

Meristems

The Polly Hill Arboretum
West Tisbury, Massachusetts

Vol. 18, No. 1, Spring 2016



Hamamelis mollis

More Opportunities to Learn, Change, and Grow

Spring brims with anticipation. Excitement is a natural emotion to experience in a time of new growth, and that is exactly what we are feeling as we move closer to the opening of our new building: the Education Center and Botany Lab. After years of working towards the achievement of this goal, we now realize our dream of having a home for our plant science research and a climate-controlled educational space.

A natural question is how will the Botany Lab change the way we accomplish our mission? Our day-to-day vision includes sharing knowledge and connecting people with plants. We want to share the beauty and diversity of our plant collections, our commitment to plant conservation and research, and our love for the Island

community. The Botany Lab, with its year-round classroom, laboratory, and herbarium, allows us to meet our true potential.

We envision a range of creative ways we can now reach a broader audience with educational opportunities. We can teach on-going courses on horticulture, gardening, and natural science. Picture middle schoolers in our classroom learning about the natural history of Martha's Vineyard. Or young future botanists learning how to key out plants with microscopes in the lab. Imagine a course on small-flowering trees that starts in our new classroom and ends with a tour of the same plants in the Arboretum's living collection. Or an inspiring slide lecture on flowering azaleas in the dead of winter.

While that covers the educational outreach part of the equation, the other part is quite pragmatic. Since 2003, we have collected over 2,000 pressed plant specimens as part of our great effort to document the Flora of Dukes County. When the building is complete, these herbarium specimens (along with our previous collection that includes Rose Treat's seaweeds) will finally find a proper home.

Please visit us soon to see the new Education Center and Botany Lab. And join us this season to participate in our programs and immerse yourself in our historical and horticultural landscape, that you, our members, make possible with your support. You have made our dreams a reality!

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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.

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A Japanese stewartia planted by Polly in 1961 casts its shadow on the freshly shingled Education Center and Botany Lab.

Message from the Director

Welcome Spring! Despite that the off-season typically brings a slower pace, hectic is the word I would use to describe this past winter. While plants lay dormant, the new Education Center and Botany Lab—Botany Lab for short—has sprouted from the ground and emerged this spring as a beautiful new building! As I write this message, I can hear the sound of the crew installing the cedar shingles that are traditional on Martha's Vineyard.

After ten years of planning and fundraising, I can't believe that we are just a few months away from realizing this long-standing dream! The staff and board of PHA are beyond excited about the potential of the Botany Lab to help us achieve our mission of sharing plants with people through education, research, and plant conservation.

The building project benefited from a mild winter and a superb team of local contractors, builders, and designers. Tucker Hubbell of Rising Sun Construction is managing the project with designers Margaret Curtin and Peter Rodegast producing the design and construction schematics. Tucker is overseeing a terrific local building company: Centerline Builders of West Tisbury. We have

enjoyed having owner Joe Capece and his talented crew on site.

This spring PHA's opening day plant sale will be our biggest and best yet! Our plant sale area has been expanded and redesigned to improve the culture of our plants and allow for better displays and signage. And be sure to join us every other Tuesday afternoon, May 10 through September 27, for our bi-weekly guided tour series "Looking Together," where participants can learn in-depth about our plant collections and other activities.

In closing, we are actively engaged in planning classes for the Botany Lab as well as exploring other creative ideas to share our mission with a wider range of ages and interest groups. We hope you will take advantage of your membership benefits and visit the Arboretum this summer to see this impressive new development. We are planning a celebration and grand opening in August. I hope to see you there!

Prehistoric Plants

Ever consider that ferns might have made a meal for a hungry Triceratops? Or rotting ginkgo fruits, a tasty dinosaur snack? This summer take our new family-friendly, self-guided Dinosaur Plant Tour to discover how plants evolved during the age of the dinosaurs. A special map will guide you to labeled plants color-coded to indicate origins in the Triassic, Jurassic, or Cretaceous periods within the Mesozoic Era. In addition, fossils, a timeline, and other facts of interest will be on display at our Visitor Center.

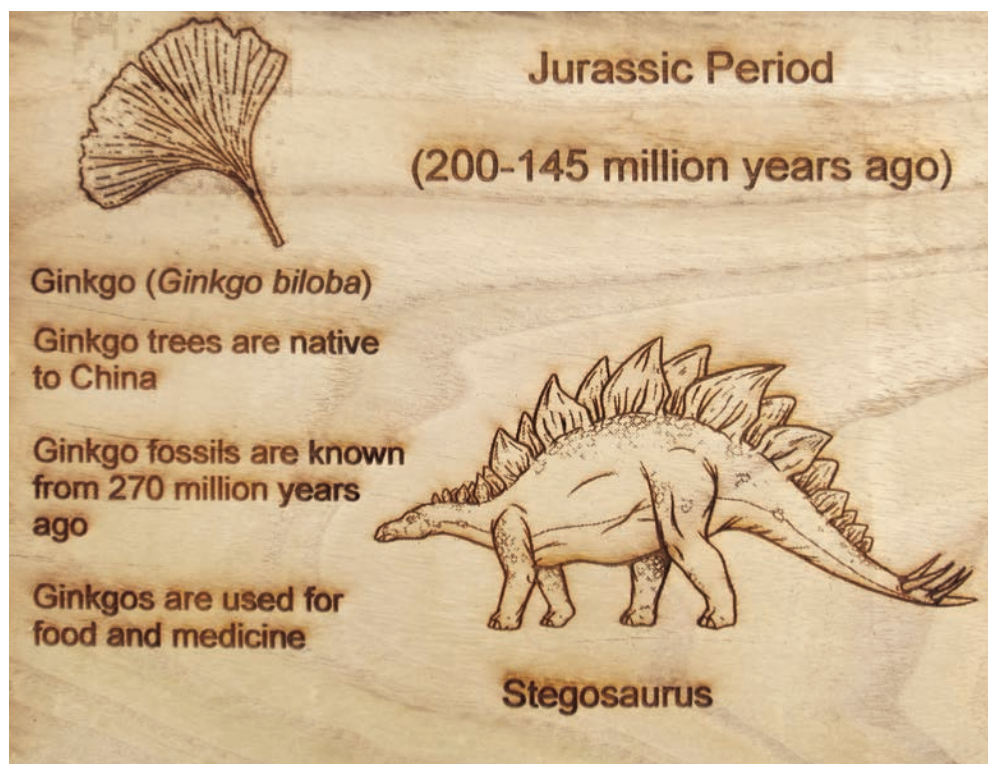
You will learn that plants like dawn redwood, monkey puzzle tree, ginkgo, and magnolia were here when dinosaurs roamed Earth more than 200 million years ago. Many of these “dinosaur plants” can be found at the Polly Hill Arboretum today. Although the dinosaurs met their demise in a dramatic mass extinction, plants persisted. Many evolved in new ways, but other plants remained much the same. These prehistoric plants fascinate us with their beauty, resilience, and more than ancient roots.

Arboretum Summer Interns

The Arboretum is thankful for the continuing and generous support of the Feldman family for our summer internship program. This May we welcome college students Katherine Montgomery and Sarah Houtisma as our 2016 summer interns.

Kate is pursuing a bachelor's degree in landscape architecture at SUNY College of Environmental Science and Forestry in Syracuse, New York. She plans to apply her PHA experience to the study of landscape design and the creation of landscapes that “help the environment and share the beauty and importance of plants with people.”

Sarah is majoring in horticulture and earning her bachelor of science in agriculture at the University of Georgia in Athens. Sarah is eager to reinforce her classroom education with practical experience and to learn more about the workings of a public garden.



Follow a self-guided tour map to find signs like this on our Dinosaur Plant Tour.

Welcome Kady Wilson

We are pleased to introduce our 2016 collections management intern: Kady Wilson, a 2015 graduate of Smith College. She brings dedication to public horticulture and a passion for plants to the Arboretum—the ideal combination for an internship!

Along with her focus on biodiversity, ecology, and conservation, and her bachelor's degree in biological sciences, Kady has pursued a number of additional learning opportunities including horticultural internships at the Botanic Garden of Smith College, the Arnold Arboretum in Boston, and the Como Park Zoo & Conservatory in Minneapolis. At the Smithsonian in

Washington, D.C., she collected herbarium specimens and evaluated their tree identification app Leafsnap. And at the University of Minnesota she mapped data for climate change and invasive plant research.

We welcomed Kady, a Vermont native, to the Arboretum in April, but we first met her last summer when she visited us during the Arnold Arboretum's annual intern fieldtrip. She is a bright and driven woman who offers experience, commitment, and enthusiasm to our team. Please take a moment to meet Kady on your next visit!

Guided Tours

In addition to our daily guided tours offered at 10am in July and August, this year we have added a range of special themed tours. Join us for our series “Looking Together” every other Tuesday at 2pm from May 10 through September 27. We designed these special tours to offer an in-depth and focused Arboretum experience.

On these guided walk-and-talks led by

our knowledgeable staff and docents, you will learn more about PHA and our collections. Subjects range from specific plant groups, research topics, landscape history, and behind-the-scenes projects. Watch for topic postings in local papers and on our website and Facebook page. These tours are free; however, please register in advance since space is limited.

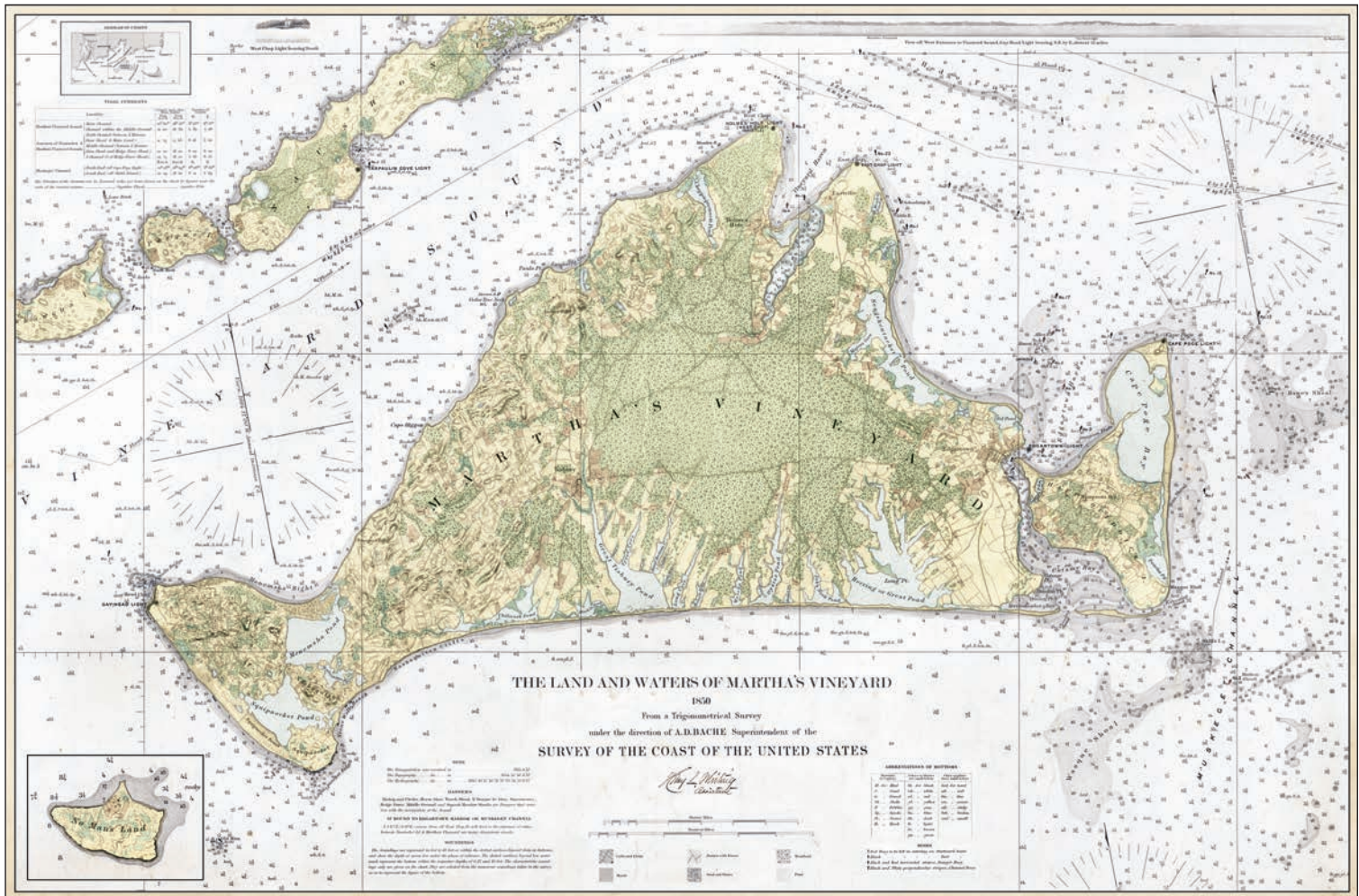
History's Insights into the Vineyard's Future: Henry Whiting and the Map of 1850

The landscape of Martha's Vineyard—the shape of its coastline, the pattern of its forests, fields, and moorlands, the distribution of its roads, villages, and stone walls—is a product of its past. To interpret the Vineyard today and anticipate future changes, we must understand its history. Among

the best tools available is an 1850 map created by Henry Whiting, topographer with the U.S. Coast and Geodetic Survey and co-founder of the MV Agricultural Society.

In this special lecture, Dr. David R. Foster, director of the Harvard Forest and

PHA research associate, will illuminate the history of the Vineyard landscape as interpreted through the 1850 map. Please join us on July 7 at 7:30pm at the MV Agricultural Hall for this free talk cosponsored by the MV Agricultural Society.



Updated image of Henry Whiting map, courtesy David Foster

Summer Program Preview

Every summer PHA offers interesting and entertaining programs featuring engaging speakers on a wide range of horticultural, natural science, and related topics. If you haven't yet joined us, we hope you will this season. And if you have, please consider bringing an interested friend with you this summer for one of our atmospheric

evening lectures held in the Far Barn.

Our annual summer lecture series begins in June with Richard Hawke, manager of the Chicago Botanic Garden's Plant Evaluation Program. Learn how perennial plants are put to the test prior to reaching the marketplace. Later, local hydrangea expert Mal Condon will

offer an in-depth look at this favorite Island plant. In August Teri Dunn Chace, author of *Seeing Seeds*, will share a glimpse into the hidden complexities of the plant world with extraordinary close-up seed images by Robert Llewellyn. And later in August, garden consultant and horticulturist Chris Woods will illuminate the intimate

Native Plant Project

relationship between plants and humans with a focus on the value of gardens in creating a healthy society.

This summer we once again welcome director of the Harvard Forest and PHA research associate Dr. David Foster who will present a fascinating program on local history and land use in July. David will introduce us to a historic Island map (page 4) and its significance today as a planning tool for the Vineyard's future.

This year's Frank and Lisina Hoch lecture features Mount Auburn Cemetery president and CEO Dave Barnett who will explore the role of Boston's Mount Auburn Cemetery in the "rural cemetery" movement and how this National Historic Landmark is managed as a cultural institution, an active cemetery, and an accredited arboretum. And for our annual David H. Smith memorial lecture, we welcome tree conservation specialist Murphy Westwood for her presentation on the Morton Arboretum's Global Tree Conservation Program. Learn how this innovative program takes action to save threatened trees around the world.

In addition to our evening lectures, we will offer several classes and workshops. Avant Garden's Katherine Tracy will present a look at the world of succulent plants followed by a wreath-making workshop. Genevieve Jacobs will return for her popular "Drawing from Nature" series and Holly Bellebuono will offer two herbal workshops. Three intensive plant identification classes are being offered this season: grasses of the Northeast, sedges and rushes, and shoreline ecology. Other programs include plant propagation, pruning, garden design, sustainable lawns, and more.

For our complete summer schedule, look for our education brochure mailing, or visit our Education page at pollyhillarboretum.org. To receive email program updates, contact Karin Stanley at karin@pollyhillarboretum.org. We thank our friends and sponsors—Bartlett Tree Experts, Donaroma's Nursery and Landscape Services, Heather Gardens, Middletown Nursery, and SBS: The Grain Store—for their ongoing generous support of our lecture series.

PHA has become a dependable source for Island-native plants for home gardeners, landscapers, conservationists, and community projects. In particular, native plants produced through the Arboretum's MV Wildtype program, which are propagated from Island-collected seed and cuttings.

As part of the move of the historic Gay Head Light last year, PHA was called on to supply a selection of native plants for the rehabilitation of the affected landscape. Plantings of showy aster (*Eurybia spectabilis*) and hyssop-leaf thoroughwort (*Eupatorium hyssopifolium*), among others, were planted last December. More MV Wildtype plants are planned to go in this year.

The Gay Head Lighthouse move disturbed the habitat of a state-listed endangered species, broad tinker's weed (*Triosteum perfoliatum*); this rare plant is known in

only five sites in the Commonwealth of Massachusetts. State permits required that more of these plants be propagated and planted in nearby suitable habitat. The Arboretum, in collaboration with the town of Aquinnah and the Martha's Vineyard Land Bank, was the logical partner to handle the propagation and cultivation of this rare plant.

PHA is also pleased to be growing plants on a contractual basis for the MV Land Bank. Last year we produced several hundred plugs of big bluestem (*Andropogon gerardii*) for planting at the Aquinnah Headlands Preserve with the intention of strengthening the population of this native grass. Similar projects are underway for this year.

These community ecology projects illustrate PHA's commitment to horticulture, conservation, and community involvement.



The small, clustered flowers of broad tinker's weed
Photo: Kristen Fauteux



Plugs of big bluestem grown for the MV Land Bank.

Orchard Day at Edgartown School

PHA Horticulturist Ben Madeiras and Executive Director Tim Boland partnered with Melinda DeFeo of the Edgartown School's innovative Farm & Garden Program to lead Orchard Day, a fruit tree pruning program. Fourth graders learned the how and why we prune fruit trees for optimal production. As part of the instruction, students had a chance to (carefully!) prune real trees. They also found out about composting and the benefits of mulching. Ben and Tim enjoyed the interchange with the aspiring orchardists, who have the benefit of a wonderful garden right outside their classroom! We look forward to continued collaboration with Melinda and the Edgartown School students.



Horticulturist Ben Madeiras demonstrates pruning techniques during Orchard Day this past March.

Board News

In October of this past year, Arboretum board chairman Joan Margot Smith retired from the PHA board after many years of service. Joan's impact on the Arboretum cannot be understated. Joining the board after the passing of her husband, PHA co-founder Dr. David H. Smith, Joan has led with both pragmatic and philanthropic support. She has led in the best way, by example. Understanding PHA's origins and mission, her ability to connect with people, from membership to staff to board members, helped guide our organization from its very foundation to its firm establishment. She has seen the Arboretum through the revision of by-laws, strategic planning, and the creation of a solid board and a substantial network of supporters.

A woman of diverse interests and talents, Joan takes great joy in both the people and programs of the Arboretum. Her infectious enthusiasm and delightful sense of humor are balanced by her determination to see PHA not only become established,

but prosper. An accomplished artist and musician, Joan designed the Arboretum's distinctive logo found everywhere from our stationary to our T-shirts.

Beyond her involvement with PHA, Joan is active in the stewardship of the family foundation David Smith established in 1990: the Cedar Tree Foundation (CTF) located in Boston. The Arboretum has benefited from the support of CTF through project-based grants that helped both spur donations and leverage matching support for our first endowment campaign (2007) and our new Education Center and Botany Lab. Additionally CTF has been generous with further grants for marketing, renewable energy developments, and renovations to our historically important buildings.

Executive Director Tim Boland adds, "Joan has quietly, but effectively, led the Arboretum through a remarkable period of advancement. She understands the tremendous responsibilities not-for-profits have to their membership, community, and profes-



Joan Smith

sional peers. She has been an absolute joy to work with, be around, and share in the quality growth we have made. We expect to see Joan and her family in the years ahead enjoying the Arboretum that has prospered with her involvement."

Joan's last board meeting was in October and at that time the PHA board of directors elected Hunter Moorman of West Tisbury, Massachusetts, to the board chairmanship. Also at that time, Joan was recognized for her past leadership through being elected as a PHA honorary board member. Congratulations, Joan!

Staff News

In January, Curator Tom Clark returned to western Massachusetts to present "Great Shrubs for Valley Gardens" at Hadley Garden Center—the very place where he got his start in the world of horticulture! And in February, Executive Director Tim Boland presented a talk on small flowering trees to the Martha's Vineyard Garden Club. Also in February, Plant Propagator/Horticulturist

Brian McGowan attended a class at Broken Arrow Nursery in Hamden, Connecticut, to learn more about the art, science, and practice of grafting; a skill he plans to use for propagating several of Polly Hill's selections.

During a trip to the Pacific Northwest in March, Tom visited the Rhododendron Species Botanical Garden in Federal Way, Washington, and met with director Steve

Hootman and other staff regarding future collaborations. Also in March, Horticulturist/Arborist Ian Jochems and Horticulturist Ben Madeiras traveled to UMass Amherst to attend UMass Extension's 2016 Community Tree Conference: Work Safe, Stay Safe. In addition, this March found Ian leading a two-part course, "Pruning 101 for Landscapers and Gardeners," in cooperation with ACE MV. This successful collaboration with ACE MV was a first for PHA!

In April, Tim traveled to the Botanical Research Institute of Texas in Fort Worth to present their visiting researcher seminar titled "The Botanical and Natural History of Martha's Vineyard." While there he met with staff to review their herbarium collections management policy. Also in April, Tom spoke to the Massachusetts chapter of the American Rhododendron Society focusing on rhododendron conservation and the work PHA continues to pursue with endangered native azaleas. In May, Tom spoke on hydrangeas for Island gardens at the Martha's Vineyard Garden Club's monthly meeting.



Vulnerable in its native Japan, *Rhododendron makinoi* is one of many endangered plants in our living collection.

Ready to Roll!

Thanks to a generous gift from Connie Alexander, we now have a wheelchair available for visitor use. Connie's gift was made in memory of her mother, Elizabeth Anderson, a lifelong steward of the environment and enthusiastic fan of PHA. Mrs. Alexander orchestrated the creation of the Ridge Hill Reservation in Needham, Massachusetts, and was also a member the Brookline Bird Club and the National Audubon Society.

This lightweight, maneuverable wheelchair will make our grounds more accessible for visitors with walking limitations. Should you wish to make use of the wheelchair, call (508-693-9426) to reserve it in advance of your visit. Please note that a companion is needed to push the wheelchair. We thank Connie for her thoughtful gift.

Website Updates

Guided by our mission, PHA strives to share knowledge of plants and plant science through educational programs, research, plant conservation, and outreach. Our website serves to extend this mission to the community, and beyond, as well as provide up-to-date information on our programs and activities.

We have recently added a new Resources page (www.pollyhillarboretum.org/resources) that includes links to interesting and informative websites on topics that include insect pests, sustainable gardening methods, appropriate plant selections for our growing conditions, and more. Please give us an online visit soon.



Plant propagator Brian McGowan prepares a block at the Littlefield Nursery with the new rototiller funded by a grant from the Farm Neck Foundation. The Foundation has previously supported the Arboretum with similar grants, and, as always, we are grateful for their generosity and support.

Dorie Godfrey

Arboretum volunteer Dorie Godfrey embodies what she loves most about PHA. Just as she enjoys the tranquility gained from a contemplative walk around the grounds, she, too, is calm and thoughtful. And just as she appreciates what the Arboretum offers, she radiates that enthusiasm to others.

Her first Arboretum walk was when the property was still Polly Hill's private garden. Dorie was delighted to learn it would soon open to the public. Today she continues to enjoy PHA in a variety of ways: relaxing strolls, volunteering, purchasing plants to enhance her own garden, and attending guided tours. In fact it was on one of these guided tours when she first learned about volunteer opportunities at PHA.

As a volunteer at the Visitor Center, Dorie enjoys meeting all the guests from around the world that find their way to PHA. Following a pleasant greeting, she provides a compelling overview and directs visitors to the special places most relevant to their interests. In addition to her Visitor Center work, Dorie contributes her artistry and interest to other projects. In the summer she illustrates signs for events and in the off-season she helps prepare herbarium specimens for the Flora of Dukes County with artistic finesse.

A retired special education teacher and administrator, Dorie's dedication to education and creative teaching methods continues. She has noticed that parents are happily surprised when they learn PHA is much more than a "walk in the woods." She encourages families to engage with



Dorie Godfrey

our explorer backpacks, the "Walk through Imagination" tour, and outdoor science exhibits. She notes that these activities "are a great way for children to use imagination in nature and are exciting for the entire family!"

When she began volunteering five years ago, Dorie immediately felt welcomed. She compliments the staff on their gracious personalities and their desire to become acquainted with all the volunteers. Dorie's volunteer activities match her interests, and she encourages others to volunteer, because whatever your interest, there is a corresponding volunteer opportunity at PHA!

We thank Dorie wholeheartedly for serving as an Arboretum ambassador and sharing our mission and magic with visitors. For more information about volunteering at PHA, contact Erin Hepfner at 508-693-9426.

Visitor Center Volunteers Needed!

- *Meet interesting people*
- *Learn about plants and the Arboretum from staff*
- *Share the wonders of PHA with guests*
- *Enjoy the relaxing atmosphere of the Visitor Center*

Contact Erin Hepfner, Visitor Services/Resource Specialist, for more information at 508-693-9426 or erin@pollyhillarboretum.org.

Witch-hazel: The Season's Opening Celebration

by Tom Clark

Beauty and bravery: hybrid witch-hazel (*Hamamelis* × *intermedia*) begins the season's floral party in the depths of winter, when we can't help but fall for its beautiful and courageous flowers. There are other winter-flowering shrubs, yet surely the earliest witch-hazels hold the most cherished place in our hearts and gardens.

There are three North American and two Asian species of witch-hazel. All have something to offer, but it is the hybrid between the Chinese and Japanese witch-hazels that elevated the genus to prominence. The novelty of blooming in winter is only part of the appeal: the flowering season is long, the fragrance often pleasant, and in full bloom a well-grown plant creates a dramatic presence. It's the flowers, though, that we welcome most.

Do you remember those party horns? You know, the coiled paper ones that unfurl with a shrill blast and then quickly recoil ready for the next celebratory burst? The nature of witch-hazel flowers is similar. Flower buds formed the previous year are awakened by a few mild winter days—reason enough to celebrate!— and four straplike petals unfurl in an exultant, albeit slow-motion, burst. When the weather turns sharply colder, the petals recoil—celebration over—awaiting the next taste of spring. Eventually consistent mild days permit the plants to revel in full bloom.

The first occurrence of this particular hybrid was observed at the Arnold Arboretum in 1929 when seedlings looked suspiciously unlike the Chinese witch-hazel (*H. mollis*) from which the seed was collected, or the Japanese witch-hazel (*H. japonica*) that grew nearby. Upon further inspection they deduced that the seedlings



Unperturbed by snow, the blossoms of 'Jelena' warm the winter landscape.

were hybrids between the two, at which point the plant was officially named *Hamamelis* × *intermedia*. After several years of observation, the most promising specimen was appropriately named 'Arnold Promise'. This original clone is still a serviceable garden shrub, and one of the most widely available, but it has largely been eclipsed by better selections, several of which you can see at PHA.

Similar observations of hybridity were made in Europe where the majority of witch-hazel breeding and selection work has been done. A large number of selections, including many of the finest, are the result of the work and passion of horticulturists Robert and Jelena de Belder. In 2012 on a PHA-led tour to Belgium, we visited their

private estate, Hemelrijk, and the nearby Kalmthout Arboretum. There I stood in awe at their original witch-hazel plants—despite that they were not in bloom! It was a moment of horticultural reverence similar to that experienced by some visitors to PHA when they first see the original Julian Hill magnolia.

There are several dozen different cultivars of hybrid witch-hazel (PHA's collection includes 12), and they vary widely. Most apparent are variations in flower color. Both parent plants are yellow flowered; it's no surprise that many clones bear flowers in shades of yellow. Cultivars like 'Primavera' and 'Pallida' are soft, pale yellows; 'Arnold Promise' and 'Angelly' are richer yellows; and the German cultivar 'Ostergold', one of the

Right: The yellow petals and ruby-red calyces of *H. × intermedia* 'Pallida' enliven the landscape with color and fragrance in the depths of winter.

latest to flower, tends toward gold. Some forms of Japanese witch-hazel have coppery orange and reddish flowers, a trait breeders have exploited to create hybrid plants that bring more colors to the party. One of the very best is 'Jelena' whose masses of gorgeous flowers shade from firebrick red at the base to saffron yellow at the tip with burnt orange between. 'Aurora', a new one at PHA this year, boasts extra-large yellow and orange-red bicolor flowers. Still others such as 'Ruby Glow', 'Diane', and 'Antoine Kort' expand the color range into various shades of red.

In addition to the floral display, many witch-hazels are fragrant, though others are not or only faintly. It pays to do the sniff test if this is important to you. And why not go for broke? The vibrant color and sweet, clean fragrance are festive and uplifting. And it's February—you need some spring cheer!

Witch-hazel's spidery flowers with their crimped, undulating petals are arranged over a framework that can be broad spreading or decidedly upright and vase-shaped. Plants typically grow 8- to 12-foot tall, but can be maintained at lower heights with careful pruning each spring.

One of the older clones, 'Ruby Glow' is a reliable red-flowered witch-hazel.



Since their primary season of interest is winter, a carefully chosen location will greatly enhance your enjoyment as well as ensure vigorous growth. First and foremost, select a site that comfortably accommodates the plant's ultimate size and satisfies the needs of the plant—average, well-drained soil in a sunny to partly shaded site is ideal. Witch-hazels tolerate a range of soils but resent consistently wet soils or those that are too dry. Heavy shade will lead to

spindly growth and poor flowering.

From a design standpoint, witch-hazels are best sited where they can be readily enjoyed in late winter—close to a path you often travel or visible from a window. A sheltered, sunny nook will coax them into the earliest bloom possible where their festive colors and welcome fragrance will throw a defiant celebration, right in the face of Old Man Winter.

Arboretum Wish List

Youth Education Supplies—\$500

PHA is a wonderful place for children to explore nature. In addition to our curriculum-based school fieldtrips, we also offer family explorer backpacks, a family book series, and other family-oriented events. All these programs require supplies including hand lenses, binoculars, craft

supplies, and sketchpads.

If you would like to contribute funds to purchase supplies for youth education, please call Barbara Conroy or Tim Boland at 508-693-9426. Partial funding is possible. We extend our gratitude to those of you who have responded to our previous requests.

A Modern Flora for Martha's Vineyard by Tim Boland

In 2006 renowned plant conservationist Dr. Peter Raven presented “How Many Plants will Survive the 21st Century?” for our annual David H. Smith lecture. The lecture, attended by nearly 300 people, was held at the MV Agricultural Society’s Ag Hall. Dr. Raven detailed the dire state of our planet and challenged the audience to actively support PHA’s efforts to document the flora of Martha’s Vineyard.

The following day while sitting in the Homestead office with Dr. Raven, I asked him, “How do you go about making a flora?” He smiled and responded, “One plant at a time.” As I think back on that statement made ten years ago, I am proud to say that—one plant at a time—we have made tremendous progress on the Flora of Dukes County, and we are now poised to advance our work at a greater pace.

What is a flora? A flora is an account of all plants growing within a certain geographical area. This includes native plants, and spontaneous plants that have arrived intentionally or unintentionally

through human introduction. Traditionally botanical surveys are carried out at the county level. This means our focus includes the entirety of Dukes County: Martha’s Vineyard and the adjacent Elizabeth Islands.

Why a flora? Herbarium specimens provide detailed samples of plants creating a lasting catalog of natural history. Arboreta and botanical gardens use these reference collections for numerous activities including plant identification; documentation of environmental changes; development of keys; documentation of the distribution of vulnerable plant populations; genetic analysis; and the examination of plant/insect interactions. In addition, a flora has other practical uses as a general reference in biology, conservation, wildlife management, and environmental science. Also herbarium specimens themselves can be used to teach classes on taxonomy, plant habitats, and plant identification.

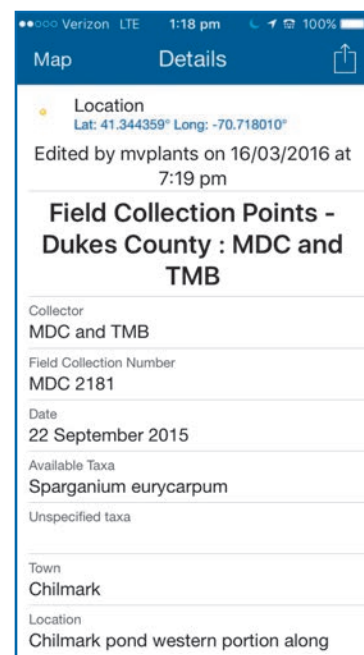
How does it get done? Three critical components for documenting the flora of a region are qualified people, up-to-date

technology, and the physical capacity to store plant voucher specimens.

A flora starts with collection of plants in the field (the one plant at a time part!) and the recording of critical data to accompany the collection. The process requires collecting plants in the field, pressing them flat, and drying them to remove moisture that can lead to deterioration from mold, mildew, and fungus. An herbarium is a repository for dried plant specimens designed to ensure the long-term preservation of these scientific plant samples referred to as herbarium specimens or voucher sheets. Under optimum storage conditions properly dried specimens can last over 200 years.

The field collection includes sampling a whole plant, or portions of a plant. An important part of the sampling process includes capturing the plant during flowering or seed production (in addition to sampling the vegetative parts of the plant) since plants are described in scientific literature based on these features. Once identified, the dried and pressed plant specimens are mounted on acid-free archival storage paper and labeled as to their identity and place and date of collection. All this

The flora starts with active collecting in the field or by boat! PHA research associate Melissa Cullina makes a collection of giant bur-reed (*Sparganium eurycarpum*) at Chilmark Pond this past September. Giant bur-reed is considered rare on the Vineyard, only one previously known site before we discovered it this past summer!



From our kayak trip to Chilmark Pond we used an iPhone to capture the collection information. The geographic information collected is immediately uploaded to a shared map, and accessible to our conservation partners on the Vineyard.

takes time and talent from staff, students, research assistants, and volunteers.

New Technologies Shape the Future

It has never been easier to collect and share plant collection data. Prior to the 1980s most herbarium specimens had limited locality information and were not accompanied by maps. Today, however, through the use of geographic information systems (GIS), digital mapping technologies, and cloud-based data sharing, we can record a collected plant's location to within 20 feet or less using our cellphones! The program called Arc-GIS On-line records location, species, and habitat data that is simultaneously uploaded and accessible from any computer. This is just one example of how new technologies combine to make the painstaking job of assembling a flora much easier; another is the ConServisor.

The ConServisor:

Conservation Partners Sharing Data

The idea for a Martha's Vineyard cloud-based mapping and database sharing platform was conceived in 2005 and named the ConServisor. The principle Island conservation groups participating in the flora projects include the Martha's Vineyard Land Bank, The Nature Conservancy, and



Cardinal flower photographed at Chilmark Pond is the first documented observation for this plant's occurrence in Chilmark.

Sheriff's Meadow Foundation. Our efforts are also supported by our PHA research associates: project manager and botanist Melissa Cullina; Jessica Dyson, geographical information specialist; and Greg Palermo, naturalist.

We are also grateful for the valuable assistance of student interns and numerous PHA volunteers (See volunteer profile,

page 7) who collect specimens and assist us to the final end product: an identified and labeled specimen that resides in the PHA herbarium—housed in the new Education Center and Botany Lab! As we move towards the future, and eventually a public web-based flora, we invite you to participate in our classes, learn about the project, and follow our progress.



Dried plant voucher specimen of the giant bur-reed resides in the PHA herbarium as a historic record of its first recording in Chilmark.



The yellow dot on the right represents the map location of the giant bur-reed. The yellow dot on the left represents a new town record for Chilmark of cardinal flower (*Lobelia cardinalis*).

THE POLLY HILL ARBORETUM

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ADMINISTRATIVE OFFICES

The Homestead
809 State Road
West Tisbury, MA 02575

VISITOR CENTER

795 State Road
West Tisbury, MA 02575

ACCESSIBILITY

The Visitor Center is
wheelchair accessible.

VISITOR CENTER HOURS

Memorial Day weekend to
Columbus Day: 9:30 am-4 pm

ARBORETUM GROUNDS HOURS

Sunrise-sunset, year-round

TOURS

Daily July and August at 10 am,
or by advanced reservation

ADMISSION

\$5
Free to members and children under 12

FREE PARKING

DRIVING DIRECTIONS

See www.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.

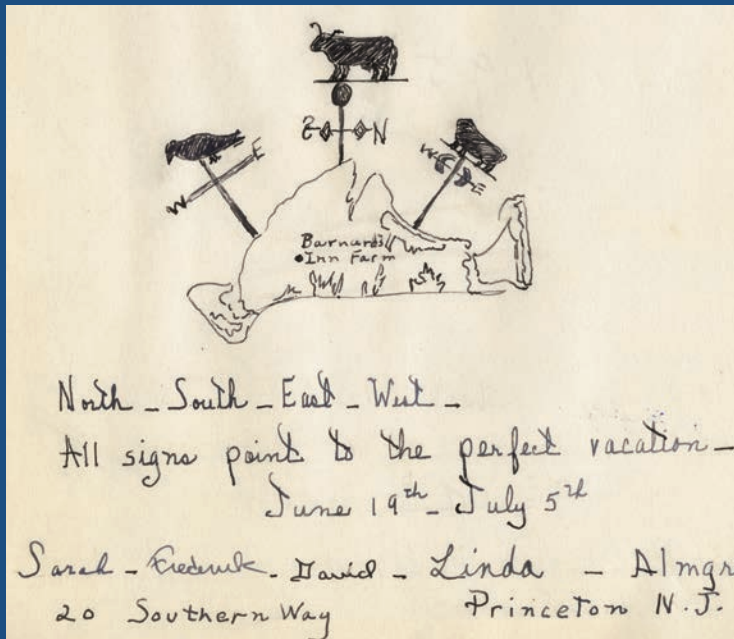


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THEN & NOW



1954



2016

Our Weathervanes

Usually trees are the focus of a visit to PHA, nonetheless evidence of our landscape's rural history is everywhere. You can't miss the stone walls, but if you look up you'll notice our rustic folk art weathervanes, iconic of our agricultural past. Polly Hill's summer residence (a repurposed barn) called the Cowbarn, fittingly, has a cow

weathervane. And atop the Far Barn, at one time the center of an active sheep farm, is the sheep weathervane. The outbuilding known as the Gym had a crow; perhaps its location looking over the adjacent vegetable garden explains. We don't know a lot about our weathervanes, who made them or when, but the crow shows up in

a Barnard's Inn Farm guestbook photo from 1938. The others are depicted here (above left) in this 1954 guestbook entry. Currently the crow has taken a leave of absence while our new Education Center and Botany Lab is under construction. Watch for its return this summer when the building is complete.