



VOL. 23 NO. 2 2021

notes

Working to Restore the American Chestnut

Sara Fern Fitzsimmons, TACF Director of Restoration

The demise of the American chestnut (*Castanea dentata*) has been described as one of the great ecological disasters of current time. Through the first-half of the 20th century, the species was virtually eliminated the landscape by an Asiatic blight fungus (*Cryphonectria parasitica*) introduced on Japanese chestnut materials imported to the US in the late 1800s.

The American chestnut was densely populated with a range from Maine to Georgia (see *Figure 1, page 4*). The Pennsylvania Blight Commission estimated that more than 25% of the state's hardwoods were American chestnut trees in the early 1900s. In native forests throughout their range, mature chestnuts are storied to have averaged up to five feet in diameter and up to one hundred feet tall. Many specimens of eight to ten feet in diameter were recorded, and there were rumors of trees bigger still.

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**2021 PNPS
Annual Meeting
see page 3**

*Wild American Chestnut
in western North Carolina.
Photo: PACF*

PRESIDENT'S LETTER



Hello Everyone,

As summer fades into fall, I hope that all of our members have had a chance to get out and enjoy native plants — whether in your own garden or in a state park, forest, game land, or other natural area in Pennsylvania. This summer, I had the opportunity to travel to several beautiful wetland areas throughout

the state and acquaint myself with many of my favorite native wetland plants including steeplebush (*Spiraea tomentosa*), tawny cottongrass (*Eriophorum virginicum*) and ditch stonecrop (*Penthorum sedoides*).

This year we welcomed two new Board members, Jaci Braund as treasurer and Chad Clem as enews editor. We thank them both for stepping up to fill these positions and for all of their efforts thus far. We are also saying farewell to Heidi Cornwall, our corresponding secretary and membership chair. Heidi has served in these two positions for years and we greatly appreciate all of her hard work. We'll be soliciting members to fill these positions, so if you're interested in helping out, please let us know. Also, this summer, we welcomed a new chapter: the Lancaster Native Plant Alliance. Linda Ferich and Elyse Jurgen will serve as joint presidents and give us much needed representation in southeastern Pennsylvania.

Fall, of course, means it's once again time for our Annual Meeting! In between enjoying our native heritage, the PNPS Board has been working hard to pull together an engaging and thought-provoking agenda. This year we have two exceptional speakers: Abra Lee, horticulturist and founder of Conquer the Soil and Ian Canton, owner of Wood Thrush Native Nursery.

Abra will present on the legacies of historic black gardeners and highlight the plants they used to beautify both home and community. While not well known, her stories are part of the fabric of America and I am excited to share her unique voice and experiences with our membership. Ian will recount his trials with tough to plant sites and provide recommendations of native flowers that have proven to be particularly reliable and resilient under the most adverse conditions.

While we are still planning an in-person event, we are mindful of the challenges we face with the new COVID variants. We will follow all CDC and Pennsylvania guidelines and if necessary, switch to a virtual or hybrid event. Please register for the meeting to receive timely updates. Until then, enjoy the rest of your summer and stay safe!

Sarah Chamberlain

PNPS Welcomes Lancaster Chapter Co-Presidents

Lancaster Native Plant Alliance was developed and recently became a chapter of PNPS. The Alliance wants to promote the use of native plants in all landscape settings through collaboration, education, and advocacy.

Linda Ferich retired from nursing in 2013 and became a Pa Master Naturalist. In addition to co-chairing the Lancaster Chapter of PNPS, she currently co-coordinates the Lancaster Conservancy's Water Quality Volunteer Coalition, which tests stream sites and holds workshops to train interested citizen scientists. She also enjoys studying native plants and designing ecological gardens as a certified Chesapeake Bay Landscape Professional and student of Mt Cuba Center's Ecological Gardening program.



In 2017, Linda started the Lancaster Conservancy's Community Wildlife Habitat program, training volunteers and conducting free property assessments to teach property owners how to develop habitat and control stormwater. Through this program, with the National Wildlife Federation (NWF), Lancaster County has become the first county in PA to become a certified NWF Community Wildlife Habitat.

Linda shares leadership of the Lancaster Chapter with **Elyse Jurgen**, owner of Waxwing EcoWorks Co. (www.waxwing-ecoworks.com), is a community collaborator working to rebuild ecological literacy and biodiversity through hands-on ecological gardening experiences for all ages in South Central PA. She is certified as a Chesapeake Bay Landscape Professional and Ecological/Permaculture Designer, along with earning an Ecological Gardening Certification from Mt. Cuba Center. She has a master's degree in environmental education, 7-12 Biology Teaching Certification, and participated in Cornell University's Civic Ecology program. Elyse gardens alongside homeowners in a participatory approach, infusing educational opportunities during the design, installation, and stewarding process. She also facilitates a schoolyard habitat program to engage urban youth in restoring their schoolyards for wildlife conservation and outdoor cross-curricular education.



BOARD OF DIRECTORS

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2021 PNPS Annual Meeting

Saturday, October 16 • 9:00am-2:00pm

Millbrook Marsh Nature Center • State College, PA

Free and open to the public but you must register in advance. Please visit our website for more details: www.panativeplantsociety.org/2021-annual-meeting.html

Virtual Option Available • Proof of vaccination and masks required

Featured Speakers & Topics



Ian Caton

Ian Caton: Owner/Operator of Wood Thrush Native Plant Nursery (Formerly Enchanters Garden)

Presentation: ***Super Tough Wildflowers***

An introduction to wildflowers that have proven through experience to be particularly reliable and tough under the most adverse conditions.




Abra Lee

Abra Lee: Speaker, writer, and founder of Conquer the Soil a community dedicated to celebrating the history, culture, and art of horticulture

Presentation: ***The Influencers***

A conversation about the historical legacies of influential Black American gardeners and the plants they used to beautify homes and communities

PROGRAM SCHEDULE

9:00am	Welcome	11:00am	Abra Lee Presentation: <i>The Influencers</i>
9:30am	Business Meeting		
9:45am	Ian Caton Presentation: <i>Super Tough Wildflowers</i>	12:00pm	Lunch  APPLEGATE Donated by Applegate
10:45am	Break	1:00pm	Plant Walk at Mill Brook Marsh

PLANT WALK LEADERS

Ian Caton: Owner/Operator of Wood Thrush Native Plant Nursery (Formerly Enchanters Garden).

Jaci Braund PNPS Treasurer and Ecologist with the Pennsylvania Natural Heritage Program at the Western Pennsylvania Conservancy, where she primarily catalogs and characterizes plant communities.

American Chestnut

continued from page 1

Due to their abundance and enormous size, the American chestnut once ranked as the most important wildlife plant in the eastern United States. A large American chestnut tree could produce 10 bushels or more of nuts. Chestnut mast supported many species indigenous to the eastern United States including: squirrels, wild turkey, white-tailed deer, black bear, raccoon and grouse, which once depended on chestnuts as a major food source.

Due to the species capacity to regenerate from the root collar, the American chestnut continues to survive as an understory or shrub species. The American chestnut is now typically only found as a small stump sprout, rarely reaching over 20 feet in height. Although the tree has escaped the threatened and endangered species list because of its relatively numerous population size, the blight fungus usually kills those stems before they can reach sexual maturity, reproduce and/or expand within its native range. We call the species “functionally extinct.”

An estimated 435 million sprouts exist throughout the original range, 84% of which are less than 1” DBH (diameter breast height). Different management strategies, the importation of other exotic and invasive species, and the influence of hungry deer herds, especially in and around urban and suburban areas, all have influenced the species capacity to continue surviving simply through re-sprouting.

Importance of Native Species and Impact on Wildlife

We often get asked the question: why should we restore the American chestnut? The species has been virtually absent from the Appalachian forest ecosystem for over a century. Why go through all this effort and expense to save it? While it is true that the species has not had a significant effect on the landscape for over 100 years, restoring it will certainly increase the overall diversity and health of native Appalachian forests.

As most readers know, native plant species are integral to feeding native insects and large herbivores. If we can increase native flora, we can increase the health of native fauna. Unfortunately, we are losing major pieces of our Appalachian megafauna every decade. Now under attack from different pests and diseases are the Eastern Hemlock, Ash, and American Beech. The hope is the restoration of the American chestnut will not only lead to improved ecosystem health, but also showcase methods and systems that can be used to assist other native trees species in peril.

Restoration Efforts

Efforts underway to restore the American chestnut include traditional breeding methods, simple conservation strategies, methods that reduce the virulence of the blight fungus, and modern genetic transformation techniques. Combined, we refer to this process as “3BUR”: **B**reeding, **B**iocontrol, and **B**iotransformation **U**nited for **R**estoration. The American Chestnut Foundation (TACF) works with a wide range of partners to combine these strategies for creating a self-sustaining, resilient, and disease-resistant American chestnut populations. While the broadest goal is to restore the American chestnut species, TACF focuses on



Figure 1. Native range of the American chestnut.

two major objectives: (1) introducing genetic material(s) leading to disease-resistance into the American chestnut; and (2) preserving the genetic heritage of the American chestnut species by planting and grafting native germplasm.

To avoid inbreeding and to maximize inclusion of regionally-adapted genetic complexes, TACF utilizes as many different American chestnut trees from multiple locations throughout the eastern United States. As a result, every generation of planting material requires that hundreds to thousands of trees be properly screened and tested. To date, TACF has conserved over 1000 sources of American chestnut from across the native range.

Plant pathogens frequently evolve to overcome plant defenses. Although the blight fungus is not known to have overcome the defenses of the numerous Chinese chestnut trees planted in the U.S, a future “breakdown” of resistance in blight-resistant chestnut trees is possible. To minimize this possibility, the more tools in the resistance toolbox that a tree has, the better. Combining resistance from related chestnut species, along with that from novel gene constructs such as the oxalate oxidase gene from wheat, will create a more robust and resilient restoration population.

There are many interested in receiving blight-resistant American chestnuts that are ready to be used for reforestation. Although that is what TACF is trying to achieve, unfortunately, those materials are not yet available for wide-scale distribution.

Volunteer growers plant testing, conservation, breeding, and demonstration orchards every year. Though potentially blight-resistant American trees are being tested, the work is far from over. Restoration of a species is the goal. As such, we need as much diversity in our breeding program as possible. As TACF moves forward, it will be vital to incorporate more American chestnuts and different types of breeding strategies that will help create a self-sustaining American chestnut population for many generations to come. PA/NJ Chapter friends at Edge of the Woods Native Plant Nursery are a great example of this volunteer effort.

Our mission at Edge of the Woods Native Plant Nursery includes educating the community about the importance of native plant species.

When a client suggested we entertain the idea of an American Chestnut Orchard, we were immediately energized. At that time, there were no other chestnut orchards in Lehigh County. We saw the potential for helping to restore a native species while also educating people about this iconic native plant.

Partnering with the chestnut foundation to grow an orchard was a perfect fit. Planted with the help of volunteers, the pure American chestnuts are now bearing fruit. We offer tours of our demonstration gardens weekly, and the Chestnut orchard is a favorite stop on the tour.

This year we were proud to host a Pollination workshop in the orchard. To our delight, the orchard has grown from seedlings to an essential part of our mission.

— Louise Schaefer, B.S. Biology, PA Certified Horticulturist
Edge of the Woods Native Plant Nursery, LLC

TACF and its chapters rely on its core of citizen scientists to accomplish many of the breeding activities. Volunteers maintain more than 500 orchards and have planted over 500,000 trees. There are over 5000 members in TACF combining to log some 19,000 hours of volunteer time per year!

How You Can Help

TACF is always looking for new trees for germplasm conservation, places to plant trees, and help in various other field and administrative tasks. To maximize diversity and adaptation of

restoration populations, TACF seeks to use as many American chestnut trees as possible.

As part of a long-term method of *ex situ* conservation, TACF has set a priority on locating and conserving as many wild American chestnut trees as possible. We need your help to find trees and then collect nuts and/or cuttings from them.

1. Go to this website to download a **Tree Locator Form (TLF)** and learn about chestnut identification:
2. Download **TreeSnap** on your phone
3. Go for a walk in the woods. Contact your local TACF office to find out if there are priority areas for scouting identified near you.
4. When you find an American chestnut tree
 - i. **Document** the tree using a TLF or on TreeSnap (you may use both, but don't have to)
 - ii. **AND Collect a leaf and twig sample** as per the instructions on the TLF
5. **Mail** leaf sample to your nearest TACF office for identification. Include a TLF that is either completed or has your TreeSnap ID on it.

But even if you can't find or plant trees, just joining and spreading the word about the work we do can help continue the work of TACF and its partnering organizations create more diverse and sustainable forests for the future.



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Shady Invasive Shrubs

Erynn Maynard-Bean, PhD
Postdoctoral Scholar of Forest Dynamics, Penn State University

Most of us probably don't need to see the research to know that invasive shrubs are growing in abundance in eastern deciduous forests. You may have also noticed that invasive shrubs are some of the first green we see in spring forest understories, and that they will be some of the last deciduous plants holding on to leaves this fall. We are talking about species like Amur honeysuckle (*Lonicera maackii*), the bush honeysuckle complex (*L. morrowii*, *L. tatarica*, *L. x bella*), privets (*Ligustrum* spp.), burning bush (*Euonymus alatus*), and Japanese barberry (*Berberis thunbergii*) — species that were (and many still are) intentionally introduced for horticultural purposes. Their extended leaf phenology into the spring and fall can provide benefits through photosynthesis. But how does this influence conditions in the understory for native species adapted to open conditions? To find out, we measured light and temperature for 3-years to compare invasive shrubs to an abundant native understory plant community. There was a pattern of reduced maximum air temperature during the growing season of most years. We also found less light infiltration below invasive shrubs throughout the year with mean differences largest in the spring (26.8% reduction). These shady conditions likely contribute to decreases we see in



Hartley Wildflower Preserve

Above: In the spring before the overstory canopy has leaves. All of the green is invasive plant species. In their absence (front-right), more direct sunlight reaches the forest floor.



Below: This shows how shady the understory is after the overstory canopy has leaves in mid-summer.

native understory plant abundance and diversity, canopy tree regeneration, and communities of ectothermic species like amphibians, bees, and butterflies that are sensitive to light and temperature. Furthermore, important ecological processes such as decomposition and nutrient cycling are regulated by temperature. This work adds to our understanding of the impacts of invasive shrubs, and we hope it contributes to the momentum of native plant use in horticulture.

Original research article: Maynard-Bean, E., & Kaye, M. (2021). The Seasonal Influence of Invasive Shrubs on Light and Temperature in an Eastern Deciduous Forest Understory. *Natural Areas Journal*, 41(3), 186-194.

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Buttonbush
Cephalanthus occidentalis

PNPS BOARD OF DIRECTORS BALLOT • 2022-2023 TERM

CANDIDATES



Jaci Braund was appointed Treasurer of the PNPS Board in February 2021. She first became interested in the PNPS through the active Facebook group after relocating back to her home state of Pennsylvania. Jaci currently works as an Ecologist with the Pennsylvania Natural Heritage Program at the Western Pennsylvania Conservancy, where she primarily catalogs and characterizes plant communities. Jaci holds a Master of Science in Biology from Shippensburg University and currently resides in Mechanicsburg.



Chad Clem was also appointed to the PNPS Board in February 2021. His graphic design skills are shining through in our recent flyers and PNPS e-Newsletter. Chad joined PNPS after moving to Doylestown, PA from Maryland in 2016. Like many of us he credits Doug Tallamy's first book, *Bringing Nature Home*, as the catalyst to his passion for natives. Chad enjoys spending time with his family, hiking, visiting botanical gardens or pottering in his home garden. Chad heads up R&D for Applegate, a Natural and Organic food company based out of Bridgewater, NJ.

BALLOT

Cast your vote for two directors.

☐ **Jaci Braund**

☐ **Chad Clem**

Write in

Write in

Please cast your vote
and return your ballot to be counted:

- **By Mail:** PNPS PO Box 807, Boalsburg, PA 16827
- **By Email:** info@panativeplantsociety.org
- **In Person:** Cast your ballot in person at the 2021 Annual Meeting on October 16th.

Join PNPS on Facebook: facebook.com/groups/panativeplantsociety



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2021 Facebook Photo Contest Winner



By Larry G Laird,
American cancer-root,
Conopholis americana, (L.)

Photo taken on May 2021
in Michaux Forest on State
Hospital Property.

This unusual-looking plant
lacks chlorophyll and is
parasitic, growing only
where the roots can attach
to the roots of certain oak
species. Sadly, it is listed
as threatened and vulnera-
ble in several states in its
range, due to development,
and habitat destruction.

See entries from past
contests here:
www.panativeplantsociety.org/facebook-forum.html

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