



A publication of the Friends of the National Arboretum

ARBOR FRIENDS

SUMMER 2021



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FROM THE EXECUTIVE DIRECTOR



DEAR FRIENDS OF THE NATIONAL ARBORETUM:

When our team started planning for 2021, we knew the year would require some patience to deal with the pandemic hurdles that began last year. After navigating the first half of the year with the continuation and refinement of our virtual events and programming, we're starting to transition to some in-person activities, and we look forward to seeing you again in person.

This fall, we plan to host several in-person events for FONA members and our community. On October 2, we'll host a bulb sale which will offer traditional and unique bulbs. On October 9, put on your running shoes and join us for a 5K run around the Arboretum grounds. Start training now! And in December, we plan to host a Christmas Tree Sale with additional activities, and it should be great fun for all ages. Be sure to sign up for our weekly email newsletter, FONA Field Notes, to stay informed on all events.

On the programming side, we've resumed our Green Ambassador Program's (GAP's) Farm Crew, which offers high school students a 6-week summer internship at the Washington Youth Garden, where they learn gardening skills, learn how to prepare healthy meals, and explore possible career paths in related fields. Once they have completed the internship, they can become part of the GAP Guild during the fall or spring to partner with other Green Ambassador alumni on community service projects around the District. Over the Spring 2021 semester, our Guild members focused on increasing access to healthy food in their communities—they provided hands-on support to the DC Fridge Collective, helping to improve the food distribution sites in the city. We are all proud of their efforts and their passion for giving back to the community.

As we look to the fall, there will still be plenty of obstacles along the way, but we're fortunate to have the U.S. National Arboretum as our base. With more than 450 acres of green space in our city, it's a beautiful place for people to connect with nature and each other, while still practicing proper safety measures.

We'd love to see you. Be sure to visit the National Arboretum and one or more of the collections. Visit our one-acre Washington Youth Garden to check out what's growing and being harvested for donation to local families. Better yet, join us in the garden as a volunteer!

As always, many thanks for your continued support! 🌱

Craven Rand, Executive Director
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ON THE COVER *Hydrangea macrophylla* 'Bailmer' Endless Summer® blooms in the Asian Collections

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LETTER FROM THE ARBORETUM DIRECTOR

Putting the “national” in National Arboretum



WHAT MAKES THE U.S. NATIONAL ARBORETUM “NATIONAL”?

Is it simply that we are in Washington, DC, the Nation’s capital?

Is it because we were authorized by an Act of Congress with a national mandate? Well, yes, and this is proven by words and deeds.

The Arboretum was founded by a group of people who dreamed of creating a great national institution that would maintain a definitive collection of trees and shrubs grown from seeds gathered from around the world that could then be propagated throughout the United States. To this end, the National Arboretum has systematically collected horticulturally relevant plants and their wild relatives from most parts of the globe—mostly those in temperate zones—because we target hardy material for landscapes rather than tropicals for conservatories.

Our collections, whether they originated from planned explorations and collaborations, donations from nurseries and private collectors, or exchanges with our sister botanical and research institutions, are not considered national because they are housed at the National Arboretum. They are considered national because they have been accredited as part of the Plant Collections Network administered by the American Public Gardens Association. We have partnered with the association for more than three decades, have helped fund the growth of this important germplasm preservation effort, and have supported it with our staff expertise. In fact, our boxwood collection was the first accredited collection for the program in 1996. As you read this, two more collections are being reviewed for formal inclusion in the network: our historic magnolia and significant oak collections. The maple collection was recently added to the list, and our team of gardeners and scientists are working on more, including crape myrtle, flowering cherry, and hollies.

Speaking of accreditation, we have also

upped the ante on other formal recognition programs. We recently received Level IV accreditation from ArbNet, the Morton Arboretum-hosted interactive, collaborative international community focused on raising professional standards for all arboretums. This is the highest level, and only a handful of arboretums in North America have qualified for it. We also achieved accreditation through Botanic Gardens Conservation International, confirming our excellence once again in the preservation and conservation of woody plants at the national and international levels.

Many visitors view us as a local resource as well as an open greenspace for connecting with plants and nature in the District of Columbia. However, a closer look reveals a great national institution dedicated to preserving plant genetic resources to ensure a resilient and sustainable future for American landscapes. 🌳

All the best,
Richard T. Olsen, Director
United States National Arboretum

COMMEMORATIVE BENCHES

Honor loved ones or special occasions by donating a teak bench at the National Arboretum. Each commemorative bench will have a plaque engraved with your message and will stand in its selected location for 15 years. Email info@fona.org to request more information on benches.

Benches have been placed all over the Arboretum. There are available locations in the Asian Collections and in the Azalea, Conifer, and Holly & Magnolia Collections. Many are nestled in quiet nooks with breathtaking views under the shade of marvelous trees.

Half the revenue from your bench donations goes directly to the Director’s Fund that pays for some of the consultants, supplies, and building maintenance costs that aren’t covered by the Arboretum’s federal budget. Your donation of a commemorative bench is tax deductible. For more information, please email info@fona.org.

WASHINGTON YOUTH GARDEN

Spring With the Guild

Christin Riddick

FONA's Green Ambassador Program (GAP) has several tiers of participation. High school students begin their internships with GAP as Farm Crew participants, a 6-week paid summer internship where they learn hands-on skills such as gardening, cooking, and carpentry. They then have the opportunity to continue on to the second tier of GAP participation, the Guild program, which tackles community action projects during the academic year.

IT'S REALLY INCREDIBLE how relationships can make all the difference when people from various backgrounds come together for a common goal. This year's Guild members illustrate this point. This past fall and spring, Guild members had the difficult task of completing a community project in the span of a few short months. What they came up with in that time is nothing short of incredible.

First, we started with just an idea. Interns began by surveying community members, teachers, political officials, the hosts of a local food justice podcast (The Edible Activist Podcast), policemen, and family members to determine the true needs of the community. What the community needed the most was access to fresh foods. How could our Green Ambassadors respond to this need? Many ideas were circulated among the team members, such as building a school pantry or hosting a popup event for local food entrepreneurs. Because of COVID-19, many of the ideas were a logistical nightmare, and we had only 3 to 4 months to execute any project.



Instead of starting from scratch, we thought, “Why not work with the superstars and organizations in the community that are already established?” That’s when DC Fridge Collective entered the scene.

DC Fridge Collective is a coalition of community members who are addressing the food apartheid in the DMV area with a unique plan that includes very small refrigerators placed where need is the greatest. The fridges are located in areas around the community where people can grab fresh produce, toiletries, herbs, and other necessary staples at no



Above: The wooden structures the Guild members constructed for the DC Fridge Collective add weather protection and extra storage to the community fridges. Lakeitha volunteered to help reassemble the structures at the final sites. **Previous page:** Building on their carpentry skills from previous summer internships, the Guild members put their skills into practice for a community action project.

cost—yes, FREE! When we reached out to this organization, they already had a few established locations around the DC area. To improve what they had already done, they asked our team to build structures around the fridges themselves that would add extra storage, weather protection, and utility to the sites. When they originally asked us to create two structures for two different locations—I’ll be honest—as a program manager, I was a little hesitant. We were running short on time and the project looked like a lot of building. When I asked the team of 9 kids if we could do both structures, they didn’t hesitate. They basically said “We got this!” So I said “OK, let’s do it,” and we did.

Within a month’s time, we were able to build two massive wooden structures (3’11”L x 3’2”W x 6’9”H and 8’L x 3’4”W x 6’10”H). It wasn’t always easy; there were times when it would have been

simpler to cut back on the scale of the project or adjust the original vision, but our team had no interest in any of that. We managed measuring, cutting, assembling, and transporting these structures to their desired locations in the District: one in Ward 5, which includes the Arboretum (1723 W. Virginia Ave, NE) and one in Ward 7 (260 54th St NE).

The most impressive thing about this year’s team is that the lesson and skills these young people had learned only a few years earlier had a tangible impact on the community. We could not possibly have pulled off this project without the legacy of Jake Dacks, our former Garden Manager, and his work over many summers teaching and training the Green Ambassadors carpentry and construction skills for various projects around the Washington Youth Garden, from trellises to raised beds to picnic benches.

At the end of the day, it was the relationship between our Green Ambassador interns and our Staff that made the vision a reality. Most of our Green Ambassadors for fall 2021 have advanced from the entry-level positions in the program and have now taken on leadership roles to help the next wave of student interns. As the Green Ambassadors continue to move forward with community engagement and building a better world for DC residents, I know that skills and lessons learned from years past will continue to be passed down through each program year.

Note that the Washington Youth Garden (WYG) is celebrating its 50th anniversary. Come visit the WYG to see all the wonderful things we have accomplished so far. 🌳

CHRISTIN RIDDICK has been working with the Green Ambassadors since 2019 and is FONA’s On-Site Program Manager.



VOLUNTEERS ARE BACK!

After many months of being away, volunteers returned to the Arboretum this summer, including our volunteers in the Washington Youth Garden. We were thrilled to welcome back our veteran volunteers in addition to new gardeners. Our garden staff is incredible, but they were stretched thin in 2020 to harvest and donate more than 4,000 pounds of produce from the Washington Youth Garden and partner school gardens. Many hands make light work, and more helpers in the garden to maintain the one-acre demonstration garden results in more food produced, a tidier space, and great camaraderie.

COME JOIN US! Volunteers work in shifts on Tuesdays, Fridays, or Saturdays. Tasks might include weeding, mulching, planting, and harvesting produce. You don't have to be a garden pro. We have orientation for everyone coming in and guidance from staff on site. Visit bit.ly/WYGvolunteer to join our volunteer email list. We hope to see you in the garden soon.



MORNING HARVEST

With a gloved hand, she tugs the large bristling leaves aside, peering below for her quarry. There's a glimpse of green with that tell-tale sheen. Bending closer, she holds up a hand to measure the size of the zucchini. This one is ready to harvest. Pinch it at the stem and twist until it snaps off. Put the heavy squash in the harvest bin lined up with the others she's gathered. What about the little zucchini over here? It's smaller than her hand, so she stands up and lets the large leaves cover it again. That one needs more time to grow to size, but it'll be ready for the harvest next week.



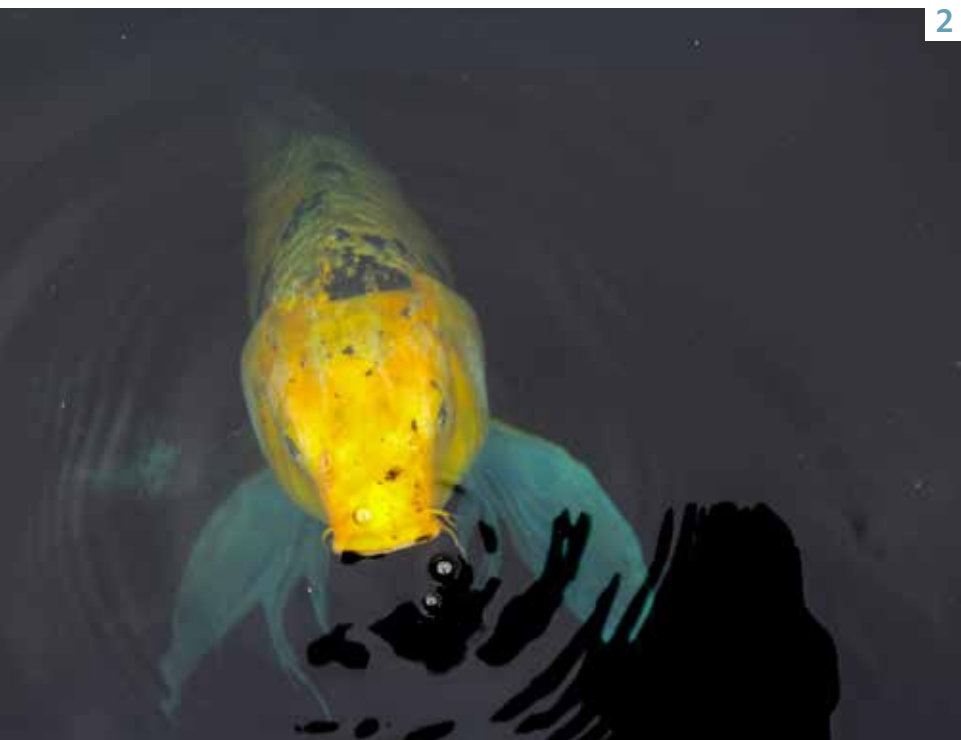
Hefting the bin to her hip, she takes the path to the pavilion around the elderberry flowers and zinnias where the honeybees crowd, past the rows of cucumber vines climbing trellises, waving hello to the fellow volunteer pulling weeds from the row of purple beet tops. They met this morning and swapped cooking ideas while picking jalapenos.

She carries her bounty into the shade of the pavilion to be counted and packed for delivery to the donation center. The zucchini, onions, tomatoes, chard, green beans, peppers, herbs, and other crops harvested from the garden will be donated to families in homes across Washington, DC.





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Summer at the National Arboretum

1 The Brood X cicadas were everywhere at the Arboretum and made themselves heard.

2 The koi pond is full of fish and plants. It's a wonderful sight!

3 Summer blooms include the 'Cramoisi Supérieur' Rose (*Rosa chinensis* 'Cramoisi Supérieur') in the National Herb Garden.

4 The National Bonsai & Penjing Museum reopened in June.

5 New raised beds in the Washington Youth Garden solved the problem of water-logged areas and produced a plethora of kale and collards to distribute.

6 Venue rentals and wedding ceremonies continue to be popular. Contact our partner MTG Hospitality at mtghospitality.com/national-arboretum for more details about events.

7 New this year, FONA co-hosted outdoor movie screenings in the meadow with a variety of new partners.



6



5



After a leaf collection trip in 2013, Kevin Conrad and Ron Miller returned in 2015 to revisit sites where *M. ashei* is endemic. The Arboretum's conservation of the species continues today. (Photo credit: USNA)

Claire Broderick & Dr. Todd Rounsaville



Conserving the genetic diversity of Ashe Magnolia

What would compel a scientist to trek through rough forest paths in Florida's panhandle during the sticky summer months of 2020? Seeds. The seeds of a particular threatened tree species, native and restricted in the wild to just 10 counties in northern Florida, the Ashe Magnolia (*Magnolia ashei*). The seeds of this species are part of a long-term project to preserve the genetic diversity of Ashe magnolia.

The U.S. National Arboretum's Germplasm Program has been collecting and studying *M. ashei* for nearly a decade to help conserve this rare native tree. Kevin Conrad, Dr. Margaret Pooler, Chris von Kohn, Martin Scanlan, and others at the National Arboretum have been integral to the project as explorers, coordinators, collectors, analysts, and researchers. The new lead for the Arboretum's Germplasm Program is Dr. Todd Rounsaville, who has described the Arboretum's project on *M. ashei* and the Arboretum's next steps.

THE ATTRACTION OF ASHE MAGNOLIA

The Garden Club of America named Ashe Magnolia as their 2017 Native Plant of the Year. They recognized that *M. ashei* is "valued for its large creamy white blossoms with pink and purple markings that bloom in late spring, its citrus-scented fragrance, and its cone-shaped pink-purple aggregates that add fall interest," in addition to which, "it is heat tolerant and disease resistant." It received high praise as "an ideal specimen tree for the small garden."

THE THREAT TO *M. ASHEI*

Although extremely rare, you can find *M. ashei* planted in some landscapes and commercially available at specialty nurseries, where their big leaves and fragrant flowers attract attention. So why go collecting from the native population? Most of the plants available for purchase in nurseries originate from limited sampling of only a few wild *M. ashei* populations and are genetically similar. This narrow sampling of



In situ conservation—
take steps to protect the
species growing in its
native habitat.

Ex situ conservation—
grow and distribute a
species in gardens at the
Arboretum.



Collection trips in Florida included preparing specimens for the Arboretum's herbarium. (Photo credit: USNA)

genetic diversity means that potentially important genes are not represented in *ex situ* collections. If a natural disaster like a hurricane destroys one of the *in situ* populations, then the genetic diversity that could help the species to resist attacks from new types of diseases and environmental changes would be lost forever. With a more complete sample of genetic material, the species as a whole can be better safeguarded from threats posed by disease or a changing climate. Such has been the case with boxwood blight that threatens boxwood in North America. Boxwood that are resistant to the blight are being bred with the vulnerable varieties to create strong hybrids that retain the appealing characteristics of the susceptible variety.

There is genetic diversity in the subpopulations of native trees growing in Florida, but that native habitat is declining in area and habitat quality. Calamitous storms in recent years have been detrimental to the wild populations. For instance, Hurricane Michael killed many *M. ashei* trees in 2018.

HOW WOULD THEY KNOW WHERE TO COLLECT SEEDS WITH THE MOST GENETIC DIVERSITY?

In 2013, a team from the National Arboretum initiated a project to sample *M. ashei* across its range in Florida and in cultivated populations. They traveled to Florida to take samples of *M. ashei* across the whole natural region so they could analyze the genetic diversity back in the laboratory. Dr. Rounsaville noted that this study would provide several useful insights that could be helpful for following up on both *in situ* and *ex situ* conservation efforts.

The study revealed the overall genetic diversity within and between populations and revealed the populations that were not already represented in the botanic garden community. Analysis of the samples found that the wild populations represented “two subpopulations for the species which were geographically partitioned into



eastern and western groups.” Yet between the two populations was “the Holmes Creek population occurring directly at the interface between the eastern and western subpopulations.” This small middle group “was found to be the most distantly related to all other populations and had the greatest genetic diversity.”

The eastern group was well represented in botanic gardens worldwide, and the western group was found in cultivated populations, while the small central population was not represented in any of the gardens surveyed. Therefore, “the Florida populations lacking *ex situ* representation were identified and prioritized for collecting efforts, with Holmes Creek being the most notable example.” In the summer of 2020, a USDA colleague based in Florida trekked through the identified population to collect seeds.

NEXT STEPS FOR EX SITU PRESERVATION

The National Arboretum is pursuing a plan to conserve *M. ashei* outside its natural habitat through living collections. From the 2020 seed collection, there are now hundreds of young Ashe Magnolias growing in the Arboretum’s polyhouses. A new *M. ashei* orchard will be established at the National Arboretum with 20 to 30 of the trees. This will be a long-term orchard

***Magnolia ashei* is an attractive plant, with its fragrant, creamy flowers and broad leaves. The Garden Club of America named Ashe Magnolia as their 2017 Native Plant of the Year.**

The Florida populations lacking ex situ representation were identified and prioritized for collecting efforts, with Holmes Creek being the most notable example.



Magnolia seeds collected in Florida in 2020 made their way to the National Arboretum's greenhouse to be planted. Some of the seedlings will be planted at the National Arboretum where the living orchard will be a source of rare genetic material available to future research and plant breeding efforts. (Photo credit: USNA)

for growing mature trees and capturing the genetic diversity of the Holmes Creek subpopulation. Partner arboretums in Virginia, Georgia, and North Carolina will also establish orchards from the seedlings, replicating the Arboretum's orchard as backups to decrease the risk of losing the genetic material if one orchard were to fail.

WHY NOT SIMPLY STORE THE COLLECTED SEEDS?

Although the National Arboretum has a seedbank, it could not be used for the *M. ashei* seeds. Magnolia seeds cannot be stored long-term like the seeds of most plants, because the embryos cannot survive the lowered moisture content required for cold storage. Instead, magnolias must be conserved as living plants. The *M. ashei* seeds were planted in polyhouses at the National Arboretum to grow and preserve the genes in the adult plants that are incorporated into botanical collections.

However, the Arboretum will work with a cryo-preservation USDA lab in Colorado to freeze shoot tips which can be prepared in such a way that they can be stored for a very long time. The shoot tips could later be grown into healthy plants using tissue culture. This

long-term storage will complement the living orchards maintained by the Arboretum and its partners. The living orchard at the Arboretum will be a source of genetic material available to future research and plant breeding efforts, and shoot tips from the orchard will be cryopreserved for long-term storage.

FROM FLORIDA FORESTS TO DC ORCHARD

From a small location in Florida, the wild-collected seeds have been taken to Washington, DC, and other states to grow in orchards, from which shoot tips will go to Colorado. One day you will be able to observe dozens of *M. ashei* at the Arboretum where the beautiful orchard will be on display, and it may be acting as one of the many coordinated strategies to protect the future of the species. 🌳

CLAIRE BRODERICK is the Membership Program Manager at FONA. Seeing the magnolias bloom at the Arboretum is one of the highlights of spring for her.

DR. TODD ROUNSAVILLE is the new lead for the Arboretum's Germplasm Program. He conducts research on genetic diversity, seed biology, and germplasm management, and pursues plant conservation efforts both in situ and ex situ.



Nancy and Pierre Moitrier

Wise Watering

WATERING IS A CRITICAL YET UNDERRATED TASK

- Plants pull nutrients from the soil in the form of a solution. Water plays a critical role in nutrient transport, so a wilting plant is also a starving plant.
- If leaves lose their luster and appear chalky or dusty, root loss will occur next.
- Drought stress causes flower buds and fruits to abort and results in abnormally small leaves.
- Proper watering is as much about knowing when and how much to water as it is about understanding when NOT to water.
- Overwatering can be detrimental to plant health. Roots need air; if soils are continuously wet, water-filled pore spaces do not allow roots to breathe.

EACH SITE IS UNIQUE

- Soil type: soil particle size will define each soil's unique water-holding capacity. Sandy soils made of large particles will drain quickly. Clay soils made of tiny layered particles will hold water. Knowing which type you have should guide your watering strategy.
- Site and orientation: observe sun patterns and topographic idiosyncrasies. For example, a southwest-facing slope will dry before a northeast-facing slope.
- Indicator plants: plants that wilt before most others and signal that it is time to water.

ALLEVIATE WATER-RELATED CHALLENGES

- Match dry-loving plants to dry sites and moisture-loving plants to moist sites.
- Invest in quality hoses, sprinklers, watering wands, AND a rain gauge.
- Check plants daily for water stress during summer months.
- Water short-lifecycle plants like annuals and vegetables more frequently than perennials, shrubs, and trees.
- Apply sufficient water to thoroughly saturate the root mass while considering its size and density.
- Examine the soil for water penetration depth with a trowel or digging knife. It is best to water deeply and less frequently than shallowly and often. Deep watering (4"-6") encourages deep roots which makes for drought-tolerant plants.
- Pay close attention to new plantings for the first three years until they are fully established. Growing good roots takes time but will build solid foundations.
- Mulch and compost help to lower soil temperature and reduce water evaporation. 🌳

NANCY AND PIERRE MOITRIER operate *Designs for Greener Gardens*, a boutique gardening company that specializes in designing, creating, developing, and maintaining distinctive gardens of all styles. Pierre hails from France and brings the charm of the Old World to their garden creations. Nancy's 40 years of gardening experience combined with her design knowledge and innate artistic eye add a superior dimension to their garden projects. Follow *Designs for Greener Gardens* on Facebook.



FRIENDS OF THE NATIONAL ARBORETUM

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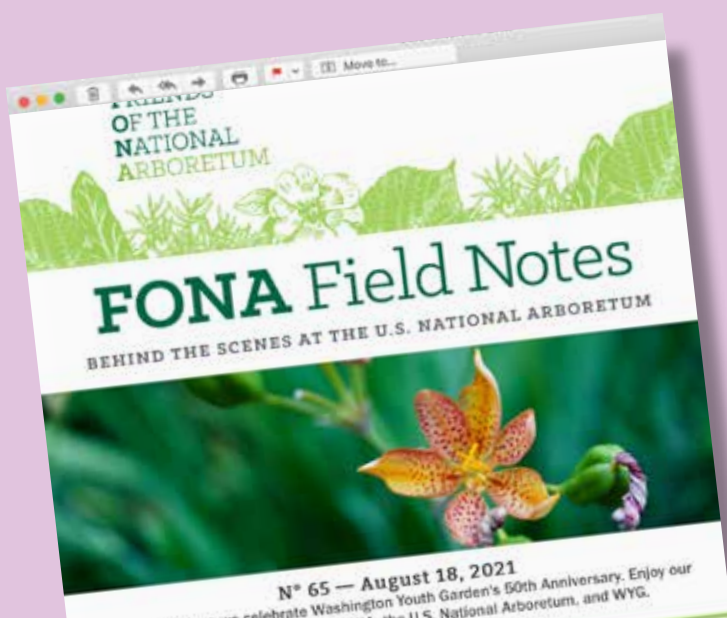
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private sector resources, support for the
U.S. National Arboretum.*

HAPPENINGS

For more information, visit usna.usda.gov or fona.org

GET UPDATES BY EMAIL AND ONLINE

Sign up for the FONA Field Notes email newsletters at FONA.org to get regular updates from the Washington Youth Garden, behind-the-scenes stories, pictures of the Arboretum, and the latest events!



EVENTS

The calendar of events is updated regularly at FONA.org.

BULB SALE: Saturday, Oct 2, 9:00am–noon

In lieu of the annual Garden Fair which was cancelled in spring 2021, FONA is holding a bulb sale. We will have bags of bulbs for sale, expert gardeners on hand, and advice for those new to planting fall bulbs.

FALL 5K: Saturday, Oct 9, 9:00am

Join us for a fall 5K run through the grounds of the National Arboretum. Tickets are \$30 (20% off for FONA members) and include a complimentary neck gaiter designed just for this event (for the first 200 registrants). There's even a virtual 5K option so you can participate even if you cannot join us at the Arboretum.

FOREST BATHING

Meditative forest bathing sessions are offered several times a month on a pay-what-you-can pricing model. Register at fona.org.