Meristems

The Polly Hill Arboretum
West Tisbury, Massachusetts

Vol. 26, No. 1, Spring 2024

The cleft-leaved hawthorn (*Crataegus schizophylla*) is a tree found only on Martha's Vineyard.

Arboretum Secures Critical Funding

The Polly Hill Arboretum exists in large part due to the generosity of our donors. An exciting development earlier this year was the continuation of grants from the Cedar Tree Foundation and Franklinia Foundation.

Cedar Tree is a family foundation created by our extraordinary co-founder, David Hamilton Smith, who was deeply invested in conservation, environmentalism, and public health. Cedar Tree's support will cover three years of general operations, which is critical to our yearly programming.

Franklinia Foundation is a private foundation whose objective is to preserve threatened tree species. This foundation typically supports *in situ* projects. However, it is extending a previous grant for an additional five years of living collections support focused on curation and plant conservation.

Over the last five years, as tumultuous as they were, the Arboretum made great strides in plant conservation on the Island and beyond. Our vegetative propagation of a population of the Massachusetts state-endangered horse gentian (*Triosteum perfoliatum*) that was jeopardized by the relocation of the Aquinnah lighthouse was successful and will be useful for *in situ* plantings.

We produced 2,400 plugs of the Special Concern New England blazing star (*Liatris novae-angliae*) for restoration on the Island. We've also participated in three seed collecting expeditions focused on United States threatened oaks.

Our continued work with an Island endemic plant, the cleft-leaved hawthorn (*Crataegus schizophylla*), is especially important to us. PHA Research Associates Gregory Palermo and Margaret Curtin have been integral to finding and documenting new populations of this tree. In early March our team sent scion wood to partners to graft onto rootstock.

The successful cultivation will allow this tree to be planted in our living collections, distributed to other research and botanical institutions, and potentially used for restoration on Island. Plans also include applying for the cleft-leaved hawthorn to be added to the International Union for the Conservation of Nature's Red-List of Endangered Species.

Our work with conservation is just one important part of what we do here at the Polly Hill Arboretum, and the funding for this and general operations is paramount to the successful implementation of our mission. We are thankful for the support of the Cedar Tree Foundation and Franklinia Foundation in our endeavors to be a premier educational living museum and plant science institution.

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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

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Our native highbush blueberry (*Vaccinium corymbosum*) blooms in spring.

Message from the Director

Welcome Spring! As I write this, early blooming deciduous azaleas are flowering, and thousands of seeds sown in the greenhouse have started to germinate. It always gives me a boost to see so much life emerging as a sign of renewal, but also an indicator of what's to come.

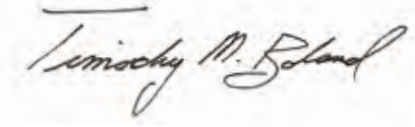
This spring hit differently, as it was again an exceptionally mild winter, a trend that has continued and with it, brought changes in our Island woodlands. The devastating effect of an explosion of southern pine beetles on pitch pine is a sad consequence of a warming planet. In this issue you can read more about this pest and learn the signs and symptoms associated with it.

Martha's Vineyard faces a persistent challenge from invasive plants that negatively impact the Island's ecology and character. These plants tend to appear in new or altered environments, recent disturbances, or areas that have undergone changes. Habitat destruction and invasive species are the primary reasons for the loss of biodiversity, not just on Martha's Vineyard but worldwide. I suggest reading the article on invasive plants to learn how to identify these species in the early stages, which can help prevent their spread.

There are many options for homeowners looking to plant more native plants. Please shop our annual season-long plant sale that is open through mid-October, with many plant offerings, including some of the native plants listed in the article on page 10.

Last year, we celebrated our 25th anniversary as a public garden in a grand way. This year, we are happy to announce that we have a strong team of employees, thanks to the addition of new staff housing. We are thrilled to welcome staff members Jack Morgan and Louisa Williams. Isabella Colucci joins the team as our Curatorial Intern. In addition, we are excited to have three new board members: Nancy Randall, Jim Reynolds, and Natalie Munn.

We offer many volunteer opportunities to support our mission. Join us for open volunteer days on the grounds. Or consider joining the dedicated volunteers who help with education or the Visitor Center. Come visit to admire the plants or participate in educational activities. We hope to see you soon!



Welcome New Staff


Isabella Colucci


Jack Morgan


Louisa Williams

Isabella Colucci, *Curatorial Intern*
Isabella joins PHA as a recent graduate of Cornell University where she studied Plant Sciences with a minor in Entomology. She became interested in plants at a young age, exploring the gardens around her home, and even opted to give docent tours in high school at the Roger Williams Botanical Center in Rhode Island.

Her interest in plants grew in college, where she worked as a student researcher in soil science and weed ecology labs and served as a peer mentor for Plant Sciences' first-year and transfer students. Post-graduation, Isabella was awarded the Keller Scholarship in Conservation Horticulture by the Garden Club of America. Her project exploring the collections development and biocultural significance of Cornell Botanic Garden's Class of 1901 Nut Tree collection amplified her interest in developing skills in curation and plant records.

She will be at PHA from April through December and is looking forward to gaining hands-on experience in curatorial practices and living collections management. "Inspired by Polly Hill's legacy, I am excited to further cultivate my horticultural skills and learn how to propagate woody plants from seed," she said. In her free time, Isabella is also an avid beekeeper.

Jack Morgan, *Horticulturist*
Jack joined the year-round, full-time Arboretum team in early 2024 as Horticulturist. For the past 10 years, Jack has accumulated horticulture skills that match well with working at PHA. Primarily working in eastern Massachusetts, Jack has experience with hardscaping, fine gardening, ecological landscape maintenance, and native plant practices.

Prior to PHA, he spent two seasons at the Arnold Arboretum in Jamaica Plain, Massachusetts, where he discovered arboreta and public horticulture, cementing his desire to work outside yet engage with and educate the public. For Jack, working at PHA was the perfect match to put his experience and interest in guest interaction to use.

So far, he has enjoyed learning about Polly's legacy of experimentation and is proud to contribute to furthering that outlook. He is eager for the many Arboretum visitors that the spring season will bring and the ability to share this special place that he is now a steward of. In Jack's free time, he cares for his houseplants and 3-year-old sourdough starter. He is also an avid cyclist and has enjoyed exploring the Island, sticking to as many backroads as possible.

Louisa Williams, *Education & Visitor Services Assistant*
The Arboretum recently created a new part-time hybrid position to support the busy education and visitor seasons, spring through fall. Louisa, a West Tisbury resident, joins PHA in this role with an extensive background of applicable skills.

Having led a non-profit, worked in mediation, and served as an editor, Louisa is well versed in the requirements and communication needs of public-facing non-profit organizations. After completing the gallery instructor training program at Boston's Museum of Fine Arts, she also understands the importance of engaging students and encouraging them to appreciate what they're seeing.

Louisa, who has been visiting the Arboretum since the 1990s, says she looks forward to learning more about the Arboretum's collections and sharing her enthusiasm with visitors of all ages. When asked what she'd like readers to know, she said, "while the Arboretum is beautiful in the warm months, when leaves and flowers abound, winter visits are wonderful, too."

Please say hi and welcome to all new staff.

Three Islanders Join PHA Board

Jim Reynolds
Retired attorney Jim Reynolds joins the Polly Hill Arboretum board with a wealth of experience serving various non-profit organizations on Martha's Vineyard. A graduate of Johns Hopkins University and Villanova University law school, Jim was a founding partner of the Edgartown law firm Reynolds, Rappaport, Kaplan & Hackney, LLC, from which he retired in 2021 after more than 35 years. He has served on the boards of Martha's Vineyard Hospital, Hospice of Martha's Vineyard, Vineyard Conservation Society and the Vineyard Montessori School. He is currently on the board of the Farm Neck Foundation and a volunteer for the Meals on Wheels program of Elder Services of the Cape and Islands. His interests include gardening, reading, road cycling, skiing, golf, Pilates and yoga. Jim and his wife Barbara live in Vineyard Haven.

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Three Islanders Join PHA Board, *continued from p. 3*

Nancy Randall
Over the past 40 years, Nancy and her husband Jeff have been Edgartown summer residents and now live on the Island full time. Nancy was first introduced to the Arboretum through her mother-in-law, Alison Cannon, a former PHA board member. Alison took Nancy and her granddaughters on many walks through the property during which Nancy had the opportunity to meet Polly Hill and gain a real appreciation of her mission. Nancy most recently served on the board of the Sheriff's Meadow Foundation focusing on the land acquisition and property land management committees. She also was a Summer Benefit committee member where she coordinated the table design and floral centerpieces for the event each summer. Nancy is a past Board Member of the Noanett Garden Club in Dover, Massachusetts. She was the chair of the Programs Committee and Visiting Gardens, scheduling monthly guest speakers and tours of local gardens. Nancy also volunteered to be a part of a floral design team at the Museum of Fine Arts. Responsibilities included purchasing, conditioning and designing floral arrangements for the museum's public spaces on a rotating basis. Nancy looks forward to being a member of the Polly Hill Arboretum Board to contribute to and support the continuation of Polly's vision.

Natalie Munn
PHA also welcomes Island educator Natalie Munn to the Board. Natalie arrived on Island in 1999 with her husband, Dana, and both have had long and impactful careers at the Martha's Vineyard Regional High School. Natalie developed *Quest Martha's Vineyard*, inspiring families as they travel to unique island conservation properties (including PHA) to discover special features using a map and a series of clues. Natalie has served as science department chair and evaluator, creating and running the school science fair for 10 years. She is a natural teacher, combining science with art as a faculty advisor to provide enrichment experiences for several student clubs. "We are thrilled to have Natalie join our organization. We have some great collaborations at the high school and would like to expand them," says Tim. Please welcome all our new board members!

Mossing on Martha's Vineyard

by Emily Ellingson, Curator/Assistant Director

For the past 20 years Polly Hill Arboretum has been documenting the flora of Dukes County and contributing vouchers to our always-growing herbarium. This herbarium started with the donation of Rose Treat's seaweed specimens and a small collection of lichens, but it mostly contained vascular flora, such as trees and wildflowers, which have specialized water- and nutrient-conducting tissue.

All this changed in 2021 when intrepid PHA Research Associates, Margaret Curtin and Gregory Palermo, ran full tilt into the world of bryophytes, especially mosses.

What is Moss?
Mosses are, quite humbly, some of the oldest and simplest plants on earth, having split from green algae more than 300 million years ago. They are a bryophyte, a group that also contains liverworts and hornworts. Mosses are the most common bryophyte on Martha's Vineyard. Like vascular plants, they are multicellular and create energy via photosynthesis, but the structural similarities seem to drop off there.

There are two main ways that moss differs from vascular plants: How they get water and nutrients and how they reproduce. Mosses do not have roots. They have mechanical attachments called rhizoids, which anchor mosses to various substrates. They absorb water and nutrients through their leaves via rain and dew and transport it with primitive structures instead of via soil and roots. This all happens in what bryologists call the gametophyte, which is the part of the plant that we generally recognize as moss.

Mosses reproduce either asexually, via branchlets or specialized cells, or sexually in a process formally known as the Alternation of Generations. Essentially, the conspicuous male gametophyte produces sperm that swim along water to fertilize an egg, which in turn produces the female sporophyte. This sporophyte is often borne on a stalk, or seta, that has a capsule full of single-celled spores (instead of seeds). These spores are released, float on the air, and land on a surface conducive to growth, in turn growing into the gametophyte.

A tacklebox is a handy tool for collecting moss (mossing!) in the field.

A moss-rich boulder in the foreground; Margaret Curtin and Greg Palermo in the background, discussing a tree moss at Cedar Tree Neck in West Tisbury.

Mosses create and enhance soil structure in their decomposition, they sequester carbon, and provide habitat for numerous living organisms. They have antibacterial and antifungal properties, which have made them important in medicine and at PHA. It is this property that helps make sphagnum moss a successful medium for stratifying and germinating seeds.

Moss Identification
Moss identification is complex. When observing a moss, the first thing to take note of is the substrate on which it grows. Some mosses grow at the base of trees, others climb; some are found on granitic rocks, others limestone; some are found completely submerged in water, and others just near the water's edge; some on decomposing logs and others peeking through cracks in a sidewalk.

Characteristics seen with the naked eye or through a hand lens, like the shape and midrib of a leaf or the form of the capsule can be enlightening, but often a compound microscope is necessary for identification to species level.

A few of the microscopic features are similar to what you use to identify a tree, such as the shapes of the leaf base, tip, or margin. But often, bryologists use highly differentiated cells to identify characteristics. They examine the cellular thickness of leaves, the shapes of the cells, the color of the cells, and presence or absence of chlorophyll, and even the "bumpiness" of the cells (structures known as papillae). For more in-depth information on identification, check out the recommended field guides.

Velvety asparagus broom moss (*Orthodicranum flagellare*) growing as a carpet.

Moss Collecting

Mosses have not been studied at length on the Island. In 2005 and 2006, Norton Miller, an American bryologist and lichenologist, was brought to the Island by PHA's first director, Steve Spongberg, and local ecologist Alan Keith to survey for bryophytes and lichens.

In the limited time Norton had, he found more than two times the number of moss species than had previously been documented. Margaret and Greg have taken up the charge, going "mossing" on properties previously botanized on, and discovering a fascinating world in miniature.

Armed with a tacklebox for specimen collection, a knife for prying and digging, a spray bottle to thrillingly revive dry moss to its hydrated glory, and of course, permissions, they regularly head into the field to investigate the world often at our feet. In just two years of collecting bryophyte samples, Research Associates Greg and Margaret have identified 34 species never before documented in Dukes County. Below is just a sampling of the most common mosses they have found.

The common pincushion moss (*Leucobryum glaucum*) has a dull, grey-green coloring.

Common Mosses of Martha's Vineyard

While walking in a woodland on Martha's Vineyard, especially in winter, the shades of green lining the trails are a sight to behold. It is quite possible that the asparagus broom moss (*Orthodicranum flagellare*) is among them. This moss forms a low-growing, velvety green carpet and has tiny branchlets that break off and asexually reproduce.

The pincushion moss (*Leucobryum glaucum*) is also low-growing but decidedly dense and clumped with a dull, grey-green cast to their fleshy leaves. It is often found mixed with other mosses. A yellow-orange tinted moss could suggest the presence of the brocade moss (*Callicladium imponens*). Its leaves have an embroidered, featherlike look with a regularly pinnate branching pattern. This is in stark contrast to a shade-loving Ohio hair-cap moss (*Polytrichum ohioense*), whose gametophytic leaves look like fireworks or mini pine trees.

Casting your eyes to the rocks, you will see more moss diversity. The aptly named boulder broom moss (*Orthodicranum fulvum*) is found in small woolly clumps, most often on dry, acidic rocks in shady woodlands. A close relative, the windswept broom moss (*Dicranum scoparium*) can also be found on rocks, the growing habit reminiscent of an animal pelt. And the trailing, beautiful many-branched delicate fern moss (*Thuidium delicatulum*) is found in damp sites, but also on rocks and decomposing logs.

Mosses that grow on trees intercept the water flowing down the bark during rain. A common moss found at the base of trees is poodle moss (*Pseudanomodon attenuatus*), named for the presence of both plump and thin, or attenuated, branches that look like pom-poms when dry. This moss is rather dull looking due to the papillae bumps on the surfaces of the leaves.

Detailed embroidery of the brocade moss (*Callicladium imponens*).

Immature sporophytes of the Ohio hair-cap moss (*Polytrichum ohioense*).

Delicate fern moss (*Thuidium delicatulum*) and boulder broom moss (*Orthodicranum fulvum*), the latter green and the former yellow, growing together on granitic rock near a bog.

Broom moss (*Dicranum scoparium*) is named for its wind-swept look.

Mossing on Martha's Vineyard, *continued*

Poodle moss (*Pseudanomodon attenuatus*) can be found growing at the base of trees, like this old white oak (*Quercus alba*).

The worm moss (*Bryoandersonia illecebra*), bronzed from the winter with mature sporophytes.

In contrast, the worm moss (*Bryoandersonia illecebra*) has plump, shiny, spoon-shaped leaves and looks, you guessed it, wormy. Raising your gaze to the mid-trunk, you might find the train track moss (*Thelia hirtella*) creeping along with its pinnate branches and brown fuzz.

Mosses tend to be found in damp sites due to their dependence on water for their life cycle, and some specifically grow in and along water. The most well-known water-dwelling mosses are the sphagnums. These are also very difficult to identify in the field, necessitating the use of a microscope.

The train track moss (*Thelia hirtella*) is found climbing trees.

A photo taken with a microscope shows the curving leaves of recurved sphagnum (*Sphagnum recurvum*). Photo: Gregory Palermo

Sphagnums are often first narrowed down by location; on a hummock (high point) and partially or occasionally submerged, or in a hollow (low point) and completely submerged. On a recent moss outing, Greg collected a recurved sphagnum (*Sphagnum recurvum*) partially submerged, named for the tendency of the leaves to curve when dry.

There are also moss species that grow in the open landscape. Silver moss (*Bryum argenteum*) is one of the most widespread and recognizable mosses in the world and is found in urban or disturbed areas in dry soils. You can find this growing along the cracks and seams of sidewalks, paths, and in gardens and fields.

A commonly found open-grown moss, silver moss (*Bryum argenteum*), growing in a sidewalk seam. Photo: Gregory Palermo

A microscopic photo displaying the achlorophyllus (lacking chlorophyll) cells of silver moss (*Bryum argenteum*). Photo: Gregory Palermo

Additionally, PHA is home to a moss that loves disturbed sites, the common greenhouse moss (*Funaria hygrometrica*), which crops up in the pots of plants in our nursery. We remove this moss because it can inhibit seed germination and diverts watering resources.

If you're still with me, you've probably noticed that the world of moss is intricate and, hopefully, fascinating. We are excited about this new addition to the herbarium and plan to join the Consortium of Bryophyte Herbaria and make voucher specimens, data, and incredible photos available to the public, as we have with our vascular plants.

The common greenhouse moss (*Funaria hygrometrica*) growing in a pot with a mountain camellia (*Stewartia malacodendron*) in the PHA nursery.

Recommended Field Guides

Common Mosses of the Northeast and Appalachians
by McKnight, Rohrer, McKnight Ward, and Perdrizet

Mosses of the Northern Forest: A Photographic Guide
by Jerry Jenkins

Mosses, Liverworts, and Hornworts: A Field Guide to the Common Bryophytes of the Northeast
by Ralph Pope

Ecological Guide to Mosses and Common Liverworts of the Northeast
by Sue Alix Williams

Southern Pine Beetle Moves North

by Jenna Zier, Formal Gardener at Bard College

The southern pine beetle (*Dendroctonus frontalis*) is the size of a grain of rice. Photo: Tom Palmer

Smaller than a grain of rice, *Dendroctonus frontalis* or the southern pine beetle is devastating the Island's pitch pine forests. The southern pine beetle is a bark beetle native to the southern United States, and currently stretches its range northward to Martha's Vineyard. A warming climate is increasing the northern movement of the beetle, including the Island's beloved conservation sites like Sheriff's Meadow's Phillips Preserve.

The beetles feed off a symbiotic fungus that is introduced into the bark. It should be noted that this fungus is not a tree pathogen. These tiny insects bore holes into the bark of pitch pines (*Pinus rigida*) and lay their eggs within the tree. The sheer volume and physical impact of southern pine beetles is enough to overwhelm the pitch pine, resulting in decline and eventual death.

How the Southern Pine Beetle Attacks

The female southern pine beetle locates a suitable host tree and begins to drill into the inner phloem of the bark. A pheromone is then released by the female to attract other southern pine beetles to the tree, where they begin attacking *en masse* and strip the pine of its natural defenses. The female beetles will drill S-shaped winding galleries into the phloem tissue. These tunnels ultimately cause the pine's demise by girdling it and cutting off the essential pathways used to transport nutrients throughout the tree.

During a southern pine beetle attack, *Pinus rigida* does attempt to fight back. Once the first beetle bores into the bark, the pitch pine begins to exude a thick, sticky resin which pushes the pest out of the bark. Although this method may be effective on a single aggressor, once the female releases her pheromones and attracts other southern pine beetles in the area, the mass attack cannot be remedied by resin.

Signs and Symptoms of the Southern Pine Beetle

There are some tell-tale signs and symptoms of southern pine beetles that we can all look out for when walking through the Vineyard's forests. There is a distinction to be made between signs of the beetle and symptoms of the beetle.

Signs are a direct product of a pathogen or pest. Signs are small, scattered holes along the bark of a pitch pine where beetles have entered the tree and S-shaped tunnels under the bark.

Symptoms are how the plant responds to a pest or pathogen. Symptoms of the presence of the beetle are sudden reddening or browning of pitch pine needles, and popcorn-like resin masses up and down the trunk of the tree. By looking out for these signs and symptoms of the southern pine beetle, we can all participate in monitoring the health of the Island's forests.

The southern pine beetle gets trapped in resin, which is mass produced by pitch pines as a defense mechanism. Photo: Tom Palmer

The southern pine beetle burrows tunnels through the bark of a pitch pine. Photo: Tom Palmer

The southern pine beetle makes S-shaped, winding galleries which eventually girdle and kill the tree. Photo: Tom Palmer

Summer Programs Preview

This summer we are delighted to offer a variety of botanically influenced programming to our Island community. Welcoming visitors to the Arboretum is the highlight of the summer season.

Please join us at a lecture, class, tour, or just to walk the beautiful grounds. For dates, details, and our complete program schedule, please review our printed program guide or visit our programs calendar at pollyhillarboretum.org.

Curator/Assistant Director Emily Ellingson will conduct a two-part "Make Your Own Herbarium Voucher" workshop July 11 and 18.

Melany Kahn will lead "Family Friendly Mushroom Adventure" July 19.

Richard Smith, Director of New York Botanical Garden's School of Professional Horticulture, will give a lecture August 7.

Classes, Workshops & Tours

We are happy to continue to offer popular programs from previous years, as well as introduce new instructors and topics to the 2024 education season.

"Balance in Nature," a Tai Chi class led by Kanta Lipsky will return on Tuesday mornings, April to October. Visitors can deepen their appreciation of nature by joining a mindful hour of gentle movements set among the Arboretum's diverse collection of trees.

For visitors of all ages, we are excited to announce our "Family Friendly Mushroom Adventure" workshop July 19, with mushroom enthusiast, educator, and author Melany Kahn. Families will touch, smell, and learn to identify a variety of fascinating fungi along PHA's Native Tree Trail.

Executive Director Tim Boland will lead a special behind-the-scenes collections tour titled "Hidden Treasures of the Arboretum" on June 22. Tim will highlight the special collections used for research, including the Herbarium and the botanical treasures in the Stephen A. Spongberg Library.

Now Offering On Demand Programs

To continue to make our programs accessible to all in our community, PHA is excited to offer a selection of On Demand virtual programs spanning a wide range of plant-related topics.

These virtual lectures will be available to view at your convenience on the go or on the couch. Classes will cover plant exploration, native flora, and much more. Please visit pollyhillarboretum.org for a continually expanding list of On Demand Programs.

Summer Lecture Series

We have an exciting lineup of renowned speakers visiting PHA this summer. For our annual Lisina and Frank W. Hoch Memorial Lecture on July 24, we will be joined by Dr. Jared Barnes for "Cultivating the Passion for Native Plants," where he will share how he educates students about native plants at Stephen F. Austin State University in Texas.

Our annual David H. Smith Memorial Lecture on August 14, delves into the world of plant exploration with Adam Black, Director of Horticulture and Plant Conservation at Bartlett Research Labs and Arboretum in North Carolina. His lecture is "Plant Exploration: The Passion and the Insanity." Visit pollyhillarboretum.org for a full list of plant-related lectures at PHA.

Join Harnek Singh for his lecture "Smart and Creative Seasonal Succulent Displays" on August 28.

Volunteer Opportunities

Volunteerism has been an integral part of PHA since its inception, building positive relationships and community support with the Arboretum. Although the Island is evolving, our need for volunteers remains.

- **Visitor Center Volunteers**
  Welcome and educate visitors, sell membership and merchandise.

- **Youth Education Volunteers**
  Lead elementary school groups through the Arboretum to teach established science curriculum.

- **Grounds Volunteers**
  Try out volunteering with the horticulture staff during Grounds Volunteer Open Days for an easygoing, fun, environment-focused camaraderie, and learning about plant care. First Thursday of each month, 9 a.m. to noon, May through October.

For more details or general volunteer information, contact info@pollyhillarboretum.org.

Volunteers aid in education programs at the Arboretum.

Volunteers like Laurie Howick greet visitors.

Volunteers help maintain the Arboretum grounds.

"Balance in Nature" class will be held Tuesday mornings, April to October.

Replace Invasive Plants with Native Plant Alternatives *by Tim Boland,*

At PHA, we often get asked about invasive plants: What they are, how to control them, and what alternatives are available. Defining an invasive plant can lead to a myriad of responses. For simplicity's sake, Massachusetts uses the following designation, with which we agree.

> **Invasive plants are "non-native species that have spread into native or minimally managed plant systems in Massachusetts, causing economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems."**
>
> *—MIPAG (Massachusetts Invasive Plant Advisory Group)*

The Island is blessed to have unique ecosystems, rare from a global, state, and regional perspective. When you choose to act on invasive plants or avoid purchasing them altogether, you are protecting the local flora and co-dependent fauna that define the Island's unique character.

The best options for homeowners are not to purchase them from nurseries, avoid accepting them from any other source, and report them and their spread to the contacts provided below (see additional resources).

Despite some of them being banned from sale in Massachusetts, they are occasionally still available.

Identification & Mapping Resources

- Massachusetts Invasive Plant Advisory Group (MIPAG): *massnrc.org/mipag*
- Mass Audubon Invasive Plants in Massachusetts: *massaudubon.org/nature-wildlife/invasive-plants-in-massachusetts*
- iNaturalist: *inaturalist.org*
- iMapinvasives: *imapinvasives.org*
- EDDMapS, Invasive Species Mapping: *eddmaps.org*

Barberry fruit (*Berberis vulgaris*) is spread by birds. Photo: Alana Mckean

Smooth witherod (*Viburnum nudum*) has colorful fruit and stunning fall color. Photo: Tom Clark

Invasive: **Common and Japanese Barberry** (*Berberis vulgaris, B. thungbergii*)
Shrubs that grow in full sun to full shade. Birds relish the red fruits, which help them to spread along roadsides and disturbed woodlands. These two species will hybridize with the same results: Abundant fruits that help it spread through native habitats. Banned for sale in Massachusetts.

Native Alternative: **Smooth Witherod** (*Viburnum nudum*)
Primarily a woodland shrub that can also grow in full sun, it produces beautiful fruits highly prized by wildlife and edible for humans. It is useful as a foundation plant or planted at the woodland's edge. The fall color is reddish purple. To get the best fruit set, plant multiple shrubs for better pollination.

Border privet (*Ligustrum obtusifolium*) escapes our landscape to natural areas. Photo: Greg Palermo

Northern bayberry (*Morella caroliniensis*) forms a winter hedge on West Chop, Vineyard Haven, Massachusetts.

Invasive: **Border Privet** (*Ligustrum obtusifolium*) Border privet is a shrub primarily used on the Vineyard due to its tolerance of salt and the density of its foliage, which makes it useful as a hedge. It grows in full sun and deep shade. It spreads by its abundant fruit production, which has low nutritive value for wildlife. Banned for sale in Massachusetts. Please note that other privet species are known to hybridize and therefore make it difficult to list as a banned species. PHA recommends not growing any privet species or hybrids, because of this situation.

Native Alternative: **Northern Bayberry** (*Morella caroliniensis*)
A colonizing shrub with semi-evergreen foliage that makes a nice formal hedge or woodland edge specimen. Avoid as a foundation plant because of its nature to spread by underground stems. Waxy fruits are highly prized by many bird species. Purchase plants in the late summer or fall to be certain they are fruit-bearing, as male and female flowers are found on separate plants. Both are needed for pollination and fruit set.

PHA Executive Director

Winged euonymus/burning bush (*Euonymus alatus*) has taken root in natural areas. Photo: Alana Mckean

Invasive: **Winged Euonymus/Burning Bush** (*Euonymus alatus*)
A highly invasive shrub, burning bush distributes seeds at or near the base of plants or spreads it widely into both full sun or deep shade situations. Widely popular because of its fall color. Banned for sale in Massachusetts.

The fall color and edible fruit of highbush blueberry (*Vaccinium corymbosum*).

Native Alternative: **Highbush Blueberry** (*Vaccinium corymbosum*) This plant is perfect for adding autumn color to your garden and can grow in both moist and dry soils. Its nutritious fruits are a bonus, but you'll need to be quick to get them before the birds. Plant in large numbers and provide supplemental water during droughts for better fruit production. Enjoy stunning white flowers in the spring and ornamental bark in the winter.

Japanese silver grass (*Miscanthus sinensis*) escapes into the Island's natural area. Photo: Elizabeth Loucks

Invasive: **Japanese Silver Grass** (*Miscanthus sinensis*)
Planted widely for its toughness and durability, this popular ornamental grass has escaped cultivation and threatens our globally rare sandplain grasslands. Spread by seeds, as well as by birds using it for nesting material, this popular grass has become a problem in numerous states over the last 20 years.

Japanese holly (*Ilex crenata*) self-sows into natural areas. Photo: Elizabeth Loucks

Invasive: **Japanese Holly** (*Ilex crenata*)
This low-growing evergreen shrub can spread aggressively in disturbed areas. It tolerates dense shade. Although not designated by the state as an invasive species, our observations, along with our conservation partners on Island have noted a steady increase of this plant throughout Martha's Vineyard.

Inkberry (*Ilex glabra*) creates a hedge at Martha's Vineyard Hospital.

Native Alternative: **Inkberry** (*Ilex glabra*)
These small evergreen shrubs are useful as a foundation plant or as a natural screening hedge when planted in mass. Prefers moist soils but tolerates dry conditions with occasional supplemental water. Purchase plants in the late summer or fall to be certain they are fruit-bearing, as male and female flowers are found on separate plants. Both are needed for pollination and fruit set.

Switchgrass (*Panicum virgatum*) is found naturally occurring at the PHA.

Native Alternative: **Switchgrass** (*Panicum virgatum*)
This tall grass can be found in open and sunny areas of the Island in both wet and dry conditions. Its winter foliage is straw-colored and it forms attractive seedheads in late summer and fall. Despite its beauty and durability, this versatile grass is often overlooked for homeowner use.

Note: You'll find many of these native alternatives and other natives at our plant sale area near the Visitor Center.

THE POLLY HILL ARBORETUM

MAILING ADDRESS
PO Box 561
West Tisbury, MA 02575

508-693-9426
info@pollyhillarboretum.org

FIND US ONLINE
pollyhillarboretum.org
instagram.com/pollyhillarboretum
facebook.com/pollyhillarboretum
twitter.com/pollyhillarb
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
Open 9:30 am–4 pm daily, late May through mid-October

ARBORETUM GROUNDS HOURS
Sunrise–sunset, year-round
Please note: maintenance is often performed on Wednesdays.
Check website before visiting for occasional grounds closures.

ADMISSION
$5
Free to members & children 12 and under

FREE PARKING

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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pollyhillarboretum.org

FROM THE ARCHIVES

The Butcher and Hill Guest Books

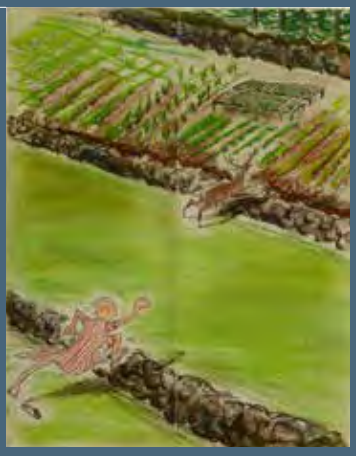
The Arboretum has digitized collections of the Butcher and Hill guest books from 1927–2005, including the botanical and family history of PHA. The following "back of the envelope" sketches and poem are from 1961 on a pesky subject many of us encounter to this day. Howard Butcher was Polly Hill's father. Barnard's Inn Farm was the name of the property when Margaret and Howard Butcher owned it.

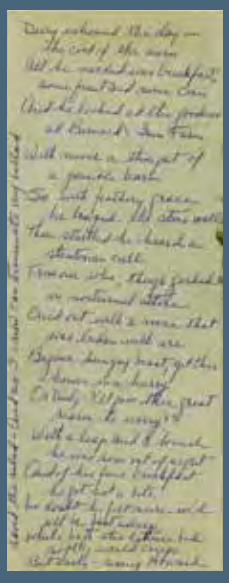
Transcribed from the 1961 Butcher and Hill guest book:

THE SAD TALE OF THE TRUSTING LITTLE DEER AND THE MAN WHO COULD HANDLE DEER ROUGHLY BECAUSE HE KNEW ALL ABOUT HANDLING BULLS AND BEARS

Deery welcomed the day in the cool of the morn
All he needed was breakfast, some fruit and some corn.
And he looked at the goodies at Barnard's Inn Farm
With never a thought of a possible harm.
So with feathery grace he leaped the stone wall
Then startled he heard a stentorian call
From one who, though garbed in nocturnal attire
Cried out with a voice that was laden with ire
"Begone hungry beast, get thee hence in a hurry
Or truly I'll give thee great reason to worry!"
With a leap and a bound he was soon out of sight
And of his fine breakfast he got not a bite
No doubt he felt sure we'd all be fast asleep
While he to the lettuce bed softly would creep.
But early-rising Howard saved the salad—
And so I now can terminate my ballad.

— by Ralph Torrey and David Davis, 1961





Original artwork by Ralph Torrey and David Davis from the 1961 Butcher and Hill guest book.

PHA Deer Control

Deer herds in the woodlands surrounding the Arboretum can exceed 50 deer per square mile. The only areas at PHA that exclude deer are the nursery and Polly's Play Pen.

Many plants that are significant to the collections and prone to deer browse are wrapped in metal fencing from fall through late spring. The rest of the grounds are sprayed with two different deer repellants, Bobbex and Deer Out.

The repellants are applied at various concentrations throughout the year, stronger in the winter when deer have less to eat, and weaker in the summer when the surrounding woodlands are abundant with foliage. The application of repellant rotates between the two brands so deer don't learn to tolerate the adverse taste of any one of them.