



The West Virginia Chapter of The American Chestnut Foundation NEWSLETTER



In the heart of American chestnut's natural range

November 2022

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Planting with Daughters of the American Revolution

WV chapter board member, **Linda Coyle**, assisted with a chestnut planting in conjunction with the Highlands of the Potomac Chapter of the Daughters of the American Revolution (DAR) at the Carskadon Mansion in Keyser, WV on October 10, 2022. The planting was a service project for the DAR. Kim Rolls, a member of the Mineral County Foundation and the DAR, helped choose the sites for the plantings. The WV chapter of The American Chestnut Foundation donated the trees. Many thanks to Linda for her involvement in this project.



Left to right, Linda Coyle, WV TACF and DAR, Beverly Chaney, Highlands of the Potomac DAR, Kim Rolls, Mineral County Historical Society Foundation (HOTP), Darlene Frederick of HOTP and Shirley Pyles, HOTP.

Stiltgrass

Japanese stiltgrass (*Microstegium vimineum*) is a problem in many of our eastern states, including West Virginia. The plant was accidentally introduced into the State of Tennessee around 1919 as the grass was used as packing material in shipments of porcelain from China. This invasive grass has since spread to 26 states. It invades along roads, floodplains and other disturbed areas, even gardens. While whitetail deer do not eat stiltgrass, they facilitate its spread as the grass seeds stick to deer hooves and

bodies. As a result, deer spread seeds around our forests and landscapes. Stilt grass grows up to 3-4' high and it can suffocate many of our native species. This grass prefers partly shaded moist growing conditions, but it is very adaptable to other conditions. It spreads both by seeds and vegetatively.

On our family farm in Marion County, stiltgrass has overtaken many areas of our forested property. It starts slowly on forest roads and then slowly creeps 30'-40' into the forest. Without some control measures, the situation will only worsen.



Stiltgrass overtaking a shaded forested area.

After consulting with **Dr. Rakesh Chandran**, weed specialist at WVU, he recommended the pre-emergent herbicide, **Pendulum Aquacap** applied in the spring. The active ingredient of Pendulum Aquacap, made by BASF, is pendimethalin. Waiting until spring meant that the stilt grass would continue to grow throughout the late summer/early fall. After reading comments from many who have attempted to control stilt grass, I opted to apply **Acclaim**, a selective herbicide from Bayer and apply it during the growing season. The active ingredient of Acclaim is Fenoxaprop-p-ethyl and it controls annual and perennial grasses. Unlike glyphosate that is non-selective, Acclaim is safe to use in forested area without damage to trees and shrubs ***This is not an endorsement of either product.***

In August, I purchased a pint of Acclaim and a pint of non-ionic surfactant, an agent that helps increase coverage and penetration of herbicides.



Pint bottles of Acclaim and non-ionic surfactant.

In a 50-gallon tank attached to the back of a utility vehicle, 60 gallons of diluted Acclaim was sprayed on several miles of forest roads. After one month, the stiltgrass leaves and stems began to turn red as seen the photo below. Untreated grass is on the left and Acclaim-treated grass is on the right.



After two months, the treated stilgrass had turned totally brown, the preferred outcome.

Castanea Pennsylvania

When driving on U.S. 220 through Pennsylvania, the genus of chestnut, *Castanea*, appeared on a road sign. *Castanea* is in Clinton County in north-central PA, and it has a population of less than 2,000 people. The town was founded in 1871, and it was originally a mostly Italian community and chestnut trees were abundant in the area. Castagna is Italian for chestnut, and the name eventually was changed to Castanea.



Rogue Deer and Cages

Bernie and Linda Coyle in Keyser have had some issues with cages being badly damaged by deer. According to Bernie, deer antlers get caught in some of their cages, and in an effort to dislodge the cage, the deer tear up the cages. Bernie thinks its horns because all the damage is up high and the lower part of the cage is fine. When deer gets a leg caught in the cage, they really tear it up and often flatten it for good measure when they fall on it.



Linda Coyle examining a deer-damaged cage.

Fall Plantings in WV

Some of the germplasm conservation orchards (GCOs) in the state had significant losses of seedlings over the summer. This loss can be attributed to several factors such as lack of water, poorly formed tap roots, and a lack of grass and weed control.

University Forest. At the University Forest GCO in Preston County, 16 of 30 seedlings were replaced. The fall seedlings were raised by **Darrell Dean** at his home in Preston County. The seedlings were some of the best that we have ever planted. The tender-loving care provided by Darrell was obvious. The seedlings were nurtured over the summer in black plastic bags and they had very healthy root systems. Many thanks to Darrell for the Hardy County American chestnut seedlings.

Hardy County seedlings raised in black plastic bags.



A Hardy County seedling in place.

Summit Bechtel Reserve. WV chapter board members, **Jerry Legg** and **Lewis Cook**, took charge replanting American seedlings at two GCOs at the Summit Bechtel Reserve (SBR) on a warm fall day. Long-time leader of the SBR plantings is **Sam Muncy**, but Sam has been sidelined with an infection and he was unable to assist with the fall planting.



Along with Lewis and Jerry, Lewis' son, Bill, and Joe Golden assisted as did Kim Bennett, Lee Webb and six scouts from Oak Hill Boy Scout Troop 1885. The group replaced all of the trees that died in the Fire Ring Orchard and the Wood Yard Orchard. The SBR maintenance crew had cut the grass earlier in the week. With the grass cut, a few more living trees were found. After lunch, the scouts planted 7 more trees at the Perry Park Orchard. They also went to the Consol Energy Bridge Orchard and pulled some weeds. Jerry reported that he scouts worked hard that day.

D40 Pots and Stands from Meadowview

Sara Fitzsimmons, TACF's Chief Conservation Officer, suggested that the WV chapter may benefit from using taller pots when growing seedlings in the greenhouse. To that end, she suggested that we contact **Dr. Vasilij Lakoba**, Director of Research at TACF's Meadowview farms. Vasilij was very gracious and offered the WV chapter as many pots as we wanted. WV chapter members **Lewis Cook** (Fayetteville) and **Bill Guthrie** (Bruceton Mills) drove to Meadowview and picked up about 1,000 D40 pots and stands. D40 pots are 3" wide and 9.5" tall. Lewis kept some pots for growing seedlings in Fayetteville and Bill transferred the remaining pots to Mark Double where Mark stored them in his barn for the winter. The WV chapter owes a huge thanks to both Lewis and Bill.



Libby Wilson and Bill Guthrie with a truck load of pots and stands.



A 20-pot stand holding D40 pots.

Tygart Lake Backcross Planting

In 2017, six trees were planted at Tygart Lake in Barbour County, in conjunction with **Stacy Lewis**, supervisory natural resource specialist with the U.S. Army Corp of Engineers at Tygart Lake. As of October 2022, only three have survived. The plot has a 3-panel sign set that informs visitors of the history of American chestnut, the story of chestnut blight and TACF's efforts at restoration.



The 3-panel sign set at Tygart Lake.



One of the three remaining trees at Tygart Lake.

TACF's New Strategic Plan

The following contains brief sections of the draft proposal of TACF's new 5-year strategic plan. Note that this 11-page draft has not been approved yet by TACF's Board of Directors.

Physical Resources. TACF's flagship research facility, Meadowview Research Farms, near Abingdon, VA, has been the center for tree breeding since 1986. It is comprised of about 110 acres of land, a general operations building, land management equipment storage, a laboratory equipped for fungal culture and chemical assays, an accelerated pollen production room, greenhouse, two shade houses, and equipment needed to support tree breeding and germplasm conservation. The breeding program at Meadowview is supplemented by about 140 other breeding and germplasm conservation orchards that are maintained by TACF's 16 state chapters and other strategic partners. State chapter volunteers play a critical role in collecting and maintaining wild American chestnut germplasm, and in complementing TACF's Meadowview-based breeding efforts using locally sourced trees, well-adapted to local environments through the native chestnut range.

Improved Assays for Resistance. As of 2022, we rely mostly on small stem assays (SSAs) to estimate levels of blight resistance in young trees. To evaluate how accurate SSAs are, TACF and four state chapters launched a multi-site SSA trial in 2021 called ResMap. The trial will compare the results of SSAs to standard field assays a few years later on the same trees. Results of the SSAs in year one showed very similar rankings of families used in the trial at all four locations, suggesting that SSAs produce consistent and meaningful results. Field inoculations of the same trees will occur in 2024 or 2025, and will provide data on how well the two assay methods correlate. Even if SSAs prove less sensitive than field assays for measuring resistance, they will likely still prove useful for high-throughput screening, progeny tests or simply for screening out susceptible seedlings prior to planting. Meanwhile, TACF continues to refine the SSA method to increase the number of trees that can be tested and reduce environmental variation in results.

The Role of Our Volunteers. Volunteers have been critical to TACF's success to date on both the science and the public outreach aspects of our mission, and we envision that that critical role will continue. We strongly believe that strategies described above-- such as critical efforts at germplasm preservation and its use in diversification, "best x best" breeding of select hybrids, the scaling up of production and the introduction of thousands of disease-resistant trees---are all exciting

goals for which our volunteers can make significant contributions. To this end, we look forward to more discussions of this overall plan with our local chapters.

The Path Forward. This strategic plan describes our vision of the scientific efforts needed to create genetically-diverse, disease-resistant trees of American character. We are often asked, “When will you have trees good enough for restoration?” Our best answer for now is that such trees should have blight and/or root rot resistance at least as good, and preferably somewhat better, than 50/50 Chinese-American hybrids while displaying American character---the most critical being a capability to flower and produce seed in the forest canopies of the native American chestnut range. We now are engaged in a clearly-defined effort that indicates we are close to producing trees that meet these initial criteria. Further confirmation that we can produce such trees reproducibly over the next few years will position us to take the first steps toward restoration. Yet even as restoration begins, scientific efforts will continue with the aim of delivering better trees each year for many years to come.

The next major step—restoration---poses a very different set of challenges. With evidence that our science goals are attainable, TACF is working harder now to define the complex process needed for a progressive restoration effort that might begin its initial efforts within the next few years. Taking sources from breeding (pollen, nuts, seedlings), we propose a supply chain that moves forward to reproduction orchards and then to seedling nurseries where bareroot and containerized seedlings are labeled and distributed for planting. Along the way, issues of trademarking or variety protection, preparation of instruction materials for best locations and methods for initial plantings, recruiting a diverse workforce and procuring financial support will all need to be addressed. With an updated scientific strategy, a trained and dedicated force of volunteers, and a history of successful fundraising, TACF is positioned to meet both the scientific and logistical challenges ahead.

Our hope is that release of this new Strategic Plan may serve to further energize our members, generate new partnerships and competitive grant funding, and also entice other organizations and private donors to support these unprecedented efforts. We are excited not only for the future of chestnuts because we believe that our efforts can also provide a template for future scientific and restoration efforts for many of our other important forest trees that are subject to serious threats in these uncertain times. We are emboldened by the incredibly fast pace of technology development, and believe that it is fair to say that is not just dreaming to say that what was only a dream yesterday might be easily achieved tomorrow.

Germplasm Conservation Orchard in Pocahontas County

Under the leadership of **Robert Sybolt** and **Darrell Dean**, twenty American chestnut seedlings from Hardy County were planted on the McClain property in Pocahontas County, south of Valley Head off U.S. Route 219 on 2 November 2022.



The planting crew consisted of: (L to R) Deanna McMillian, Mike McMillian, Robert Sybolt, Darrell Dean, Steve Carruth, Paul Filmer, Doug Cooper and Joy Cooper.

Robert Sybolt reported that the planting was easy with no rocks or roots to contend with. Darrell Dean supplied the seedlings and he pre-cut all the cages making for an efficient planting day. **Steve Carruth** is a neighbor of the McClains and their nearby friends and neighbors were enthused to help with the planting. The area is above 3500' making it an ideal planting site.

This is the 23rd GCO in West Virginia. Many thanks to Robert and Darrell for their assistance in this planting.

American Chestnuts Collected This Fall in WV

The WV chapter had one of its best native chestnut harvests to date. In total, we collected about 900 American chestnuts. The nuts are packaged in a refrigerator and hopefully they will germinate in late February/early March of 2023 and be ready for planting and/or potting.

The following is a partial list of native chestnuts collected in 2022:

- Clements Tree Nursery, Mason, WV, Row 1, 'Pease 18', 70 nuts
- Clements Tree Nursery, Mason, WV, Row 2, 'Pease 7', 189 nuts
- Clements Tree Nursery, Mason, WV, Row 2, 'Graft' (known pure AC from the DNA study conducted at Hudson Alpha in Alabama), 337 nuts
- Savage River State Forest, Grantsville, MD, Swamp Road, 75 nuts
- Allegheny Front, Keyser, WV 115 nuts
- Waddell orchard, Kingwood, WV, 8 nuts
- Radabaugh tree, Preston County, 150 nuts

For some mountain folk, chestnut was gift of god...a bounty so generous that people were stirred to awe--almost reverence.

Richard C. Davis, *The Man Who Moved a Mountain*

Lisa Thomson Stepping Down

Lisa Thomson, TACF's President and CEO, attended the fall WV chapter meeting at Rowlesburg in October. She provided the audience with a 20-minute update of some of the activities associated with the national organization. She also announced that after 8 years at the helm, she is stepping down to spend more time with her family. Lisa gave the board advanced notice, and a search committee has already been appointed to find her successor. She plans to remain in Asheville, NC and assist TACF in any way she can as a volunteer. The Foundation has certainly flourished during her tenure, and we wish Lisa much happiness in her retirement.



Chapter Report from NH/VT

The latest of TACF's 16 state chapters to report on their activities at the national chapter's meeting was New Hampshire and Vermont, a chapter that combines both states. **Evan Fox** gave the chapter's presentation. Vermont has a long history with TACF as the headquarters for the national organization was housed in Bennington prior to the move to Asheville, NC. At that time, the late **Richard Will** was chair of the Board of Directors and **Marshal Case** was President.

The NH/VT chapter has 260 members. They have 15 field sites (7 breeding orchards, 3 seed orchards, and 5 GCOs, one of which is located at the Hort Farm on the campus of the University of Vermont). These 15 sites are a combination of private and public lands. They support financially **Dr. Thomas Klak** at the University of New England in Biddeford, ME. Dr. Klak is conducting research on using high light to promote early flowering in transgenic seedlings.

They are finding new American chestnut trees, but only a few are flowering. The feeling is that with climate change, the New England area will be well within the restoration zone for American chestnut. The big issue in New England is winter damage due to the cold temperatures.

Evan Fox identified some of the chapter's strengths: --Education and outreach. The chapter has a public school outreach and planting initiative. One of their members, **Tom Estsill**, had a vision of having American chestnut trees growing at all schools in Vermont. He has already delivered trees to 38 schools.

--They have a free nut distribution program where they give 8-10 nuts to about 50 people a year. They also have a chestnut booth at farm shows in both NH and VT.

--They are well positioned to launch the transgenic program in their chapter. They have established relationships with both SUNY in Syracuse, NY and at the University of New England in Biddeford, ME. The NH/VT chapter has supported both of those universities financially.

--They have a good relationship with local TV/media sources.

The financial condition of the chapter reflects growth and suggests that it is one of their strengths. Their

board members are well educated, critical thinkers and most are very active. They have good geographic distribution and the board members have a wide range of talents and good ties to educational institutions.

Evan noted their chapter weaknesses as:

- No social media presence. No one in the chapter has expressed any interest in starting social media outlets.
- It is very muddy in New England from October through May making field work difficult.
- They are dependent on outside science sources for their genetic information.
- There is diminished interest in TACF's traditional breeding work.
- Many members want to start GCOs, but there is often a lack of maintenance.
- Many of their members are aging. Restoration efforts will require a legion of people and there is concern they may not have the manpower to initiate restoration projects.
- Some breeding orchards have been abandoned due to a lack of help.

The NH/VT chapter started a free student membership and they currently have 16 students who signed up. The chapter only pays \$25 per student as they waive the \$15 state contribution that typically accompanies the \$40 membership. There are no strings attached to the student memberships in that the students are not required to do anything for their membership. The students are mostly from the University of Vermont.

Shepherd University Plantings

by Susan Thompson

Twenty advanced backcross trees supplied by the WV chapter of TACF will be added to Shepherd University's newly established Native Food Forest in the spring of 2023. A food forest is a forest intentionally planted with species that have edible components to humans. Shepherd University's food forest will only contain trees native to the Appalachian region. Under the leadership of Farm Coordinator **Madison Hale**, volunteer Appalachian Studies and other students planted six each of hackberry, sugar maple, linden, and persimmon on October 8, 2022. Student volunteers will plant TACF's backcross trees into the food forest in spring, with selected mycorrhizal fungi to improve tree growth rates by breaking down complex organic molecules into easily digestible nutrients. Shepherd University has offered space in their greenhouses to grow seedlings from March through May of 2023 and is

seeking a grant to provide growing supplies and deer protection for the backcross trees. Under a germplasm agreement with TACF, students will monitor TACF's backcross trees, which are 85% American chestnut, and 15% Chinese chestnut, collecting data for DBH, height, blight, catkins, etc. Tabler Farm is the home of Shepherd University's Agricultural Innovation Center and is the field site for the University's Sustainable Agriculture Program. The Farm is located just one mile from the main Shepherd University's campus. The 160 acre property currently hosts a one and a half acre production site including a high tunnel, field vegetable production plot, and a multi-fruit orchard, an indoor aquaponics research lab, a small bee apiary, the newly established food forest, and solar energy. Shepherd University students planting at Tabler Farm can be seen in the photo below.



Did You Know?

The American Chestnut Foundation has had four mailing addresses in its history:

- University of Minnesota, St. Paul
- West Virginia University, Morgantown
- Burlington, Vermont
- Asheville, North Carolina

...and five presidents:

- Phillip Rutter (1983-1990)
- John Herrington (1990-1997)
- Marshal Case (1997-2009)
- Bryan Burhans (2009-2014)
- Lisa Thomson (2015-present)