' and Duke University's missions."

The first impression on seeing the RTP landscape from the air is via the approach to Raleigh-Durham International Airport. The area consists of a mixture of pine, deciduous woodland and mowed lawn separated by roads and urban sprawl. There





L-R from facing page: Brown-eyed Susans (*Rudbeckia triloba*) begin to bloom in the Syngenta prairie; the Piedmont Prairie at Duke Gardens (photo: L. Sullivan); Annabel Renwick working on the Syngenta prairie. Photos by Stefan Bloodworth and Annabel Renwick, or courtesy of Syngenta, except where noted.

is, however, irrefutable historical and ecological evidence that much of the southeastern piedmont was once covered in grassland, often referred to on old maps as “savanna.” John Lawson, an early English explorer to the Southeast U.S., crossed the North and South Carolina piedmont in 1701. He kept a detailed diary of his experience, which was published in 1709 as “A New Voyage to Carolina.” Lawson writes of the Native American’s reliance on fire to clear land, tells of walking 30 miles without seeing a single tree and describes grasslands being smooth enough to play bowls on. It is uncanny to consider that 300 years ago where RTP now stands, large herbivores such as elk and bison would have been grazing savanna grassland.

The interest to return some of the original plant species that once inhabited the land that is now RTP led to a January 2017 meeting between Volker Mittendorf, a research scientist and key member of the Syngenta Gardening Club, Joshua Richardson of Ruppert Landscape, Blomquist curator Stefan Bloodworth and the Blomquist staff to discuss the potential for a collaboration.

“It is uncanny to consider that 300 years ago where RTP now stands, large herbivores such as elk and bison would have been grazing savanna grassland.”

The initial goal of the project was to create a native plant garden on the new campus of the Syngenta RTP Innovation Center located on Davis Drive. The “garden” would have paths and a seating area allowing Syngenta staff to relax, eat lunch and view the plants, many of which were historically found in piedmont grasslands. The main role of the Blomquist Garden staff at this time was to advise on the propagation of native plants and planting design, help prepare the site and share local ecotype seed harvested from the Blomquist’s Piedmont Prairie. Volker rallied and motivated the Syngenta Garden Club’s many volunteers to propagate more than 8,000 native plants of close to 50 species of wild flowers and grasses for planting in August 2017.

Throughout the summer Joshua Richardson from Ruppert Landscape, with support from the Blomquist Garden staff, developed the planting plan. As the native garden was to be situated close to the building and adjacent to commercial landscaping typical of corporate campuses, it was decided that as an initial “introduction” to the more natural aesthetic of a native plant landscape, the design would retain strong architectural structural planting as opposed to a “luxuriant” prairie look that would better suit the periphery of the site.

The first week of August was designated as the time for planting. At that point the 8,000 wildflowers and some additional native grasses supplied by Hoffman Nursery in Rougemont, N.C., were desperate to escape the confines of their containers. The temperatures were soaring in the 90s, but as with previous years in our own Piedmont Prairie plantings, the work took place in the relatively cooler mornings. More than 50 dedicated and enthusiastic Syngenta volunteers, along





At Syngenta the story continues. This summer an additional 6,000-8,000 wildflowers and grasses will be planted, propagated by volunteers from seed collected from Syngenta's own 6-month-old native garden.

“During planting in August we'd observed few insects, but by October the party invitations had been sent out and many of the insects in the neighborhood were feasting at Davis Drive.”

The concept of establishing multiple Piedmont Prairie plantings of local ecotype plants throughout RTP has been one of our dreams since the outset of the Blomquist Prairie project. The collaboration with Syngenta offered an ideal testing ground to evaluate the feasibility of this idea. Should the studies at Syngenta result in an improvement with insect and pollinator levels at RTP, perhaps the managers of the park would be interested in encouraging more wildflower and grass installations. The RTP 2012 masterplan specifically mentions native grasses and wildflowers as possibilities for the landscape. Syngenta's native garden could be a seed source for additional RTP plantings, enabling our initial Duke-Syngenta partnership to grow and serve an ever wider regional community of people and wildlife alike.

with Blomquist Garden staff, student interns and several Duke Gardens volunteers, placed these thousands of plants into shallow holes that had been augured into the cultivated site. The process could not have been easier.

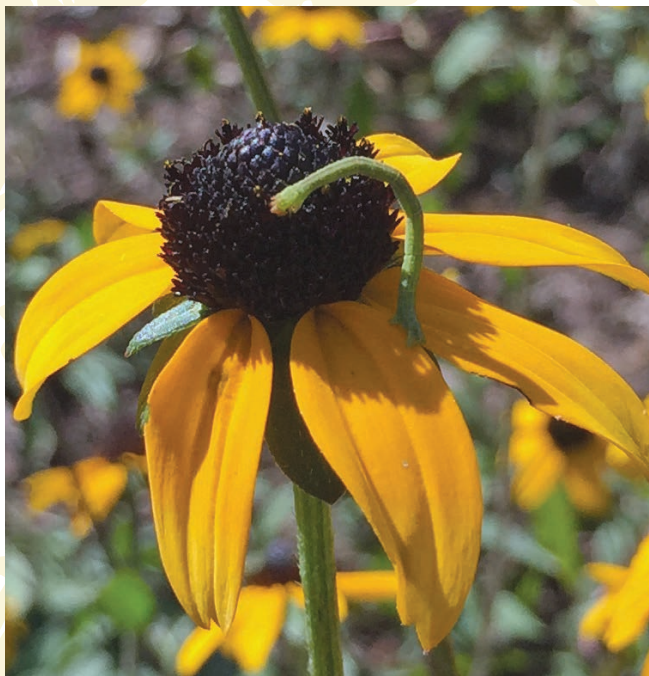
Two months after planting, Stefan Bloodworth and I, along with Bobby Mottern, Duke Gardens' director of horticulture, returned to Syngenta to see the planting, and we were blown away. The sheer abundance of butterflies hovering and darting around the young flowers was mesmerising. Monarchs, swallowtails and skippers fluttered alongside scores of bumblebees partaking of the downy lobelia, and myriad native wasps and bees probing the nectaries of thousands of young flowers.

On closer observation, we detected minute insects crawling over the disc flowers of the thoroughworts and wild quinine, all going about their business of feeding and in the process of pollinating, many invisible to the casual observer. During planting in August we'd observed few insects, but by October the party invitations had been sent out and many of the insects in the neighborhood were feasting at Davis Drive. As we looked out over this wild garden full of stunningly beautiful native plants, and now full of insects, our minds went through the ramifications of what if, and how we could build more such homes and food stations for insects and other wildlife throughout RTP.





Clockwise from top of facing page: a wasp on wild quinine (*Parthenium integrifolium*); Syngenta volunteers with the Blomquist team; a hoop house at Syngenta; Volker Mittendorf brings new plants into the Syngenta prairie; an inchworm on a brown-eyed Susan (*Rudbeckia triloba*); a monarch butterfly on a downy lobelia (*Lobelia puberula*).





Rejuvenation by Fire

Using practices of the past for a healthy future

By Stefan Bloodworth; photos by Cathi Bodine

When we think of fire, it's most often in terms of prevention or devastation. But fire can also be a tool for regeneration, as a controlled burn in the Piedmont Prairie demonstrated this year.

The North Carolina Piedmont likely contained hundreds of thousands of acres of prairie landscape ages ago, and it was well adapted to frequent fire, which served to clear out competing vegetation. But when European settlers arrived, they were anxious to protect their newfound holdings, so they did everything they could to stop fire in its tracks. Roads and fields became firebrakes where none had existed before. Natural landscapes were cut down or plowed under. Over time, the land evolved into thick forest, and the Southeast prairie landscapes dwindled, along with their ecological diversity.

The Piedmont Prairie in the Blomquist Garden of Native Plants is a recreation of this vanishing ecosystem, and our hope is that periodic controlled burns will help keep this prairie thriving. The N.C. Forest Service conducted this controlled burn for us in March. The Blomquist was closed to the public on this day, but volunteer photographers Cathi and Mark Bodine photographed the dramatic event for us, and Duke Ph.D. student Ryan Huang compiled our footage into a short educational video about it, which you can see at gardens.duke.edu/controlled-burn.

“The Piedmont Prairie in the Blomquist Garden of Native Plants is a recreation of this vanishing ecosystem, and our hope is that periodic controlled burns will help keep this prairie thriving.”











staff spotlight:

Kati Henderson

Education Program Assistant

Your job as education coordinator relies on a wide range of skills. Can you describe a typical week in peak season for you? It does take a range of skills, and what I'm doing day to day really varies with the seasons. As I'm writing this in late February, children's education is moving from our quieter winter months—when I'm at my desk a lot working on long term projects and planning—into spring, our busiest time of year. During this peak season, I'm out in the Gardens every morning (and some afternoons) leading groups of students on field trips, homeschool classes, Girl Scout and Boy Scout visits—all the diverse children and families who visit the Gardens for guided programs. It's a lot of fun exploring the small daily changes in the Gardens. Students always point out something I haven't noticed before, or ask questions that had never occurred to me. Most afternoons I get a reprieve from the weather (whether that means warming up from cold snaps, drying out from rain, or cooling off from early summer heat) when I come inside to prepare for the next day's group.

“Children can be amazingly observant, and the kinds of things they notice and questions they ask are less constrained than most adults.”

When did you come to Duke Gardens, and what education and experience led you here? I initially got involved with Duke Gardens the summer before I started graduate school here at Duke, when I reached out asking about a work study job that would match with my academic interest in interdisciplinary informal education. I'd never worked with children before, and Kavanah helped me see it as an opportunity to expand my skills and test my boundaries. I was cautiously optimistic starting my job with children's education, and it turned out to be something I really love! Children can be amazingly observant, and the kinds of things they notice and questions they ask are less constrained than most adults', so we end up exploring really interesting things as we walk around the Gardens. Teaching outside provides amazing opportunities to make interdisciplinary connections because you're observing things in their larger complex systems. I generally see a different group of students each day, though some of them do come back for multiple visits in one year, which means there's no chance for teaching to get boring. Every time I lead a program I'm adjusting to a new age group, working out new ways to teach material, responding to new students' interests, and using the ever-changing Gardens to teach with.



You have been instrumental in helping Duke Gardens forge a stronger relationship with Duke students and instructors. What are the Gardens' hopes for these partnerships, and what are some that have happened so far? Duke Gardens is such an amazing place to learn, and we want to make sure students and faculty are getting the most from this resource. Many people in the Duke community know how to visit the Gardens for relaxation and personal enjoyment, but not everyone knows how to learn in a place like this. At the same time, information in academic classes can sometimes be very removed from practicalities. That's sometimes necessary. But in many cases it's possible to deepen and complicate things with outdoor learning. Duke in the Gardens, as our program connecting with undergraduate courses is called, helps to place class content in a larger and often more complex context. That can help students practice practical applications, understand material more thoroughly, see concepts in a new light, ask questions that hadn't occurred to them in the abstract – in other words, to engage more deeply and critically with course content.

In the past we've worked with Professor Charlotte Clark's "Applied Qualitative Research Methods" course. As they learned and read about qualitative research methods, students conducted their own research project in Duke Gardens to gain practical experience with the concepts. This approach helps students learn about the incredibly important logistical pieces of conducting research that can seem unimportant when learning in theory: how exactly are you selecting participants when people enter Duke Gardens through multiple points and then disperse through 55 acres of gardens? Are visitors interpreting one of your questions differently from how you had intended? There are some things that only take on significance in context, and our partnership with this course was a great way for students to learn research methods more comprehensively.

Are there any particularly intriguing possibilities that you hope to arrange in the next year? I'm excited to reach out to more faculty, particularly those who might not immediately see ways to teach in the Gardens. This is an obvious place for biology and related classes, since a botanic garden easily conjures up activities like practicing plant identification or collecting data on insect populations. Other disciplines can absolutely be taught outdoors—and benefit from it—and I'm excited to be an ambassador for that idea and to help individual faculty develop ways to make it work for them. The research methods class we've already worked with is one good example. Another is foreign language classes. Students can learn new vocabulary and practice conversations about their experience in the Gardens, as well as human relationships with the land in the many styles of garden represented here and in the cultures associated with their language. Gardens are wonderfully interdisciplinary by virtue of being outdoor living communities as well as constantly changing cultural products, and there's a perspective for any course content to connect with.

If you could create a special course at Duke Gardens just for Duke freshmen in their first semester, what would you want them to see or learn? Oh, what a fun idea! I would want the course to welcome students to their new (if temporary) home and help them develop their individual relationships with it. Most Duke students did not grow up in Durham, and the campus bubble can be hard to pop once students are absorbed with coursework and student life. I think that's a missed opportunity to create a sense of home and feel rooted to this place.

In my fantasy course, we would explore the past, present and future of this place where students are all living and studying—this land and the communities that have lived here over time and led to our presence here now, at Duke, and how we are shaping its future. Being outside in the Gardens would provide us with a perfect background of directly experiencing the land and its living communities. At the same time, we're right in the middle of campus, so in a way we're bringing this community and history to students.

Duke Gardens is a great place for teaching about human influences on the land because it's entirely designed, though often in naturalistic ways, so it leads to great conversations about what current and past communities have valued or needed in this place. The land also supports communities, and this course would foster a community among incoming students and with the Duke and Durham communities that already exist.

This imaginary course, which I'm now very excited about, would essentially be an extended version of what all of our academic programs are doing, which is helping students engage more deeply and critically with what they're learning—in this case, what they're learning encompasses their whole Duke career rather than one individual class. It would also have the added bonus of building community and helping students feel at home in a place where they can relax and unwind from the stresses of student life.

Students learn about allium plants with Kati. Photo by C. Burke.



A campus oasis

Duke students flock to the Gardens for fun and learning

Like migratory birds, Duke students seem to have an innate sense when it's time to flock from the libraries and classrooms to the South Lawn for studying or socializing. All it takes is a bit of sunshine or snow, and cabin fever sets them in motion.

But for an increasing number of students in recent years, Duke Gardens has also served a vital academic role. Danny Kim and classmate Yijie Zhu practiced filmmaking in the Asiatic Arboretum as part of their MFA in experimental and documentary arts. Anna Kudla, a Ph.D. student studying entomology, found the exact insect she needed in the Blomquist Garden of Native Plants, with help from curator Stefan Bloodworth and the Blomquist team. Gigi Falk practiced mindfulness meditation in the Gardens as part of her senior year cognitive neuroscience studies. And professor David Schaad's engineering students surveyed the landscape in the Terrace Gardens.

These are just a few examples of the varied roles Duke Gardens serves in Duke students' lives. Kati Henderson's interview on page 25 discusses our increased initiatives to forge more such partnerships with students and professors. We are grateful to donors like you for helping Duke Gardens play an increasingly vital role in enhancing the Duke student experience.



Clockwise from bottom left: a student zooms in on a chrysanthemum (Photo: S. Larkin T'21); engineering students survey the Terrace Gardens (O. Swift G'06); students enjoy the big snow (M. King); Ph.D. student Anna Kudla studies treehoppers in the Blomquist Garden (Swift); Danny Kim works on a film project in the Asiatic Arboretum for his MFA in experimental and documentary arts (Y. Zhu); a student tries her hand at watercolors during the Duke Arts Festival; student Gigi Falk leads a meditation in the Charlotte Brody Discovery Garden (E. Blumberg).



plant spotlight:

Victoria water lily

By Jason Holmes

Curator, Doris Duke Center Gardens



Few plants have the honor of being named after a monarch. *Victoria* is a genus of water lily named to honor Queen Victoria. And the *Victoria* water lilies at Duke Gardens are a royal family of sorts, with visitors from near and far flocking to catch a glimpse of them.

The *Victoria* genus comprises only two species, *V. amazonica* (Amazon water lily) and *V. cruziana* (Santa Cruz water lily), as well as some hybrids of the two. *Victoria amazonica* grows in calm pools and inlets throughout the Amazon River region, where equatorial climates are warmer. *Victoria cruziana*, the more cold-tolerant of the two species, is found farther south in Bolivia, northern Argentina, Paraguay and Brazil.

Both species grow from a thick rhizome that is anchored into organic mud, often well below the water level. Leaves of *V. amazonica* is glossy reddish-green and can grow as large as 4 to 6 feet in diameter, with the leaf edges rolling upward by 2 to 4 inches. The leaves of *V. cruziana* are a bright glossy green and are often slightly smaller overall, with rims rolling up 3 to 6 inches high. The undersides of its leaves are purplish-red and are covered in intense prickles that extend along the leaf stems to the crown below. Floating on the water surface, the leaves have a buoyancy given to them by virtue of the veined ridges on the underside. This enables them to hold the weight of an adult if the person is evenly distributed across the leaf.



The remarkable flowers of the species are relatively short-lived, lasting only about 48 hours. A large flower bud also extends from the central crown, covered in hundreds of prickles. All *Victoria* are night bloomers. Each flower opens white the first evening, attracting insects by emitting a sweet scent and heat from a thermochemical reaction. At this stage the flower is female and is open to receiving pollen picked up by insects on other plants. As they move around inside the flower they transfer pollen to the stigmas, allowing fertilization to occur. Meanwhile the flower shuts, trapping the insects until the next evening.

The next day the plant changes from female to male, with the anthers of the stamen maturing and starting to produce pollen. When the flower reopens on the second evening it has changed color to pink and no longer emits an attractive scent or heat. The insects fly away with their pollen, looking for another white flower on a different plant—each plant only ever has one white flower at a time—and the process is repeated. By the third day the flower usually closes up and descends below the surface of the water, ready to set seed.

Duke Gardens' devoted volunteer water gardens team helps keep these alluring plants healthy and beautiful. You can typically find this revered genus during summer in the Terrace Gardens' fish pool and the Virtue-Peace Pond in the Doris Duke Center Gardens, where these astonishing plants amaze us all.

Clockwise from facing page: Victoria water lily blooming in the Virtue Peace Pond (K. Webbink); the male flower, detail of the underside, the female flower (J. Holmes).



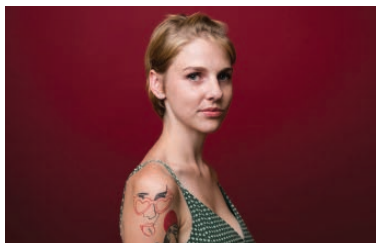
arts in the gardens



MUSIC IN THE GARDENS

Duke Gardens and Duke Performances will continue the popular outdoor music series Music in the Gardens this summer. The concerts will take place on Wednesday evenings on the lawn behind the Doris Duke Center. They're a great opportunity to gather with friends and family members in a relaxed setting. The schedule is as follows:

June 13: Dori Freeman
June 20: Lydia Loveless
June 27: The Sadies
July 11: Diali Cissokho &
Kaira Ba
July 18: Anna & Elizabeth
July 25: Las Cafeteras



All concerts take place rain or shine. Shows are at 7 p.m. The lawn will open 30 minutes prior to the start of each show. Lawn chairs, picnics and blankets are encouraged. Dogs are not allowed. Food and beverages, including beer and wine, will be available for purchase.

Learn more about the artists at dukeperformances.duke.edu. To buy tickets, please call 919-684-4444 or go to tickets.duke.edu.

CIOMPI QUARTET PRESENTS

Duke Gardens will again collaborate with the Ciompi Quartet and Duke's Department of Music to present a summer chamber music series. "Ciompi Quartet Presents" concerts will take place at 7:30 p.m. in Kirby Horton Hall in the Doris Duke Center. The lineup is as follows:

Monday, June 25: Caroline Stinson (cello), with guest artists Nurit Pacht (violin) and Kathryn Lockwood (viola).

Tuesday, July 11: Jonathan Bagg (viola), with guest artists Laura Gilbert (flute) and Stacey Shames (harp).

Wednesday, August 15: Eric Pritchard (violin) and Fred Raimi (cello), with guest artists Max Raimi (viola) and Derison Duarte (piano).

Tickets are available at tickets.duke.edu or by calling 919-684-4444. Parking is free after 5 p.m. We recommend that you reserve early, because the series usually sells out in advance. Read more about the series at ciompi.org.



ART EXHIBITS

Duke Gardens' annual Art & Nature exhibit in the Doris Duke Center drew more than 40 artists, from area professionals to students. It attracted enthusiastic crowds, and many promptly purchased these works of art inspired by Duke Gardens. Amanda Blanchard won best in show with her image of one of the terrace cherub fountains.

Duke Gardens also hosted an exhibit featuring art created by children ages 9 to 12 who participated in the spring Artists in the Gardens class series. The series focused on proportion and composition, mathematical principles of art, and creating pigments from plants. We love seeing the children's creativity come alive as they take inspiration from nature and share their unique perspectives

PLANTS INTO PAPER

Artist Gibby Waitzkin's paper-making classes at Duke Gardens have been a perfect match for local artists and nature-lovers. With Gibby's guidance and encouragement, participants make paper art with plant fibers.

The two-day class includes practice with screen pouring, pulling sheets, composition, embedding botanicals, pulp painting and final preservation.

Gibby's enthusiasm is infectious, her talent is boundless, and we feel fortunate to partner with her for these all-levels workshops.



CRAFTS FROM NATURE

Creativity continues to blossom at Duke Gardens, with hands-on workshops for all skill levels. From basket-weaving to spoon-carving, our talented instructors help participants learn new skills or take their abilities to more advanced levels.

Our spoon-making class was new this year, a two-part workshop taught by Durham artist Vanessa Hernandez, of Ask the Trees. Each participant carved a spoon using raw wood collected at Duke Gardens. Vanessa shared the tools, safety strategies and techniques of simple carving. You can see Vanessa's artistry online at askthetrees.com.

With longtime Duke Gardens volunteer Lu Howard, basket-making is fun and interesting. Participants create their own baskets with Lu's assistance, and they also learn about basket-weaving history and culture.

Lu's grandfather was a farmer and made baskets to harvest and store produce. Lu made her first basket 35 years ago and is now a member of the N.C. Basketmakers Association and Durham's basket-weavers' guild, and her baskets have won many awards. We're pleased that Lu shares her talent and knowledge so generously with Duke Gardens.



arts in the gardens

SONG & DANCE

Duke students often find artistic inspiration at Duke Gardens. We have hosted student performances by the Pitchforks singers, young Shakespearean actors and many others. But sometimes the inspiration strikes more spontaneously, as shown in these photos of the a cappella group Out of the Blue singing “Landslide,” and dancer Riley Reardon finding balance in nature.

The singers were feeling emotional because for some this would be their last song together before graduating, says volunteer photographer Cathi Bodine, who happened on the scene and captured this bittersweet image. Reardon graduated in May with a major in biology and a double minor in chemistry and dance. Classmate Cole Halbert photographed this graceful moment, as well as the one of Riley in the Cherry Allée on the back cover.



“Duke Gardens was an integral part of my four years at the university. Not only was it a place where I spent the days catching up with friends, and the nights looking at stars, it was a place where I found peace and tranquility.

The Gardens to me was a place where I could escape all the stressors on campus and hide amongst the blooming flowers and trees. It was a place where I could take a moment to sit and breathe, and remember that there is so much more outside the walls of a classroom. Duke Gardens holds some of my most cherished memories, and it will always hold a special place in my heart.”

– Riley Reardon, Class of 2018

DUARTS PARTNERSHIP

Duke Gardens was pleased to collaborate with DuArts to host two delightful events as part of the week-long free-admission Duke Arts Festival in April. Duke students gathered in the Asiatic Arboretum to learn and practice watercolor painting. And on the South Lawn, they created their own terrariums. We anticipate many more partnerships with DuArts, as well as the Rubenstein Arts Center, our magnificent new neighbor. If you haven't visited "the Ruby" yet, you can see it online at artscenter.duke.edu.



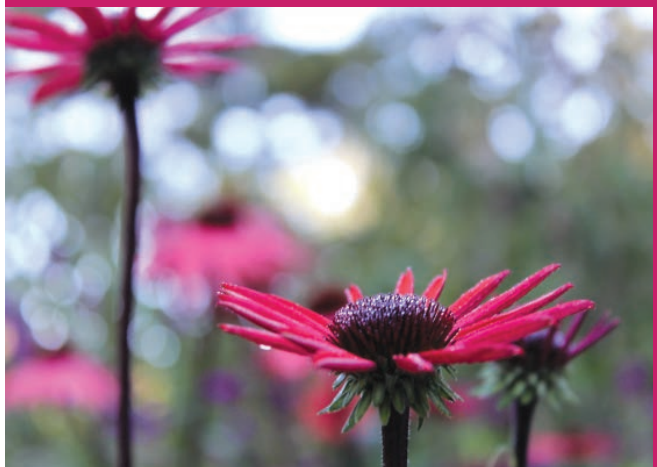
ABOUT THE COVER ARTIST

Maegan Burns is a rising senior majoring in chemistry with a concentration in pharmacology. Her photographs of Duke Gardens were featured in an art exhibit this year



at the Duke Student Wellness Center. We were enthralled with her artistry and are pleased to showcase it as our Flora cover and centerfold art.

"As an advocate for mental health awareness, I believe photography is a way to practice mindfulness and to express myself," Maegan says. "My main focus is to increase awareness of everyday objects that people might not pay attention to. It's important to take a step back, take a deep breath, and notice what you have."



Enchanting plants on display

Festivals and exhibits spotlight regional plant enthusiasts

Our plant festivals and exhibits continue to be a big hit with audiences. In addition to our annual Festival of Fabulous Mums and Falling for Orchids, we added a Bonsai Expo in the Doris Duke Center last summer.

We hope you enjoy this selection of photos from these exhibitions, and that you're able to attend in the future. The second annual Bonsai Expo will be July 7 and 8 (10 a.m.-5 p.m. Saturday and noon to 4 p.m. Sunday). This fall's mum festival will be Nov. 4-7, followed by the orchid exhibit Nov. 8-11. Please stay tuned to our website this fall for more details.

Special thanks to Duke Gardens volunteer photographers Cathi Bodine, Sue Lannon and Lori Sullivan for capturing these exciting celebrations for us.





NEW STAFF

TESS ANDERSON (*assistant horticulturist, Culberson Asiatic Arboretum*) grew up in Apex, N.C. She first became interested in horticulture in high school and received her bachelor's degree in horticultural science from N.C. State in 2016. In addition to her degree, she worked as an intern at Duke Gardens as well as Biltmore Estate and Longwood Gardens. Tess believes in the importance of greenspaces and bringing people together, and she enjoys public gardening because it's the perfect mix of two things she loves: plants and people.



MONICA SMITH (*weekend visitor services coordinator*) brings 20 years of experience in event management, community outreach and business negotiations to Duke Gardens. She joined us in March and has been enthusiastically seeking ways to improve visitors' experiences. Monica graduated from the University of Louisville with a bachelor's degree in communications with a minor in business. Her extensive travel and visits to other botanic gardens led naturally to her love for the history and beauty of Duke Gardens. Monica looks forward to collaborating with the Gardens' staff to improve customer service and ensure a wonderful visit for all.



BRITTA TYLER (*special events assistant*) is a Durham native who grew up visiting Duke Gardens on a regular basis with her family. She attended Elon University, where she received a bachelor's degree in strategic communications and business administration. After graduating in 2013, she spent four years in Washington, D.C., working in sales and marketing for a wedding and events company. While there she discovered her talent for event planning. Upon moving back home to Durham, Britta joined the Duke Gardens events team. As the special events assistant, she coordinates Duke rentals and wedding ceremonies and is the primary contact for photography inquiries.



JOEL WOOLARD (*gardening assistant, Historic Gardens*) moved to Durham from Los Angeles recently with his wife, Jean. Joel spent several decades in investment banking based in Chicago and Los Angeles after graduate school at The Wharton School at University of Pennsylvania. Prior to graduate school, he was a pilot in the U.S. Navy, operating from aircraft carriers and air bases in the Atlantic and Mediterranean areas. His undergraduate degree was in finance and managerial economics from Boston University. Joel started as a volunteer in the Asiatic Arboretum and moved into his current position after filling in as a temporary employee in several areas of Duke Gardens.



ADDITIONAL STAFF NEWS: Two staff members received promotions this year: Matt Luks-Jurutka is now the Ruth Mary Meyer Japanese Garden Horticulturist, and Jeff Harward is the garden facilities maintenance specialist. Duke Gardens also said farewell to publications coordinator Sheon Wilson.

DUKE-NCCU INTERNSHIP

Duke Gardens is partnering with Duke University News & Communications and N.C. Central University in Durham to host a journalism and communications summer internship.



Duke Gardens' intern is **NATASHA BERRIOS LAGUERRE**, a junior majoring in mass communications with a concentration in broadcast journalism. She is one of 18 NCCU communications interns at Duke. Natasha has been a job-shadowing assistant at the Raleigh-based TV station WRAL since 2015. She also writes for NCCU's student newspaper, The Campus Echo, and volunteers at the university's TV station.

Natasha will spend 10 weeks taking photos and video and conducting interviews to help illustrate the passion, expertise, devotion and appreciation that our staff, supporters, visitors and volunteers feel for Duke Gardens and its programs, and how those factors come together to create this world-class botanic garden.

SUMMER INTERNS

Duke Gardens hires four interns each summer to work primarily with the horticulture staff for 12 weeks. We seek students who are truly interested in working in botanical gardens in their future, and we select them from some of the top horticulture programs. Last summer we were graced with four students with positive outlooks who enjoyed getting their hands dirty.

HANNAH BROWN is a junior studying horticulture science at North Carolina State University. Her interests lie in ferns, and she worked with Beth Hall on a propagation project to ensure that we would have lots of plants to sell at our Fall Plant Sale.

MADISON HOBBS is a North Carolina native studying horticulture technology at Alamance Community College. She helped her college prepare to host its first ever National Collegiate Landscape Competition this past spring.

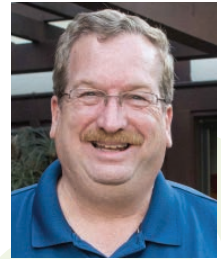
RACHEL JESSUP is a freshman studying forest management and plant biology at N.C. State. She worked with Bobby Mottern on a project about storm water management. She enjoyed crawling through the trenches to find out just where the water goes as it travels through Duke Gardens and beyond.

RYAN LEARY was a super senior also studying at N.C. State, majoring in horticulture sciences. He worked with Nick Schwab on an ongoing project to collect details of Duke Gardens' irrigation system and map it into a program that will be used by the staff for many years to come.

— Michelle Rawlins

MOVING ON

CHUCK HEMRIC, director of volunteer services, left Duke Gardens earlier this year, after a 33-year career here.



Chuck joined Duke Gardens as an assistant horticulturist. Soon afterward, he shifted his focus to the fledgling volunteer program. Under Chuck's leadership, the program grew over the decades from its original horticulture focus to include assisting with visitors, tours, the gift shop, photography, library services, children's education, and helping to launch our plant sales. In 2009, Chuck received the Marsha Riddle Lifetime Achievement Award from the N.C. Association of Volunteer Administration.

Many volunteers have remained decades, a testament to Chuck's ability to keep them engaged and passionate about their roles in Duke Gardens' growth and success.

"Chuck is among a small number of current and past members of the Duke Gardens team who began their careers here at a time when the facilities and resources were few and the staff was quite small," says Bill LeFevre, Duke Gardens' executive director. "He and they helped grow Duke Gardens into what we know today as one of the top public gardens in the country. Chuck will always be considered a member of the Duke Gardens family and we all thank him for his devoted service."

Below: Duke Gardens' summer internship gives aspiring horticulturists a solid understanding of what it takes to keep a nationally acclaimed botanic garden thriving. Our current staff includes six former interns. Photo: N. Laguerre.



AN INVALUABLE SEMINAR

The Portland Japanese Garden's International Institute for Japanese Garden Arts and Culture opened in spring 2017 with a mission to teach the traditional skills and techniques for creating and caring for Japanese gardens while also imparting the heart and soul of Japanese culture and aesthetics. Its workshops, public lectures and other programs are for learners at all levels, and no other programs like these exist outside of Japan. I was honored to be among 16 landscape design professionals and college students to attend the institute's inaugural program, "Waza to Kokoro – Hands and Heart," a professional training seminar on Japanese garden elements.

The instructors included garden professionals and artisans, as well as tea ceremony experts. All brought knowledge and expertise that has been passed along through centuries. It was overwhelming at times to consider that I was learning techniques and skills from not only the masters of Japanese gardening today, but their ancestors as well.

The 12-day seminar started with lectures on Japanese garden design and history, and tours through the Portland Japanese Garden. It also included a stone setting workshop and an



ARBORETUM DEVELOPMENTS

The Culberson Asiatic Arboretum has some changes in store that visitors are sure to appreciate. We are putting the finishing touches on a new bathroom on the west side of the pond, near Pine Clouds Mountain Stream. Currently, we only have bathrooms in the Doris Duke Center and the Terrace Gardens, so this new facility—created with an Asian style design—will help ensure that visitors can explore the Gardens comfortably.

in-depth discussion of *Chado*, or "the way of tea." We finished with a few days of technical pruning at a nearby nursery.

We covered a lot of ground in a short amount of time. The lecture on *Chabana*, a Japanese art of flower arrangements used during tea gatherings, sparked my interest, as I have always had a love for the seasonality that it brings to Duke Gardens' teahouse. This skill can be studied for years and remain impossible to master, but it's fun to practice and explore possibilities.

During the hands-on part of the seminar, each day started with a tea ceremony focused on one of the four principles of the practice of tea—harmony, respect, purity and tranquility—and how those connect to the work of the gardener. We then headed to the stone yard to select materials to design and construct stone elements traditionally found in a tea garden. These workshops introduced me to new tools and techniques and showed me how to be adaptable and creative when working with stone and other materials found on site.

The seminar was both challenging and enlightening, and I look forward to attending the 2018 International Japanese Garden Conference at the institute in fall, so I and the Asiatic Arboretum team can continue learning how to care for the Japanese garden we have created at Duke Gardens.

— Michelle Rawlins, *Horticulturist, Culberson Asiatic Arboretum*

Photos by Jonathan Ley



In addition, we are repairing and refurbishing the iconic arched bridge this summer. The concrete base of the existing bridge will remain, but the aging wood will be replaced with western cedar railings and white oak deck flooring. The new wooden infrastructure will be reconfigured to create a flatter arc, reducing the bridge's slope and making it more traversable for visitors. The bridge will be closed through mid-August.

WATER QUALITY RESEARCH

Duke Gardens got a clearer understanding of how water flows through its 55 acres, thanks to research by 2017 summer intern Rachel Jessup. Working with assistance from Nicholas School of the Environment graduate students and guidance from horticulture director Robert Mottern, Jessup also sampled water quality throughout the Gardens.

Contrary to popular belief, water in Durham's storm drains does not travel to a treatment plant, it goes directly into streams. Duke Gardens functions much like a rain garden, absorbing runoff from our parking lots and adjacent Duke property. Runoff from Duke University Hospital parking lots pours into the upper pond in the Asiatic Arboretum before spilling into the Asiatic pond, for instance. That pond also receives water from recirculating streams in the Woodland Gardens, especially during heavy storms. From there, the water flows through a creek visible near the Terrace Gardens. This creek is also fed by runoff from Flowers Drive parking lots. The creek disappears underground, flowing past the koi pond and finally into the pond at the South Lawn, where all Duke Gardens water ends up eventually. From there, it eventually joins nearby Sandy Creek and then connects to many other creeks, streams, rivers and lakes on a journey all the way to the Atlantic Ocean.

Jessup made several recommendations for Duke Gardens to be more water conscious, including preventing gravel from entering the water by using paved stones around drains, as well as permeable pavement. Rock covers over drains will help prevent leaves from falling in, she says. And raised stones will slow water flow, just as they do naturally in brooks. Plants and soil coverings are also great allies in slowing water flow, giving the water more time to seep into the soil rather than flow into the streams. We're thankful to our summer horticultural interns for helping us find ways to better serve not only our visitors but also our environment.

— Annie Yang, *Duke Class of 2020*

BLOMQUIST HONORS

Stefan Bloodworth, curator of the Blomquist Garden of Native Plants, received a Meritorious Service Award in April, as part of Duke University's prestigious Presidential Awards.

Meritorious Service Awards recognize staff members who have distinguished themselves through outstanding service. They are selected from a competitive pool of nominees. Horticulture director Robert Mottern nominated Stefan in recognition of his talent and dedication in creating the new Piedmont Prairie.

The prairie got another big honor this year, Durham's Golden Leaf People's Choice Award for the Piedmont Prairie Classroom, which the Blomquist team created with architect Ellen Cassilly. That award was especially pleasing because it was the result of a popular vote, which showed us that the Duke and Durham community loves the prairie and classroom as deeply as we do. Kudos to the Blomquist staff for these significant honors.



From L-R: assistant horticulturist Laura Daly, curator Stefan Bloodworth, horticulturist Annabel Renwick. Photo by Sue Lannon.

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PLANT SALE SUCCESS

Duke Gardens had its most profitable Spring Plant Sale ever this year, grossing almost \$55,000. We are grateful to all of the Duke Gardens supporters and local gardeners for enthusiastically attending our plant sales and spreading the word about them. Proceeds from the fall and spring sales support our summer horticulture internship program. So every purchase you make helps four college students gain the valuable experience they will need to pursue a successful career in horticulture.

Our plant sale team, led by plant records manager Beth Hall, has worked hard to make the sales as streamlined and as pleasant as possible for shoppers. In addition to improvements in the checkout process in recent years, we have also increased the number of plants propagated from Duke Gardens and selected additional plants that are often hard to find. And we have tried to make our layout clear and intuitive. Our Fall Plant Sale will be on Sept. 29. We hope to see you there!

Above: Shopping at the Spring Plant Sale. Photo: C. Holaday. Facing page: Japanese apricot (*Prunus mume*) in the Culberson Asiatic Arboretum. Photo: B. Wells.

EVENTS FOR FRIENDS

We enjoyed seeing many Friends of Duke Gardens at events this past spring. On April 13, Duke alumni attending Reunion Weekend gathered together for “Cocktails in the Gardens” on the Piva Terrace. Guests shared memorable stories about the Gardens as they reminisced about their student days at Duke.

On April 21, nearly 120 Friends of Duke Gardens attended “Breakfast in the Blooms,” a celebration of all things spring. After a light breakfast in Kirby Horton Hall, Friends had the opportunity to take a series of docent-led tours to broaden their knowledge about spring blooms in the Gardens. Everyone agreed it was the perfect mix of fun and learning.

On May 4, we hosted the inaugural Duke Gardens Society Dinner, where we had the pleasure of celebrating our most important group of supporters, who give \$1,000 or more annually to Duke Gardens. At the dinner, we also honored Frances Page Rollins with the first Horst Meyer Award for her leadership, passion and generosity, which have been a catalyst for major growth at Duke Gardens. President Price attended the dinner and spoke about his experiences at Duke Gardens. It was a beautiful affair, with delicious food, great conversation and dancing into the evening. We didn’t want to see it end, but we are pleased to announce that the Duke Gardens Society Dinner will be held annually.


We want to take a moment to check in with you—have you been receiving invitations and information about our events? Most of our communications are sent electronically, so if you haven’t received them, we may not have your email address. Please contact Lauren Smith Hong at (919) 668-5253 or email lauren.smith.hong@duke.edu to provide your email address or let us know if you have any questions or concerns.

We look forward to seeing our Friends again at events next season!

Lauren Smith Hong
Annual Fund & Membership Officer

*Eager to learn more about
gardening and horticulture?*

Sign up for our education programs email list:
gardens.duke.edu/subscribe.



Every blossom at Duke Gardens represents growth, an opportunity to view the Gardens in a new light.

Similarly, your support allows us to explore our potential and expand our horticulture and public programs to foster an environment full of learning, inspiration and enjoyment.

GROW WITH US.

Contact us at 919.684.5579 to discover how you can make a gift that will impact the future of Duke Gardens.

a closer look: Duke Gardens curators on



STACHYURUS PRAECOX

Most landscape plants come equipped with a common name—pine, oak, sneezeweed, etc. *Stachyurus* is an exception, or so I thought. I discovered while putting this profile together that the name “spike tail” shrub is now thrown around. I can understand some enterprising soul taking initiative; after all, *stack-e-yure’-us* just doesn’t roll nimbly off the tongue. The name is a combination of the Greek prefix *stachy-*, meaning spiked (in botany, usually a reference to an elongated arrangement of sessile flowers on an unbranched stem), and the suffix *-urus*, meaning tailed, or presenting as a tail). There you go, *Stachyurus*, spike tail. And *praecox*, well that just means precocious, or developing early, a reference to the fact that it flowers early—typically in February at Duke. So, when you pursue this plant for your garden, which you should, seek out the early spike tail, as opposed to the Chinese, willow-leaved, or Himalayan spike tails, neither of which are nearly as cold hardy.

And what will you be getting? A wider than tall deciduous shrub native to Japan. Its 6”-10” pendulous chains of flower buds (spikes hanging like tails, you’ll recall) appear by autumn and rest unscathed by winter’s worst until they open into little chartreuse bells by March. Autumn color comes tardily, usually in December, and it can be great, or not. As with most plants, it depends on the weather. Not too many years ago there were no cultivars, but now you can find variegated forms, and a larger-in-all-its-parts variety *S. praecox* ‘Matsuzaki’. Although it’s potentially a naturalizer in some parts of the western U.S., I’ve never in 40 years of adoring it been rewarded with a seedling.

— Paul Jones, curator, W.L. Culberson Asiatic Arboretum



LIATRIS SQUARRULOSA

I have an enduring affection for the diminutive, the lesser known and the oft overlooked. Plants that hug the ground, minding their own business while hiding marvels of natural design in their flowers, foliage or fragrance have a special place in my heart. That said, I also appreciate a perennial that can look me in the eye. Appalachian blazing star (*Liatris squarrulosa*) fits that tall bill nicely.

I was recently introduced to this stately species when my colleague Annabel Renwick and I began visiting the small, scattered remnants of the once expansive Piedmont Prairie ecosystem in the N.C. piedmont. Limited to occasional roadside rights of way and power line locations, these botanical fragments contain some fascinating species that can be hard, if not impossible, to find elsewhere.

In the most recent phase of our Piedmont Prairie in the Blomquist Garden, we have devoted a sizeable slice of real estate to these local prairie stalwarts. Amongst lovegrass (*Eragrostis spectabilis*) and little bluestem (*Schizachyrium spocarium*), we’ve inserted prairie oddities such as downy wood mint (*Blephilia ciliata*) and smooth purple coneflower (*Echinacea laevigata*). Rising above almost all of them, sometimes more than 6 feet high, is our *Liatris*. It’s a beanpole of floral profusion, with often more than a hundred heads of 50 or so flowers each. Bees and butterflies will flock to it in late summer and early fall, transforming the tall floral spike into a “who’s who” gallery of pollinators.

Requiring little in the way of pampering, Appalachian blazing star thrives in nutrient-poor soil. But if you happen to have one make its way to your garden, be sure to give it adequate drainage.

— Stefan Bloodworth, curator, H.L. Blomquist Garden of Native Plants

interesting plants in their gardens



LUDWIGIA SEDIoidES

Have you ever seen a plant that mesmerizes you at first sight? Mosaic plant (*Ludwigia sedioides*) is one of those plants that can capture your attention with its unique patterns of green and red. The diamond shaped leaves form together in an interlocking arrangement that bears four-petal yellow flowers in summer. It's native to Brazil and Venezuela, where it is found growing in marginally wet, swampy areas as a floating plant. In tropical regions it can have invasive tendencies, but here in Durham, below freezing winter temperatures kill the plants, keeping them in check.

The genus epithet *Ludwigia* was named for a German botanist and professor of medicine, Christian Gottlieb Ludwig (1709-1773). Ludwig corresponded with Carl Linnaeus (the father of modern botanical taxonomy) about plant classifications, and Linnaeus dedicated the genus *Ludwigia* in honor of Ludwig. The species epithet *sedioides* translates to "resembling sedum," a reference to the leaves, which resemble those of certain sedum species in appearance and form.

Mosaic plants are very easy to grow. Typically one buys them in rooted cuttings around the month of May and plants them into pots of clay submerged in a water garden. After a few weeks the leaves begin floating on the surface. Here at Duke Gardens we replant it in the Virtue Peace Pond yearly as an annual, where it grows to its full glory each summer.

—Jason Holmes, curator, Doris Duke Center Gardens



SABAL MINOR

Sabal minor is a beautiful and versatile native evergreen shrub that can fit into many different landscape situations. Commonly called dwarf palmetto or scrub palmetto, this palm can be found from southernmost coastal Virginia and along the Southeastern coastline counties all the way to Texas and Mexico. It is one of North Carolina's few native palms.

Dwarf palmetto is hardy inland all the way here in the Triangle, where we have used it in various areas of Duke Gardens. It grows to around 6 feet tall and 10 feet wide. Occasionally it can be found to 10 feet high in the wild.

This shrubby palm is quite tolerant of a wide array of soils, moisture and light conditions. It will grow in full sun or shade, in heavy or sandy soils, and in wet or dry conditions. In the wild it is often found in sandy, dry pinelands or even swampy areas where it can be inundated with standing water for several weeks at a time. This attribute makes it an ideal plant for rain gardens where the soils alternate between wet and dry. We used them in the rain gardens on the sides of the Cherry Allée, providing a lovely textural, evergreen structure mixed amongst other moisture loving plants. In other parts of the garden we have it in sunny locations as well as in the shade.

The dwarf palmetto does best when it is left undisturbed once planted in the ground. The first few years it may not put on a lot of growth. But once established it will start producing lots of nice foliage. The round, black seeds appear later in the fall on long flower stalks that emerge in late summer. The seeds germinate profusely and need to be removed or they will grow into a thicket.

—Mike Owens, curator, Historic Gardens

 Is there a plant at Duke Gardens that you're curious about?

REQUEST A CLOSER LOOK AT IT BY WRITING TO FLORA AT ORLA.SWIFT@DUKE.EDU.



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We hope you will continue to support us as we grow to new heights.