

The Turk's Cap

Volume 24, Number 1

Spring 2021

The Newsletter of the Delaware Native Plant Society



Letter from the President
by Eric Wahl, DNPS President



Seed Propagation for Home: Part II
by Shelby French, MCC Propagation Manager



My Pandemic Pollinator Patch
by Rick Mickowski, DNPS Vice-President



Littlest Leaves
by Emma Brown, DNPS Editor



Baffling the Botanists



Primaveral Poetry



Events and Membership

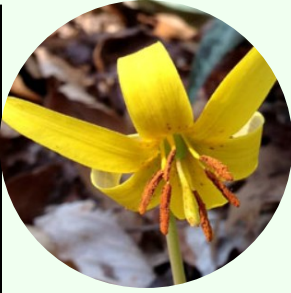
DNPS Officers

President:
Eric Wahl
Vice-President:
Rick Mickowski
Treasurer:
Eric Zuelke
Secretary:
Alison Long

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> 



Letter from the President

Eric Wahl, DNPS President

Happy Spring! Warmer weather has finally arrived after a long winter. Some of my early spring vegetable seeds have already sprouted. A sure sign of better times ahead. We hope that you all weathered the winter months well, and that the anticipation of spring blooms is getting you excited.

There is a lot happening with DNPS, and we hope after reading this newsletter that you will find an event that you could attend, either virtually or in the garden. We should be seeing some germination in our Native Plant Demonstration Garden in Lewes, and we plan more activities there in the coming months. Keep an eye out for emails and our list of events in the newsletter.

In addition, we were contacted again by the Nanticoke River Watershed Conservancy to assist in some future planning for their signature park in Seaford. We have assisted them in the past on a small park nearby that will tie into this park. Stay tuned for more information as this continues to be a great collaboration.

Stay safe and keep promoting native plants! 

Connect with the DNPS on [Facebook](#)

Or find us at:

<https://delawarenativeplants.org/>

BIG NEWS FOR THE DNPS:

The Delaware Native Plant Society is the proud recipient of the Xerces Society's Northeast Monarch and Pollinator Habitat Kits! The kits will be used to continue our work at The University of Delaware Lewes Campus Pollinator Gardens.



Seed Propagation for Home: Part II

Shelby French, Propagation Manager, Mt. Cuba Center

As the Propagation Manager at Mt. Cuba Center, I've spent the past 15 years collecting and sowing native seed. In this article I will discuss how to have success germinating native seeds, from choosing a container to breaking dormancy.

You may recall from Part I- my first recommendation is to consult the resources, whether your favorite book or an online source. Resources indicate when to collect seed, if seed requires a stratification to break dormancy, and if the seed should be covered or surface-sown, requiring light to germinate. Other information may include a pre-treatment or if a scarification is needed due to firmness of the seed coat. *Baptisia* (false indigo) seed benefit from a hot water soak overnight. *Hibiscus* (rose-mallow) seed should be gently abraded on fine sandpaper just to break the surface of the seed coat, taking care to not damage the endosperm.

Keep in mind the steps to germination to have success. A seed needs to undergo water imbibition, the stage in which water is absorbed by the seed, resulting in a rupturing of the seed coat. Natural elements of fire or freezing and thawing during winter can full fill this process in nature. If a viable seed, this will result in emergence of a radicle and eventually the seed leaves (cotyledons) will expand. It is critical that consistent moisture and temperatures are met during this time.

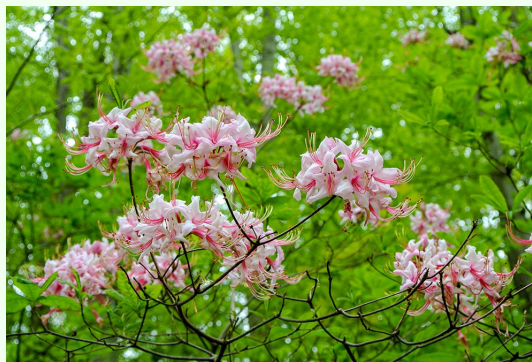
One of the most successful and simplest ways to handle native seed is by sowing seed outside in the fall, either in a raised bed or a container. This easily fulfills the chilling requirement that many seed need to initiate germination. Whichever method you choose, be sure to label the area or pot with name of seed and the date started. It is best to choose a slightly shaded area for germination so young seedlings do not burn. When sowing outside you will need to consider protection from rodents and animals as well.

If you decide to sow into a container, choose a size pot relative to the number of seed to be sown. In general, sowing smaller quantities of seeds in smaller pots are preferred over huge trays. I choose a 4 to 6-inch size pot, for 25-100 seeds depending upon the size and viability of seed. A basic potting media is fine but a seed starting mix is even better since it contains a small quantity of a starter charge—some type of fertilizer to boost growth without burning the young seedlings. When sowing, spread seed evenly in the tray or your prepared garden

Continued on next page...



Monarda punctata
(dotted
beebalm)



Rhododendron periclymenoides
(pinxterbloom
azalea)

bed. Unless otherwise stated in a resource, seed should be covered with a thin layer of fine soil, although very fine seed typically needs light to germinate and should remain on the surface, uncovered, such as *Lobelia* (cardinal flower). Note this seed is subject to drying more quickly and shade is especially important to mitigate the drying effect if sowing in summer. There are always exceptions which is why references are so vital.

Stratifying seed refers to exposing seed to different temperatures, typically with moisture, to initiate the germination process or break dormancy. The most common stratification is a cold, moist treatment to mimic winter, typically 90 days but as few as 10 depending on the species. By knowing what the seed requires you can choose whether to direct sow seed in the garden or raised bed, or in a container. If seed needs a cold, moist stratification, as many natives do, the best method is to sow seed outside in the fall and look for germination in the spring. This keeps it simple and lets nature do the work. Native seed is adapted to our climate and typically will not start to germinate with a warm weather spell in January, for example. Alternatively, you can stratify seed in a plastic bag in your refrigerator with a moist paper towel that has been squeezed of any excess water. After the required amount of chilling, sow, and place in a warm location to germinate. If you have a home grow-light set up, you can get a jump on spring.

Many native seeds will start to germinate within several weeks when sown and placed in a warm environment. For example, *Rhododendron* (azalea), *Hydrangea* and *Hypericum* (St. John's-wort) do not need a cold, moist stratification. They do best sown immediately to a warm location. This type of seed can be sown outside in spring as soon as the danger of frost has passed, or indoors in late winter in a bright location. *Asteraceae* species (aster family) such as *Solidago* (goldenrod) and *Liatris* (gayfeather) will germinate when sown and placed in warmth, but germination percent and uniformity of germination are greatly improved by exposing the seed to a cold, moist treatment. Most *Monarda* (bee balm) require 90 days cold, moist stratification; however, *Monarda punctata* (dotted monarda) germinates very well when placed into a warm location after sowing. In the greenhouse I experimented with *Monarda punctata* to obtain the best germination. With a mere 10 days cold, moist cycle it improved the uniformity of germination and growth of seedling vigor. If left in the cooler for even

Continued on next page...



*Allium
tricoccum*
(wild leek)



*Caltha
palustris*
(marsh
marigold)

30 days, the *Monarda punctata* began to germinate in the cooler. Trial and error on your own often yields results above and beyond what readings and resources provide.

There are other more complex methods, but these are the basics and can provide successful home propagation. *Allium tricoccum* (wild leek) and *Ilex verticillata* (winterberry holly), need multiple cycles of warm and cold, germinating the second spring after sowing. *Delphinium exaltatum* (tall larkspur) must have a cold, moist treatment or it will not germinate. Some seed should only be sown outside, such as *Viburnum* species, *Panax* (ginseng), *Viola* and various ephemerals, *Jeffersonia* (twinleaf) and *Trillium*. These species need daily fluctuation of temperatures and exposure to freezing and thawing. Interestingly, these species are all intolerant of long-term storage, or dry storage, which is detrimental to their viability. Still, some other seed will germinate immediately if sown within 4-6 weeks of collection to a warm location. But if allowed to dry out will require a cold, moist stratification, or multiple cycles of warm to cold to initiate germination as is the case with *Caltha palustris* (marsh marigold).

When seedlings are of size they can be pricked into individual containers or transplanted to a raised bed to continue growing until ready for your garden. I find native seedlings thrive with an organic fertilizer such as fish emulsion, applied when seedlings first emerge to more quickly bring them to transplant size. Young seedlings should remain evenly moist during initial transplant and gradually weaned into more light depending on their preference. At the Mt. Cuba Center greenhouse we find native plants do not require excessive fertilizer. We add a slow-release fertilizer to the potting media which generally supports a mature plant for 6-9 months, this is similar to what is found in basic potting media.

Continued on next page...



As you can see, propagating by seed can be done by simple methods without the need for fancy equipment or facilities. It is a great and inexpensive way to produce lots of seedlings for your garden and your friend's gardens! By propagating native plants from your area, you help to ensure genetic diversity found in individual seeds and preserve local ecotypes. Native plants are better-suited to grow in this region, having adapted to our climate. They provide resources for insects, butterflies and birds, all the while creating a beautiful habitat and ornamental display in the garden. 🌱

References:

[Center for Plant Conservation](#)
[Ecological Landscape Alliance](#)
[Native Plant Network](#)
[Native Plant Network. Propagation Protocol Database.](#)
[North American Native Plant Society](#)
[Prairie Moon Nursery](#)

Propagation Resources:

Cullina, W. (2000). *The New England wild flower society guide to growing and propagating wildflowers of the United States and Canada*. New York: Houghton Mifflin.

Dirr, M. A., & Heuser, Jr., C. W. (2006). *The Reference Manual of Woody Plant Propagation*. Portland: Timber Press.

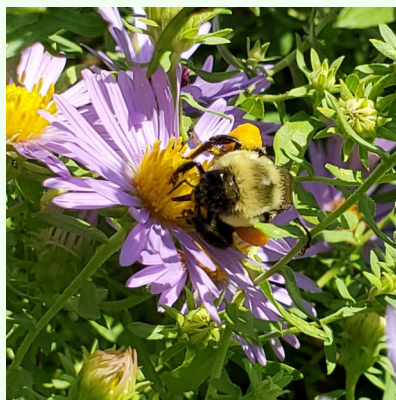
Gracie, C. (2012). *Spring wildflowers of the Northeast*. Princeton, New Jersey: Princeton University Press.

Kock, H. (2008) *Growing trees from seed*. New York: Firefly Books.



My Pandemic Pollinator Patch

Rick Mickowski, DNPS Vice-President



Bombus spp. (bumblebee) on *Symphyotrichum* spp. (aster)

In March 2020, I found myself with an extra three days per week at home instead of at work. My inspiration for my Pandemic Pollinator Patch came from the gardening book “Hellstrip Gardening: Create a Paradise Between the Sidewalk and the Curb” by Evelyn J. Hadden which covers using that strip of often unused land between the street and sidewalk. I had such a situation of mostly weeds - plus it received full sun, a bonus!

I began removing the weeds and digging up a three-foot wide plot of land to begin my pollinator planting. I dug up some native plants from the landscape at the site of my office at the New Castle Conservation District, mostly goldenrod, *Rudbeckia*, blue vervain and aster. I added coneflower, butterfly weed, Joe-pye weed and one New York ironweed I had started from seed and some annual flowers like zinnias, cosmos and salvia. I did the project in phases, expanding the initial planting in the fall to add some anise hyssop, phlox, little blue stem, goldenrod, more coneflower and tall white beardtongue (*Penstemon digitalis* that I had started from seed earlier in the winter months). I also have some non-native daylilies and bulbs. A smaller patch was added in late fall where I sowed a couple of packets of native seed mix.

During the summer and into fall, I saw a lot of insects on the flowers, particularly the asters, goldenrods and zinnias. I hope to add a final section to the project in spring 2021. I have additional coneflower and butterfly weed to install. I mostly watered the

Continued on next page...



June



July



Bumblebee on
Verbena hastata
(blue vervain)



October



September



Continued on next page...



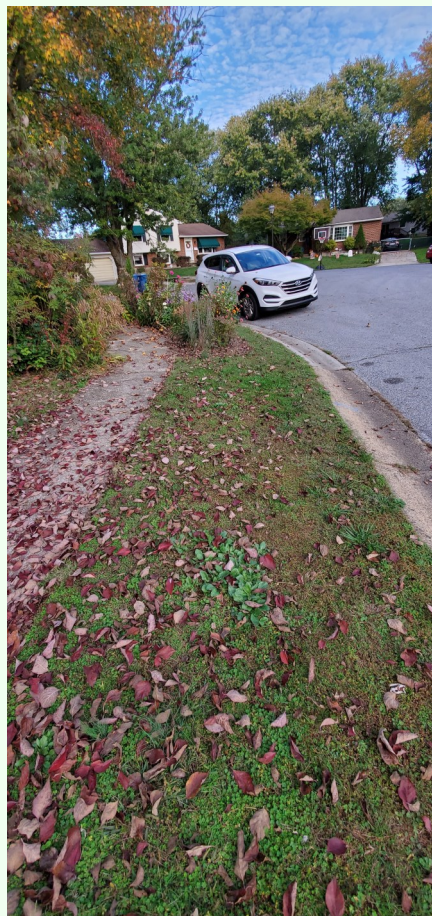
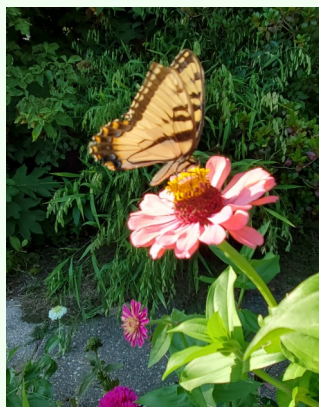
Goldenrod and vervain seedlings



Take note of the cotyledon and leaf shape particular to each species



Eastern tiger swallowtail (*Papilio glaucus*) on zinnia (a southwestern native plant)



More planting space to cultivate!

site by hand using watering can or the hose but plan to lay in some soaker hose this year to make the job easier.

On a final note, over the winter I sowed some seeds I had collected from the plants in my pollinator patch and left them outside in plastic storage containers to stratify the seeds via cold treatment. I now have trays of goldenrod, blue vervain, swamp milkweed, and several wild senna along with New York ironweed and anise hyssop seedlings. 🌱



Littlest Leaves

Emma Brown, DNPS Editor

As you are a recipient of this publication, I assume with confidence that you have fallen in love with at least one type of plant, or perhaps plants in general. The native plant community is filled with passionate plantspeople, and we greet familiar greenery in our lives with serene contentment. Native plants in particular provide soothing scenery, seasonal joy and most subtly- the feeling of home. When you see a familiar plantscape you can identify your whereabouts in the world. A reliable compass you will find in the tulip poplar and beech woodlands of Delaware, with many maples and a few oaks, several hickories and a smidge of musclewood, black cherry and the teal tufts of Eastern white pine. Forest canopy provides a sense of awe, though we often enjoy the plants at eye-level just as much.

The trees we love are familiar to us because in a single species there are consistent characteristics in plant height, growth form, leaf shape, flower color, twig scent, bark pattern and many other details. They enter our awareness as towering giants with furrowed armor and delicate sheets of viridescent velour, soft and sun-dappled leaves that collect the light's beauty. But look down to see the start of such startling symphony - and look closely - for just as sure as a baby is beardless and a kitten's tail has yet to learn manners far more intricate than simple happy affirmations, the first leaves of a seedling tree reveal the rough concept for what it will become. I envision with amusement a grandmother tree offering to pinch chubby little cotyledons as the

Liriodendron tulipifera (tulip poplar)

Left: Seedling (with my finger for scale) exhibiting light green "kitten ears" on its first two true leaves



Right: Leaf from a mature tree with "cat ears" and "cat whiskers"

Notice the V-shaped vein pattern visible on both leaves

Light green color on young and mature plants is exchanged for glossier green later in the growing season



Continued on next page...



A young *Fagus grandifolia* (American beech tree) with cotyledons, fully developed first true leaves, and second set of emerging leaves



Cordate (heart-shaped) *Cercis canadensis* (Eastern redbud) leaves



Cultivated varieties of this native species have leaves that emerge in a spectrum of colors. In this case, we see a red heart.

first true leaves begin to emerge.

Even at a young age these little ones display features particular to their species. Tulip poplars just out of the samara do have a kitten-whiskered appearance to each of their two littlest leaves. Baby beech trees have the barest of bristle-tipped teeth and pleated veins, though the cotyledons are rounded and fanlike. It is nice to be able to recognize the spring maples and oaks as soon as they germinate in the path, the lawn, the yard, and find the newest beginnings of old friends.

Seeds often share surprises with us. Cleaning the gutters of a house is a necessary chore, but each year my father reminds me of the maples that have sprouted in the organic matter that collects in those heightened hemi-hydroponic highways. We have made note of quite a mix of volunteer species and saved a few from the cleaning process, planting them safely below. But the reason we are able to save these seedlings is because we have become familiar with their identities from the age of one-half to three inches tall.

I recommend getting to know these youngsters. You will delight in cheering on tiny tupelo arising from the legacy of latter logs and spotting redbud rendering a home in the larger landscape, hoping for a little bit of sun to lift limbs and fill out foliage to their cordate content. 🌱



Tulip poplar flowers

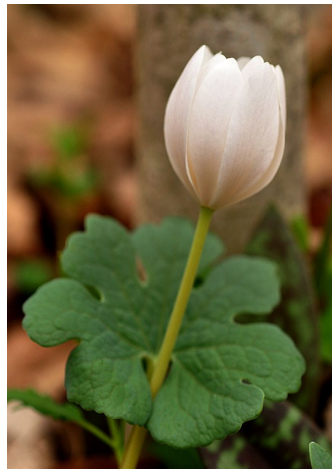
The central column develops into many winged seeds, only some of which are viable.



BAFFLING THE BOTANISTS

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

- A spring ephemeral flower
- The color of the underground plant parts give the plant its common name
- Dry fruits split open when ripened



This round's prize: A Delaware Native Plant!
Plant to be selected and sent to recipient in May.

You must be a DNPS member to enter. Only 1 guess per person. 1 Prize per newsletter.
Previous mystery plant answer: *Aralia nudicaulis* = wild sarsaparilla 🌿



Primaveral Poetry

Composition on Spring

Keelin Reilly

As spring skies clear overhead
I glimpse a beauty on which much has been said:

Ahead a quiet creek flows, and carpeting each bank
Row after row of celandine poppy protect the rushing water's flank.

At this scene I glance, caught in a trance,
Hypnotized by golden flowers weaving about in dance.

Atop floret mounds of hearts in green,
These ephemerals create the quintessential spring scene. 🌱



Stylophorum diphyllum
(celandine poppy)



Typha latifolia
(broad-leaved
cattail)

A Brief Tale of Tails

Kevin Brown

Is it true that *Mephitis* hides behind
the *Phragmites*?

Or

Does the pole of the cattail
Conceal the tail of the polecat? 🌱

Continued on next page...



Memorial Garden

Keelin Reilly


If comfort from a loss you seek,
Look not in dirges, nor anything bleak—
Such measures are fleeting, forgotten in the week.

If you seek to extend love's fame
Do something to engage the mind and brain:
Build a garden in her name.

Such a construction celebrates life
With blooming iris and Turk's Cap stripe
To banish the need to grieve and gripe.


An abode for flowers and caterpillar-chewed leaf
Where monarchs flutter, and birds may keep,
Steers minds to what lies above, not beneath.

Amongst the milkweed and spicebush twig
When weeds you pull, or holes you dig,
Cherished memories shall ripen like late fall fig.

Each year, the play of seasons may reignite your sorrow.
Just remember in truth it is time that we borrow.
With that, my friend, I will see you in the garden tomorrow. 

The DNPS Newsletter is looking for article contributors!
Reach out to erbrown@udel.edu for more information

A handy haiku

Create your own pol-
-inator paradise with
[this helpful advice](#) 



Events and More!

- April 15 [DNS Native Gardens for Delmarva Butterflies](#) ONLINE 6:30-8PM \$10M/\$20NM
- April 21 “[Bloodroot, Bluebells and Butterflies: Spring Beauties for Biodiversity](#)” 7PM ONLINE
- April 24 [Middle Run Tree Planting](#) VOLUNTEERS NEEDED 9AM-12PM
- April 30-May 6 [UD Botanic Gardens Plant Sale](#) Online, Pickup May 6-7, May 11-12
- May 2-3 [Delaware Nature Society Plant Sale](#) Online, Pickup May 13-15
- May 5 [Gardening with Kathy: Planting for Pollinators](#) 7-8PM ONLINE
- May 11 [Attracting Bees and Beneficial Insects with Native Plants](#) 7PM ONLINE
- June 5-13 [2021 Philadelphia Flower Show](#)

Keep up-to-date by following [The Delaware Native Plant Society](#) website!

See what’s happening in our sister states:

- [The Maryland Native Plant Society](#) is celebrating grasses, sedges and rushes this year!
- [The Native Plant Society of New Jersey](#) is also up to some great conservation efforts

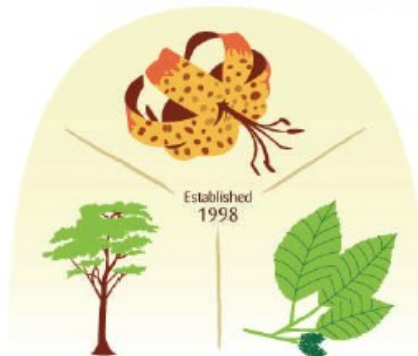
More native plant news:

- [bplant.org](#) is at it again, adding more data on plants and their ecoregions. A great growing resource!
- Governor Carney has officially [banned the sale of over 36 invasive plant species!](#)
- [Homestead Gardens](#) in Smyrna is filling a niche in the landscape industry for native plant-savvy gardening and providing knowledgeable guidance for home gardeners
- What’s the rush? If you’re interested in learning more about graminoids, check out the latest version of “[Grasses, Sedges, Rushes: An Identification Guide](#)” by Lauren Brown and Ted Elliman
- Doug W. Tallamy has authored “[The Nature of Oaks](#)” - a new resource on oak ecology and the benefits they contribute even in our most residential of landscapes
- Learn about the trouble with “nativars”- the [tradeoffs of cultivated varieties](#)
- Looking to convert that passé lawn into a gorgeous landscape enriched with biodiversity? Follow the online guide at [TurftoTrees.org](#)
- Wild Ridge Plants is engaging gardeners of all ages with “[The Puddle Garden](#)”- a new story and guidebook about the best ways to support wildlife even in small spaces





MEMBERSHIP APPLICATION






DELAWARE
Native Plant Society

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 _____

Membership benefits include:

-  Our quarterly newsletter-*The Turk's Cap*, and website resources
-  Tips and tricks on gardening and landscaping with native plants
-  Annual workshop, symposium, and project work days

Member Information

Name: _____

Organization: _____

Full Mailing Address: _____

Phone Number: _____

Email: _____

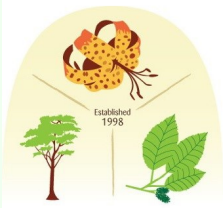
Please make checks payable to:
Delaware Native Plant Society
P.O. Box 369
Dover, DE 19903

Photography Index

On Page 1 from top to bottom:

- *Erythronium americanum*- trout lily/ dog-toothed violet
- *Rhododendron periclymenoides* - pinxterbloom azalea
- *Penstemon digitalis*- beardtongue
- *Mertensia virginica*- Virginia bluebells
- *Cercis canadensis* - Eastern redbud
- *Viburnum prunifolium* - blackhaw viburnum
- *Lilium superbum*- Turk's cap lily flower

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



The Turk's Cap

Volume 24, Number 2

Summer 2021

The Newsletter of the Delaware Native Plant Society



Letter from the President
by Eric Wahl



Letter from the Vice President
by Rick Mickowski



DNPS Planting Days
by Eric Zuelke



Plant Highlight: Featherfoil
by Bill McAvoy



What's in the Woods?
by Pamela Crowe



Itty Bitty Biota
by Emma Brown



Baffling the Botanists
Hot Happenings
Membership, and More

DNPS Officers

President:
Eric Wahl
Vice-President:
Rick Mickowski
Treasurer:
Eric Zuelke
Secretary:
Alison Long

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> 



Letter from the President

Eric Wahl, President

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.

Continued on next page...



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. 🌱



DNPS Planting Days

Eric Zuelke, Treasurer, Projects Manager

Photos courtesy of E. Zuelke, [J. Hoyt](#), R. Mickowski, and E. Wahl


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!

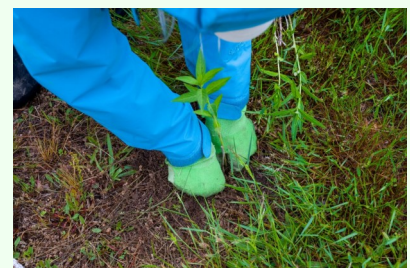
The final round of planting happened on the weekend of 29 May 2021. The rest of the plants were put into the ground in both the dry pollinator habitat and the wet meadow, and even though we were actively rained upon most of the time, we were very happy with the results!

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). 



Above: The "X" marks the spot, or in this case the Xerces Society-sponsored signage!

Below:
Carefully planting *Asclepias*



Continued on next page...



Soil solarization expedited the planting process



The latest species to be added!



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



Continued on next page...



The second weekend of planting!



Continued on next page...



June



July





Plant Highlight: Featherfoil

William A. McAvoy, Botanist, State of Delaware

Photos courtesy of W. McAvoy

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 submersed 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



Continued on next page...



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.

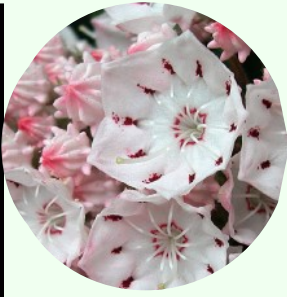
Featherfoil has been known to perform a disappearing act, meaning, it can be present in high numbers at a particular site one year, but be completely absent the next, then reappear in the future. This appearance/disappearance regime may be a result of several factors. One factor being less than satisfactory 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.

McAvoy, W. A., 2013. *Observations and Notes on the Biology and Ecology of Featherfoil (Hottonia inflata) In Delaware.* Aqua Planta 4: 128-132.

William A. McAvoy
Species Conservation and Research Program
Delaware Division of Fish and Wildlife
4876 Hay Point Landing Road Smyrna, DE 19977
william.mcavoy@state.de.us





What's in the Woods?

Pamela Crowe

Photos courtesy of [David G. Smith](#) and E. Brown

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.

“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.

Continued on next page...



“Mountain laurel is found in all the Piedmont stream valleys, from the Brandywine west to White Clay Creek,”

says Bill McAvoy, Delaware State Botanist.

“It prefers moist to well-drained acidic soils on steep, wooded slopes. On the Coastal Plain, it’s found growing in wetter areas than in the Piedmont (which is a curious contrast).

It often grows in a transition zone between the upland forest and the forested wetland. The species is found throughout the Coastal Plain in all three counties. Mid-to-late May is its typical blooming period in Delaware.”



An arachnid in the order Opiliones (a daddy longlegs) shyly hiding behind *Kalmia latifolia* flowers.


The anthers gently tucked within the corolla are accented preciously pink.

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. Let’s share our passion for the natural world with the kids we know and make them curious about what’s in the woods. 

© Crowe 2021



Itty Bitty Biota

Emma Brown, Editor, DNPS

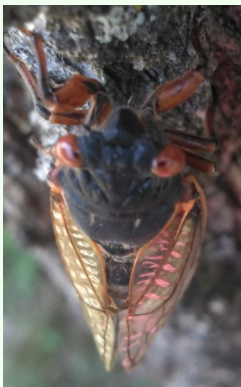
Photos courtesy of E. Brown and T. Brown

Top: A cicada accidentally unearthed from the roots of *Acer rubrum* while gardening

Middle: A burly, beautiful green-tinted annual cicada

Bottom left: A periodical cicada drying new wings and saying a friendly hello

Bottom right: A periodical cicada ascending the trunk of a sweetgum tree



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 whirl 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](#)

Continued on next page...



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*.

[their eggs](#). Cutting off the flow of nutrients to the branch tips, the process prunes the tips of the trees which fall to the ground as if a storm has knocked them away.

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

A flower cluster on a green twig tip



A ripening cluster of fruits



The three typical leaf forms



Very large and unusual forms.

- 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

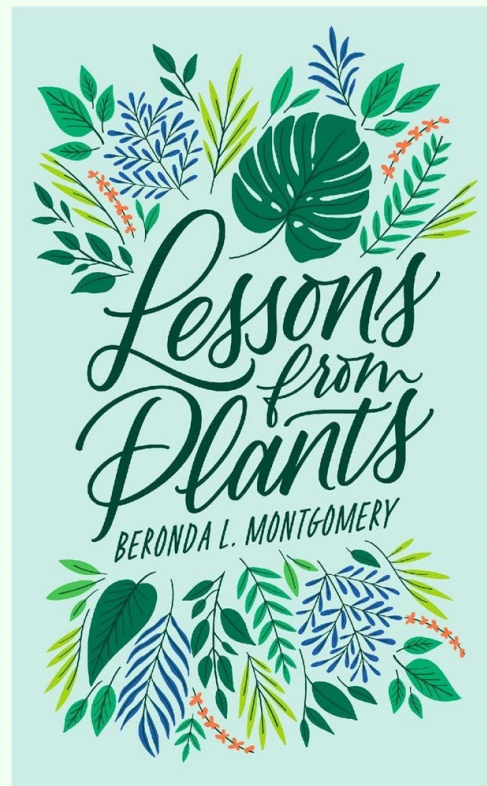
- "[Lessons from Plants](#)" by [Dr. Beronda L. Montgomery](#) is the recommended read of the season! The book discusses the roles plants play and the interactions they are part of, engaging readers to think about plants in ways both nostalgic and new.
- [Homegrown National Park](#)'s "Plant Native" 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](#)

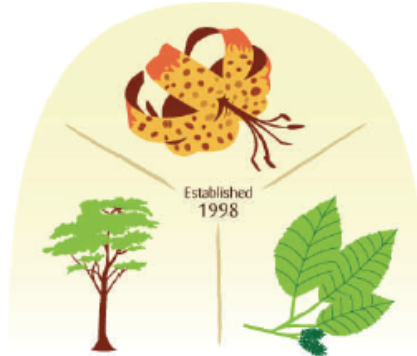


Share your native plant stories, photos, recipes and more in the next newsletter!

Send to: erbrown@udel.edu 



MEMBERSHIP APPLICATION






DELAWARE
Native Plant Society

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 _____

Membership benefits include:

-  Our quarterly newsletter-*The Turk's Cap*, and website resources
-  Tips and tricks on gardening and landscaping with native plants
-  Annual workshop, symposium, and project work days

Member Information

Name: _____

Organization: _____

Full Mailing Address: _____

Phone Number: _____

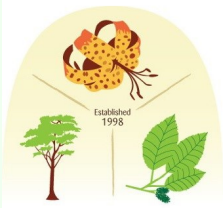
Email: _____

Please make checks payable to:
Delaware Native Plant Society
P.O. Box 369
Dover, DE 19903

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



The Turk's Cap

Volume 24, Number 3

Autumn 2021

The Newsletter of the Delaware Native Plant Society



Letter from the President
& A Horrifically Horticultural Halloween
by Eric Wahl



DNPS Planting Projects:
Prime Hook Sweetgum Mitigation Project
& UD Native Pollinator Habitats
by Eric Zuelke



Plant Highlight: Asters
by Bill McAvoy



The American Chestnut
by Pamela Crowe



One land's natives, another's invasives?
by Emma Brown



Baffling the Botanists
Membership, and More

DNPS Officers

President:
Eric Wahl
Vice-President:
Rick Mickowski
Treasurer:
Eric Zuelke
Secretary:
Alison Long

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>



Letter from the President

Eric Wahl, President

Happy Autumn! Indeed, it is my favorite time of year. So many of our native plants are showing off their colors and fruiting habits. Just the other day on a site visit for work, I observed the beautiful fruits of our native persimmon, beach plum, eastern red cedar, and cactus pear all in one place!

Be sure to check out your local landscapes this season too; I am sure you'll start to appreciate our native plants even more.

The year continues to evolve and change our routine due to the pandemic. We hope all our members are being safe while still enjoying our local landscapes. We are in discussion about having another Zoom event before the end of the year. Last year's Zoom event was attended by a few dozen members, and we appreciate their time and attention. Our next event may be a local speaker or perhaps a more "hands-on" experience with learning how to design your own gardens. We like input from our members on what they are interested in seeing and hearing about, so send us your thoughts!

I enjoy this season so much, that I am offering an article in this newsletter that's a bit on the darker side. I hope you enjoy, and happy Halloween!

Stay safe, and keep promoting native plants! 

Eric Wahl

Connect with the DNPS on [Facebook](#)

Or find us at:

<https://delawarenativeplants.org/>

Spookily continued on next page ...



A Horrifically Horticultural Halloween



Phytolacca americana
Pokeweed, a Delaware native plant with excellent wildlife value.

“The gorgeous flowers have a smell

That causes one to feel unwell.” ~ Edward Gorey, The Evil Garden

I love Edward Gorey, from the opening of PBS’s “Masterpiece Mystery” to “The Gashlycrumb Tinies: A Very Gorey Alphabet Book.” When I came upon “The Evil Garden,” I literally stood in the store spellbound and read it cover to cover. It’s a delight, not just for the rhyming cadence that easily drips off the page, but also for the story’s staging in the garden, of course.

I am also reminded of a valuable piece of advice given by one of my horticultural professors in school: It’s better to eat an animal you don’t know, than a plant you don’t know. This is because the number of plants out in the wild that can inflict severe damage to one’s body is astounding. The wondrous thing about plants is not only how some have evolved to have a symbiotic relationship with specific insects, but also the many that have toxic parts that help them survive the ages.

The most common ones we all know would be the plants that can cause irritation to the skin if their plants parts rub against us. Poison ivy, poison oak, and poison sumac come to mind easily. However, some nettles and even trumpet creeper can cause similar irritations.

I am reminded of a story when I was younger when I was looking for natural décor to place in my first apartment. It was wintertime, so the leaves had already fallen. I spotted a thick vine with beautiful white berries hanging near the bridge that crossed out creek. I got out my hacksaw and took a few limbs. The sawdust got everywhere – hands, under my jacket sleeves, face, lips and down my neck. Well, now I know what poison ivy looks like in the wintertime. I also came to find out that its branches are most poisonous in the winter because all the sap is being stored there rather than their leaves. The more you know.

Then there are the plants, if ingested, that can cause much internal discomfort and sometimes even death.

Spookily continued on next page ...



Cicuta maculata

Another dastardly Delawarean
Good for wildlife, but not for people!

Canada yew's seeds within its red, berrylike fruit, along with its leaves contain taxine, an alkaloid that damages the heart. Yews are common foundation plants as they are evergreen and are attractive all year.

Hollies are a common plant to have in our gardens just like the yews, because of their evergreen characteristic and their showy berries. Be careful of the berries though, as they known to cause vomiting and diarrhea. They can affect your pets as well so just be aware of what your beloved animal gets into.

Horse chestnut, or buckeye trees carry panicles of beautiful blooms in spring, nuts borne inside a thick husk. All parts of the tree are toxic, and the nuts should never be eaten. Ironic that the candy called buckeyes are one of my favorite sweets and resemble the nut of the tree.

Hemlock, the biennial and not the tree, is a poisonous herbaceous plant that can cause paralysis and death. Socrates died from drinking a brew made from its leaves. It has fern-like foliage and flat-topped white flower clusters. The stems are smooth and spotted with purple.

Of course, with a name like nightshade, it's bound to have a dark side. There are many nightshades out there. Their berries can be fatal if eaten in large quantities. They can be bushy plant or even trailing vines, but they all have beak-like yellow anthers in their flowers.

I'm sure many of you are familiar with pokeweed. It can be found almost anywhere. It's red stems and purple-black berries are obvious in autumn. The roots, seeds, stems and leaves are all poisonous. Steer clear of this one and remove it from your garden. Birds will spread the seed easily.

I think I'll end this monster bash with mushrooms. There are so many species of mushrooms and I am no mycologist, or scientist that studies fungi. All I know is that there are tasty ones and there are deadly ones, and I'll just trust that the ones on the grocery store shelf are safe.

Just be aware that evil lurks in the garden and some things that are the most beautiful can also be monstrous. And if you find yourself lost in the woods or stranded on an island...it's better to eat an animal you don't know, than a plant you don't know.



Happy Halloween!



DNPS Planting Projects Update

Eric Zuelke, Treasurer, Projects Manager

Photos courtesy of Eric Zuelke, Keith Clancy

PHWA Progress over the years

October 2000 – 1st planting day

Prime Hook Sweetgum Mitigation Project

The last day of fieldwork for the Sweetgum Mitigation Project at Prime Hook Wildlife Area happened September 20th, 2021. Rob Gano and I tackled the site one last time to tie up some loose ends.

We cut down and chemically treated a very large multiflora rose bush, girdled seven more loblolly pine, and cut down approximately 150 more sweetgum to release ten more oaks and one hickory from their competition.

We also went through and found all of the trees that were planted last year and are happy to say that we had no mortality and all were looking healthy.

Additionally, most of the loblolly pine that we intentionally girdled last year were dead and well on their way to becoming fantastic wildlife snags.

At this point, we've done a tremendous amount of work to help the forest grow into its intended oak-hickory forest community and we are very happy with how things are looking.

If you'd like to read all the details of this project, please see the history report listed on our website under the [“projects”](#) page.



28 October 2009



2 October 2021



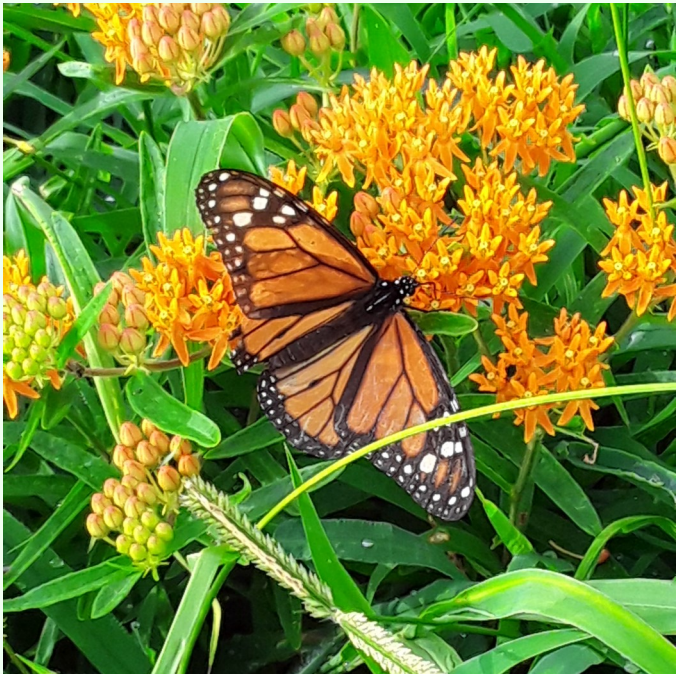
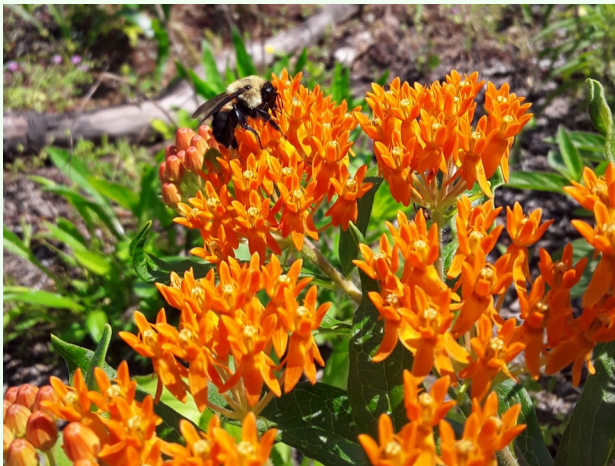
Continued on next page...



UD Lewes Native Pollinator Habitats: The 2021 Growing Season in Pictures



Continued on next page...





Plant Highlight: Asters

William A. McAvoy, Botanist, State of Delaware

Photos courtesy of W. McAvoy

Here in Delaware, plant species known as “asters,” consists of 6 native genera (listed below) and 33 taxa (species, subspecies, and varieties). Of these taxa, 8 are rare in Delaware, and 3 are historical (not reported in the state for 20 or more years), or extirpated (extinct within the state of Delaware). The largest genus of asters in Delaware is *Symphotrichum*, representing 22 taxa. Most of our asters are found throughout the state, in both the Piedmont and Coastal Plain provinces. Many of our asters are found growing in upland habitats, such as meadows, old-fields, early successional woodlands, and roadsides. But several can be found in wetland habitats, such as swamps, wet meadows, and in tidal and non-tidal marshes. All taxa are perennial, except for *Symphotrichum subulatum* (salt marsh aster), which is an annual. Most of these herbaceous taxa bloom in late summer or early fall. The asters are valuable nectar resources for a wide variety of insects, such as butterflies, moths, and bees. Due to their late-season flowering, asters are often the only nectar source available at that time.

The genus *Aster* once represented hundreds of species and varieties in North America. But during the 1990's, morphologic (physical characteristics) and molecular (DNA) studies of the genus led to major changes in the understanding of the genus and its relatives. As a result, species within the genus *Aster* were reassigned to other related genera. These related genera were named and published back in the 19th century, and based on the rules of botanical nomenclature, the first name published is given priority and must be used. For example, the genus name *Doellingeria* was published in 1832 by the German botanist Christian Gottfried Daniel Nees von Esenbeck (1776 – 1858). The research noted previously found that *Aster gracilis* and *A. umbellatus* are more closely related to *Doellingeria* and are better treated within that genus than in *Aster*. The genus *Aster* is more diverse in other parts of the world (e.g., Eurasia) than in North America, where only two species remaining within the genus are recognized: *Aster alpinus*, native and having a northwestern distribution; and *A. tataricus*, being native to Asia and garden grown in North America where it is known to escape to natural areas.

William A. McAvoy
Species Conservation and Research Program
Delaware Division of Fish and Wildlife
4876 Hay Point Landing Road
Smyrna, DE 19977
william.mcavoy@delaware.gov

Continued on next page...



Left to right:

Symphyotrichum novae-angliae, *Eurybia spectabilis*, *Ionactis linariifolia*



SCIENTIFIC NAME	SYNONYM	COMMON NAME	STATE STATUS
<i>Doellingeria infirma</i>	<i>Aster infirmus</i>	cornel-leaf aster	Rare
<i>Doellingeria umbellata</i>	<i>Aster umbellatus</i>	flat-top white aster	Uncommon
<i>Eurybia compacta</i>	<i>Aster gracilis</i>	slender aster	Rare
<i>Eurybia divaricata</i>	<i>Aster divaricatus</i>	white wood aster	Common
<i>Eurybia radula</i>	<i>Aster radula</i>	rough-leaf wood-aster	Historical
<i>Eurybia schreberi</i>	<i>Aster schreberi</i>	Schreber's aster	Rare
<i>Eurybia spectabilis</i>	<i>Aster spectabilis</i>	showy aster	Rare
<i>Ionactis linariifolia</i>	<i>Aster linariifolius</i>	flaxleaf aster	Rare
<i>Oclemena nemoralis</i>	<i>Aster nemoralis</i>	bog aster	Extirpated
<i>Sericocarpus asteroides</i>	<i>Aster paternus</i>	stiff aster	Common
<i>Sericocarpus linifolius</i>	<i>Aster solidagineus</i>	narrowleaf aster	Common
<i>Symphyotrichum concinnum</i>	<i>Aster concinnus</i>	narrow-leaved smooth blue aster	Rare
<i>Symphyotrichum concolor</i> var. <i>concolor</i>	<i>Aster concolor</i>	Eastern silvery aster	Historical
<i>Symphyotrichum cordifolium</i>	<i>Aster cordifolius</i> ; <i>A. cordifolius</i> var. <i>sagittifolius</i> ; <i>A. sagittifolius</i>	heart-leaf aster	Uncommon
<i>Symphyotrichum dumosum</i>	<i>Aster dumosus</i>	bushy aster	Status Uncertain
<i>Symphyotrichum ericoides</i> var. <i>ericoides</i>	<i>Aster ericoides</i> var. <i>ericoides</i>	white heath aster	Status Uncertain
<i>Symphyotrichum laeve</i>	<i>Aster laevis</i>	smooth blue aster	Rare

Continued on next page...



SCIENTIFIC NAME	SYNONYM	COMMON NAME	STATE STATUS
<i>Symphiotrichum lanceolatum</i> var. <i>lanceolatum</i>	<i>Aster lanceolatus</i> subsp. <i>lanceolatus</i> ; <i>A. paniculatus</i>	narrow-leaf panicled aster	Common
<i>Symphiotrichum lanceolatum</i> var. <i>latifolium</i>	<i>Aster lanceolatus</i> var. <i>simplex</i> ; <i>A. simplex</i>	broad-leaf panicled aster	Common
<i>Symphiotrichum lateriflorum</i> var. <i>horizontale</i>	<i>Aster lateriflorus</i> var. <i>pendulus</i>	goblet aster	Common
<i>Symphiotrichum lateriflorum</i> var. <i>lateriflorum</i>	<i>Aster lateriflorus</i> var. <i>lateriflorus</i>	starved aster	Common
<i>Symphiotrichum novae-angliae</i>	<i>Aster novae-angliae</i>	New England aster	Common
<i>Symphiotrichum novi-belgii</i> var. <i>elodes</i>	<i>Aster novi-belgii</i> var. <i>elodes</i>	longleaf New York aster	Common
<i>Symphiotrichum novi-belgii</i> var. <i>novi-belgii</i>	<i>Aster novi-belgii</i> var. <i>novi-belgii</i>	shortleaf New York aster	Common
<i>Symphiotrichum patens</i> var. <i>patens</i>	<i>Aster patens</i> var. <i>patens</i>	late purple aster	Common
<i>Symphiotrichum pilosum</i> var. <i>pilosum</i>	<i>Aster pilosus</i> var. <i>pilosus</i>	hairy heath aster	Common
<i>Symphiotrichum pilosum</i> var. <i>pringlei</i>	<i>Aster pilosus</i> var. <i>demotus</i>	smooth heath aster	Common
<i>Symphiotrichum prenanthoides</i>	<i>Aster prenanthoides</i>	crooked-stem aster	Rare
<i>Symphiotrichum puniceum</i> var. <i>puniceum</i>	<i>Aster puniceus</i> var. <i>puniceus</i>	bristly aster	Common
<i>Symphiotrichum racemosum</i>	<i>Aster fragilis</i> ; <i>A. racemosus</i> ; <i>A. vimineus</i> misapplied	small white aster	Status Uncertain
<i>Symphiotrichum subulatum</i>	<i>Aster subulatus</i> var. <i>subulatus</i>	annual salt marsh aster	Common
<i>Symphiotrichum tenuifolium</i>	<i>Aster tenuifolius</i>	perennial salt marsh aster	Common
<i>Symphiotrichum undulatum</i>	<i>Aster undulatus</i>	clasping heart-leaved aster	Common





The American Chestnut

Pamela Crowe

Photos courtesy of Pamela Crowe



Above:
The buried trunks of functionally extinct American chestnut trees annually send up shoots.
(Blackbird State Forest, Smyrna, DE).

Right:
Mt. Cuba Center maintains an experimental chestnut orchard for the American Chestnut Foundation (TACF).
(Mt. Cuba Center, Hockessin, DE).

They said it was the perfect tree
For man and beast and honeybee.
It grew so fast and straight and tall,
And poured down chestnuts in the fall.

The mountain people raced the beasts
To harvest nuts on which to feast.
They loaded wagons and sacks galore,
And took the nuts to country stores

To sell or trade for food or tools,
Or shoes for kids who walked to school.
They split the wood for posts and rails,
For fences built o'er hills and dales.

The trees were prized for telephone poles.
Great quantities burned to make charcoal.
Shingles and siding, furniture too;
For just about anything, chestnut would do!

Chestnut-filled forests—what a delight!
Until the foe, the chestnut blight,
Felled the trees—four billion strong!
In fifty years they all were gone!

-by Pamela Crowe





One land's natives, another's invasives?

Emma Brown

Photos courtesy of [David G. Smith](#) and E. Brown

As we partake in the all-too familiar invasive plant battle, we see plants from China, England, Japan and other regions across the world that share similar climate and soil conditions with Sussex, Kent and New Castle County Delaware. We see up-close and in real time the suffocating and overwhelming effects of porcelainberry, knotweed, burning bush, tree-of-heaven, and callery pear.

We see the landscapes of half a world away thrive in our backyards, but how often do we stop to consider that plants from the Americas are reciprocating in the global plant exchange? Yes, Delaware native plants are doing the exact same thing.

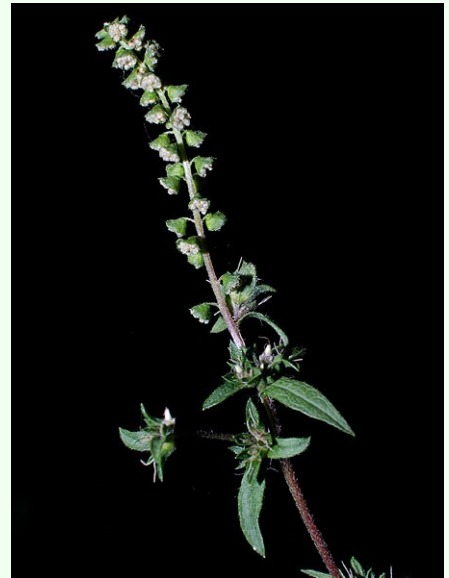
Ambrosia trifida
giant ragweed



Rhus typhina
staghorn sumac



Ambrosia artemisiifolia
ragweed



Ambrosia artemisiifolia, *Ambrosia trifida*, *Rhus typhina*, and *Solidago canadensis* have been found by researchers in China to be some of the most pervasive invasives. Each of these are Delaware native plants.

You may already be familiar with their edge habitat niches– spreading along roadsides, with the staghorn sumac and goldenrod in particular forming clonal colonies. These plants make a stand in stands of excellent fall colors, and apparently, their edge habitat advantage plays to their strengths in taking over in other parts of the world. “Plant invasions in China: an emerging hot topic in invasion science” (Chen, H., Liu, J., Kowarik, I., Wang, R., and Y. Zhang) is an academic paper published through the collaboration of three

Continued on next page...

*Solidago canadensis*

Canada goldenrod

A native Delaware plant with lovely fall flowers that provide sources of food for pollinators.

But in China, *Solidago* out-competes native plants, reducing overall biodiversity, causing extinction of native plants.

(Chen, G., Ma, L., Qi, L., Qiang, S., Silander, J., and C. Zhang, 2013. "Biotic Homogenization Caused by the Invasion of *Solidago canadensis* in China" *Journal of Integrative Agriculture*, Vol. 12-5: 835-845.)

international universities. The paper summarizes previous research across China to determine the past, current, and projected future spread of their invasive species– our native species.

Plants native to the East Coast of the United States such as *Robinia pseudoacacia* (black locust) and *Spartina alterniflora* (smooth cordgrass, with its name transitioning to *Sporobolus alterniflorus*) that can be found in Delaware ecosystems are running rather rampant overseas, with cordgrass behaving like the *Phragmites australis* that is always on the mind on a typical drive up I-95.

Research has found that plants such as *Solidago canadensis* initially establish by seed, and then colonize by spreading vegetatively. Cordgrass can also colonize, and black locust and staghorn sumac are trees that can form stands by producing multiple shoots from one extensive root system. These biological characteristics make it very easy under the right conditions for even a single plant to overtake a large parcel of edge habitat. The rules of invasive species apply everywhere in the world– plants thrive with a competitive advantage when entering ecosystems with no checks on their population from herbivores, no established interrelationships. Forming these relationships takes a very long time.

People worldwide are still plant-collecting to find interesting specimens, horticultural and agricultural products that are novel and exciting. This comes with the well-known price of introducing invasive species both directly and incidentally. I often wonder how difficult it would be to trade back landscapes– having academic institutions or horticultural operations provide an exchange, with revamped, vigorous plants ready to return to their ancestral homes. The potential for hybridization between related species and the return exchange of soil microbiota and other small organisms some challenges, but people have historically always loved trading plants. So for now, as I look out upon my home painted with plants from Zhōngguó (China), I think about the Delaware landscape reforming itself across the world. Our landscapes are trading places. Maybe some of our rarer plants facing extinction will be saved by the other's rich soils, to be reintroduced back into the native landscapes? I think, in a thousand years, "The Turk's Cap" newsletter will cover an entirely different set of native plants of Delaware.





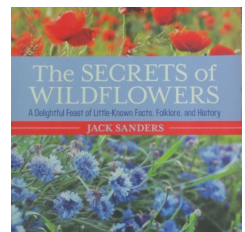
BAFFLING THE BOTANISTS

Changing the game.

ONE of these plants below is native to Delaware.
Do you know your stuff?



The native plant
is pictured, but is
it A, B, C, or D?



A. *Kalmia microphylla*

B. *Kalmia hirsuta*

C. *Kalmia latifolia*

D. *Kalmia procumbens*

This round's prize: *The Secrets of Wildflowers* (paperback), by Jack Sanders

E-MAIL PLANTEARTHFIRE@GMAIL.COM with your guess by NOVEMBER 1st, 2021

Prize will be sent to the winner in November.

You must be a DNPS member to enter. 1 guess per person. 1 prize per newsletter.

Previous mystery plant answer (Summer V24, N2): *Sassafras albidum* (sassafras)



Autumn Activities

Getting involved and Exploring

- Delaware Botanic Gardens at Pepper Creek

Fall Gardening for Wildlife

11AM October 15, 22, 28, November 4

Walking tour of Piet Oudolf's Meadow with the Director of the Delaware Botanic Garden

- Delaware Center for Horticulture (DCH)

Tree Stewards Lecture Series:

Intro to Arboriculture

7-8PM November 3

Become a DCH volunteer by contacting Kiandra Parks at kparks@thedch.org!

- Delaware Nature Society (DNS)

Fall Tree Planting at Middle Run Natural Area

9AM-12PM November 6

"Bring your muscles and enthusiasm!"

- Delaware Wild Lands (DWL) Volunteer Opportunities!

1-5PM October 12, October 17

Rain or shine! Building root cages for hickory tree planting.

Robert's Farm

170 Stave Landing Road, Townsend, DE 19734

Contact: info@dewildlands.org

- Mt. Cuba Center Events

-Lots of Fall Programs!

- Longwood Gardens Invasive Plant Bootcamp

Online: October 18, 6-7 pm

Onsite: October 21, 7-10 am

Register by October 17

- University of Delaware Botanic Gardens (UDBG)

Virtual Lepidoptera Trail Tour

Listening in

- American Horticultural Society [podcasts](#)

- "The Nature of Oaks" [podcast](#)

- The Plant a Trillion Trees [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](#)

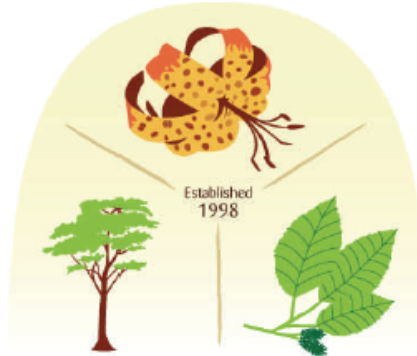
Share your native plant stories,
photos, recipes and more
in the next newsletter!

Send to: plantearthfire@gmail.com

Emma Brown,
Editor



MEMBERSHIP APPLICATION






DELAWARE
Native Plant Society

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 _____

Membership benefits include:

-  Our quarterly newsletter-*The Turk's Cap*, and website resources
-  Tips and tricks on gardening and landscaping with native plants
-  Annual workshop, symposium, and project work days

Member Information

Name: _____

Organization: _____

Full Mailing Address: _____

Phone Number: _____

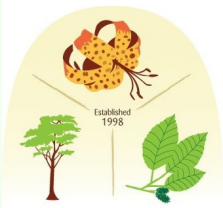
Email: _____

Please make checks payable to:
Delaware Native Plant Society
P.O. Box 369
Dover, DE 19903

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

- *Lobelia siphilitica*- blue lobelia
- *Rhexia mariana var. mariana* - Maryland meadowbeauty
- *Solidago altissima var. altissima* - rough Canada goldenrod
- *Gentiana saponaria* - soapwort gentian
- *Helenium flexuosum* - purple-head sneezeweed
- *Lilium superbum*- Turk's cap lily

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



The Turk's Cap

Volume 24, Number 4

Winter 2021-22

The Newsletter of the Delaware Native Plant Society



Letter from the President
by Eric Wahl



Plant-Animal Highlight: The Gall of Those Galls
by Eric Zuelke



The Vines of Delaware
by Bill McAvoy



Gutter Succession in Northern Delaware
by David Brown



A Really Good Book
by Emma Brown



Baffling the Botanists
Membership, and More

DNPS Officers

President:
Eric Wahl
Vice-President:
Rick Mickowski
Treasurer:
Eric Zuelke
Secretary:
Alison Long

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>



Letter from the President

Eric Wahl, President

Happy Holidays and upcoming New Year from the Delaware Native Plant Society! 2021 has been quite a year and here's hoping that 2022 is a return to less chaotic times. However, with the pandemic taking an ugly turn once again, we are confronted with taking every precaution we can in combatting the virus.

We are still hoping to provide an on-line educational experience soon. We also promote other events hosted by numerous groups associated with native plants and gardening. So please keep an eye out for upcoming events on Facebook and through our membership emails.

Even though this time of year involves less activity outdoors, keep in mind that you can plan for your garden any time of year. Think about incorporating additional native plants in your garden and applying some design principals that we have encouraged through many of our past events.

In addition, I just agreed to present at the local chapter of the [American Society of Landscape Architects' annual conference](#) in Wilmington in the new year. My topic is "From Backyards to Buffers: Reclaiming Nature through Better Design." Of course, this will have an emphasis on native plants. This topic may be used as a presentation to our membership at a future event as well. We will keep you posted.

Stay safe, and keep promoting native plants!

Eric Wahl

Connect with the DNPS on [Facebook](#)

Or find us at:

<https://delawarenativeplants.org/>





Plant-Animal Highlight: The Gall of Those Galls

Eric Zuelke, Treasurer, Projects Manager
Photos courtesy of Emma Brown

Winter, is a great time to take a stroll outside and look for interesting plant deformations. Some of the more interesting ones are leaf galls. Galls are formed by certain species of gall inducing insects, such as flies, midges and wasps. One of the more common types of these insects is the gall wasp (Order Hymenoptera, Family Cypinidae) which is very host-specific and commonly infest *Quercus* species worldwide. In fact, galls are so closely associated with oaks that many of the early botanical drawings included them as a normal part of plant anatomy.

The initiation of insect galls is typically associated with oviposition by an adult (e.g., sawflies, gall wasps and beetles) or the feeding of early larval stages (e.g., midges, moths and aphids). Gall wasp development takes between two and three years. The adult injects her eggs into a leaf bud and dies. The eggs hatch and the young crawl into the open buds and begin to feed. Timing is an important aspect in gall formation as the eggs must hatch at a precise point during bud opening. Eggs laid at tight bud will not result in gall formation. The actual gall, or **hypertrophy**, is formed by the interaction of enzymes produced by the insect larvae, and plant hormones. As the larvae feed, the gall producing chemicals are introduced in their saliva. The gall is a tumorous outgrowth that develops from rapid mitosis and morphogenesis of the plant tissues and they come in an astounding array of colors, shapes and sizes. Galls may be smooth, spiny or fuzzy, and resemble everything from marbles and ping-pong balls to dunce caps, saucers and sea urchins and they all provide food and shelter for the developing larvae. Each species of gall wasp produces a gall characteristic to that species. After completing their growth and metamorphosis, often many months later, the adult wasps escape by chewing a circular exit tunnel through the wall of the gall.

Most of these unusual and colorful insect galls are relatively harmless to their host plants, and the larvae inside are often eaten by a variety of birds and rodents. However, numerous



An up-close image of a wasp-initiated oak gall, with exit hole visible.

Continued on next page...



Andricus kollari galls– galls of the oak marble gall wasp, decorating oaks like Christmas ornaments.

galls may stress the plant because nutrients otherwise available for plant growth are used to produce galls. Some galls contain a very high content of bitter tannins, and are probably unpalatable to predators. In fact, oak galls were gathered in Europe and Asia Minor as a source of tannin used for converting animal skin into leather. Gallic acid, first isolated from oak leaf galls by the Swedish chemist Karl Scheele in 1786, is also used in tanning, dyes, inks, photographic developers and antioxidants. Some species of plants have turned the production of galls into an evolutionary symbiosis with their insect partners. These helper insects provide a vital service to their host plant in the form of pollination or protection in a highly competitive environment where these plants could otherwise not survive, and in turn get free room and board. Galls are another one of nature's fascinating plant-animal phenomena. So take some time this winter and go act like a cecidologist (that's a person who studies galls).

Here's another interesting article from the Missouri Botanical Garden: <https://tinyurl.com/More-on-galls>

And even more information (with some great photos): <https://entomology.ca.uky.edu/ef457>

The above article was originally published in Volume 2, Number 4 of The Turk's Cap, for the Winter 1999-2000 edition





The Vines of Delaware

William A. McAvoy, Botanist, State of Delaware

A vine is a woody or herbaceous plant, that climbs or twines around the stems of other plants.

There are 98 species and varieties of vines that occur in Delaware. Of the 98, 59 are native and 39 are non-native. Of the 59 native species of vines, 16 are rare in the state and 9 have not been reported in Delaware for well over 20 years [e.g., climbing fumitory (*Adlumia fungosa*) and purple clematis (*Clematis occidentalis*)]. The non-native vines that occur in Delaware include 13 that are invasive, such as Japanese honeysuckle (*Lonicera japonica*), and Oriental bittersweet (*Celastrus orbiculatus*). Invasive species outcompete and displace native plants.

You can find vines growing throughout the state, from the Piedmont province of northern New Castle Co., to the Coastal Plain province of lower Delaware. Vines will grow in a wide variety of habitat types, such as: forested uplands and forested wetlands, marshes and wet meadows, sand dunes along the Atlantic coast, roadsides, powerlines, ditches, and thickets.

Most of the vines in Delaware are herbaceous (67), with species such as the climbing hempweed (*Mikania scandens*), and the Virginia virgin's-bower (*Clematis virginiana*). The woody vines in Delaware number 29, and include Virginia creeper (*Parthenocissus quinquefolia*), and the Northern fox grape (*Vitis labrusca*).

The largest families of vines in Delaware are the bean family (Fabaceae), and the morning-glory family (Convolvulaceae). There are 25 species and varieties in the bean family including species such as the swamp groundnut (*Apios americana*), and the Eastern milkpea (*Galactia regularis*).

There are 16 species and varieties in the morning-glory family with species such as the big-root morning-glory (*Ipomoea pandurata*), and the low bindweed (*Convolvulus spithameus*). The morning-glory family also includes the genus *Cuscuta*, common name "dodder." The dodders are plants that lack chlorophyll, as a result they are unable to manufacture food through photosynthesis. Therefore, they are parasitic on other plants in order to obtain nutrients.

The vines of Delaware provide high value to wildlife. The flowers attract a wide variety of insects, as well as hummingbirds. Their fruit are eaten by birds and small mammals, and young leaves and stems are eaten by rabbit and deer. In addition, vines that form dense tangles and thickets provide cover and nesting areas.

The following is a list of all the native vines known to occur in Delaware, with state status.

Continued on next page...



SCIENTIFIC NAME	COMMON NAME	STATE STATUS
<i>Adlumia fungosa</i>	climbing fumitory	Native, rare
<i>Amphicarpaea bracteata</i> var. <i>bracteata</i>	American hog-peanut	Native
<i>Amphicarpaea bracteata</i> var. <i>comosa</i>	hairy American hog-peanut	Native
<i>Apios americana</i>	swamp groundnut	Native
<i>Campsis radicans</i>	trumpet-creeper	Native
<i>Celastrus scandens</i>	American bittersweet	Native, rare
<i>Centrosema virginianum</i>	coastal butterfly-pea	Native, rare
<i>Clematis occidentalis</i> var. <i>occidentalis</i>	purple clematis	Native, rare
<i>Clematis viorna</i>	vase-vine leatherflower	Native, rare
<i>Clematis virginiana</i>	Virginia virgin's-bower	Native
<i>Clitoria mariana</i> var. <i>mariana</i>	Maryland butterfly-pea	Native, rare
<i>Convolvulus sepium</i>	hedge bindweed	Native
<i>Convolvulus spithameus</i>	low bindweed	Native, rare
<i>Cuscuta campestris</i>	yellow dodder	Native
<i>Cuscuta compacta</i>	sessile dodder	Native
<i>Cuscuta coryli</i>	hazel dodder	Native
<i>Cuscuta gronovii</i>	Gronovius's dodder	Native
<i>Cuscuta pentagona</i>	field dodder	Native
<i>Cuscuta polygonorum</i>	smartweed dodder	Native
<i>Desmodium humifusum</i>	trailing tick-trefoil	Native, rare
<i>Desmodium ochroleucum</i>	creamflower tick-trefoil	Native, rare
<i>Dioscorea villosa</i>	yellow yam	Native
<i>Echinocystis lobata</i>	wild mock-cucumber	Native
<i>Fallopia cristata</i>	crested climbing buckwheat	Native
<i>Fallopia scandens</i>	common climbing buckwheat	Native
<i>Galactia regularis</i>	Eastern milkpea	Native
<i>Humulus lupuloides</i> var. <i>lupuloides</i>	Northeastern hops	Native
<i>Ipomoea lacunosa</i>	whitestar morning-glory	Native
<i>Ipomoea pandurata</i>	big-root morning-glory	Native
<i>Lathyrus palustris</i>	vetchling peavine	Native, rare
<i>Lonicera sempervirens</i>	scarlet honeysuckle	Native

Continued on next page...



Vines of all kinds

Top left: *Cuscuta gronovii*, Gronovius's dodder

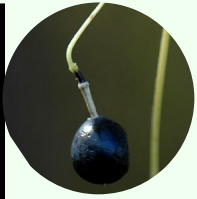
Top right: *Passiflora lutea*, yellow passion-flower

Bottom left: *Strophostyles helvola*, trailing wild bean

Images from Delawarewildflowers.org

Pressed specimen by Emma Brown

Continued on next page...



SCIENTIFIC NAME	COMMON NAME	STATE STATUS
<i>Matelea carolinensis</i>	Carolina anglepod	Native, rare
<i>Menispermum canadense</i>	Canada moonseed	Native
<i>Mikania scandens</i>	climbing hempweed	Native
<i>Muscadinia rotundifolia</i> var. <i>rotundifolia</i>	Muscadine grape	Native
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Native
<i>Passiflora lutea</i>	yellow passion-flower	Native
<i>Phaseolus polystachios</i>	wild kidney bean	Native, rare
<i>Rubus flagellaris</i>	northern dewberry	Native
<i>Rubus hispidus</i>	swamp dewberry	Native
<i>Sicyos angulatus</i>	one-seed bur-cucumber	Native
<i>Smilax bona-nox</i> var. <i>bona-nox</i>	saw greenbrier	Native, rare
<i>Smilax glauca</i>	whiteleaf greenbrier	Native
<i>Smilax herbacea</i>	smooth carrion-flower greenbrier	Native
<i>Smilax hispida</i>	weak-prickle greenbrier	Native, rare
<i>Smilax laurifolia</i>	laurel-leaf greenbrier	Native
<i>Smilax pseudochina</i>	long-stalk greenbrier	Native, rare
<i>Smilax pulverulenta</i>	downy carrion-flower greenbrier	Native
<i>Smilax rotundifolia</i>	round-leaf greenbrier	Native
<i>Smilax walteri</i>	Walter's greenbrier	Native
<i>Strophostyles helvola</i>	trailing wild bean	Native
<i>Strophostyles umbellata</i>	pink wild bean	Native
<i>Thyrsanthella difformis</i>	climbing dogbane	Native, rare
<i>Toxicodendron radicans</i> var. <i>radicans</i>	poison ivy	Native
<i>Vitis aestivalis</i> var. <i>aestivalis</i>	summer grape	Native
<i>Vitis labrusca</i>	Northern fox grape	Native
<i>Vitis vulpina</i>	winter grape	Native

William A. McAvoy
 Species Conservation and Research Program
 Delaware Division of Fish and Wildlife
 4876 Hay Point Landing Road Smyrna, DE 19977
 william.mcavoy@state.de.us





Gutter Succession in Northern Delaware

David Brown

Acer saccharinum - silver maple in different stages of growth. Male flowers in winter, and summer foliage and fruit shown:



“Nature abhors a vacuum” an aphorism attributed to Aristotle seems demonstrable in many unexpected locales and environments. Such is the case in our garage gutters in northern Delaware. They are three meters off the ground. As leaves collected in the gutter were washed and worn by rain and wind, they provided a nutritious mulch base for seeds to germinate. Not all were native flora.

Here are the results of data collection while cleaning this aluminum microenvironment during the month of November 2021: most seedlings were silver maple (*Acer saccharinum*). This was no surprise as these trees are only yards away from the gutters and the combination of wind and helicoptering samaras easily populated the twenty-foot-long aerial garden beds. Milk thistle also appeared and grew well in the gutters reaching heights of 30 plus centimeters. A mulberry seedling - well out of the reach of either monkey or weasel - was a surprise pioneer. It was transplanted and reached an approximate height of 45 centimeters before succumbing to the first freezes of autumn.

Dandelion plants are also part of the diversity of elevated plants this year. Two surprise inhabitants were cherry tomato plants, growing vigorously in the gutter. We harvested several tasty fruits. How they came to grow in our longitudinal habitat is curious. We have not grown cherry tomatoes for two years so these seeds might have traveled by avian means to grace our gutter. I look forward to finding out about other curious succession events among the readers of this excellent periodical.

Editor's note:

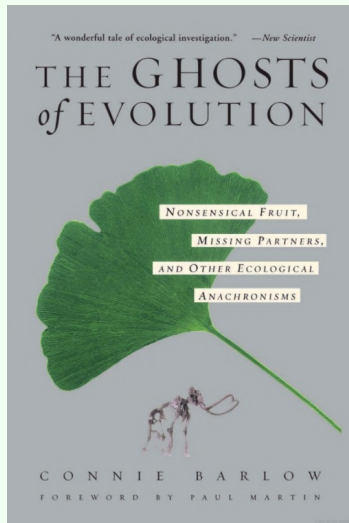
The impromptu hydroponic system created by these gutters is reminiscent of typical commercial hydroponic vegetable operations, but also the very unique indoor beds of [Stroud Water Research Center](#) - years ago, I recall visiting a room where tables of jewelweed (*Impatiens capensis*) were grown with flowing water rerouted from a nearby stream as part of a freshwater research initiative. Many native plants thrive in wet and wetland soils, and this begs the question- could nurseries give some native plants a better start using hydroponics? Stroud is located in Avondale, PA, not too far from the Delaware Nature Society and Mt. Cuba Center. The above instance of gutter succession was briefly introduced in The Turk's Cap, Volume 4 Number 1 Spring 2021 "Littlest Leaves."





A Really Good Book

Emma Brown



Barlow's parameters for anachronistic traits often include plants with large **indehiscent** seeds, fruit with fleshy fragrant pulp, a fruit size that was meant for mouths much larger than animals present today, and an inability to spread past small geographic ranges in lowland floodplains without assistance.

“The Ghosts of Evolution: Nonsensical Fruit, Missing Partners, and Other Ecological Anachronisms” explores what it means to be a native plant across timescales much longer than our own human lives, and what native plants look for in animal partners to consume their fruit, disperse their seeds, and ensure their success, and how plants cope when their animal assistants go missing. With well-known local plants like pawpaw, honey locust, Kentucky coffee tree, Osage orange, and persimmon, this well-written “food for thought” will leave you contemplating the relationship between the flavors of past and present.

Connie Barlow addresses the extinction of large megafauna in the U.S. on the order of 10,000 to 13,000 years ago, and how some of the plants that had long-term relationships with those animals were able to stick around long past the extinction of their mutualistic counterparts through various secondary means of reproductive longevity. One might consider the ginkgo to be native to the U.S. in the same way one might consider the horse to be native to the U.S. As it turns out, biologists in different fields consider flora and fauna to be “native” using different parameters of time, and animal biologists are more willing to reintroduce species in order to restore ecosystems to an earlier point in their ecological history. Barlow describes the means by which the digestive systems of large animals can serve the purpose of improving germination and distribution of seeds meant for those types of digestive systems. She also considers that the lifespan of a single genetic individual plant can be extraordinarily long, with the capacity of plant traits in need of animal mutualism to remain present for longer periods of time.

The book has brought me to consider— what other Delaware native plants have been able to survive anachronistically, and who did they rely upon long ago? Fruits that come to mind include *Prunus americana* and *P. maritima*, stone fruits with a single large seed and attractive pulp. But these are small enough that plenty of modern birds enjoy their bounty, and so they are not anachronistic. So, are there any other local anachronisms? If you find out, let me know. I am ever-curious.

And here's another great review of this same book, for those of you who are also ever-curious:

<https://academic.oup.com/bioscience/article/51/4/318/247115>





BAFFLING THE BOTANISTS

ONE of these plants possesses official native status in present-day Delaware.

Do you know your stuff?

A. *Maclura pomifera*
Osage orange



B. *Diospyros virginiana*
persimmon

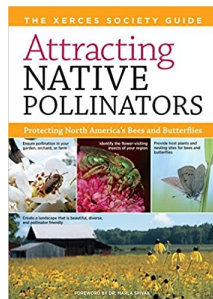


C. *Gleditsia triacanthos*
honey locust



E-MAIL your guess to PLANTEARTHFIRE@GMAIL.COM by February 1st, 2022
Prize to be selected and sent to recipient in February.

You must be a DNPS member to enter. 1 guess per person. 1 prize per newsletter.
The prize for this quiz will be: The Xerces Society Guide: Attracting Native Pollinators.



Previous mystery plant answer (Autumn V24,N3): *C. Kalmia latifolia*
The lucky winner was: Alice Mohrman





Winter Interest

PLACES AND PROGRAMS

- Visit the [Delaware Botanic Gardens](#) at Pepper Creek
- [Delaware Center for Horticulture](#) (DCH)
 - Recycle your Christmas tree Jan 8th
 - Landscaping & Horticulture Job Fair Jan 18th
- [Mt. Cuba Center Events](#)
 - Winter programs in-person and online!
- Longwood Gardens [Continuing Education](#)
 - “The Wild Garden, Designed” Online Thursdays Jan 20th-Feb 10th 5-7PM
 - “Photographing the Winter Garden” Fridays Jan 28th, Feb 11th 7-10AM
- [University of Delaware Botanic Gardens](#) (UDBG) [Virtual Lepidoptera Trail Tour](#)

EVENTS AND NETWORKING

- **Jan 12 6-7PM DNPS [Virtual Writer’s Meeting](#)**
Interested in writing for “The Turk’s Cap”?
Want to meet the other writers? Stop by online to get to know one another!
- Jan 12 & 13 8:30-11:30AM, Jan 19 8:30AM-12PM VIRTUAL
Delaware Nursery & Landscape Association (DNLA) [2022 DE Horticulture Industry Expo & Pesticide Conference](#)
- Jan 20-28 VIRTUAL PA-DE American Society of Landscape Architects [Symposium](#)
- Jan 22 10AM-1PM
Women in Horticulture of the Delaware Valley [Seed, Book, and Work Clothes Swap](#)
- Feb 18 9:30AM-4PM VIRTUAL
[GreenScapes Symposium](#) Contact Jason Gedeik at 301-962-1470
or jason.gedeik@montgomeryparks.org
- Feb 23 8AM- Feb 24 5PM VIRTUAL
[Eco Landscape Alliance \(ELA\) Conference & Eco-Marketplace](#)

Listening In

- American Horticultural Society [podcasts](#)
- “The Nature of Oaks” [podcast](#)
- The Plant a Trillion Trees [podcast](#)

Networking & Local Connections

- [The Delaware Native Plant Society](#)
- [The Maryland Native Plant Society](#)
- [The Native Plant Society of New Jersey](#)
- [The Pennsylvania Native Plant Society](#)

Making A Statement

Purchase the Pollinator License Plate, and your dollars will immediately be used to support pollinator habitat creation and conservation. There is a one-time purchase price of \$50 for this specialty plate.

Order online at <https://tinyurl.com/DMV-Pollinator-Plate>



Reading Up

Check out [this WHYY article](#) on Lenape and Nanticoke tribes reconnecting with ancestral Delaware lands, with plans to restore the ecosystem from empty farm fields back to native edible forest gardens.

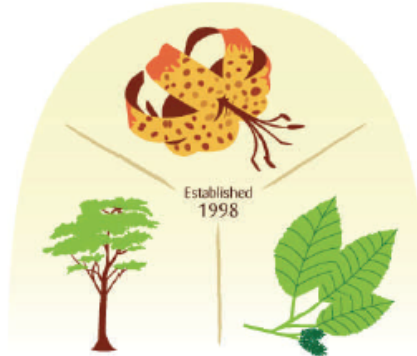
[Mt. Cuba Center](#) is involved in the above project, and they are also up to some pretty cool “tree-search” (tree research)!

It is with sadness that I report the passing of E.O. Wilson, scientist, researcher, and environmental conservation activist. Find out more about his life and legacy [here](#).





MEMBERSHIP APPLICATION






DELAWARE
Native Plant Society

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 _____

Membership benefits include:

-  Our quarterly newsletter-*The Turk's Cap*, and website resources
-  Tips and tricks on gardening and landscaping with native plants
-  Annual workshop, symposium, and project work days

Member Information

Name: _____

Organization: _____

Full Mailing Address: _____

Phone Number: _____

Email: _____

Please make checks payable to:
Delaware Native Plant Society
P.O. Box 369
Dover, DE 19903

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

- *Baccharis halimifolia*- groundsel tree
- *Hypericum punctatum* – dotted St. John's-wort
- *Passiflora lutea* – yellow passion-flower
- *Aplectrum hyemale* – putty root
- *Thuidium delicatulum* - delicate fern moss
- *Lilium superbum*- Turk's cap lily

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