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DNPS Mission Statement:
Founded in March 1998, we are a volunteer-based, publicly supported non-profit organization dedicated to the conservation of native plants and their natural habitats through education, science, advocacy, and land stewardship.
Discover more at: https://delawarenativeplants.org
Summer appears to be moving quickly as does our progress on the native demonstration garden in Lewes. Our treasurer, Eric Zuelke, who has been organizing and spear-heading the project has a wonderful article in this issue on its planning and installation. As this is an ongoing project, the Delaware Native Plant Society will keep our members updated on the garden’s status and additional volunteer days via our membership emails and through our Facebook page.

As our members know, we are proud of our initiatives throughout the state and the volunteers that assist us. We are also proud of our yearly events and symposiums. These events were impacted with the onset of the pandemic. With the pandemic appearing to be diminishing in Delaware, we are hopeful that we can begin having our typical seminars and symposiums once again. Last year we had our first virtual symposium which went well with a couple dozen attendees in the Fall. We will keep you updated on this year’s plans as we move forward.

The weather we are experiencing, and its extremes, are an indication of our changing world. A topic that could be addressed in one of seminars is resilient landscaping and land planning. If you have a topic that you would like addressed, please email us. Our success depends on our membership’s involvement and the spreading of our mission throughout Delaware.

Stay safe, and keep promoting native plants!

Eric Wahl  🌿

Connect with the DNPS on Facebook

Or find us at:

https://delawarenativeplants.org/
Letter from the Vice President
Rick Mickowski, Vice-President
Photos courtesy of R. Mickowski

Penstemon flowering in the pollinator patch in early June

First year plants of blue vervain flowering in June

Pandemic Pollinator Patch Update

Since the article in the previous issue, I have extended my pandemic pollinator patch further across the front of my grassed strip between the sidewalk and street. The patch contains a mixture of native plants and ornamental non-native flowers. The Penstemon plants I grew in 2020 and planted last fall bloomed heavily this spring. I extended the bed and planted native plants I began from seed over the winter including goldenrod, anise hyssop, blue vervain, and new York ironweed.

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The newly extended portion of the pollinator patch shows pink flowering *Monarda* just beginning to bloom. This bee balm was purchased at the UD Botanic Gardens sale in early May.

In May 2019, DNPS members took a trip to the Bowman’s Hill Wildflower Preserve in New Hope, Pennsylvania on the opening day of their plant nursery sale. I purchased an Allegheny serviceberry and planted it in an opening behind my large river birch trees and a witch hazel plant. It did not bloom in 2020 but this past April 2021 it bloomed beautifully and had a nice crop of berries. Hopefully, DNPS can offer another trip like this back to Bowman’s Hill or to Adkins Arboretum in Maryland once these organizations are fully re-opened to the public. If you have any suggestions for DNPS activities, please contact the officer team.
We wanted to give all of you a summary of the all the activity that has happened at our University of Delaware native pollinator habitats for the year so far.

During the last week of January 2021, I completed and submitted an online application for a new program from the Xerces Society called the Northeast Monarch and Pollinator Habitat Kit Planting Program. The habitat kits included 1000 plants of twelve different species. We learned on the 18th of March, 2021 that the DNPS was chosen to be one of the recipients of a kit. Out of 100 applicants, only 46 kits were distributed, so we were very fortunate and grateful to receive one.

Preparation for the habitat kit installation began on 21 Mar 2020 with myself and Jennifer Clem (Facilities Manager for the UD Lewes campus) installing 400 feet of black weed-blocking fabric to kill the grass in a procedure called soil solarization. This was done in an expanded footprint of the original dry pollinator habitat.

The 19th May 2021 marked the beginning of the first round of intensive site work with the plants that we received. I picked up the plants from Pinelands Nursery in New Jersey and dropped them off on-campus. The first volunteer planting day was on 22 May 2021 through 23 May 2021. Three volunteers showed up and we planted dozens of plants in a randomized fashion using numbered tags in the flats and ping pong balls with corresponding numbers in a bucket to naturally distribute the plantings. We used an auger attached to a cordless drill to make the holes and it was discovered that the soil solarization we put the site through since March worked incredibly well and the soil was a blank canvas that was very easy to work with!

The final round of planting happened on the weekend of 29 May 2021. The rest of the plants were put into the ground in both the dry pollinator habitat and the wet meadow, and even though we were actively rained upon most of the time, we were very happy with the results!

We’d like to thank (in alphabetical order) the following people for their help with this project up to this point: Jennifer Clem, Donna Hoyt, William McAvoy (technical assistance), Richard Mickowski, Alice Mohrman, Eric Wahl, and two grad students from the University (Malique, and Justin), and one undergrad (Willa).
Soil solarization expedited the planting process

The latest species to be added!

Getting the plants into the ground on the first weekend of planting

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The second weekend of planting!

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Featherfoil (Hottonia inflata Ell.) of the Primulaceae, the Primrose Family, is an obligate wetland plant with a curious appearance and a fascinating lifecycle.

In Delaware, featherfoil is found growing primarily in Coastal Plain seasonal ponds and occasionally in beaver ponds. Coastal Plain seasonal ponds are ground-water depression wetlands that occur within woodlands and forests. They are typically flooded in the early spring when the ground-water table is high, and are dry in late summer when the ground-water table is low. Coastal Plain seasonal ponds are home to a diverse suite of plant species, many of which are rare or uncommon in Delaware. In addition, Coastal Plain seasonal ponds provide critical breeding habitat for frogs and salamanders.

Featherfoil has a very unique and interesting appearance. The plant is branched apically (at the tip) into many erect, hollow, inflated, leafless flowering stems that are contracted at the nodes (position on the stem where leaves, flowers, or branches originate). The pedicellate (with a stalk to a single flower) flowers, which are white with 5 petals, occur in whorls (a ring-like arrangement) at the nodes, and the fruiting capsules are many seeded. At the base of the flowering stems are submerged leaves that are pectinate (comb-like) in form and have the appearance of a feather, hence its common name.

Featherfoil is an annual species and its life cycle is totally dependent on the fluctuating water levels that occur in wetland types such as Coastal Plain seasonal ponds. In early spring, usually in April when the ponds are flooded, featherfoil begins to flower. The hollow, inflated stems float at the
water’s surface and are rooted in the pond bottom by a long, nearly naked vegetative stem. Flowering usually lasts for two-to-three weeks and seeds mature soon after flowering ceases. Mature seeds then fall from the plant and sink through the water column of the still flooded pond. The seeds come to rest on the pond bottom, where they wait patiently while the pond slowly draws-down through the summer. In late summer after the pond has been dry for a period of time, seeds of featherfoil begin to germinate, usually in September or early October. After germination, a small rosette (a dense radiating cluster of leaves at ground level) develops that is about two inches across and pectinate in form. The rosette will remain green through the winter even as the ground-water table rises and the ponds flood. The high waters likely protect the rosettes from cold winter temperatures. After a long winter sleep, something then triggers the plant to develop a stem that climbs to the water’s surface. I have observed featherfoil flowering in over three feet of water, so that climb to the surface can sometimes be quite an effort. From the stem, flowers develop and once again the reproductive process begins and the cycle repeats.

Featherfoil has been known to perform a disappearing act, meaning, it can be present in high numbers at a particular site one year, but be completely absent the next, then reappear in the future. This appearance/disappearance regime may be a result of several factors. One factor being less than satisfactory growing conditions, e.g., the ponds never draw-down in a particular year allowing time for winter rosettes to develop. Another factor, as some researchers have suggested, may be that featherfoil functions on a two-year lifecycle instead of annually, i.e., seeds germinate after two years and not during the first.

In the eastern U.S., featherfoil is more southern in its distribution. It occurs sporadically along the Atlantic Coastal Plain from Maine to Florida, but is rare and uncommon in the northern portions of its range. In Delaware, featherfoil is considered to be a rare species and is known from less than 20 distinct populations.


William A. McAvoy
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When I was six years old, a gray-haired couple came to our farmhouse on a June day with an unusual request: “May we walk in your woods?” Former owners of our 165-acre Pennsylvania farm, they knew about something growing on our wooded hillside that we did not know.

My family had moved from town to country the previous October, and we had not yet explored all of our property. What was in the woods? Of course, Mom, my siblings and I trudged up the hill with our visitors to find out.

When I stepped into the cool, canopied woodland, my eyes widened, my jaw dropped.

Masses of pink clouds floated among the tree trunks.

“How mountain laurel blossoms,” the couple explained.

Mountain laurel (Kalmia latifolia), a native North American shrub, bears lance-shaped, leathery, evergreen leaves on rough, woody stems and cloud-like clusters of pink and white flowers on the branch tips. Seeing Pennsylvania’s state flower in beautiful full bloom astonished me and initiated an ongoing interest and appreciation of nature in me.

Sadly, many children today lack experience with nature. While I grew up in the country with nature at my fingertips, kids in urban areas may not live near green spaces.
Kids may lack time to play outdoors, or they may be hindered due to parental concerns about safety. Yet, "... a growing body of research links our mental, physical, and spiritual health directly to our association with nature—in positive ways," says Richard Louv, author of *Last Child in the Woods*.

We can help prevent nature-deficit disorder in children. Dip into your own childhood experiences and you'll come up with countless interesting and playful ways to share your love of nature. Maybe you caught crayfish in a creek, chased lightning bugs, picked wildflowers and learned their names. I would show children mountain laurel in bloom and explain its amazing pollen distribution system, which I never learned as a kid.

Mountain laurel flowers have five fused petals and look like upside-down umbrellas minus handles. An open flower displays its reproductive system: a central pistil surrounded by 10 stamens. The 10 filaments radiate from the center like spokes of a wheel. The flexible filaments are bowed, and the anthers at their tips are tucked into pouches spaced in a ring midway around the corolla—the setup for pollen distribution.

Here's how it works. A bumblebee alights on a flower. While it probes for nectar it frees one or more anthers from their pouches. The filaments spring up, and the anthers bat the bee's belly, dusting its abdomen with pollen.

Like mountain laurel and bumblebees, we all depend on interactions with other organisms for our very existence. Lets share our passion for the natural world with the kids we know and make them curious about what's in the woods.

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Every summer is marked by the presence of invertebrates among the plants we love. Beetles wobble through the air, their larvae munch and munch and munch on roots, on leaves, on aphids, and bumblebees become bopped on the head by *Kalmia latifolia* anthers. Spiders craftily weave webs across the mouths of *Sarracenia purpurea* (pitcher plants) in foolproof planning, leafhoppers entertain with bright colors and spritely springing, lightning bugs flash in green and gold and white, cricket orchestras fiddle nostalgically and cicadas whir like little airplanes, their drumbeat song reminiscent of the tiniest maracas to welcome the summer months. But that’s not all that these insects do. As a native plant society, we love pollinator insects and how they help plants to proliferate. But wait, there’s more...

As a Delawarean, I love the first state. From Lums Pond’s tulip trees to Trap Pond’s cypress knees, my blood runs blue and gold. It should come as no surprise when I say that each July I look forward to seeing cicadas emerge from their little burrows in the earth, releasing their straw-like stylets from the sap of sweet maples to break free of their old selves, shedding final suits of armor to rise in teal and blue into the open summer air. When the warmth rises, so does their chorus - a crescendo of rising sounds that is unique to the annual swamp or morning cicadas in our region (*Neotibicen tibicen tibicen*). There are over 3,000 cicada species on earth, and no others sound quite like it. To me, it sounds like home.

This spring marked the *Brood X* periodical cicada phenomenon which introduced a new sound into nature’s mixtape. Instead of blue and green, the sky was highlighted with millions of black and orange members of three species (*Magicicada cassini, M. septendecim* and *M. septendecula*). The concert of their boisterous love song was extraordinary, and their burrows so numerous that even the most compacted land was aerated better than a radish patch. Cicadas are not pollinators, but they interact with plants in many beneficial ways. I learned this year that cicadas carve out little notches in the tips of tree branches in which to lay...

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Typically unnoticed, cicadas bred in such large quantities this year that many tree branch tips are visibly “flagging”. Not to worry! The cicadas provide a natural pruning and in return the sweetgum trees help them thrive!

Casual observation of cicada brooding plants in Newark, Delaware in order of greatest to least apparent preference based on tree species present:

1st. Quercus spp. with preference for Q. rubra, followed by other members of red oak group, both native and not
2nd. It’s a tie! Liquidambar styraciflua and Acer spp. with preference for A. saccharinum followed by A. rubrum
3rd. Fagus grandifolia
4th. Platanus occidentalis
5th. Juglans nigra
6th. Cercis canadensis and other small deciduous species
7th. Juniperus virginiana

Based on the long life cycle requirements, cicadas favored larger trees with older root systems near where they emerged.

It is possible that coniferous species may host cicadas without exhibiting flagging. A few instances of flagging were observed on J. virginiana.

Although cicadas are large insects, when their eggs hatch the tiniest of tiny babies emerge to make their way into the soil, where they latch onto roots and feed for as long as their life cycle requires. The magicicadas I saw had used Liquidambar styraciflua, or sweetgum, as the nursery for their next generation. When reaching their adult stage, they molt their exoskeleton and use the tree trunk they have climbed as a way to orient against gravity to properly dry and harden their wings. At this time, molted exoskeletons fall to the earth as a natural mulch, encircling the tree’s base in a layer so thick it looks like it was landscaped. Eventually the cicadas cascade to the feet of the trees and decompose, returning nutrients to the earth.

Now I wonder which other native plant species our nine common cicada species historically favor, and how many other symbioses await such itty bitty biota. 🍃
BAFFLING THE BOTANISTS

Guess the mystery plant below for a chance to win a prize!
E-mail erbrown@udel.edu with your guess by August 1st, 2021

- An alternate-leaved small tree
- Older bark has blocky furrows and is tan or grey, while young branches and branch tips are often bright green
- The crushed leaves and bark yield a lemony aroma

- Yellow flower clusters develop into small drupes that turn glaucous blue when ripe with pedicels that become bright red
- The matte green leaves of this plant are either entire, two-lobed, three-lobed, and very occasionally more.

This round’s prize: A Delaware Native Plant (a live potted plug that is) Plant to be selected and sent to recipient in August.
You must be a DNPS member to enter. 1 guess per person. 1 prize per newsletter.

Previous mystery plant answer (Spring V24,N1): Sanguinaria Canadensis (bloodroot)
Prizewinner: Priscilla Goldsmith
Hot Happenings

Getting involved
- Participate in the Delaware Center for Horticulture’s second annual Virtual Garden Contest!
- Volunteer at the Delaware Center for Horticulture by contacting Kiandra Parks at kparks@thedch.org!
- Style your vehicle with the new Delaware pollinators license plate! Proceeds support pollinator habitat conservation. Listed on the DMV website as the “Pollinator” plate.

Reading up
- “Lessons from Plants” by Dr. Beronda L. Montgomery is the recommended read of the season! The book discusses the roles plants play and the interactions they are part of, engaging readers to think about plants in ways both nostalgic and new.
- Homegrown National Park’s “Plant Native” initiative is growing strong!
- Mt. Cuba Center has cultivated and introduced new native plants!

Listening in
- A New Garden Ethic webinar JUL 10
- “The Nature of Oaks” podcast
- The Plant a Trillion Trees podcast
- “Climate Change Brings Changes to Coastal Wetlands’ Carbon Absorption” podcast

Keeping up-to-date
- The Delaware Native Plant Society
- The Maryland Native Plant Society
- The Native Plant Society of New Jersey
- The Pennsylvania Native Plant Society

Share your native plant stories, photos, recipes and more in the next newsletter!
Send to: erbrown@udel.edu
Membership Application

Membership is for 12-months, after which we send you a renewal notice.

- Full-time Student $10.00
- Individual $15.00
- Family $18.00
- Contributing $50.00
- Business $100.00
- Lifetime $500.00

Donations are also welcome.

Photography Index (on page 1 from top to bottom):

- Pyrola elliptica - elliptic shinleaf
- Nelumbo lutea - American lotus
- Monarda punctata - spotted beebalm
- Hottonia inflata - featherfoil
- Kalmia latifolia - mountain laurel
- Mitchella repens - partridgeberry
- Lilium superbum - Turk’s cap lily

Photographs courtesy of David G. Smith at www.delawarewildflowers.org