

## SEASONS

#### Morris Arboretum of the University of Pennsylvania

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#### Arboretum Rentals

Hold your special event in one of Philadelphia's most beautiful settings. The Widener Center and surrounding grounds are available for weddings, parties, and private and corporate meetings up to 170 guests. For details contact the Rentals Team at

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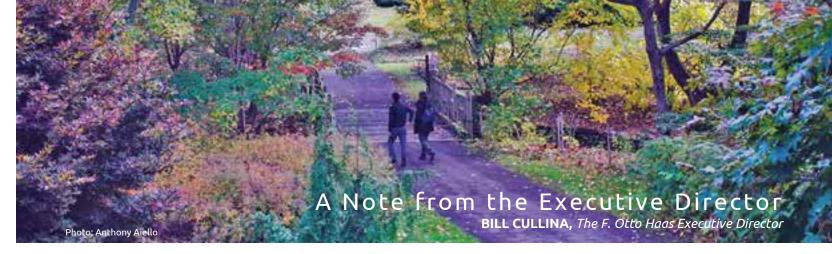


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have been working in public horticulture for 25 years, and I feel grateful every day that I have been so fortunate. After a long career at public gardens, our role and mission in society is very clear to me. Still, the average person might reasonably ask, "What is the purpose of public gardens and why should I care?"

Modern public gardens had their start in Victorian England and Western Europe—born from a confluence of need for plant collections to advance the study of botany and pharmacology with a growing realization among the aristocracy of the need for public outdoor spaces in cities. The Industrial Age lured millions from farms to factory jobs in the cities in 19th century Europe and America. Recognition of the effects of poverty, overcrowding, a lack of sanitation, and deplorable working and living conditions on the working poor gave rise to a progressive reform movement among certain members of the aristocracy who saw access to nature as a cure to the moral and physical diseases of the working poor. The parks movement was born as a patrician social experiment to elevate the working classes morally and physically by providing urban oases of nature and repose. In the more democratic 20th century, the care of parks and public gardens became the job of government and later non-profit organizations, but a fundamental purpose, as 19th century progressive Francis Place put it, is still to "instill a hallowed calm, and a spirit of reverence into the mind and heart of Man."

John and Lydia Morris owed their fortunes to the Victorian age of empire and industry, and held many of the progressive beliefs of Francis Place. They, like other wealthy industrialists of the Gilded Age, left considerable estates for the education and enjoyment of the public. While the source of their wealth might give us pause, there is no doubt that public gardens in America would not have gained a foothold without the considerable contributions of these turn-of-the-century philanthropists.

Fast forward to today where the full extent of the societal disruption caused by the coronavirus pandemic will take years to understand. However, even in these early days, it has reaffirmed both the role of public gardens in society and the work we have still to do to free us from the legacy of racism and classism that is part of our past.

I believe that a connection to the natural world is as fundamental to our humanity as music, art, and religion. Being locked down during quarantine has only amplified the need we all have to be outdoors. Public gardens provide us with a safe, accessible, and enriching way to do so. The spotlight on medical research and the rush for new drugs and vaccines highlights the continued role that botanical research and conservation play not only in plant conservation but in the hunt for new cures. Plants feed, clothe, and shelter us; they bring us joy and peace, and they also keep us well.

There is no escaping that public gardens were born from good intentions by a monied class that achieved wealth and power through exploitation and empire. The spotlight on police brutality and the cancer of racism that still plagues our country and people is a stark reminder that we still need to focus on making public gardens places where all feel truly welcomed and included. Certainly, connecting with nature transcends culture, and in a great melting pot city like Philadelphia we have a special opportunity to build on this to best serve the whole community and the issues that both trouble and unite us.

I am grateful for your support during these tumultuous times and I am very proud of the work we are doing. I hope you will agree that our place in society has never been clearer or more important.





The Morris Arboretum re-opened to the public on June 18. Visitors were excited to once again stroll the beautiful gardens which clearly were missed by so many. While visitors commented on the joy of seeing the flowers and trees, or the pleasure of walking in a safe environment, others were happy to find a quiet spot to sit and enjoy being outdoors in the peaceful respite the Arboretum provides. Here are a few comments from our visitor survey:

"We are frequent visitors so it felt like a bit of normalcy to be back at Morris Arboretum and enjoying the beauty of the plants and trees."

"We are feeling safe to be back in a place my kids and I love."

"Having missed the spring, it was so nice coming back to the garden and seeing everything looking perfect."

"We appreciated the ability to feel relaxed during such a stressful time."

"The Arboretum is a balm for the spirit in these challenging times."

"The Rose Garden, now finished from last year's work, is spectacular!"





#### Meet the New Members of the Advisory Board of Managers

#### Alexandra (Lexa) Edsall

Lexa has a deep career in politics and law, serving in the Office of the Deputy Attorney General and the Office of the Solicitor General at the US Department of Justice; as an associate at Covington & Burling; as a Judicial Clerk to Justice Ruth Bader Ginsburg at the US Supreme Court; and as Senior Adviser to the General Counsel at the US Department of the Treasury. Lexa earned her BA and law degree from Harvard University and also has a Master of City Planning degree from the University of Pennsylvania.



#### Christina Fournaris

Christina is a partner at Morgan, Lewis and Bockius Personal Law Practice and focuses on estate, tax, and generational wealth planning for individuals and family groups. She counsels families and the owners of family-owned businesses in connection with wealth preservation, multigenerational planning, and business succession planning, including the preparation of shareholders' agreements. Christina also advises fiduciaries in connection with trust and estate administration matters and counsels clients with respect to charitable planning techniques, including charitable trusts and private foundations. Christina received her AB, cum laude, in government and music from Smith College and her JD from Cornell University Law School.

#### Mu'min Islam

Mu'min is Managing Member of MFI Law Group and serves as General Counsel for Universal Companies, a Philadelphia non-profit organization committed to creating educational, cultural, and economic opportunities that will break the cycle of generational poverty. He is also an adjunct faculty member at Temple University. Mu'min received his BBA from Temple University's Fox School of Business in 2004 and a JD from Cumberland School of Law at Samford University in 2008.





#### **New Global Ambassador**

William A. (Bill) Hohns

President and CEO of Toyosity, Bill recently completed a six-year term on the Advisory Board. This year he was elected as a Global Ambassador, a role reserved for a select group of individuals who have been meaningfully engaged with the Arboretum through the significant contribution of their time, talent, and treasure, but whose full participation in the Arboretum's efforts is impeded by geographic distance.

#### New Co-Chairs of the Directors' Guild

#### Amanda and Andrew (Andy) Cobb

Amanda is a real estate agent with Berkshire Hathaway Home Services in Chestnut Hill. She received her BA in English Language and literature from Trinity College and she is also a graduate of Springside School. Amanda was Chair in 2017 and Co-Chair in 2018 of the Moonlight & Roses Committee. Andy is the Senior Director of Strategic Partnerships at Impinj, an information and technology services firm in Seattle, WA and received a BA in economics from Middlebury College. Andy has served on the Development Committee since July 2018. As part of their role as Co-Chairs of the Directors' Guild, Amanda and Andy will also serve as ex-officio members of the Advisory Board of Managers.





Photo: Paul W. Meyer

## ever GREEN Campaign Update

# What Does it Mean to be Evergreen? Timeless. Longstanding. Fiscally Sound

As the Morris Arboretum embarked on the *Ever Green* Campaign in 2013, we had no idea that a global pandemic and a social justice movement would be in store for us in 2020. However, the purpose of this fundraising effort to "Strengthen Our Roots, Ensure Our Growth" has never been more relevant.

Fifty percent of the *Ever Green* goal of \$36 million is for endowed funds. Throughout the Arboretum's history as a public garden, it has been endowed funds that have helped the Arboretum weather periods of economic downturn and other uncertainties. Every year, the Arboretum's endowed funds provide predictable and guaranteed funds to the Arboretum despite the circumstances in the surrounding environment. Through times like those we are facing today, endowments ensure that the Arboretum's gardens and programs will be sustained. By making a gift to an endowment, you give a gift that keeps on giving into the future.

Education continues to be the top priority for our endowment needs and it is our obligation to ensure that we extend our offerings to the broadest possible audience in the most meaningful ways. In order to do so, the Arboretum must invest heavily in its education and visitor experience efforts. Toward this end, ambitious *Ever Green* fundraising goals have been established for education-centric priorities:

- \$2.5 million will endow the Director of Education, allowing the Arboretum to re-direct annual operating support to build out education programming and supplement support staff; and
- \$2.5 million will support youth education endowments, including \$750,000 for the newly established Education Endowment for Underserved Schoolchildren.

Thanks to individual and foundation donors, the Education Endowment for Underserved Schoolchildren was established in 2019. To date, \$375,000 in new gifts and pledges has been raised towards the \$750,000 goal. The fund underwrites the cost of admission and transportation to the Morris Arboretum for Title 1 or similarly underserved pre-K through 12th grade school groups or youth groups whose chief purpose is to serve at-risk children.

Due to the complexities and restrictions that Covid-19 has thrust upon cultural institutions in recent months, the relevance of the Morris Arboretum for general enjoyment and as an informal educational destination has never been greater. Outdoor spaces, such as the Morris Arboretum, enrich children's lives and offer them well documented academic, physical, and mental health benefits—it also connects them viscerally to the natural world, an experience which occurs less and less in this increasingly technology-dependent world.

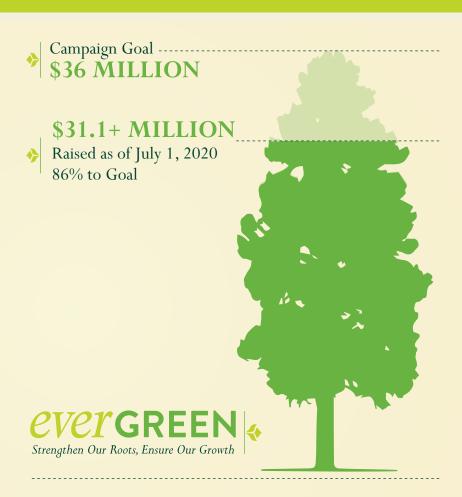
For more information about funding opportunities and how you can help the Arboretum further grow its education resources, please contact Mira Zergani, Director of Development at (215) 247-5777 ext. 102 or via email at mzergani@upenn.edu.

#### Watch Us Grow

Cultivate the Garden

Lead Research Initiatives

Improve Public Access and Inclusion



## Ensuring Youth Access - In Memory of Sally Jane Gendler

This past April, our community lost a close friend and bright light when Sally Jane Gendler, Arboretum neighbor and volunteer, succumbed to a battle with cancer. To carry on her legacy and her advocacy, her family and friends have established the Sally Jane Gendler Youth Education Endowment at the Morris Arboretum. This new fund will provide an opportunity for several hundred more young people to engage annually in meaningful outdoor learning experiences and vocational training experiences—all at no cost to the youth, their families, or to their schools or other organizations with which they are affiliated.



Sally held a master's degree in special education from the Bank Street Graduate School of Education. She worked in early childhood development for the United Cerebral Palsy Association of Philadelphia and the Hall Mercer Child and Parent Center at Pennsylvania Hospital. Sally also held a Master Gardener certificate from Penn State Extension with which she had merged her skills and passions to implement with the staff at the Mount Airy Recreation Center a program called Cooking from the Garden: Seed to Table. Sally was an enthusiastic member of the Garden Club of Philadelphia and had advanced as a judging candidate for the Garden Club of America. She generously shared her expertise and her warm personality at the Morris Arboretum as a guide, a horticulture volunteer, Co-Chair of the Moonlight & Roses committee, and a member of the Directors' Guild.

If you would like to contribute to the Sally Jane Gendler Youth Education Endowment Fund, gifts can be made by calling (215)-247-5777 ext. 205 or by <u>clicking here</u>.

## Bidding Farewell to Bob Gutowski

SUSAN CRANE, Director of Marketing

eflecting on his 36 years at the Morris Arboretum, Bob Gutowski will tell you, "Nobody does anything by themselves at the Morris Arboretum." And that is one of the things he has found most rewarding during his long tenure—the opportunity to have worked with so many people to bring countless projects to fruition.



Bob began his career at the Morris Arboretum in 1979 as a CETA employee (Comprehensive Employment and Training Act), a project that was federally funded to train workers and provide them with

jobs in the public service. As a CETA gardener trainee, Bob worked throughout the Arboretum and then stayed on to help manage the rose garden and greenhouses. He then worked in grounds maintenance on the University of Pennsylvania campus and enrolled in night classes at Wharton as one of the CETA benefits. These experiences introduced Bob to careers in public gardens and inspired him finish his college degree in horticulture, graduating from the University of Wisconsin in 1983. Bob was then accepted into the Longwood Graduate Program where he reconnected with Bill Klein, then Director of the Morris Arboretum, who offered him a position.

Bob returned to manage grant-funded projects associated with the Morris Arboretum's Centennial (celebrating the 100<sup>th</sup> anniversary of John and Lydia Morris purchasing the property in 1887). The Centennial was comprised of exhibits on-site at the Arboretum, a national garden history symposium, and the centerpiece exhibit at the 1987 Philadelphia Flower Show as well as at the Chelsea Flower Show in London (partnering with the Royal Botanical Gardens Kew). The exhibit, which featured a scale model of the Arboretum's Fernery, won a gold medal at Chelsea.

Bob continued at the Arboretum through interpretation and education grants, and by consulting to generate earned income. He led the Arboretum's Urban Forestry program beginning in 1991. Through a partnership with the USDA Forest Service he directed the Mid-Atlantic Center for Urban Forestry from 1995-2000, winning state and national awards. Bob was appointed the Arboretum's Director of Public Programs in 1996 eventually adding education, visitor services, events, and a growing rental program to urban forestry and consulting programs. The School of Arboriculture and the Urban Forestry Consulting program are enduring accomplishments grounded in the Arboretum mission.



"Bob's professional growth paralleled the growth of Morris Arboretum as an institution. Bob started at the Arboretum without a horticulture background and grew to assume a number of departmental director roles, even serving as interim Executive Director last year. His breadth of knowledge made him a valuable leader at the Morris Arboretum, and his passion for plants, people, and place is evident in all that he does." – *Paul W. Meyer, Retired F. Otto Haas Director* 

"Bob has always been willing to listen to and discuss ideas—whether they were about the Arboretum, plant, history, food, or family—and it is his collaborative approach that made him a great asset during his time at the Arboretum."

- Anthony Aiello, The Gayle E. Maloney Director of Horticulure and Curator

It's hard to name a project at the Arboretum with which Bob hasn't been involved in some way, but he likes to think that he has been a champion for projects that were often deemed a "third priority" and/or needed a steward to get them moving forward. When asked if he ever said "no" to a challenging project, he responded, "When someone asks you to do something, say yes. If they ask you to do it, they have faith that you can." He was instrumental, with then Director of Facilities Bob Anderson and many volunteers, in restoring Springfield Mills at Bloomfield Farm. The mill is again operational and serves as a valuable resource for education and a model of historic preservation.

Bob also championed the wetland restoration and Paper Mill Run riparian restoration, securing funding and coordinating planning with federal, state, and local stakeholders. This area now serves as a demonstration of best storm water management practices and habitat conservation. "Great birding," says Bob.



"Working with Bob has been wonderful. His knowledge of Morris and its education programs is incredible and so is his willingness to share that knowledge."

- Sandra McLean, Member, Advisory Board of Managers

"Bob is like a Renaissance man, a person with much knowledge and many interests from birding to baseball, interns to irises, and music to Morris Arboretum history. He is a man of ideas, many of which have been brought to earth, including urban forestry programs, summer camp, subsidized children's tours, a wide variety of art exhibits, and a whole host of partnerships with other organizations." – Jan McFarlan, Assistant Director of Education

Bob cites his involvement with the *Out on a Limb* exhibit as one of the most exciting collaborations he has worked on in his career. Bob was instrumental in developing the interpretation for the exhibit, which has won national awards and recognition, and garnered praise from the museum community, showcasing that the Morris Arboretum is more than just a garden.

Bob has always been passionate about youth education and giving underserved youth the opportunity to experience and connect with nature. One of his proudest achievements is his involvement with the establishment of an endowment for youth education. This endowment helps remove financial barriers for students who otherwise could not afford to visit the Arboretum. It is Bob's desire that funding the Youth Education Endowment will be his legacy gift through his participation in the Lydia Morris Legacy Society. "The Lydia Morris Legacy Society is a wonderful mechanism for people of modest means to make an impactful contribution to the Arboretum in a way that works for them financially," Bob says. Thanks to these gifts and to his immeasurable contributions over almost four decades, it is assured that Bob has left an indelible mark at the Morris Arboretum.

## Honoring Bob's Legacy

If you would like to honor Bob with a gift to the Arboretum in support of the Youth Education Endowment please visit: morrisarb.org/youtheducation.

If you are interested in joining Bob as a member of the Lydia Morris Legacy Society, please contact Mira Zergani, Director of Development at (215) 247-5777 ext. 102 or via email at mzergani@upenn.edu.

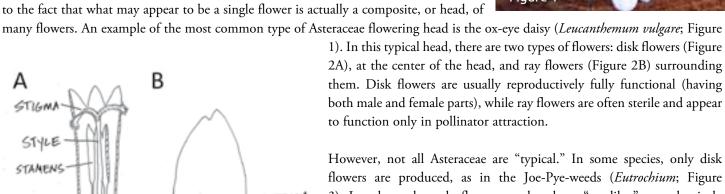


## Meet the Asteraceae – More Flowers Than You Think

DR. TIMOTHY BLOCK, The John J. Willaman Directory of Botany DR. CYNTHIA SKEMA, Botanical Scientist

In terms of species (more than 32,000), the Aster Family (Asteraceae) is the largest plant family on Earth. It also is the largest plant family in Pennsylvania, with about ₹ 320 species. While some species in this very diverse family flower in the spring or summer, about 2/3 of its species flower in late summer and fall. The fields of white and golden-yellow flowers you see from mid-August through September are mostly asters (Symphyotrichum) and goldenrods (Solidago) which, together, represent more than 60 species throughout the state! More than 200 of Asteraceae species are native, and 45 of those are listed in Pennsylvania as species of special conservation concern.

The original (and still accepted) name for the family Asteraceae is "Compositae," referring to the fact that what may appear to be a single flower is actually a composite, or head, of

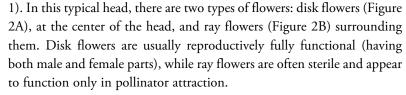


COROLLA

OVARY.

OVULE

Figure 2



However, not all Asteraceae are "typical." In some species, only disk flowers are produced, as in the Joe-Pye-weeds (Eutrochium; Figure 3). In others, the only flowers produced are "ray-like," reproductively functional, and often very colorful (Figure 4). Examples of plants that produce only ray-like flowers are the ever-present dandelion (Taraxacum officinale; Figure 5) or the common chicory (Cichorium intybus).

From the perspective of a pollinator, one composite head of many flowers in Asteraceae looks like an individual flower of other plants—hence why botanists classify an Asteraceae head as a "pseudanthium," which means false flower. However, rather than just one flower being pollinated, dozens, or even hundreds, of flowers are pollinated in a single visit from a pollinator.

Surrounding the pseudanthium at its base is the involucre. This structure is made up of many individual bracts called phyllaries. The number,

size, shape, and color of the phyllaries are highly variable. For instance, in the ox-eye daisy, each flowering head has about 50 green, narrowly triangular phyllaries. In common thistles (Cirsium), the phyllaries are very narrow, tipped with sharp spines, and can number in the hundreds (Figure 6). You may know phyllaries from having eaten the "meat" off the base of one when eating a steamed artichoke (Cynara scolymus). By the way, that "choke" you scrape off the artichoke heart before you eat it is made up of all the immature disk flowers.

Yet another specialized structure found in Asteraceae is the pappus. The pappus is a ring of hairs, bristles, or scales attached to the top of each fruit (an achene), and usually helps in dispersal. If you've ever blown the "seeds" (actually fruits) off of a mature dandelion head, you've utilized the feathery pappus to disperse the fruits, an example of wind dispersal. Other Asteraceae, like beggarticks (Bidens) have a pappus of stiff, barbed awns that allow them to hitch a ride in the coat of a furry animal to get to a new site. Interestingly, the pappus is a modification of the calyx, or sepals, in Asteraceae.



Many species of Asteraceae play important ecological roles in old field succession, where they act as pioneers, stabilizing the soil in formerly cultivated fields prior to trees and shrubs taking over. They also make up important parts of the vegetation of extreme habitats, like serpentine barrens, or exceptionally dry or wet sites, where plants of some other families cannot survive. A signature plant of the serpentine barrens is serpentine barrens aster (Symphyotrichum depauperatum), a globally rare plant and an endangered species in Pennsylvania.

Goldenrods often get a bad rap for causing fall hay-fever. In reality, all they are guilty of is conspicuously flowering at the same time as ragweed, the actual culprit! The pollen of goldenrods is sticky and is carried from flower to flower by insects. Ragweed (Ambrosia), also in the Asteraceae, releases its abundant pollen into the air where it blows around, causing susceptible humans great discomfort in late summer and fall. Sadly, allergy medicine manufacturers persist in implicating goldenrods (and other insect-pollinated plants) by using images of them in advertising their products! As you walk through your neighborhood or park this fall, take time to enjoy the many wonderful species in this diverse plant family.

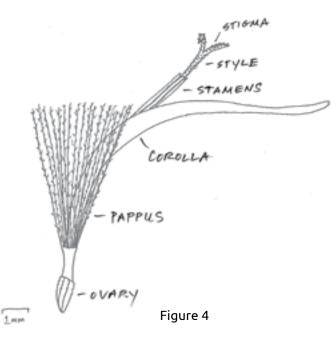






Figure 1. The flowering head of oxeve daisy (Leucanthemum vulgare) is typical for Asteraceae, with many central disk flowers surrounded by a ring of ray flowers.

Figure 2. Disk (A) and ray (B) flowers of oxeye daisy, each with 1 mm scale bar. Note the difference in size. There is no pappus (modified sepals) in the oxeye daisy. The corolla in either type of flower is made up of fused petals. Stamens are absent in the ray flower, while in the disk flower, the stamens consist of five free filaments topped with a collar of five anthers, one pressed against another lengthwise. Diagonal lines indicate a cut surface.

Figure 3. One of the many flowering heads on a Joe-Pye-weed (Eutrochium), made up entirely of disk flowers.

Figure 4. Ligulate (ray-like) flower of dandelion (Taraxacum officinale). The pappus is derived from modified sepals and aids in wind dispersal. The corolla is made up of fused petals and the stamens are the same as described for the oxeye daisy.

Figure 5. Ligulate (ray-like) flowers of dandelion (*Taraxacum officinale*) from above. Note the five small teeth at the tip of the yellow strap-shaped corolla; this is a simple character which distinguishes a ligulate flower from a true ray flower.

**Figure 6.** Spine-tipped, green phyllaries surrounding a flowering head of Canada thistle (*Cirsium arvense*).

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## Stewartia: A Plant for All Seasons

ANTHONY S. AIELLO, The Gayle E. Maloney Director of Horticulture and Curator

ne of the great pleasures of gardening is having a tree or shrub that provides year-round seasonal interest. And while lilacs, magnolias, azaleas, and other plants have their moments to shine, there is something especially satisfying about a plant that can add to the garden whether it is January or July.

Among the most desirable of the multi-season plants are the members of the genus Stewartia, a group of plants native to both eastern North America and Asia. These are all small trees that generally grow in mountainous areas, but are suitably adapted to conditions in the Delaware Valley. Stewartias make excellent small shade trees with their showy bark, beautiful white flowers, and excellent fall color.

As a good rule of thumb, stewartias all need favorable growing conditions, with cool root runs, well-drained soils high in organic matter, and protection from strong sun and wind. Once they have been planted, they prefer not to be moved, so it is worth giving thought as to where to locate one.

Although the most commonly planted types of stewartia are from Asia, there are two North American species that are worth knowing about. These are the mountain

stewartia, (S. ovata) native to the mountainous areas of Kentucky to Georgia and Alabama; and the Virginia stewartia (S. malacodendron) growing along coastal areas in the southeastern U.S. These two species are occasionally available and would be worthwhile additions.

The most popular and readily available stewartias are the Asian species and their hybrids. Among these, Japanese stewartia (Stewartia pseudocamellia, including its variety koreana) is a fantastic garden plant that should be in every garden. As the common name suggests, it is native to the mountainous regions of north and central Honshu, along with Kyushu, and Shikoku Islands, and in south Korea. The species itself has beautiful white, camellia-like flowers in early summer, smooth bark that exfoliates in a mixture of tan, brown, and orange tones, and bright red fall color. Additionally there are a few cultivars that have been selected, including:

'Ballet': a vigorous selection from the Polly Hill Arboretum on Martha's Vineyard, with larger flowers and brilliant bark.

'Milk and Honey': large ruffled flowers that are held widely open, bright orange-red autumn color with silver and tawny bark.

'Scarlet Sentinel': introduced by of the Arnold Arboretum and thought to be a hybrid between S. pseudocamellia and S. ovata var. grandiflora. Similar to Japanese stewartia with a dense growth habit and its large white flowers have prominent scarlet stamens.

The giant stewartia (Stewartia monadelpha), is another of the Japanese species, and I can attest to its common name having seen huge trees growing in southern Honshu. In the fall, its attractive cinnamon-colored bark is complemented by its purple and scarlet fall color. Giant stewartia is perhaps as well-known as one of the parents (along with S. pseudocamellia) of Stewartia × henryae, selected and named by the Henry Foundation. Another Polly Hill Arboretum introduction, 'Skyrocket' has excellent vigor and a narrow growth form, growing twice as tall as wide, with an abundance of small white flowers.

At the Arboretum, our stewartias are mostly planted along the East Brook, near the Swan Pond and Log Cabin. Although perhaps not as commercially available as other small ornamental trees, stewartias can be found for sale at better garden centers and through some mail order nurseries. With some perseverance, adding these to your garden will provide decades of year-round enjoyment.

For more information, a thorough treatment of Stewartia can be found by clicking here.



The natural lands area of the Arboretum begins at the entrance that invites you, the visitor, through the main gates. With acres of meadows, streams, springs, the wetland and woodlands, the natural lands area lends itself to a variety of interesting habitats to explore and is a great area to discover something new.

In 1998, the Arboretum engaged in a mission of natural areas restoration, starting with the Paper Mill Run stream restoration project. This project focused on stormwater management for healthier streams using native plants to create a functioning floodplain that allowed for ground water recharge. Soon after the stream restoration success, further initiatives continued to re-establish an existing wetland. The floodplain area had been used for agriculture in the early 1900s by the Morrises' and had been left as meadows for years. The goal was to re-create a functioning wetland ecosystem for further stormwater management and habitat restoration. After completion of the wetland restoration project, planting began in spring of 2002. With a focus on plants native to Southeastern PA and the unique geology where a limestone floodplain meets a schist gorge, the natural lands floodplain started to take shape.

Over the last 18 years, the wetland and natural areas have been thoughtfully managed with ecological diversity in mind—not just diversity of plants (102 taxa of accessioned woody plants) but with the goal to attract diversity of wildlife as well to create a complete ecosystem. These once small, native trees and shrubs have become towering canopy trees and shrub masses that provide shade and shelter, and in some cases become natural bird blinds to experience the action. The wetland is home to a wide variety of bird species. In fact, in late June the Arboretum participated in the Philadelphia mid-summer breeding bird census and in just one morning, 47 taxa were identified with 287 individual birds—many of which were in the natural lands. In addition to birds, insects, reptiles, butterflies, and mammals make their home in the wetland and the surrounding meadows and woods.

In early 2020, the Arboretum began work to install a deer fence around the majority of the public garden including the wetland, some meadows and parts of the woodland. This was a huge undertaking but the benefits to the garden will be amazing. In monitoring the deer population of the Arboretum, wildlife cameras were also utilized. While naturally there were many deer, other discoveries included some very photogenic raccoons, foxes, groundhogs and even a coyote. This once historical, agricultural use farm has developed into a thriving ecosystem within the boundary of the city of Philadelphia.

Since reopening this June, it is great to see just how many people come to explore the natural lands, wander the paths with their children, read the interpretive panels, birdwatch, and enjoy the shade of the lovely native trees. Next time you visit, consider the less traveled paths, explore the diversity of habitat, and soak in the peaceful serenity of the natural areas. You never know what you might discover.









## Red Mulberry – A Rare Tree in Pennsylvania's Forests

**DR. TIMOTHY BLOCK**, The John J. Willaman Directory of Botany **DR. CYNTHIA SKEMA**. Botanical Scientist

ur native red mulberry, *Morus rubra*, is a tree of moist woodlands, reaching a height of 50 to 60 feet. The fruits of red mulberry were made into beverages and preserves by both Native Americans and early European settlers to our area. The bark and sap of this species were used medicinally, and the durable wood was used for fence posts and in ship building. *Morus rubra*, although never abundant, was once a fairly common tree in Pennsylvania and throughout its range in the Eastern U.S. but has declined notably in occurrence over the last 200 years (Illick, 1915; Rhoads and Block, 2005).

Because of its precipitous decline as a forest species, and the few currently known occurrences of *Morus rubra* in Pennsylvania, this species recently has been considered for official listing as a species of special conservation concern by the Pennsylvania Natural Heritage Program (PNHP) – Vascular Plants Technical Committee (VPTC). The VPTC is a group of professional botanists and ecologists charged with advising the PNHP on species that should be listed as rare, threatened, or endangered in our state. Staff from the Botany Department at the Morris Arboretum have served on the VPTC since its inception in the late 1970s.

The non-native *Morus alba*, white mulberry, an Asian species and primary food source for commercial silkworm rearing, was introduced to North America as early as the late 1600s, and repeatedly through the 1800s in various attempts to establish a silk production industry here. Southeastern Pennsylvania was a center for silk production and several operations for growing and processing silk were established in the Easton area (Heller, 1920). Although the silk industry long ago ceased operations, escaped *Morus alba* trees are now a common sight throughout Pennsylvania, and throughout the entire range of the native *Morus rubra* in the Eastern U.S.

Recent research by scientists (Burgess et al., 2005; Nepal et al., 2015) has provided relevant hypotheses for, in part, explaining the near disappearance of *Morus rubra* from our forests. When growing in close proximity, hybridization between *Morus rubra* and *Morus alba* is a common occurrence. In the limited geographic areas so far studied, the relative abundance of *Morus alba* as compared to *Morus rubra* has resulted in the production of many more *Morus alba* and *Morus alba*-like hybrid trees than pure *Morus rubra* trees. This process (termed asymmetrical introgression (Burgess, et al., 2005)) can, over a number of generations, lead to the complete "swamping" of a native species by a closely related non-native species, leading to rarity, or even extirpation, of the less common native species.

We have undertaken a research project to examine the morphology and genetics of populations of *Morus rubra* and *Morus alba* in Pennsylvania and surrounding states to determine to what extent new and existing research hypotheses explain the decline in occurrence in our area of native red mulberry (*Morus rubra*).

The project focus is to document the occurrences of these species and collect material needed for morphological and genetic analysis. Complete descriptions of micro- and macromorphological characters will be made from the material collected, as well as measurements made from herbarium specimens of both species. Molecular work, utilizing both chloroplast and nuclear markers, will be carried out to help assess the genetic status of individuals and quantify levels of introgression/hybridization in populations.

#### Literature Cited:

Burgess, K. S., Morgan, M., Deverno, L, and Husband, C. 2005. "Asymmetrical introgression between two *Morus* species (*M. alba, M. rubra*) that differ in abundance. *Molecular Ecology* 14: 3471-3483.

Heller, W. J. 1920. History of Northampton County and the Grand Valley of the Lehigh. The American Historical Society. New York.

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Nepal, M. P., Ferguson, C. J., and Mayfield, M. H. 2015. Breeding system and sex ratio variation in mulberries (Morus, Moraceae). Journal of the Botanical Research Institute of Texas 9(2): 383-395.

Rhoads, A. F. and Block, T. A. 2005. Trees of Pennsylvania: A Complete Reference Guide. University of Pennsylvania Press Philadelphia.



In a natural forest ecosystem, nothing goes to waste. When plant parts fall to the ground and decompose, they feed soil microbes and become integrated into the soil below. This decomposition of organic matter is an essential part of carbon and nutrient cycling. Thus, when a plant drops its leaves, important nutrients are released that support the continued health of the plant, the soil, and the rest of the forest.

Leaf litter decomposition is known to be a critical process for ecosystem function in natural and agricultural settings. Leaf litter also creates an important habitat for invertebrates and other small creatures. However, few studies have been able to capture the complex biogeochemical processes that occur in urban soils. Human activity drastically alters soil properties in urban environments, making these soils more difficult to understand.

The University of Pennsylvania campus and Morris Arboretum are located in Philadelphia. Consequently, these urban locations have unpredictable soil conditions.

To better understand leaf litter impacts on urban soil health, I worked with a team of ecologists to study leaf litter decomposition on the University of Pennsylvania campus. In the fall of 2019, our team initiated a pilot study. We set up experimental plots to investigate leaf decomposition rates, soil nutrient supply rates, and invertebrate presence across campus. The plots contain soil probes and leaf litter bags, which are scattered across a variety of soil conditions.

Data were collected from the plots in early summer and are currently under analysis. We hope to quantify the benefits of leaf litter in an urban environment. If an urban campus holds true to natural processes, soil with leaf litter will demonstrate an ecological benefit compared to soil without leaf litter. This information can potentially alter landscape management practices at the University of Pennsylvania and other urban landscapes, to best support Philadelphia's ecosystem.

Regardless of what we find on Penn's campus, I suggest retaining leaf litter in your garden or yard. Many studies have demonstrated the ecological and horticultural value of retaining leaf litter and plant-based organic matter. Leaving plant material on the ground supports soil health and the ecosystem collectively. Organic matter can be left whole, as to not disturb the native insects that overwinter in the leaves. Leaves can be neatly raked around the base of the tree, which the insects will appreciate, as well as the birds and other wildlife that eat them. Alternately, you may choose to grind up the plant material and use it as mulch or fertilizer. Keeping leaves and plant matter on your property saves energy and money, while preserving landfill resources for other types of litter.

There is a wealth of information available on how to use and retain plant-based matter at your home or site. Be good to the environment, leave the leaves!

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### Carved in Stone

**ROBERT GUTOWSKI** 

Director of Education, Visitor Experience, and Outreach

orris Arboretum volunteer Jeff Clark is also a Creek Watch volunteer who has been monitoring the Wissahickon with his wife since 2014. One monitoring location is adjacent to Springfield Mills on Bloomfield Farm. Last winter, he noticed for the first-time some obscure text carved into the limestone outcrop that forms the falls at the mill. Although it's water worn and partially eroded, we deciphered it as "PiPERS MILL, Pa."

This is a rather ineffective location for a sign or marker. It does not appear positioned for public viewing (although the creek bank was likely closer to the inscription when it was carved). It does not seem to be on a boundary line. It is more personal than that. The story we can only imagine. Who sat there with hammer and chisel to shape

these letters? Was it just practice engraving or a skill demonstration? The "Pa" is done in cursive script. Perhaps they were diverted from dressing the mill stones or some masonry task. Were they making a statement about water rights or ownership of the falls? The plaster walls inside the mill have numerous names and dates inscribed, along with what appear to be a few hex signs. Tagging occurred long before spray paint. This activity is an ancient expression of humanity using primitive tools and materials.

John Morris purchased the mill along with Bloomfield Farm in 1913. The original grist and sawmill along with the north end of the existing Miller's Cottage were built in 1761 by William Streeper, Jr. William, the first miller, was one of the original Crefelt-Summerhausen emigrants to Germantown. He died in 1763 and left the Streeper Mill to his son George. One of George's sisters, Hannah, married John Piper, who bought the mill from George Streeper in 1789. Streeper's Mill became Piper's Mill. John Piper left it to his son George and it eventually passed to his sister, Lydia. Lydia's brother, Henry A. Piper, who was also a schoolteacher in the schoolhouse across the creek from the mill, operated the mill for his sister. The 1877 Hopkin's Atlas shows "H. Piper's Mill." Henry A. Piper was the last Piper mill owner during the period 1882-1892. We can surmise the "Piper's Mill" was carved in stone sometime between 1789 and 1892. However, when Henry A. Piper rebuilt and updated the mill in 1854, he had the datestone installed that proclaims the structure as "Springfield Mills, 1854." Ergo, it can be argued that the creek side inscription dates to sometime before 1854, so between 1789 and 1854. The true story of this inscription is part of the art and mystery of milling.





n June, the Arboretum welcomed a new class of interns who will work in various departments, gaining valuable experience while observing the day-to-day operations of a world class institution. Their year culminates with a project, some of which have resulted in the renovation of garden areas or in a new area of focus in education or research. Pictured from left to right are:

**Autumn Edge,** *The Martha J. Wallace Endowed Plant Propagation Intern*, is from Boulder, Colorado, and graduated from Colorado State University in 2017. She majored in biology with a botany concentration. She is passionate about integrating farming and gardening with ecosystems to improve the environment and food supply chain for a more sustainable future.

**Lynn Weaver**, *The McLean Contributionship Endowed Education Intern*, is a North Carolina native, and a recent graduate of Duke University where she majored in plant biology, and minored in Spanish. She is passionate about the intersection between botany and education, and firmly believes that being able to identify plants keeps you from being a tourist in your own environment.

Adi Shiloh, *The Martha S. Miller and Rusty Miller Endowed Urban Forestry Intern*, graduated from Cleveland State University with a dual degree in psychology and organizational leadership. Shortly after, she discovered community forestry through a Tree Steward Training, and immediately knew that trees were at the core of her life's path. Adi is passionate about social and environmental justice.

**Julia Hart**, *The John J. Willaman & Martha Haas Valentine Endowed Plant Protection Intern*, grew up in Saratoga County, New York. In 2016 she graduated with a degree in forest health from SUNY College of Environmental Science and Forestry. Integrated pest management and ethical land stewardship are her passions.

**Delainey Williams**, *The Hay Honey Farm Endowed Natural Lands Intern*, is a recent graduate of Michigan State University and is from Shelby Township, Michigan. She majored in horticulture science, with a minor in environmental and sustainability studies. Delainey loves the way that public horticulture brings her love of plants and people together, creating beautiful spaces for everyone to enjoy and appreciate the natural world.

**Sarah Evantash**, *The Charles S. Holman Endowed Rose and Flower Garden Intern*, is from Cambridge, Massachusetts. This past May, she graduated from Smith College with a degree in environmental science and policy and a minor in landscape studies. Sarah loves the creative side of horticulture and wants to learn about garden design throughout history and across the world.

**Liam McTigue**, *The Walter W. Root Endowed Arborist Intern*, is from Langhorne, PA and went to Millersville University where he studied biology with a concentration in botany. He completed a thesis for departmental honors based on a floristic inventory of vascular plants on a two-acre parcel on campus.

**Julia Callahan**, *The Alice & J. Liddon Pennock, Jr. Endowed Horticulture Intern* is from Portsmouth, Rhode Island. She is a recent University of Vermont graduate. She earned a B.S. in sustainable landscape horticulture, spent time hiking in the Green Mountains, and working with the UVM Horticulture Club. She especially loves the way plant science, art, and sustainability interact with each other in public gardens.

**Shannon Kingsley (not pictured)**, *The Eli Kirk Price Endowed Flora of Pennsylvania Intern*, grew up in southeastern Massachusetts and recently graduated from Brown University where she majored in ethnobotany and English. There she merged biological, cultural, and historical lines of inquiry with a thesis on the ecological and social impacts of immigrant-run farms in Providence, Rhode Island.

## Volunteer Spotlight

**LIZA HAWLEY,** Assistant Director, Visitor Education and Youth Programs

Jolunteers keep Morris Arboretum going in so many ways: horticulture volunteers help keep the grounds beautiful and new plants propagated, Garden Railway volunteers help keep the structures in shape, education volunteers help keep our visitors well informed. As the supervisor of the "Guides," I know how very much they do for visitors, both groups and individuals. Developing tours and training guides, recruiting and rewarding guides are all accomplished through the Guides Council. This organization consists of officers who meet eight times a year, along with the chairs of committees that get the work done!



Joan Kober is the Chair of the Guides. She has been a guide since 2004 and has been active on almost all the committees. As Chair of the Guides, Joan presides over brisk but lively council meetings, giving great input and keeping meetings timely and on-task. Joan writes event-specific poetry that is moving and funny by turns. She also writes very thoughtful articles for *Volunteer* magazine.

Jim Kohler is Vice-Chair of Guides Council. He also chairs of the volunteer's program committee, responsible for paring down the myriad suggestions for workshops and field trips offering professional development and great perks for volunteers. He's been an enthusiastic guide since 2003, and, as you can see in his photo, genuinely fun to be around.





Bette Perlman chairs the volunteers' education committee, which is charged with development and evaluation of visitor educational opportunities and programs. She was instrumental in getting classes of student teachers from area colleges to come to the Arboretum to learn a little plant science, some activities they can do in their classrooms, and how to get the most out of field trips.





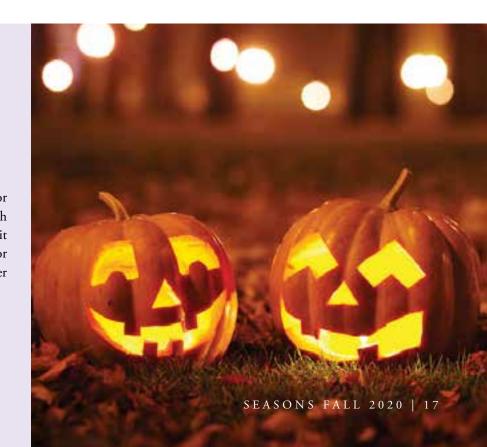
Photos: Ashley Angell and Paul W. Meyer

## Scarecrow Contest 2020

orris Arboretum's Scarecrow Design Contest is back for the 13th year (spooky right?) with the 2020 theme, "Fairy Tale 'Crows." Think back to your favorite fairy tales. Who was the character you liked or feared most? It's your chance to re-create a scarecrow version of a fairy tale character for display at the Morris Arboretum. Could it be Goldilocks and the Three Bears, the beautiful Snow White or her evil queen, or Ali Baba mouthing 'Open Sesame,' or maybe it's the brave Moana or the boisterous demigod, Maui? All fairy tale characters are welcome. New this year, scarecrows will be on display throughout the garden to allow for social distancing. There will be something new to find around every corner! Scarecrows will be on display from October 3 through November 1. Visitors will vote for their favorite scarecrow online to determine the winners. Top prize is \$250. We provide the frame, burlap, hay, and twine—you provide the creativity! Sign up today by clicking here. Registration ends September 25

## New this year! Lighted Lantern Halloween Walk

Don your costume and come to the Arboretum for a special nighttime walk through the garden with lighted lanterns. Fairy Tale Scarecrows will be lit for viewing. Details to follow. Check website for registration. Thursday, October 29, Friday, October 30, and Saturday, October 31 from 5:30-8pm







### Fall Classes Go Virtual

ake this time at home to create a new garden, make your front door beautiful with a planted container, or get into houseplants. For your health and safety, all classes will be presented virtually. Registrants will receive a recording of each class they register for, so even if you can't attend, you can view it at your leisure. To register <u>click here</u> or call 215-247-5777, ext. 125.

A list of complete class offerings is available online at morrisarb.org/classes.

#### Here are just a few online classes coming this fall:

- Shade Gardening
- How to Design and Plan Your Home Landscape
- Native Plants: The Basis of a Healthy Ecosystem
- Shrubs and Hedges Important Additions to Your Landscape
- Maintaining and Enhancing Tree Health (School of Arboriculture)
- Fruit to Nuts: Collecting, Cleaning, and Sowing Seeds
- How to Create Winter Interest
- Container Gardening
- Beneficial Bugs in your Garden
- From the Garden to the Laboratory: Philadelphia's Botanical Past
- House Plant Care and Propagation
- Natural Design for the Mid-Atlantic States (School of Arboriculture)
- Nature Photography
- Planting for Success
- Planting in Small Spaces: Inspiration from Woodlands' Cradle Graves
- Ducks: Beautiful Birds for Winter Viewing
- Designing a Productive and Ornate Vegetable Garden
- Planning for Pests: How to Get Ahead of Garden Pests

# GrowingMinds

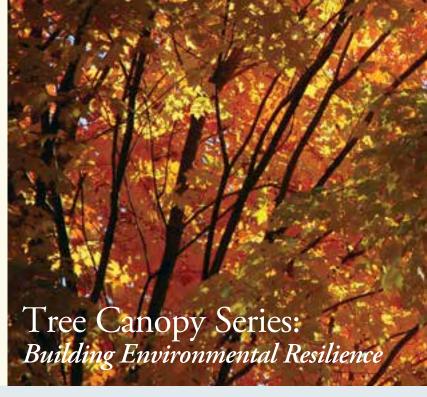
lso offered virtually this fall, the *Growing Minds* program helps children connect meaningfully with nature through a wide variety of creative and educational offerings. To register online <u>click here</u> or call (215) 247-5777 ext. 125 for more information.

- Native Pennsylvania Animals
- Raptors
- Nature Art for Kids



he Morris Arboretum's annual Tree Canopy Conference explores how common tree care practices align with science and provides lessons on how we can become more effective advocates and practitioners. In lieu of the conference this year, the following classes will be offered virtually. To register visit morrisarb.org/classes or call (215) 247-5777, ext. 125.

- What a Warming World Means for Insect Pest Outbreaks
- The Critical Role of Parks in Philadelphia Communities
- Examining the Future Forest: Predicting Which Trees will Survive
- Bringing Diversity to Stressful Urban Streetscape
- Tree Equity: Focusing Urban Forestry for Climate Action, Climate Justice and Economic Recovery





# Morris Arboretum Lecture Series Lift Every Voice!

Abra Lee, Owner, Conquer the Soil

Black Americans have always been trailblazers, leaders, and visionaries in the world of horticulture. Join in as we celebrate the incredible career paths they have taken. From the first Black florist west of the Mississippi to an entomological artist extraordinaire, these individuals have led the way shaping future generations of horticulturists. This historic journey is a can't miss discussion of their endearing legacy. Abra Lee is owner of Conquer the Soil, a community that celebrates horticulture beyond the world of plants. She has been an estate gardener, greenhouse assistant, municipal arborist, county extension agent, and landscape manager for two international airports. Lee is a graduate of Auburn University College of Agriculture and an alumnus of the Longwood Gardens Society of Fellows.

This lecture is part of the Morris Arboretum Endowed Lecture Series and will be presented virtually on Friday, October 23<sup>rd</sup>, from 1:00-2:00pm. Participants will receive a link prior to the lecture. *The Barnes Endowed Lecture is presented annually in memory of Laura L. Barnes, founder of The Barnes Foundation Arboretum*. The cost is \$15 for members and \$20 for non-members. To register click here or call (215) 247-5777 ext. 125.

## The Tradition of Great Stories and Legacy

ave you ever wondered why some stories are so compelling and memorable? Join Lynn Malzone Ierardi, JD, Director of Gift Planning, University of Pennsylvania and members of the Lydia Morris Legacy Society of the Morris Arboretum on November 20th for an exploration of storytelling and its crossover into estate planning. Great stories have the power to raise awareness, inspire generosity, change behavior, and even trigger a physical response. There is an incredible appetite for stories. During her talk, Lynn will explain which essential ingredients can make a story great taken from portions of her recently published book *Storytelling: The Secret Sauce of Fundraising Success.* The 1.5 hour virtual program will begin at 10:00am on Friday, November 20<sup>th</sup>. Please contact Chelsea Melvin at melvinc@upenn.edu by November 16<sup>th</sup> to register and receive the Zoom meeting room link.

## Go Green! Give the Gift of Membership

Morris Arboretum membership is a gift that keeps on giving for an entire year, it is zero-waste, and enhances wellness by getting your loved ones outdoors!

There are two ways to purchase a gift of membership:

**ONLINE** – Visit our website, www.morrisarboretum.org, to purchase anytime. NEW – Download and customize a certificate to present to gift recipient.

**PHONE** – Reach the membership office directly at (215) 247-5777 ext. 205 Monday through Friday, 9am–5pm.

To ensure your gift membership materials are received by December 24, orders must be received by December 14.

#### New – Download a Beautiful Gift Certificate!



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ers@ ion	A Gift for You
	You have received a gift membership to the Morris Arboretum!  Members get more  Free unlimited admission all year long  Complimentary one-time use guest passes  Discounts in the Shop, the Café, classes, lectures, and more  Reciprocal privileges through the American Horticultural Society's Reciprocal Admissions Program  You will receive your membership cards and guest passes she but you can enjoy your benefits now by presenting this certif upon entry. Please contact us at members@morrisarboretur (215) 247-5777 ext. 205 with questions. Visit our website for garden admission information.

Once you've purchased a gift membership, download one of our gift certificates that you can print and fill out to give to your recipient. Choose from several templates to make your gift extra special.

Buy early and save! Purchase a gift membership online or over the phone and use the promo code GIFTMEM10 and receive a \$10 discount on your purchase now through December 1.



he Morris Arboretum is grateful to the following donors who made tribute and memorial gifts between May 16 and August 15, 2020.

In honor of Sara Allen's
Birthday
Nancy Miller & Hannah

In memory of Louis J. Appell Jr. Anonymous

In honor of Diane & Stuart Donaldson on their Anniversary & Birthdays Mary Jane Raymond

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In honor of the Staff & Volunteers of the Morris Arboretum Bob Gutowski & Madelyn Ladner

*In memory of Ruth Preucel*Joan Thorne

In memory of Susie Sargent David Van Ness Taylor

In memory of Joan & James H.
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In memory of Marilyn Wills
Pam Palmer
Sarah & Victor Wills III
Warren Wills Jr. and family
Margaret Yohe

#### The CARES Act and Gift Planning

As part of legislative efforts designed to provide support for individuals, companies, and non-profit organizations, Congress enacted the Coronavirus Aid, Relief, and Economic Security (CARES) Act. This new law offers incentives for standard and itemized deductions, options to increase your retirement income, and more.

To learn more <u>click here</u> or contact the Office of Gift Planning directly at (215) 898-6171 or giftplan@dev.upenn.edu.

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morrisarboretum.org



Photo: Mark Stehle



Seasons newsletter is printed on FSC® (Forest Stewardship Council™) certified paper, which supports the growth of responsible forest management worldwide through its international standards.

Get Ready for
The Holiday Garden Railway!
Open Daily November 28 – January 3.
Included with garden admission
(Advance tickets are required for admission)
See the beloved railway decked out with thousands of sparkling lights!

#### Holiday Garden Railway Nights Open November 28 and select dates in December from 4:30-7:30pm

These special evenings provide a magical experience

for the whole family. This is a special event that requires a separate ticket and an additional fee applies. Tickets for this event can be purchased at morrisarboretum.org beginning in November.



## Special Event for Premier Members

Thursday, December 3 and Friday, December 4 from 4:30-7:30pm

Premier members are invited to enjoy a complimentary evening at the Holiday Garden Railway on either Thursday, December 3 or Friday, December 4. Beech, Chestnut, Holly, Oak, Laurel, and Collectors Circle members will receive an invitation. To make your upgrade today, contact the Membership office at (215) 247-5777 ext. 205.