

2014

The Polly Hill Arboretum

Year in Review



American Beautyberry – *Callicarpa americana*, Zarks 2014 Seed Collection Expedition

Living Collection Statistics

PHA continues to increase the scientific value and genetic diversity of its living collection through the acquisition of seeds, plants, and cuttings from a variety of sources. The living collection (as of December 31, 2014) contains 1,600 taxa representing 125 families and 353 genera. These numbers reflect 197 new 2014 accessions of seeds, plants, and cuttings, 72% which are of documented wild origin. Appendix A lists all 2014 accessions, their provenance, and how they were received.

Noteworthy among the 2014 accessions are wild-collected seeds resulting from two PHA collecting trips, including three red-listed *Rhododendron* (*R. eastmanii*, *flammeum* & *vaseyi*), the red-listed *Quercus acerifolia*, and several collections of *Stewartia ovata* among many other taxa of conservation and horticultural value.



Rhododendron vaseyi

PHA also added to its collection several taxa of plants raised from wild collected seed sent by colleagues over the past several years in northern Vietnam and adjacent China. Conifers continue to be an important and growing component of the living collection and several red-listed conifers were acquired from Smith College Botanical Garden for conservation and evaluation purposes including *Cupressus dupreziana*, *C. vietnamensis*, and *Taiwania cryptomerioides*.

In 2014, 166 plants representing 133 taxa were deaccessioned from the living collection. Many of these plants were being evaluated for adaptability and horticultural value. Others were removed due to overcrowding and senescence or were removed and replaced by plants of known wild provenance.

Crypt Gall Wasp

The infestation of crypt gall wasp (*Bassettia ceropteroides*) on Martha's Vineyard affecting black oak (*Quercus velutina*) continued to be troublesome in 2014, however damage to the Arboretum's specimens was less than in previous years. The Arboretum's living collection includes 65 accessioned specimens of this common oak – one of six species of *Quercus* native to Martha's Vineyard.

PHA continues a collaborative relationship with Bartlett Tree Experts to monitor for and study crypt gall wasp in an effort to better understand its lifecycle and the impact on individual trees in the Arboretum's collection, but also on how the insect is impacting black oaks island-wide. Black oak is a significant component of our woodland ecosystem. Part of this study involves, on an experimental basis, insecticidal trunk injections to manage the pest and to determine the efficacy of such treatments. Initial results are promising and the work is ongoing.

Curation and Plant Records

Curator Tom Clark and collections management intern Amanda Wilkins completed curation of the Vegetable Field, an area which was originally the Hill family vegetable garden. The project involved reconciling PHA's plant records database with what actually exists in this area of the grounds, assessing the condition of each specimen, updating the database with observations, and creating a management plan for the area.



A curatorial project is the cornerstone of our collections management internship and exposes each intern to a range of curatorial techniques and best management practices. The results inform better management practices of the living collection, future developments in these areas, and decisions to deaccession plants. The Vegetable Field contains one of the large, historically important groves of *Stewartia pseudocamellia*; through this project a plan was developed to improve the health of these trees (part of PHA's national collection of *Stewartia*) through soil testing, improving the soil structure and chemistry, and improving cultural conditions.

In November, Amanda attended the American Public Garden Association's collections management symposium in Washington, D.C., where she presented a poster based on this curatorial project.

Collections Expansion Garden

The development of the 1.5 acre woodland area known as the West Woodland Garden took a stride forward in February and March. PHA staff and volunteers, along with the services of local tree service contractors, cleared the site of dead and undesirable trees. The remaining trees create conditions suitable for a collection of understory trees and shrubs. PHA staff will continue to monitor and assess the condition of the existing trees. The impact of crypt gall wasp may necessitate the removal of several more black oaks.



In April, Jason Siebenmorgen, senior associate at Michael Van Valkenburgh Associates visited PHA to work with staff on the establishment of a preliminary network of paths through the site and to discuss design concepts.

Interns and Internships

In April Amanda Wilkins began her collections management internship. She graduated *magna cum laude* with a BS degree in horticulture science from North Carolina State University. Prior to our internship she completed internships at Sarah P. Duke Gardens, The JC Raulston Arboretum, and The Daniel Stowe Botanical Garden, and participated in numerous research and volunteer projects. She completed her PHA internship on November 26. Her blog (gardenofserendipity.blogspot.com) conveys her enthusiasm for horticulture and the impact her experience at PHA has had on her professional and personal life.

Next Amanda (pictured right) will be attending the University of Edinburgh in pursuit of a master's of science degree in biodiversity and taxonomy of plants.



The PHA summer internships continue to be an important part of achieving the Arboretum's educational mission. In May we welcomed Eva Colberg from Alaska and Tessa Young from Rhode Island. Eva is studying biology and environmental policy at the College of William and Mary and recently spent a semester in Madagascar studying forest ecology. Tessa is a sophomore at University of Rhode Island studying plant science. We recently hired Victoria Stewart as our 2015 collections management intern and are currently in the process of selecting our next two summer interns.



Tessa Young (left) and Eva Colberg (right)

We enjoy following the careers of past interns and sharing their achievements. Our latest success story is Martha's Vineyard native Matt Lobdell, PHA's first collections management intern. Matt was recently hired as the head of collections and curator at the Morton Arboretum in Lisle, Illinois. It is heartening to know that PHA's internships provide valuable experiences and create a foundation for many successful careers in public horticulture.

2014 Weather Statistics

The weather during 2014 was generally cooler than average. The lowest temperature recorded was -21.7°C on January 4 and the highest temperature recorded was 30°C on June 18.

May, August, and September were drier than normal but Hurricane Arthur delivered a much needed dose of rain at the beginning of July. Following a dry late summer and early fall, October, and especially November and December, were much wetter than average.

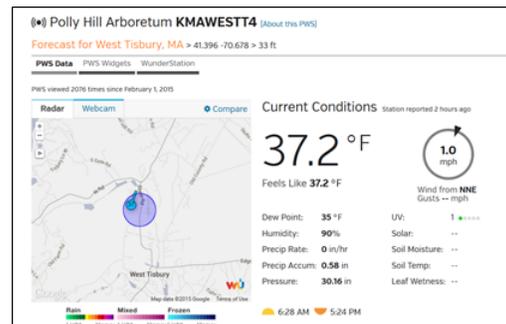


Acer rufinerve

Temperature and precipitation summaries for 2014 recorded at PHA

<u>Month</u>	<u>Monthly mean temp.</u>	<u>Monthly precip.</u>
January	-1.1°C	57.4mm
February	-1.1°C	118.36mm
March	0.6°C	69.34mm
April	7.8°C	54.61mm
May	13.9°C	28.96mm
June	17.2°C	47.24mm
July	20.0°C	89.15mm
August	18.3°C	39.62mm
September	16.7°C	35.56mm
October	13.3°C	101.85mm
November	6.1°C	191.77mm
December	4.4°C	169.16mm
2014 Total		1003.02mm

Thomas Clark, Curator



Membership

This year PHA membership remains steady, averaging 650 to 700 members. Most of our new members join at the Visitor Center during their visit. Many are first-time visitors who come to purchase plants, take a tour, or attend an education program. Others join to receive free admission and member discounts on merchandise and programs.



Other favorite member benefits include discounts at local nurseries and free admission and discounts at other gardens nationwide.

Adult Education



Our adult education programming, filled with tours, talks, and workshops, was very successful. Most workshops sell out well in advance. Programs for 2014 included a composting workshop, talks on invasive plants and deer issues, drawing from nature, herbal salve making, and landscaping with native plants. We provided hands-on experiences in plant science through workshops on the ecology of sandplains and heathlands habitats, and the propagation of trees and shrubs from cuttings. We also offered an all-day professional ArborMaster® safety training class for arborists.

Evening lectures, sponsored by local nurseries, covered a variety of subjects. Speakers included Teri Dunn Chace who spoke on her book, *Seeing Trees*, Eric Rutkow who traced the history of the U.S. through his book, *American Canopy: Trees, History and the Making of a Nation*, and Andrew Bunting and Scott McMahan who shared their experiences plant collecting in Taiwan and Vietnam. Buddy Huffaker, president of the Aldo Leopold Foundation spoke about land ethics and the origins of conservation in the US and Dr. Gerard Donnelly, president of the Morton Arboretum discussed the relevance of botanical gardens in a changing world. In addition, Michael Van Valkenburgh and his associate Jason Siebenmorgen, (pictured right) gave a presentation on the design process and vision for the Arboretum's future West Woodland Garden and Forest Ecology Trail.



Youth Education

Every spring and fall we serve over 550 grade school students with a variety of programs. Our youth education program continues to grow. We are preparing for expansion into the middle school grades.

Last summer we collaborated with Island Grown Schools (IGS), an organization promoting school gardens, on a two-day "seed curriculum" teacher's training workshop.



Seed dispersal of *Asclepias tuberosa*

The workshop offered professional development points for teachers, familiarized teachers with the seed curriculum used by IGS and PHA, and explained how it connects to the Massachusetts Science Teaching Standards.

We have also helped to reorganize the Martha's Vineyard Environmental Educators Alliance. This is a network of more than a dozen environmental and natural science organizations with a shared mission to enhance environmental science education in the schools. The group explores ways to enrich curriculum requirements and plan for collaborative lessons or plans that serve our Island youth. The meetings take place in PHA's Stephen Sponberg Library.

Garden Tours



Our third annual Martha's Vineyard Garden tour sold out well in advance and was once again a highlight of the summer.

We also offered a wet, but wonderful, two-day tour of public and private gardens in southeast Rhode Island in September. These enjoyable tours also serve to raise funds for our general operating expenses.

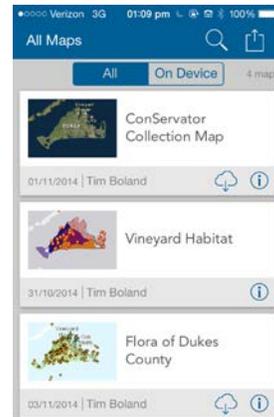


Plant Conservation and Scientific Inquiry

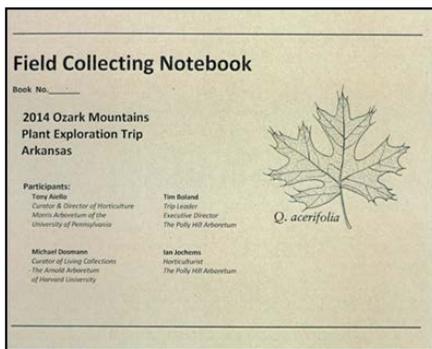


Flora on our phones! This past year we partnered with Jessica Dyson, GIS manager of the Massachusetts office of The Nature Conservancy to create a digitized, geo-referenced flora. This enables us to record plants in the field using our smartphones and transfer the data to a unified ARC-GIS web-based map that depicts location and distribution.

Using the ESRI Collector Application, we can pull up any previous locations and determine exactly how far we are from that point. A list of species appear on the phone in a drop-down menu form that makes collecting data easy without the requirement to spell out the plant name in the field. The information is directly transferable to our herbarium voucher specimens. While the technology is primarily used for recording our local flora, it works anywhere you can pick up a phone signal and is accurate from 5-10 meters.



Ozark Collecting Trip a Success



PHA Executive Director Tim Boland and Horticulturist Ian Jochems participated in a seed collection trip to the Ozark Mountain Region of Arkansas this past October. The expedition team included Anthony Aiello, director of horticulture and curator at the Morris Arboretum, and Michael Dosmann, curator of living collections at the Arnold Arboretum. Local Ozark flora expert Theo Whitsell accompanied the team, which collected seed of 34 different plants ranging from trees to herbaceous perennials.

A few great finds were maple-leaved oak (*Quercus acerifolia*) and Ozark witch-hazel (*Hamamelis vernalis*). The oak is listed as a threatened species with less than 500 known living trees in existence. Pictured right, Ian Jochems harvests seed of red buckeye (*Aesculus pavia*).



Mutual Benefits of Collaborating

This past year, Executive Director Tim Boland was appointed to the Living Collections Advisory Board of the Arnold Arboretum, in Boston, Massachusetts. The group meets annually to evaluate collection development goals as well as establish plans for the future. This creates opportunities for collaborative research activities such as the recent seed expedition to the Ozark region of North America.

The PHA and Arnold Arboretum have a long association dating back to PHA Director Emeritus, Stephen A. Spongberg and his friendship with Polly Hill. Steve and Polly (pictured right) collaborated during his long career as Horticultural Taxonomist at the Arnold Arboretum.



This year Arnold Arboretum director Dr. William (Ned) Friedman and his wife Dr. Pamela Diggle (pictured left) visited the Arboretum on a beautiful September weekend to observe the collections and become more familiar with our programs.

Today the relationship between PHA and the Arnold Arboretum remains strong and includes sharing plants and plant information, professional curation management techniques, and a reciprocal annual trip of our college interns to our respective collections.

The intern visits include an annual picnic and an opportunity to share ideas with the students. We are fortunate that PHA has been introduced to students from the Arnold Arboretum that have eventually become collections management interns for the PHA, including Sarah Free (2010), Jaime Morin (2012), Emily Ellingson (2013), and the recently hired 2015 intern, Victoria Stewart.

West Tisbury Library Landscape Consultation Continues

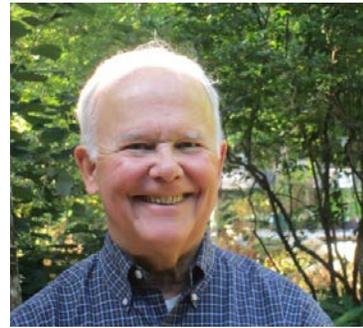


This past summer season saw several hundred plants grown on at the PHA nursery planted at the newly expanded West Tisbury town library. PHA staff Erin Hepfner, Tim Boland, and Laura Coit (*Meristems* editor) teamed up with Oak Leaf Nursery to design and plant the majority of the landscape. Some remaining garden areas will be planted this spring.

The Arboretum plans to partner with the library through teaching classes that use the surrounding gardens as an outdoor classroom.

Board News

We are pleased to welcome Hunter Moorman to the PHA Board of Directors. Hunter learned of the Arboretum after retiring to Martha's Vineyard with his wife, Leslie Gray. He strengthened his connection through Leslie's dedication to our volunteer grounds crew, and most recently through his work with Executive Director Tim Boland on the West Tisbury Library's landscape subcommittee. As chairman of the West Tisbury Library Foundation, Hunter worked to raise private donations in support of the West Tisbury Library expansion.



Hunter has a long history of working to support worthy goals. He is retired from the U.S. Department of Education in Washington, D.C., where for 26 years he directed national education development and school improvement programs. Hunter has a certificate in organization development from Georgetown University, an MPA from George Washington University, and BA in government from Harvard College.

Hunter is pleased to join our board, noting with characteristic eloquence, "I have long admired the Arboretum's collections, public outreach and education, and enduring spirit of horticultural experimentation. Just how valuable the Arboretum is as a community and Island resource has become especially clear through my recent involvement with the Arboretum's planting at the West Tisbury Library. I am thrilled at this opportunity to support the Arboretum and the work of its impressive staff."

Staff News

This past summer Erin Hepfner joined PHA staff as Visitor Services & Resource Specialist. Erin coordinates our volunteer program, manages the Visitor Center, and assists with special projects including the expansion of our youth education program into the middle and high school grades.



Erin brings impressive educational qualifications as well as work experience in public gardens. Prior to PHA she worked for the Trustees of Reservations as a seasonal horticulturist on Chappaquiddick Island. Erin earned a master's degree in sustainable landscape planning and design from the Conway School in Conway, Massachusetts. A native of Maine, Erin received her BS in horticulture from the University of Maine in Orono.

Erin came into the Arboretum fold last year as a special projects manager. She helped to formulate the on-line *Martha's Vineyard Plant Selection Guide* as well as develop and organize our herbarium collection. Her desire to work at PHA is based on her interest in connecting visitors to the beauty and science of our landscape. Executive Director Tim Boland adds "Erin brings a broad skill set, a love of plants and people, and a strong work ethic to PHA. We are pleased to have her join our team!"

Nancy Weaver Retires

After a continuing presence for 18 years at PHA, Nancy Weaver stepped down from her position of Volunteer Coordinator & Plant Recorder. Nancy's dedication and knowledge will be missed. Executive Director Tim Boland says, "Nancy has been with us from our very origins. Her ability to connect people with the Arboretum's mission, messages, and stories is irreplaceable."



Nancy and Polly Hill (1997)

Nancy began her Arboretum tenure as a volunteer. She assisted on the grounds and served as an impromptu guide for visitors before the property was opened to the public. In July of 1997, Nancy became Horticultural Supervisor of the newly created Polly Hill Arboretum. Over the years her work has evolved to include a wide range of activities: mentoring interns and overseeing gardeners, mapping the grounds, collecting data on tree measurements, and keeping track of our plant records.

Nancy is best known for overseeing the Visitor Center and managing our successful ever-growing volunteer program. In 1998 she orchestrated the tours for opening day, establishing a lasting relationship with many volunteers who remain with us to this day. Her ongoing guide training program for new and returning docents and annual volunteer thank-you party has made volunteering at PHA a rewarding experience. Tim adds, "So many people have been introduced and inspired through our volunteer program. We will do our very best to maintain the collegial family atmosphere that Nancy established."

Equally important in Nancy's tenure was the management of our plant records and mapping program. Nancy helped transition a critical change from our written records to the adoption of BG-BASE, our data storage software. In 2002-2003 she also worked on the transition of written maps to the AutoCAD maps we use today. This was a huge advancement for the PHA and forms the basis of our plant records program we have today.



We all wish Nancy well in her retirement and hope she will continue to stay involved with PHA.

Nancy Weaver frequently commuted to the Arboretum by bike. Pictured here transporting greenery!

Work and Information Exchanges Prove Valuable

The PHA places a high value on staff education and interaction with professional colleagues from other institutions. PHA staff regularly visit other arboreta and botanic gardens and meet with staff, formally and informally. Other public gardens place an equally high value on such opportunities and we welcome the exchange of information and ideas.

On February 6th Executive Director Tim Boland met with Executive Director Jeffrey Downing and programming staff of Mt. Cuba Center in Delaware to discuss the challenges and opportunities of a private garden opening up to the public. Tim outlined the history of the PHA as well future garden and capital development plans. Mt. Cuba founder, Mrs. Lammot du Pont Copeland and Polly Hill were close friends and often shared information and plants with each other.



From August 18-22, Josh Coceano, horticulturist at The Scott Arboretum of Swarthmore College in Pennsylvania, visited PHA to work with living collections staff. During his time he was afforded the opportunity to gain an understanding of how PHA staff work with and manage interns and volunteers; how staff manage projects; and how PHA's policies are implemented. Josh was eager to spend time with our entire staff and gather ideas that he can take back

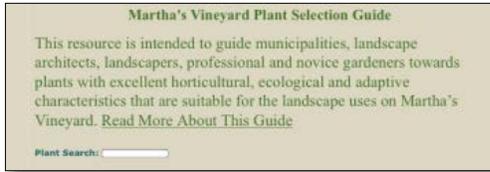
to the Scott Arboretum. PHA staff also benefited by learning from Josh based on his skills, knowledge and experiences. We plan further work exchanges in the future!

On September 16 Visitor Services & Resource Specialist Erin Hepfner visited Longwood Gardens in Pennsylvania to learn about their volunteer and intern programs. She met with Volunteer Coordinator Sally Kutyla who shared strategies for recruiting and training volunteers at Longwood Gardens. Conservatory Horticulturist Karl Gercens discussed the recruitment and education programming involved in the Longwood internship program. In return, Erin was able to share the opportunities that are afforded to interns at the PHA.

On October 22-23 three staff members from Mt. Cuba Center visited the PHA to learn more about our curatorial, plant records and archival practices and protocols. Curator Amy Highland, Plant Recorder Cat Meholic (2009 PHA intern) and Liz Fiske met with staff and toured PHA's facilities. Again, there was an active flow of information and ideas, and staff from both institutions benefited.

Arboretum Publications

Martha's Vineyard Plant Selection Guide. Interactive website launched fall 2014
By Erin Hepfner, Visitor Services & Resource Specialist.



<http://plantfinder.pollyhillarboretum.org/>

Staff Presentations

The Evolution of Flowering Plants: Martha's Vineyard Regional High School. Oak Bluffs, MA. Timothy M. Boland, Executive Director. January 30, 2014.

Martha's Vineyard Wildtype and the Pollinator Crisis
Annual Copeland Lecture: Mt. Cuba and the Delaware Center for Horticulture
Timothy M. Boland, Executive Director. February 6, 2014.

"Trees are the Answer" - The History of Arbor Day in North America. Martha's Vineyard Garden Club. Wakeman Center, West Tisbury, MA. Timothy M. Boland, Executive Director. February 18, 2014.

American Oaks: A Genus to Love
Evenings with Experts at the Cambridge Public Library, Cambridge, MA. Timothy M. Boland, Executive Director. April 2, 2014.

"Trees are the Answer" Arbor Day Celebration - Friends of Trees Inc. Chatham, MA. Timothy M. Boland, Executive Director. April 12, 2014.

American Oaks: A Genus to Love
Cape Cod Natural History Museum. Brewster, MA. Timothy M. Boland, Executive Director. April 13, 2014.

Oak Diversity of the Cape and Islands
Sail into Science. Nantucket Biodiversity Weekend. University of Massachusetts Nantucket Field Station, Nantucket, MA. Timothy M. Boland, Executive Director. July 26, 2014.

Staff Tours

The Riverbend School Visit - June 3, 2014

Connecticut Native Plant Center Visit - June 4, 2014

300 Land Trust Visit - June 11, 2014

Martha's Vineyard Family Center Visit - June 12, 2014

Cape Cod Natural History - June 20, 2014

Featherstone Center for the Arts Visit - July 18, 2014

Connecticut Horticulture Society Visit - September 16, 2014

Newcomers Club of Falmouth Visit - October 9, 2014

Adkins Arboretum staff visit, (Gina Tiernan) - October 27, 2014

POLLY HILL ARBORETUM, Inc.
STATEMENT OF FINANCIAL POSITION
DECEMBER 31, 2013

ASSETS

Current assets:		
Cash and cash equivalents	\$	329,605
Investments		1,305,027
Pledges receivable		15,332
Inventory		3,980
Prepaid expenses		<u>20,000</u>
		<u>1,673,944</u>
Property and Equipment:		
Land		2,377,232
Building and improvements		3,868,302
Furniture and fixtures		131,741
Machinery and equipment		<u>224,393</u>
		5,904,897
Accumulated Depreciation		<u>(1,429,284)</u>
		5,172,384
Pledges Receivable		26,500
Restricted cash		<u>7,529</u>
		<u>34,029</u>
Endowment Assets:		
Endowment investments		18,112,035
Endowment pledges receivable		12,300
Endowment mortgage note receivable		<u>639,068</u>
		<u>18,763,760</u>
TOTAL ASSETS	\$	<u>25,643,760</u>

LIABILITIES AND NET ASSETS

Current Liabilities:		
Accounts payable and accrued expenses	\$	<u>18,609</u>
Net Assets:		
Unrestricted		5,797,489
Temporarily restricted		6,406,280
Permanently restricted		<u>13,421,382</u>
		<u>25,625,151</u>
TOTAL LIABILITIES AND NET ASSETS	\$	<u>25,643,760</u>

THE CORPORATION AND BOARD OF DIRECTORS

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Horticulturist
Stephen Masterson
Senior Horticulturist/Arborist
Karin Stanley
Education, Membership & Outreach Coordinator
Nancy Weaver
Volunteer Coordinator & Plant Recorder



We discovered in the collections this past year a tiny hummingbird's nest made of leaves and lichens. A small beak is barely visible.
Photo by Hans Rilling ©

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.