



The West Virginia Chapter of The American Chestnut Foundation NEWSLETTER



In the heart of American chestnut's natural range

August 2023

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Table of Contents

Shepherd University Planting.....	Page 1
Too Much Water.....	Page 2
Oak Hill School Planting.....	Page 2
Slanesville Extension Event.....	Page 2
Deer Browse.....	Page 3
Historic Photo.....	Page 3
Alderson Planting.....	Page 3
Lisa Thomson's News.....	Page 4
Valley Woodworkers of WV.....	Page 5
Tucker County Energy Express.....	Page 5
Update from Jared Westbrook.....	Page 6
Update from Jules Smith.....	Page 7
Hampshire County Fair.....	Page 7
National Update.....	Page 7
Cassie Stark, TACF's New RSC.....	Page 8

Shepherd University Planting

The following is taken from an article published by **DC News Now** by Stephen Cohen on May 11, 2023. The title of the article was: *Shepherd University tree planting project designed to bring food sustainability*

A Shepherd University project is striving to build a model for global food sustainability.

It is centered around the chestnut tree which once dominated the eastern American forest. But logging in the glory days of the American railroad decimated the trees.

“The chestnut tree was a part of every aspect of every American’s life,” said Dr. Sylvia Bailey Shurbett with the Center for Appalachian Studies. “The tree would build a barn that would last 150 years. It would feed their pigs. It would help them grow their crops. It was food for them.”

Chestnut trees imported from China are treasured because they are especially resistant to blight.

“The more you can get out and plant trees, whether it’s chestnut trees or other trees, you’re going to be increasing biodiversity,” said Dr. Brooke Comer at Shepherd. “It helps clean the air. It does so many good things. It pulls carbon dioxide from the atmosphere.”

Researchers say the Appalachian region is the ideal place for the project. “This is where on the whole eastern half of the United States the species are fleeing climate change,” explained Susan Thompson with the Sustainable Farming Project.

The research done here has global implications.

“The practices that we are doing here,” said farm coordinator Madison Hale, “we’re thinking about social impact, economic impact and the ecological impact.”

Note, **Susan Thompson**, mentioned above, is a member of the WV chapter. Thanks Susan for promoting the planting!

Too Much Water

Dr. Darrell Dean of Preston County sent photographs of young seedlings with blotchy areas on the leaves. Some of the leaves began to curl. Not knowing the cause of the issue, the photographs were sent to **Sara Fitzsimmons**, TACF's Director of Restoration. Sara answered immediately indicating either the plants received too much water or the potting media is too dense. For years, the WV chapter used a potting mix from ProMix with mycorrhizae. Many of the seedlings died in this mix. It turns out that particular mix had a high peat content and peat retains a lot of water. Thus, a good potting medium for chestnuts should not contain too much peat in the mixture.

One photo of Darrell's seedlings is seen below. Thanks to Darrell for the question and to Sara for the answer.



Oak Hill School Planting

Dr. Lewis Cook of Fayetteville is responsible for many of the chestnut plantings in Fayette County. One of the plantings is located at the Oak Hill School Complex that houses Oak Hill High School, Middle School, New River Intermediate and the Fayette County Technical Education Center. There are about 3,000 students on campus daily during the school year.

On the school grounds is a demonstration chestnut or-

chard, pictured below. Lewis installed the orchard after a discussion with Sara Fitzsimmons. The chestnut trees are all hybrid trees--there are no pure Americans. Other species are interplanted with chestnuts for education of students at the Vo-Tech center and for biology classes at the high school. All our chestnut orchards in WV should look so well groomed.



Chestnut planting at the Oak Hill School Complex

Slanesville Extension Activity

Bernie and Linda Coyle of Keyser participated in an extension activity at the Slanesville community garden (Hampshire County) on June 10. Slanesville's garden, called Mustang Garden, was created in 2016 from an idea to reestablish a pollinator patch. The extension activity included music, free produce and garden tours. Bernie and Linda had a chestnut booth at the event, and Linda is pictured below at their booth.



Deer Browse

According to the website, *A-Z Animals*, there are about 550,000 white tail deer in West Virginia. As most West Virginian's know, deer can make a huge impact on both forests and suburban settings. Deer feed on the buds, leaves and stems of many ornamental plants. They also have a significant impact on trees by thinning lower branches. Because deer have no upper incisors, they tear or jerk plants when feeding. In addition to feeding, deer rub also can impact trees and small saplings, as they rub their antlers to remove the velvet covering. Linda Coyle shows a great example of deer thinning on chestnut trees. The upper photo shows a tree with obvious deer browse, while the lower photo highlights the bushiness of a tree inside a cage that protects from deer browse.



Historic Photo

A trip to look for historic photos of American chestnut was made to the WVU Library, specifically the Regional History Center on the downtown campus in Morgantown. The librarian indicated that all historic photos have been digitized and can be found at: wvhistoryonview.org. While there were not a lot of photos of chestnut, the ones that were found were too grainy to duplicate in the newsletter. One interesting photo that was found was the one below of a Prisoner of War camp on Camp Run in Greenbrier County. The caption of the photo read as follows: ***During WW II, German war prisoners were housed at this camp on the headwaters of Little Clear Creek in Greenbrier County. The prisoners were employed to lay railroad tracks into a large stand of virgin timber. The operator stated that the Germans were the finest type of labor and did an excellent job.*** Obviously by the mid-1940s, all the American chestnuts in Greenbrier County were dead, but they may have encountered large stands of dead timber that could have been used for railroad ties. I wonder how many WV chapter members knew there was a prisoner of war camp in White Sulphur Springs.



Alderson Planting

A 60-tree planting was established at the Appalachian Plant Materials Center (APMC) in Alderson. **Sara Fitzsimmons** donated three provenances of bareroot seedlings (6"-8"-tall). Sara designed the planting that included three distinct soil conditions on the property. **Donny Dodd, Matt Murphy, and Carl Gower** prepared the site and planted the seedlings. According to Donny, the trees appear to be doing great. The APMC staff have kept an eye on the trees and Donny is informed when watering and/or weeding is required. The seedlings were planted on a 20' spacing between trees and rows. The seedlings

were used protected with tree shelters. The photo below shows one of the planted sites.



Plot 1 at the Plant Materials Center

Lisa Thomson's News

After 7 years at the helm of TACF's President and CEO, **Lisa Thomson** turned over the reigns of the organization to Dr. William (Will) Pitt. Lisa reported that she has met with Will every other week, and they have toured the Meadowview farms together. Lisa believes Will will be a great fit for TACF, and the transition is going very well.

On a June zoom call, Lisa shared some exciting news. TACF's spring appeal asked for funding for a new state-of-the-art greenhouse at the Meadowview farms in Virginia. Lisa reported that an anonymous donor underwrote the entire cost of the greenhouse. The donor toured the Meadowview farms with Lisa this spring and asked why there were no solar panels. Lisa reported that solar panels were on the wish list for the future. The donor also donated funds for all the solar panels. A ribbon-cutting ceremony for the greenhouse will occur sometime in 2024.

Lisa, Bruce Levine (MD-TACF president) and **Sara Fitzsimons** are working on updating TACF's licensing agreements. Lisa reported that the last licensing agreement was written in 1997 when Marshal Case was TACF's president. A lot has happened during TACF's 40 years, including the formation of the 16 state chapters. New York was the first state chapter; it came on board in 1990. West Virginia was the last of the 16 state chapters, incorporated in 2010. The umbrella of licensing agreements covers everything from chapter fundraising, research efforts, the foundation's logo, etc.

Lisa wants the new licensing agreements to work for all the state chapters in terms of their work, the type of messaging that is disseminated, how fundraising is conducted, etc. She stated that a common understanding among the national organization and the state chapters is critical. Bruce Levine agreed to poll the state chapter presidents for their feedback, and then a preliminary draft will be drawn up.

Lisa reported that there is ongoing discussion about intellectual property with the State University of New York (developers of the transgenic 'Darling 58' tree). A law firm from San Francisco is assisting TACF *pro bono* with the intellectual property agreement.

In May 2023, the EPA made the decision to postpone their decision on the deregulation of 'Darling 58'. It was reported that the EPA requires additional data. While the USDA-APHIS may make a decision this year, TACF cannot distribute any seeds/plants until the EPA gives its okay. The EPA has indicated that a decision may not come until the spring of 2024. Even if they do deregulate 'Darling 58', there are indications that any distribution of transgenic pollen may be strictly limited geographically. **Cassie Stark**, our Mid-Atlantic Regional Science Coordinator, is putting together a prioritized lists of orchards in WV, VA, KY and MD that can receive transgenic pollen, if there is deregulation.

Indiana Chapter Report

During the last year, the 16 state chapter presidents have met once a month over zoom. Each month one chapter presents a report. The Indiana chapter presented their report at the June meeting.

Bill Deeter is the current Indiana chapter president. He has been a TACF member for 25 years, but this is his first year as chapter president. Bill is an expert on growing many species of trees and he has 350-400 American chestnuts on his own farm. Bill was in management for 40 years, but he has a deep love for trees. He shares a lot of videos on social media on all aspects of tree planting, management, protection, etc. Bill reported that there is a lot of chestnut blight in Indiana, but he also has seen a lot of 'curddy bark', a phenomenon that looks a lot like hypovirulence. The cankers on trees are heavily callused and show little signs of sporulation of the fungus.

The remainder of Indiana's report was from **Dr. Jim McKenna** of the Hardwood Tree Improvement Center at Purdue University. Jim teaches propagation techniques at Purdue. He hopes to use grafting to speed up chestnut flowering. Jim reported that there are a lot of wild American chestnuts in Indiana.

Chestnuts are being grown at the Fitness Farm, 10 minutes outside Indianapolis. The Fitness Farm is dedicated to promoting children's and adult's health and wellness. The farm offers event space, education and exercise programs on nutrition, fitness and agriculture and a fully sustainable market garden for farm-to-table sales.

The Indiana chapter has a good relationship with **Joan SerVass**, president and publisher of the *Saturday Evening Post*. Joan is also the Fitness Farm camp director and her goal for the Fitness Farm is to reduce childhood obesity. Jim reported that they have planted 50 butternut and 50 American chestnuts at the Fitness Farm.

Chestnut orchards also are planted at several Indiana High Schools in Salem and New Castle. Both schools have science teachers who are active and interested in chestnut.

Jim reported on two chestnut orchards: Becky and Cliff. Interestingly, trees in the Becky orchard had no cankers as of 2020. In contrast, the Cliff orchard had extensive chestnut blight, and all the original stems are dead. Active chestnut blight is evident in the Cliff orchard. Answers to why these two orchards differ in their level of chestnut blight are not understood.

Their Duke Energy orchard is a GCO. Many of the trees in this orchard have produced nuts for a number of years. Some years pollen is applied in the spring to produce controlled crosses. The Indiana chapter requested an APHIS permit to use oxalate oxidase-containing (OXO) pollen that was supplied by the State University of New York. They planted 227 trees, half were OXO positive and half were OXO negative. The BC3 trees (an OXO positive BC2 male crossed with an Indiana female) were created with 10 Indiana mother trees. The trees were planted on an 8' spacing. The OXO positive trees are smaller than the OXO negative trees, but that is not unexpected. There is a growth lag when a constitutive gene is expressed. (NOTE: the OXO gene in 'Darling 58' trees produces the oxalate oxidase enzyme continually. This gene breaks down oxalic acid that is produced by the chestnut blight fungus into hydrogen peroxide, CO₂ and water. Since the enzyme is produced constantly, there is a drain on the tree's ener-

gy). The upside of the OXO positive trees is that they have spectacularly small cankers. Jim McKenna reported that he has seen thousands of chestnut blight cankers and the size of the cankers on the OXO positive trees is better than those on Chinese chestnut. The other point Jim wanted to make is there is a continuum of canker sizes on the OXO positive trees. Not all the trees have very small cankers. All but the best 11 trees were cut down, leaving the very best of the best to continue growing.

Valley Woodworkers of WV

WV-TACF chapter board member, **Dr. Lewis Cook**, spoke to the Valley Woodworkers of WV in Dunbar in July. Lewis spoke to 40-50 members of the group in what Lewis described as an outstanding facility fitted with first-class tools and benches. The group was attentive and members asked many questions. Lewis feels that a number of those in attendance will join TACF. Below is a picture of the group in Dunbar.



Tucker County Energy Express

Kyle Ellison, WV chapter member, spoke to five groups of students at the Tucker County Energy Express, an award-winning, 6-week summer reading and nutrition program. With the help of volunteers and mentors, students enjoy art, drama, science and vocabulary. None of the groups had sufficient numbers that the children could reach all the way around the base of an imaginary 17-foot diameter tree! Kyle had about 15 minutes with each group. One group had enough time to open up a burr and see the little chestnuts inside, which they enjoyed. The burs were obtained from the Waddell orchard behind Preston County High. Thanks Kyle for spreading the word to future scientists.



Kyle Ellison with children from the Tucker County Energy Express.



Energy Express students hand-in-hand around an imaginary 17'-diameter chestnut tree.

Update from Jared Westbrook

Jared Westbrook, TACF's Director of Science, provided an update on the status of backcross trees. Jared went through the genotyping data again and manually corrected some of the generation assignments. After making these corrections, he plotted the mean American chestnut ancestry per generation, and the means are very close to expectation:

Mollissima = 0%

Mollissima x dentata x mollissima BC1 = 20%

F1 = 50%

BC1 = 75%

BC2 = 88%

BC2F2 = 88%

BC3 = 93%

BC3F2 = 90%

BC4 = 94%

LSA (large surviving American) = 100%

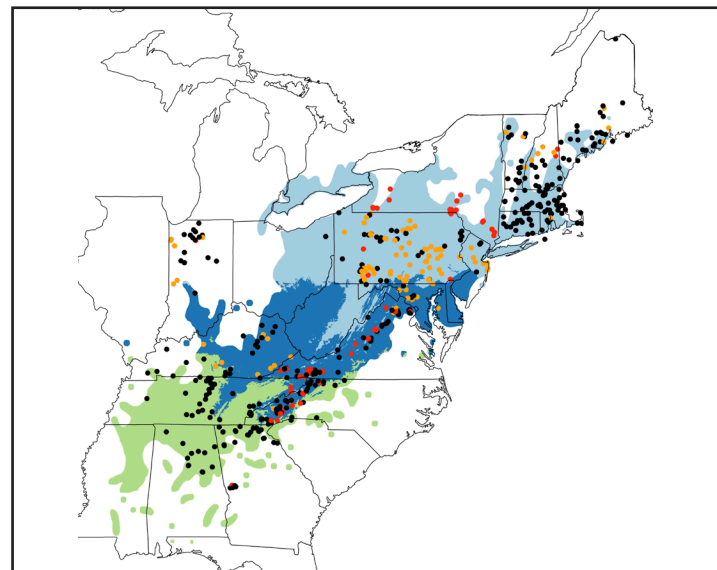
Dentata = 100%

Jared provide a map of the origin (see map) of the wild

trees that TACF has conserved either via breeding with the backcross program or in collection of wild seed that were planted in orchards. The different colors on the map indicate three genetically distinct, locally adapted American chestnut populations. The black dots are wild trees that have been used in the backcross program. The red dots are most of the wild trees that were collected from seed and planted in orchards. Orange dots are wild trees whose wild progeny were planted in orchards AND are parents in the backcross program. Note that there are more black dots than red dots meaning more diversity has been conserved in the backcross program than we have in the collection of seed from wild trees at this time. At the moment, much of the diversity that we have available to breed 'Darling 58' with comes from the backcross program.

To increase the genetic diversity and adaptability of kids of 'Darling 58', the plan is to breed current 'Darling 58' progeny with backcross trees that inherited a high percentage (> 95%) of their genome from American chestnut. Jared also plans to breed 'Darling 58' with the kids of the wild trees that have been conserved in orchards.

Jared plans to genotype many of the progeny of 'Darling 58' x backcross trees. Although he can select for "pure" American chestnut with genotyping, the main purpose is actually to select trees with locally adaptive genetics. Locally adapted genetics will be done by using selected progeny that inherited minimal genome from the wild type tree from NY (called 'Ellis') in which the Oxo gene was inserted to create 'Darling 58'.



Westbrook's map of wild trees that have been conserved

Update from Jules Smith

Jules Smith, TACF's Director of Communications sent out the following notice:

Adriana Del Grosso, tree distribution manager for the State University of New York's Environmental Science and Forestry's (SUNY-ESF) American Chestnut Research and Restoration Project, has been working with SUNY-ESF's communications and IT departments to develop a webpage that provides regulatory updates on the project's site. The page is now live and can be found at the following link:

<https://www.esf.edu/chestnut/regulatory.php>

They plan to make this a "working webpage" that will be updated as new information becomes available. This should be an excellent resource as it also offers info and links about the whole process, all on one webpage.

Please bookmark it to utilize as a resource and share with others!

Hampshire County Fair

Our eastern panhandle duo of **Bernie and Linda Coyle** are great ambassadors for the WV chapter. Although Linda is pictured on pages 2-3 of this newsletter, she and Bernie also set up a display at the Hampshire County Fair. We should all be such good promoters of American chestnut.



Linda Coyle at Hampshire County Fair.

National Update

Below are a number of updates from TACF's national office:

- There is new information on TACF's national meeting, scheduled for October 26-28 in Kodak, TN. This will not be like any previous annual meeting in that the facility in Kodak can accommodate only 100 people, so the meeting **will not be open** to TACF members. With a new President/CEO, Will Pitt, on board, TACF hopes to host a 'normal' annual meeting next year.
- An awards committee was been established. One individual from each of the four regions (New England, North-Central, Mid-Atlantic, and Southern) will be honored at the Kodak, TN meeting. The deadline for nominations is August 25.
- A volunteer waiver is in the works for individuals who volunteer in orchards in all 16 state chapters. The proposed waiver form will be sent out for review along with Standard Operating Procedures.
- **Dr. Will Pitt**, pictured below, is TACF's new President and CEO. He began his duties on August 1.



- Domain name change. For years, when searching for The American Chestnut Foundation on-line, acf.org was the URL. That has changed. **The new domain name is: tacf.org**. As with the U.S. Postal Service, typing in acf.org will automatically be redirected to tacf.org for the next 12 months. After that, we will need to use tacf.org.
- Volunteer application and recorder. Chapter members who volunteer, whether it's planting, weeding, watering, lecturing, working a fair table, etc., a volunteer application is now up and running. The application will be found on TACF's homepage. TACF would like to track how many volunteer hours our members work, as this helps with grant applications.

The last solid data on volunteer hours was from 2008, so the new volunteer form will benefit greatly in tracking how many hours our volunteers work.

Cassie Stark, our new Mid-Atlantic Regional Science Coordinator

Cassie Stark, TACF's new Mid-Atlantic Regional Science Coordinator, has the responsibility for assisting four Mid-Atlantic states (MD, KY, VA and WV). Cassie is making her way around the four states, and she visited a few WV orchards August 1-3. Her first stop was the 900-tree orchard at the WVU Agronomy Farm in Morgantown. These trees were planted in 2006 and some of the backcross trees are nearly 50' tall. She then saw a few backcross trees that were planted next to the Cooper's Rock concession stand. She was able to see the pavillions at Cooper's Rock that were made from American chestnut by the CCC Corps in the late 1930s. Her next stop was the germplasm conservation orchard (GCO) at the University forest in Preston County. This 30-tree orchard suffered greatly from drought. Most of the American chestnut seedlings that were planted in 2023 have died. Only 9 of the 30 trees are still living. Below is a photo of Cassie next to one of the survivors.



While at the University Forest, she looked at the 300-tree planting at the old archery range site. These backcross trees were planted in 2015/16.



Cassie met with **Robert Sypolt** and **Darrell Dean** at the Waddell orchard behind Preston High School in Kingwood. This 100-tree orchard has active chestnut blight and putative *Phytophthora* problems. Cassie will send a protocol for soil sampling so the soil around some of the dead trees can be tested for *Phytophthora*. Samples are sent to Clemson University where they are tested.



Cassie flanked by Darrell Dean and Robert Sypolt

Cassie then met **Harrison Jenkins** at the Sutton Dam GCOs in Braxton County. These orchards were planted by the U.S. Army Corps of Engineers. Harrison replanted about 40 seedlings this March in the two GCOs.

From Braxton County, Cassie traveled to meet **Lewis and Vicki Cook** where they toured the Summit Bechtel Reserve GCOs and the Fayette County plantings. Cassie's last two stops were with **Donny Dodd** (NRCS) at the Plant Materials Center in Alderson where three 20-tree plots with varying soil types were established this year.



A 2023 plot at the Alderson Plant Materials Center.

Cassie's last stop was with **Jerald Reed** (WV DOF) at the Greenbrier State Forest where 100 nuts were planted in March. Of the 100 nuts, only 4 developed a seedling. Cassie will ship Jerald bare root seedlings next spring.