



A unique tree, dawn redwood (*Metasequoia glyptostroboides*) has warm orange fall foliage.

## Arboretum Publishes New Island Flora Checklist

Finally, after a long, detailed, and continuing effort to document the Flora of Dukes County (Martha's Vineyard), we are publishing its first update since 2011. What is a flora? A flora is an account of all of the plants growing outside of cultivation within a certain geographic area. Floras can cover small areas, such as a town or city, or large expanses, such as the Flora of North America. Floras are used to aid plant identification, document changes in plant species composition over time, or assess plant species distributions. At the local level, floras can provide a reference for land managers interested in knowing which rare, introduced, or native plant species are present or absent in their area.

The most recent local flora was titled *The Vascular Plants of Massachusetts: A County*

*Checklist*, written by PHA Research Associate Mellisa Dow Cullina, Bryan Connolly, Bruce Sorrie, and Paul Sommers, in 2011. Arboretum staff and research associates working with the Island conservation organizations established the Martha's Vineyard Floristic Study Group in 2014. Since that time, an extensive review of regional herbaria coupled with the physical collection of Island specimens has yielded a detailed listing. Included are over 3,500 physical specimens housed in our herbarium.

The ultimate goal is to publish a comprehensive overview of the Island's flora in a paper format, with maps of habitats and the key indicator species found within. This future publication will also include a historic overview of past and present collectors. The current

publication is in a simple checklist form for easy reference to the Island's natural and spontaneous plants. Keep your eye out for a link to the list online via our website soon.

It takes an Island to make a flora! We would like to thank private landowners and our conservation partners, both who have permitted us to document plants on their land. We also recognize the good work before us that set the stage for our success—the original Martha's Vineyard Sandplain Restoration Group, and Director Emeritus Stephen Sponberg, who championed PHA to become the repository for the Flora.

**Do you have an Island property that you would like us to examine for unique plants? Contact [info@pollyhillarboretum.org](mailto:info@pollyhillarboretum.org).**

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The Arboretum has been a place of tranquility and refuge during the pandemic.

## The Polly Hill Arboretum

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The mission of the Polly Hill Arboretum is to perpetuate the experimental tradition in horticulture established by Polly Hill by sharing knowledge of plants and scientific procedure through educational programs, research, plant conservation, and exploration. The Arboretum seeks to preserve its meadows and woodlands, to promote an understanding of its collections, and to encourage their utilization for scholarship, observation, and the enjoyment of all.

*Meristems* © The Newsletter of the Polly Hill Arboretum

*News & Photography*

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*Design*

Lorraine Ferguson Weinberg

*Printing*

Bolger, Minneapolis MN

Printed on recycled paper.

## Message from the Director

What a season! Looking back at this past spring, summer, and now fall, it has been a time of significant change, challenges, and achievements! As the pandemic constrained our programming on various levels, it nevertheless did not stop us from opening our grounds to visitors from both near and far, hosting socially distanced tours, and providing educational opportunities both on-site and virtually. We also made it possible for our members to purchase our unique and beautiful plants through our online plant sale and contactless pickup system.

Despite the pandemic's overlay, in this issue you will read about our recent achievements from a benchmarking study of our biodiversity and plant conservation efforts. You will also read about a new publication that spotlights our commitment to divest from fossil fuels and support green technologies through our investment portfolio. We are very proud of our national recognition for our local efforts to save plants from extinction and our leadership among public gardens in green investing.

Also inside this issue, we welcome new Education Coordinator, Elizabeth Ladwig. I want to thank past Education Coordinator Ann Quigley for the fantastic diversity of programs and workshops over the past few

years, particularly this year, when we deftly transitioned to a virtual platform. Ann will now shift over to manage the Visitor Center and interpretation within our buildings and outside on our grounds. I also thank my wife, Laura Coit, who for 16 years has been the content editor of *Meristems* and is now stepping away to enjoy more free time. She helped edit several PHA publications through the years, including the case statements for our Seeds for the Future campaign. I am deeply appreciative for the long hours involved and the fabulous newsletter we have today!

Gratitude is something we must hold onto during the days ahead. The PHA staff and Board were so moved by our volunteers' efforts to rejoin safely with us to manage our grounds, assist with children's programming, lead tours, work in the nursery, and help us collect and process herbarium specimens. Polly once said, "who could imagine such a place?" Finally, thank you to all our members and supporters for reminding us just how unique PHA is. Please stay safe and healthy in the days ahead.

*Timothy M. Boland*



## Welcome Elizabeth Ladwig

In September, we welcomed Elizabeth Ladwig as our new Education Coordinator. Liz comes to us with experience in both adult and youth education programming. Originally from Michigan, Liz has a B.A. in Environmental Education and Organizational Studies, with a focus on nonprofits from the University of Michigan, Ann Arbor. She most recently worked as a teaching naturalist in Sonoma, California at the Sierra Outdoor School. Prior to that, she completed a year-long education internship at the Scott Arboretum of Swarthmore College in Swarthmore, Pennsylvania. "We are thrilled to have Liz join the Arboretum and Island community," says Executive Director Tim Boland. "The Arboretum is such a rich and vibrant landscape with tremendous possibilities to connect both children and adults with the endless beauty and mysteries of plants." Liz will work with Youth Educator Elliott Bennett to expand our offerings as well as manage the adult programming. Liz says, "I'm really excited for the opportunity to connect people with plants at PHA. I care a lot about making plant science accessible and exciting. I hope to build on PHA's programs and provide more opportunities for every person to engage with plants. I fully share Polly Hill's belief that 'The learning is the fun,' and look forward to learning along with everyone who comes to the Arboretum for a class, a lecture, or a chance to just be outside with trees. From my brief time at PHA, my first inkling that this is a special place has proven true. This Arboretum is full of not only beautiful, fascinating plants but also kind, dedicated people. I feel lucky to be part of such a wonderful community." We feel lucky to have Liz join us!



Elizabeth Ladwig

## Staff Profile: Lysbeth Abrams

Lysbeth Abrams joined the PHA team this spring for a seasonal position to help maintain the grounds through the summer and into the fall. During this challenging time, with our internships canceled due to the coronavirus, and a drought on our hands, we were grateful for her gardening know-how and positive energy.

Lysbeth is an experienced horticulturist, with a degree in plant science from Cornell University. Though she and her husband live in Falmouth, she awoke early each weekday this summer to catch the ferry and travel to the Island, where she relished her first morning walk on the Arboretum grounds, with the anticipation of seeing how the plants had changed from one day to the next. When asked what her favorite part of working at PHA has been, she replied, "That's hard—I like everything!" She lists being outside, working with friendly and knowledgeable staff and volunteers, pruning, and planting ("especially here, as the soil is so amazing") as favorite aspects of her job.

Lysbeth says working at PHA "means being able to connect with the same landscape on a daily basis, slowly developing a deep relationship with the individual plants and their surroundings. It means being able to observe the incremental changes that happen anywhere,



Lysbeth Abrams

if you only take the time to look. It means feeling a sense of place." She described her favorite plants, such as the American chestnut, the yak rhododendron 'Wild Wealth', and the Chinese peony (var. *alba*), with poetic observations about their structure and colors. Her enjoyment in learning the history and science behind the plants she has met at PHA is evident.

PHA Grounds Manager/Arborist Ian Jochems adds, "She was a wonderful addition to the team—a great personality—and she really made a big impact on the grounds. With her help maintaining the garden beds, our high priority areas like the Visitor Center and Holly Park have never looked better." Thank you, Lysbeth, for a great season!

## Tess Bramhall's New Book Highlights Island Natural Areas

"What fascinated David Smith was not so much the plants themselves but Polly's thorough, scientific way of documenting the history of each individual plant, bush or tree," writes Tess Bramhall, of PHA founders David Smith and Polly Hill, in her new book *In Praise of Protected Lands and Special Places on Martha's Vineyard*.

Bramhall, whose daughter Nina recently joined the Arboretum's Board of Directors, highlights twenty-one public conservation properties across the Island, including Polly Hill Arboretum. Her engaging stories contain cultural and geological histories of the lands. Each property she features is accompanied by artwork from an Island artist, including



Published by the Land Protection Fund for Martha's Vineyard, a component of the Permanent Endowment for Martha's Vineyard, Villanet Printers Inc. Available for purchase at Bunch of Grapes Bookstore, Edgartown Books, or online at The Permanent Endowment Fund ([endowmv.org/product/in-praise-of-protected-lands-and-special-places](http://endowmv.org/product/in-praise-of-protected-lands-and-special-places)). \$27.

paintings by her husband Kib Bramhall, Andrew Moore, Ruth Kirchmeier, Allen Whiting, Stan Murphy, and Rez Williams.

## Public Gardens Address Plant Extinctions

Murphy Westwood, global tree conservation director at the Morton Arboretum and PHA Board member, co-authored a recent article published in the journal *Plants People Planet*. The article, “Botanic garden solutions to the plant extinction crisis,” champions the public garden community as a force for positive change in the challenging work of plant conservation, and highlights the need for further resources allocated to the cause. PHA Executive Director Tim Boland says “The paper is an encapsulation of the current challenges and opportunities botanical gardens and arboreta face in our age of extinctions. Murphy Westwood and leading conservationists have given us a pathway to success through collaboration with the unified goal of saving our biological heritage for our sake and the planet’s.”

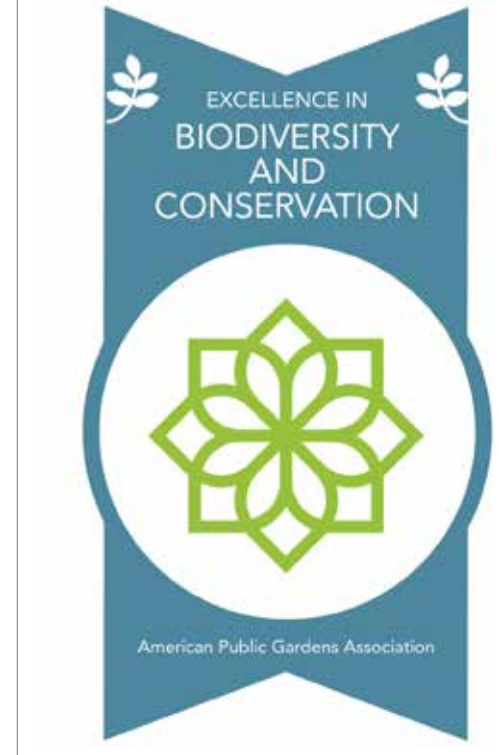
Read the article online at:  
[bit.ly/Public-Gardens-Address-Plant-Extinctions](http://bit.ly/Public-Gardens-Address-Plant-Extinctions)

## In Memoriam

The Arboretum lost two special advocates this past year.

Robbie Hutchison, formerly of Edgartown and Naples, Florida, passed away in June. An incredibly energetic and knowledgeable plantswoman, Robbie worked on-Island as a landscape designer, transforming many landscapes into beautiful gardens. At PHA, she led docent tours where she conveyed her zeal for Polly’s plants and the unique historic landscape features onsite. Robbie loved the special collections at PHA and frequently incorporated several of her favorites into her Island designs. “She was a ball of positive energy and loved the plants and people of the Arboretum,” says Executive Director Tim Boland. “I learned a lot from Robbie; she had insights into our landscape that opened my eyes—the gift of a talented designer.”

In September, we were informed of the passing of Blair Schick, a past tour leader and Arboretum greeter at our Visitor Center. Blair was a dedicated gardener and grower. He not only gave tours to our visitors but attended many of our educational classes and workshops. He loved the diversity of plants



and Polly’s unique story of starting many from seed. The impact that our volunteers have on the Arboretum transcends time and reminds us of the special connection between people, plants, and place.

### SCIENCE AND PLANT CONSERVATION

## PHA Joins the Global Conservation Consortium of Oak



It took only three years of environmental stress to induce a catastrophic die-off of Island oaks from 2007–2010; in other areas of the country, a similar die-off could be enough to extirpate an entire species. Caterpillars and drought were to blame in the Island’s case, proving that even “protected” habitats aren’t safe from catastrophe. Certain endemic species are not only threatened by uncontrollable natural events, but also habitat loss due to human development and mismanagement. Populations of oak species (*Quercus* spp.) are especially vulnerable to extinction because their seeds are “recalcitrant,” which means they cannot be stored in seed banks and are only viable when fresh.

This is where botanical gardens and arboreta step in: By intentionally collecting wild seed and immediately growing them into plants, we can preserve their genetic diversity by maintaining them in our living collections.

To facilitate this critical action, the Global Conservation Consortium of Oak (GCCO), led by the Morton Arboretum in Lisle, Illinois, and Botanic Gardens Conservation International (BGCI), was established in February 2020. The GCCO is a collaborative working group of institutions and experts across the world focused on conserving threatened oak

species, and we at PHA are excited to be among its founding members! As part of the GCCO’s “Eastern U.S.” working group, we are joining forces with others in our region to collect and share seed from targeted areas, create “safe sites” to grow and maintain populations from these seeds, and share expertise and ideas to strengthen our programs and outreach. Our participation in the GCCO will not only help us meet our goal of growing our collection of endangered oaks, but also help us contribute to global conservation efforts beyond our island.



Endangered maple-leaved oak (*Quercus acerifolia*)  
Left: Voucher specimen collected by PHA staff during their 2014 trip to the Ozarks  
Right: Specimen grown from seed collected by PHA staff during the same trip





## Arboretum Awarded Excellence in Biodiversity and Conservation

The PHA is proud to be recognized by the American Public Gardens Association (APGA) for our efforts in conservation and biodiversity stewardship! In the spring of 2020, we voluntarily completed an APGA benchmarking module to help us gauge how we compare to other gardens in terms of resource allocation, collection stats, activities, and programming which directly support the conservation of biodiversity. Although our intention was to identify potential opportunities and improvements, we were excited to be contacted by representatives of the APGA who chose to profile us on their website after being so pleased by our results. The profile provides a summary of the attributes which brought us this recognition.

To read the profile, visit:  
[www.publicgardens.org/sustainability-index/attributes/polly-hill-arboretum](http://www.publicgardens.org/sustainability-index/attributes/polly-hill-arboretum)

## Arboretum Publishes Green Investment Article

While the world and our small island continue to adapt to the Covid-19 pandemic, PHA has advanced several key initiatives that have brought about national recognition for our local, national, and global conservation activities. In August we published the lead article in our industry newsletter, *Public Garden* magazine, about our journey into green and impact investing. We are thrilled that our investment strategies support a green future, one increasingly challenged by climate change and its impacts. We are also excited that our process of transferring our investment portfolio will inspire others in the environmental not-for-profit world to follow in our footsteps. Congratulations to our Board of Directors and the Finance Committee members who shepherded this long but rewarding process to fruition!

To read the article, visit:  
[bit.ly/GreenInvestment2020](http://bit.ly/GreenInvestment2020)

## Bob Lavieri

Bob Lavieri and his wife Kathy already knew about Polly Hill Arboretum when they decided five years ago to spend June through October on the Vineyard each year. Bob remembers, "When we came to the Vineyard for vacation with our children, we used to make a trip to PHA on the first cloudy day. My children called the 'Julian Hill' magnolia 'the dinosaur tree' because the flowers were so large! It reminded them of something from the movie Jurassic Park." Once they had made the Island their seasonal home, they began looking for volunteer opportunities, and PHA was a natural choice for Bob. An avid gardener, he says "I tell people I wear out shovels, and that isn't a joke." He contacted the Arboretum to inquire; we needed tour guides, and that sounded good to him. If you've been on a tour with Bob, you know he's a natural conversationalist, full of stories and jokes; the gig was a good match.

A few of his favorite questions and answers from past tours: "Polly Hill Arboretum was named after a person, not a hill!"; "Not preferred by deer" means they will eat it later rather than sooner... maybe."; "Yes! These are the nicest bathrooms on the Island."; "Yes, you really can eat the red fruit on a dogwood."; and "Q: Who does the work around here? A: The staff and 70 strong volunteers!"

Already conversant in horticulture from his own gardening experience, Bob credits the PHA staff and his fellow volunteers for bringing his knowledge to the point where he could lead tours. He likes giving tours because he enjoys telling the story of the Arboretum, meeting new people from a wide range of backgrounds, helping to answer their plant questions, and taking a nice walk in a beautiful place. While he gives back to the community, he also expands his own knowledge of horticulture through his interaction with visitors, staff, and the landscape itself.

Bob admits to wondering when he first started whether he knew enough about Polly and the garden to do the job. He talked to volunteers in other areas of the Arboretum who voiced the same doubts about whether they knew enough about the garden, the plants, or the history, to lead tours. He had been pleasantly surprised to find that it wasn't necessary to be an expert to be a tour leader, and he realized that there was an opportunity to communicate this to other potential guides. When it came time to update the tour guide handbook, Bob signed on to help Erin Hepfner (then PHA Visitor Services and Resource Specialist)



Bob Lavieri

with the project, and helped formulate the training that new guides would receive.

As a tour guide at PHA, Bob says what's unique is getting to directly contribute to the experience of the guests. Many visitors take self-guided tours and don't meet staff during their visit, so he enjoys the opportunity to give visitors a friendly face and personal interaction. His messages to anyone considering volunteering as a guide are "You will get more out of being at PHA with the staff and other volunteers than you thought," and "You know more about plants and the garden than you think!"

Bob was one of two volunteers who contacted us this summer to discuss the possibility of offering socially-distanced tours for small groups of masked visitors. At the beginning of the season, we had canceled all in-person public programs for the safety of our visitors, especially in the early stages of the pandemic when little was known about how to hold outdoor activities safely. Beginning in early September, Bob and fellow tour guide/former PHA staff member Nancy Weaver agreed to lead guided tours on a trial basis, with sign-ups required to keep group numbers small. The venture was a success, with nearly every tour booked through October. We are grateful to Bob and Nancy for giving visitors the opportunity to learn about the natural world in a safe way this fall.

Bob left the Island for his winter home in Ohio at the end of October, but we look forward to seeing him again in the spring. If you haven't had the chance to take a tour with Bob, we hope you'll join him next season on what's sure to be an entertaining and informative walk around the Arboretum.

For more information on volunteer opportunities at Polly Hill Arboretum, please email:  
[info@pollyhillarboretum](mailto:info@pollyhillarboretum)

# A Look Inside A Leaf

## The Science Behind Magical Fall Color

by Elizabeth Ladwig



The green and yellow November foliage of kousa dogwood as chlorophyll diminishes within its leaves

Even the most pragmatic person may find difficulty walking through a field of red huckleberry or an oak woodland brightened by every shade of autumn and not at least briefly considering the existence of magic. However, I find that the very real world within a leaf provides far more fascinating explanations for enchanting fall landscapes. Let's take a look inside the leaves of a few special Polly Hill Arboretum trees to see the science behind what feels like magic.

### CHLOROPHYLL *The Science of Green*

Each time I walk around Polly Hill Arboretum, it seems that summer further vanishes into thin, crisp autumn air as fall color transforms another plant. In reality, much of this "transformation" is simply due to a loss of chlorophyll. This pigment enables plants to convert sunlight and carbon dioxide into sugar that helps them grow, and oxygen that we enjoy breathing. Chlorophyll is also the reason for green. Absorbing mostly blue and red light, chlorophyll reflects those sparkling shades of green we revel in as sunlight filters through a forest. As autumn approaches, temperatures cool and nighttime

lingers, signaling to plants like PHA's kousa dogwoods (*Cornus kousa*) that it's time to stop producing chlorophyll.

Why would our dogwoods want to lose such an incredible, life-giving substance as chlorophyll? The kousa dogwood is just one example of a deciduous tree, trees that shed their leaves in autumn. Scientists theorize that such trees do this mostly to conserve energy during the months they receive less sunshine, and to avoid winter leaf damage.

In the fall, our kousa dogwoods begin a process called abscission. The abscission zone develops between branches and leaf stems as a waxy substance called suberin cuts off nutrient transfer to the leaf. As chlorophyll diminishes within the leaf, so does summer-time green, making way for fall color. Each fall foliage season, each tree, and each leaf are unique as a result of a different balance of pigments, as well as annual variation in moisture, temperature, and sunlight.

### CAROTENOIDS *The Science of Orange & Yellow*

When I worked for the Scott Arboretum in Pennsylvania, I remember standing in awe of the outdoor amphitheater of bright

yellow tulip trees (*Liriodendron tulipifera*) in October, feeling as though I had suddenly been transported into a luminous new world. In fact, the pigments that cause us to see orange and yellow hues are in the leaves all season, waiting for their time to shine.

The artists behind the yellows and oranges that make autumn feel like autumn are pigments called carotenoids. These are the very same pigments responsible for familiar orange pumpkins. We can thank a specific carotenoid called xanthophyll for those lovely yellows in tulip trees. As a leaf discontinues its chlorophyll production, carotenoids take center stage and their bright yellow and orange hues warm the autumn landscape.

PHA's collections include warm autumn orange beyond the autumnally symbolic sugar maple, in unique fall foliage like that of the dawn redwood (*Metasequoia glyptostroboides*), pictured on the cover of this issue. Cheerful yellows are represented in the giant leaves of *Magnolia macrophylla* 'Julian Hill' and delicate flowers and foliage of the common witch-hazel (*Hamamelis virginiana*).



# CAROTENOIDS



Large fothergilla, a carotenoid masterpiece



The delicate yellow flowers and foliage of common witchhazel Photo Tom Clark



Japanese snakebark maple Photo Kathy Kinsman



The needlelike foliage of pond cypress 'Prairie Sentinel' with lichen



American beech



Asian spicebush



# ANTHOCYANINS



A vibrant field of huckleberry at Long Point Wildlife Refuge



Franklin tree

## ANTHOCYANINS

### *The Science of Red and Purple*

Experiencing my first fall in New England, I've been amazed by the abundance of red, from fields of huckleberry (*Gaylussacia spp.*) to the classic red maple (*Acer rubrum*).

Unlike carotenoids, anthocyanins, the pigments responsible for reds and purples, do not always exist within a leaf. In fact, anthocyanins remain a bit of a botanical mystery.

The annual reveal of carotenoids seems simple enough, but why do some plants produce new anthocyanin pigments right before falling to the ground? These pigments are the result of sugars trapped in the leaf after abscission. Scientists have developed a few theories as to why anthocyanins might benefit a plant. One theory suggests that anthocyanins may act like a sunscreen to protect vulnerable leaves as they lose chlorophyll. Another proposes that plants produce anthocyanins in part to ward off insect attacks, using this bold color often seen as a warning sign in nature.

Though the reason trees produce anthocyanins remains mysterious, their beauty provides a clear benefit to us humans. In addition to vibrant red huckleberry, brilliant anthocy-

anin specimens at Polly Hill Arboretum include stunning scarlet Japanese maples (*Acer palmatum*) and dreamy purple-bronze tall stewartia (*Stewartia monadelphica*).

If you are lucky enough to live in a place with fall color this season, take a closer look at the remaining leaves you encounter. Inside each leaf is a fascinating world of pigments interacting with light to reflect uniquely enchanting autumnal art. Though we know better, it certainly feels like magic.



Smooth witherod Photo Kathy Kinsman





Deep plum foliage of an enkianthus Photo Erin Hepfner



Sunlight through the leaves of a Japanese maple, exuding autumnal spirit



A sunset of leaf colors found on the fall-season disanthus



Japanese Stewartia



# Extraordinary Measures For An Extraordinary Tree

by Bridget Reed, Ian Jochems, and Ann Quigley

PHA founder Polly Hill was an avid plant scientist, who was dedicated to raising plants from seed and observing the variation found within different seed-grown plants of the same species. Her careful observations led her to discover unique characteristics among some of her plants, and in time she registered a number of new cultivars, many of which were named after members of her family. One special magnolia, however, was not named after a relative, but after PHA co-founder, David Smith.

*Magnolia* 'David' honors Dr. David H. Smith, co-creator of the vaccine to prevent childhood meningitis, who became a teacher and advocate in public health, and turned his attention to environmental science and conservation later in life.



PHA co-founder David Smith

In 1998, with David's support, the Arboretum opened as a public garden. The plant that honors his legacy possesses a flower with creamy white petals surrounding a rosy red center, on a tree with silvery gray bark and large, semi-translucent lime green leaves.

In 2014, we noticed this iconic tree didn't look healthy. Come July, the usually lush green leaves of *Magnolia* 'David' started to yellow and fall off. Supplemental irrigation didn't solve the problem. Eventually it was determined that the base of the tree was suffering from a fungal infection called Armillaria root rot. This fungus, which causes damage to the root system, had infected two other magnolias in the same area, which had succumbed to the disease several years earlier. We feared losing this important tree to the same fate, so the staff devised a plan to try to save it. Our first and continuing treatment was to perform a soil drench with a beneficial microorganism promoter and to treat it with a systemic fungicide, in hopes of promoting healthy tree

and root growth for the long term. Meanwhile in the short term, the root system of the magnolia could no longer support its size and a drastic resizing of the canopy was needed. This type of pruning simulates a natural process called retrenchment, wherein a tree reduces its canopy size in response to a damaged root system, allowing the remaining roots to maintain the canopy.

In May of 2018, before the magnolia leafed out for the season, we started our work trying to revive it. PHA Grounds Manager/Arborist, Ian Jochems, climbed the tree and removed the top two-thirds (about 35 feet). Cutting the main apical meristem (main leader trunk) in the early spring gave the tree a more balanced canopy-to-root ratio. Removing



The flower of *Magnolia* 'David'

the apical meristem altered the chemical signals in the tree, encouraging it to produce epicormic shoots (new vigorous growth) in the canopy and around the base of the trunk. This young growth will help rebuild a new, smaller canopy, allowing for more photosynthesis and in turn helping to rebuild the damaged root system. The new epicormic shoots can also be used to propagate the tree in a way that ensures it is genetically identical to its parent (not possible with propagation by seed),



The base of *Magnolia* 'David' showing damage caused by Armillaria root rot as well as air layers performed on basal shoots. (July 2020)





A view of *Magnolia* 'David' two years after canopy reduction. (July 2020)

a process which PHA Plant Propagator Bridget Reed began in 2018. Even though 'David' has been doing well for the past few years, we are continuing to work on propagating the tree, to guarantee that its genetics will be preserved even if the parent plant eventually fails.

While air layering has been the primary production method thus far, the propagation efforts on *Magnolia* 'David' have been multifaceted. When we began these efforts in 2018, the goal was to produce as many clonal plants as possible. Nearly every clonal propagation method was tested: cuttings, grafting, and air layering. Through experimentation, it was discovered that we had the most success with air layers taken from the epicormic shoots at the base of the tree as well as within the canopy. While cuttings and grafting are still a part of our plan to save this tree, air layering works well for more difficult-to-root trees as well as trees that are under stress, so 'David' was a perfect candidate. An air layer is performed by wounding a section of stem, treating it with

rooting hormone, and covering the wound with a ball of moist sphagnum moss which is then wrapped in plastic and secured. This allows the layer to work on rooting while still remaining attached to the mother plant. It is by this method that our new *Magnolia* 'David', planted near the Homestead, was produced. However, difficult seasons can still cause this generally tried and true method of reproduction to fail. One such season was 2020; we attempted many layers at the beginning of the season, but we think drought stress through the summer may have inhibited good rooting. Only a few layers were successful this year, but thanks to conservation efforts made on the original *Magnolia* 'David', we are hopeful to have more seasons of opportunity ahead of us. Selective pruning every year helps maintain robust epicormic shoot production, providing opportunities each season to produce more healthy, young trees and ensure that we carry on David Smith's legacy with the preservation of this special tree.



Air layers on epicormic shoots within the canopy of *Magnolia* 'David' (July 2020)



A successful layer of *Magnolia* 'David' planted in 2019 near the Homestead. This clone is flourishing in its new location. (August 2020)



## THE POLLY HILL ARBORETUM

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[twitter.com/pollyhillarb](https://twitter.com/pollyhillarb)  
[youtube.com](https://www.youtube.com), search: *polly hill arboretum*

### ADMINISTRATIVE OFFICES

The Homestead  
809 State Road  
West Tisbury, MA 02575

### VISITOR CENTER/ VISITOR ENTRANCE

795 State Road  
West Tisbury, MA 02575

### ACCESSIBILITY

The Visitor Center is wheelchair accessible.

### VISITOR CENTER HOURS

Closed until further notice due to safety concerns surrounding COVID-19

### ARBORETUM GROUNDS HOURS

Sunrise–sunset, year-round

### ADMISSION

\$5  
Free to members & children under 12

### FREE PARKING

### DRIVING DIRECTIONS

See [pollyhillarboretum.org](http://pollyhillarboretum.org)

**mer.i.stem:** *n. botany.* The growing point or area of rapidly dividing cells at the tip of a stem, root, or branch.



## THE POLLY HILL ARBORETUM

PO Box 561  
West Tisbury, MA 02575  
[pollyhillarboretum.org](http://pollyhillarboretum.org)

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TWIN CITIES, MN  
PERMIT #93723

## ARBORETUM DESTINATIONS

# The Picnic Grove

Throughout the seasons, PHA hosts visitors and students in our beech and oak-filled Picnic Grove. The original tables, made in 1998 by the talented Dunkl family of Chilmark, Massachusetts, had deteriorated over years of exposure to the elements. PHA's caretaker, Tucker Hubbell, along with his daughter Kate Hubbell and her partner Dan Reiff, recently refurbished the tables where the old black locust wood had rotted, using locally milled catalpa and sassafras wood. The tables feature gracefully curving lines mimicking those found in nature. Additionally, PHA Grounds Manager/Arborist Ian Jochems created a semicircle of timber benches nearby, formed from black oak and sweetgum wood harvested at the Arboretum. The updated and expanded Picnic Grove area provides a peaceful outdoor space for socializing during a pandemic.



Hand-crafted picnic tables and benches in the PHA's cathedral-like beech grove



Sassafras, an MV native tree, produces three leaf variants with either one lobe, two (mitten), or three (paw).



Where they were in good condition, the original table legs were preserved.