Polly Hill Arboretum

Executive Director TIMOTHY BOLAND researched the archives and past newsletters to compile a history and overview of the arboretum to the present day.

Origins

The Polly Hill Arboretum (PHA) was established in 1997 and opened to the public in 1998. It is located in West Tisbury, Massachusetts, on the island of Martha's Vineyard, which is situated five miles off the southeast coast of Cape Cod, USA. The island is the ancestral land of the Wampanoag Tribe. Although the arboretum celebrated its 25th anniversary as a public garden in 2023, the first plantings took place in 1958 as part of an ambitious horticultural experiment led by Mary Louisa Hill, who was more commonly known as Polly Hill.

In 1926, Polly's family purchased an abandoned sheep farm that eventually became the summer home of the Hill family. Over the next 30 years, several of the old buildings were modernized to accommodate the family and summer visitors. Polly and her husband, Julian, raised three children and eventually inherited the farm. The idea of growing an arboretum first emerged in Polly's mind in 1957 when she was 50.

A few courses in botany at the University of Delaware and others at Longwood Gardens gave her the impetus to start. The arboretum's buildings and landscapes today present a classic New England rural setting framed by nearly 4,000 feet of rambling stone walls that define the spatial quality of the landscape and create an ideal backdrop for ornamental plantings. The entire property holdings encompass 72 acres.

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Polly Hill, 21 July 1997

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A drone's view of the Polly Hill Arboretum.

Polly's approach to starting the PHA was one marked with patience and a humble sense of time. Because she did not like the practice of planting mature plants in the landscape, most of her plantings were started from seed. As Polly explained, "You miss the plants in their teenage (juvenile) years; these after all are the most interesting years!" Planting open-pollinated seed in the ground without the benefit of a greenhouse was a truly Darwinian approach to horticulture: survival of the fittest. Through her dedication and keen eye, Polly raised several noteworthy plants over the next 30 years. She would eventually gain notoriety and honors both nationally and internationally for her outstanding contributions to the world of horticulture.

Polly, known for her practical manner and her dedication to her plantings, inspired numerous admirers. The nonprofit organization, the Polly Hill Arboretum Inc, was created to preserve Polly's botanical and horticultural legacy and to continue Polly's ideals of research, education, and conservation. The Arboretum was established through donations by David H Smith, the Hill family, and many of Polly's horticultural colleagues. During her last summer season on the island in 2002, I asked Polly what we could do to preserve and enhance her horticultural legacy. Her response was pure Polly, "Grow!"

A scientific collection of woody plants

Polly described a perfect someone, "young, enthusiastic, energetic, and knowledgeable," to fill the position of executive director of the Polly Hill Arboretum. "I thought, well, I'm not young, but for the rest, I might fill that description," remembered Stephen A Spongberg, Director Emeritus of PHA (*Meristems*, Fall 2001). Steve was appointed the first Director of PHA in 1998 and served as such until 2004. Steve set the foundation for the quality and high standards that we continue today. He was a collections advocate who believed that the arboretum should strive to assemble a scientific collection of well-curated woody plants, beyond being a beautiful place to visit.

Steve's impact spans across the arboretum's landscape with the development and opening of the Visitor Center (1998), the first landscape master plan (2001), and the acquisition of the Littlefield property (2002), which would eventually become the site of our woody plant nursery. He established the newsletter *Meristems*, widely recognized in the botanic garden community for its quality and depth of information. Steve's tenure established a strong root system, and PHA's growth flourished. Steve also recruited collection advocates to the early PHA board of directors.

Belgian plantsman Philippe de Spoelberch served on our board of directors from 1999–2013. Through his dedicated and supportive interest, the arboretum made many advancements. An astute advisor, Philippe was closely involved in the arboretum's landscape master planning and professional curatorial reviews. His pragmatic observations shaped many of our landscape developments. He also brought valuable insights to collections management. He supported efforts to advance our labeling and software programs, and has been a collaborator on our international seed expeditions. Philippe became an honorary board member in 2014.

In 2002, the position of Curator was established, and I was appointed PHA's first Curator before becoming Executive Director in 2004. Upon Steve's retirement in 2004, PHA named its horticultural library in his honor. The library is a key component to our research and educational work. Its development over many years reflects Steve's interests and research objectives. Before his time at PHA, Steve Spongberg was the horticultural taxonomist at the Arnold Arboretum of Harvard University in Boston, Massachusetts for 28 years. His accomplishments there still resonate today.

Steve's past publications, scholarly work, and seed expeditions earned him the prestigious RHS Veitch Memorial Medal in 1996. He also received the Magnolia Society's International Todd Gresham award in 2011. His most admired publication is entitled *A Reunion of Trees: The Discovery of Exotic Plants and their Introduction into North American and European Landscapes*, Harvard University Press, 1990. The publication was designated by the American Horticultural Society in 1997 as one of the '75 great American garden books'.

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Above: Kousa allée (*Cornus kousa*) seen from the Education Centre & Botany Lab.
Below: Polly Hill with Stephen Spongberg (left), and Philippe de Spoelberch (right) in 1996.

Following Polly's lead and with Steve's influence, we continue to develop the plant collections; our collections policy encompasses woody plants of the Atlantic Coastal Plain (which includes the flora of Martha's Vineyard) and plants native to eastern Asia, particularly Japan. To increase the scientific significance of the arboretum's plant collections, we emphasize seed collection from plants in their native habitat and protecting plants of conservation concern.

Capacity building: collections of depth and interest

Upon Steve Spongberg's retirement, the board of directors and staff set out to envision a more impactful plant science organization focused on education, plant conservation, and the care and long-term stewardship of our historic buildings and landscape. A strategic planning document was established in 2007. Priority plans were set forth to build a greenhouse (2007), library (2007), and a maintenance building (2009). In 2016, a new Education Building and Botany Lab opened in the central campus of the arboretum.

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Stewartia ovata, the mountain camellia

Polly once said, "provide the cultural conditions so your plants reach their true potential." With these inspiring words the PHA initiated several international plant exploration trips in collaboration with both US and European arboreta. A genus often targeted is *Stewartia*: Polly's lifelong interest and her friendship with many public garden professionals enabled her to receive seed from both gardens and interested growers. Polly first became fascinated by the genus after witnessing the bloom of the North American silky camellia, *Stewartia malacodendron*. Her long association with the Arnold Arboretum of Harvard University led to many of the plants in our collections.

The growing conditions on the vineyard are almost ideal for *Stewartia* with the regularly occurring summer drought the only limiting factor. During the summer months, drought-stressed trees receive supplemental irrigation. The current soil conditions are determined by the geology and the past agricultural uses of the site. The dominant soil types result from morainal gravel deposits over a broad area of the arboretum. Predominantly, the soil has an acidic base (pH 4.8–5.8) and is very free-draining. The maritime effect of our island location strongly influences the regional and local climates. We are classified as USDA Zone 7a. Recently, hurricane-force winds have become frequent due to a warming planet and ocean.

Via the Plant Collections Network of the American Public Gardens Association (APGA), PHA jointly holds the certified National Collection of *Stewartia* with the Arnold Arboretum. As the holders of this collection, PHA uses GAP analyses to determine which populations of *Stewartia* species are under-represented in ex situ holdings, and spearheads efforts to collect seed from these regions and provide the dispersal of germplasm to other gardens. Seven expeditions have targeted the two native North American species *Stewartia malacodendron* and *S. ovata*. The recent Red List for the Theaceae – to which PHA contributed in 2017 – lists these species in the category of Least Concern. However, PHA's fieldwork and propagation studies indicate that these two species may in fact become threatened over time, and – in portions of their natural range – already are.

As the current PHA Executive Director, I serve on the board of directors of the International Oak Society, and the genus *Quercus* is of great interest to the garden. A member of the Global Conservation Consortium for Oak (GCCO), PHA is developing its capacity to become a 'safe site' for endangered oak species.

PHA's participation in these programs and their dedication to a conservation-focused collection have merited a level IV rating from the Arbnet Arboretum Accreditation Program, a designation achieved by only 10% of participating institutions. Additional diverse collections include *Clethra*, *Enkianthus*, *Rhododendron* and *Magnolia*.

The Great Age of plant exploration: horticultural experimentation

In 2004, a review of the collections revealed that less than 15% of the plants were of known wild origin. However, that number has risen to 40% today. Since 2005, the PHA has conducted seventeen expeditions to collect seeds. While Polly had a preference for cultivating plants with ornamental value in the past, the focus has now shifted to prioritizing and locating plants that are in danger of becoming extinct in their natural habitats. Since the opening

of the greenhouse in 2007, the Littlefield property has undergone further expansion, including adding two shade structures that serve as transitional polytunnels for overwintering plants during the offseason. Moreover, a pot-in-pot growing system that is protected from deer has enabled the production of specimen-quality trees. These modern facilities have facilitated propagation experiments that involve both Asiatic and North American species of *Stewartia*. The seeds of the silky stewartia (*Stewartia malacodendron*) and the mountain camellia (*Stewartia ovata*) have woody endocarps (seed coats) that can delay germination for up to five years. However, early extraction of the seeds from the pulp and storage in vermiculite and peat moss has reduced that time to one to two years. Cloning these two species has proven to be challenging at times. While they can root readily using wounding and hormone treatments, their emergence from winter dormancy often fails. Using a series of alternating warm and cold treatments on rooted cuttings has resulted in a success rate of 50–65% for overwintering.

Overcoming plant blindness: training the curators of the future

The lack of trained professional botanists increasingly challenges public gardens across North America. US college curricula have drastically reduced traditional plant identification courses in field botany and plant taxonomy. We need young people to develop a passion for plants, and understand their essential importance to life on earth and humanity. Now, more than ever plants need our devotion and study to preserve them from extinction and save them for future generations.

To address this critical need, the PHA established a Curatorial internship in 2008. The internship provides crucial training in the art and science of curating living and non-living plant collections. Past interns have completed important projects like inventorying and providing recommendations for the curation of specialized plant collections, investigating propagation methods of our nationally accredited stewartias, and mapping and labeling our collections. After leaving the PHA, many past interns are now employed in curatorial positions throughout North American public gardens.

Plant conservation on Martha's Vineyard: a modern flora for the island

One of the focuses of both the garden's living and preserved collections is the North American Atlantic Coastal Plain. PHA has been documenting its local flora since 2004 and opened the Education Center and Botany Lab in 2016. The lab has a 40-seat classroom and botany lab that facilitates training naturalists and island land stewards in field botany and island natural history. The building also houses a 12-cabinet herbarium with over 4,000 specimens documenting the location of native and non-native plants. All of this allows PHA to support nearly 3,000 volunteer hours annually dedicated to documenting the native flora. The specimens are digitally available on our website and are

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A mature black oak, *Quercus velutina*. This tree predates the establishment of the Arboretum and is estimated to be 150 years old.

often used to teach classes or as a reference guide for local plant identification. A plant science organization located on an island is compelled to understand the distribution of its native flora and with that knowledge advocate for the protection of rare or vulnerable plants. Oak woodlands dominate the island. However, in the center of the island and south shore appears a globally rare ecosystem called the sandplain grasslands. Considered a biodiversity hotspot for both plants and animals, the sandplains are principally composed of native grasses and drought-tolerant herbaceous plants, many adapted to the strong ocean winds, sea salt, and sandy soils. In addition, the herbarium also holds voucher collections from past seed expeditions and the cultivated plants of the PHA living collections.

Education

To help educate the public, PHA holds a public lecture series throughout the summer in which it brings researchers, ecologists, and other plant professionals from across the country to present on their topics of expertise; many of these presentations focus on the importance of protecting and managing biodiversity. Plant conservation is the foundation for most of the garden's educational programming, especially its youth programs. On-site, kids enjoy the Endangered Tree Tour and learn about the importance of conserving rare species. One of PHA's most popular programs is Habitat Kids, which teaches children about local plants and their habitat associations, habitat fragmentation and its effects, and plant/pollinator interactions. PHA provides native plants for schools to create their own habitat gardens, creating a network of habitat space across the island.

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Children learning about seed types.

The arboretum's diverse collection of living and non-living specimens is central to our mission of sharing the beauty, mystery, and usefulness of plants. Since the first seed was planted in 1958, the collection has grown steadily, and after 25 years of quality growth in both collections and infrastructure, the PHA is well-positioned for the future. Polly once said, "A one-generation garden isn't much of a garden. It's in the second generation that you really see a garden." She passed away in 2007 at the age of 100. In 2015, the National Park Service listed PHA in the National Register of Historic Places. This formal recognition of the arboretum's significance based on national standards honors the exceptional importance of our historic property as well as our preservation efforts.

We continue Polly's philosophy of observing plants, recording data, and sharing our results with others. We are the stewards of this iconic and historic landscape, and at the heart of what we do is plant science. We intend to remain focused on our core values of education, plant conservation and preservation so that others may enjoy the arboretum for many years to come.

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