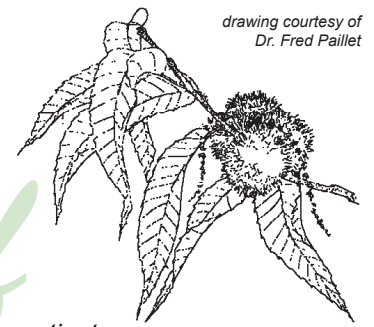


News from the Connecticut Chapter of The American Chestnut Foundation

Winter/Spring 2021

the New Leaf

Our mission is restoration of the American chestnut in the State of Connecticut



drawing courtesy of
Dr. Fred Paillet

President's Letter



CT-TACF Chapter President Jack Swatt applying mud bandages onto the cankers of a young chestnut tree. This technique slows down the blight infection. Photo by Florian Carle.

I am sure you are all tired of hearing another report of how COVID has impacted our lives, but given how the pandemic restrictions have impacted every facet of our life, it has by far had the most influence on how our chapter was able to perform this past year. When it struck, we were in the off-season of chestnut growing but still making plans for the upcoming year. The fear and unpredictability of a novel virus caused an immediate shut down and cancellation of all meetings, lectures and in person gatherings. Zoom became the norm for planning and outreach so we could still get our message out to the public. By spring, the pandemic in Connecticut had subsided sufficiently so we were able to start several new orchards, and continue work in our backcross orchards, while still maintaining social distancing. With outdoor activities being a popular alternative to being locked down indoors, many people were able to get out on the trails and find new chestnut trees or saplings. As we enter 2021 with the initiation of vaccinations, there is optimism that we can beat this pandemic and return to some form of normalcy.

Just as science helped pave the way for breakthroughs in the treatment of this deadly virus disease, we are looking towards science for breakthroughs in treating this devastating blight fungus disease. USDA-APHIS opened the 90-day comment period on the petition to deregulate the Darling 58 transgenic chestnut tree this past August. Most comments were in support of the

deregulation of the tree using many valid scientific arguments. While we are still waiting for the slow deregulatory process to continue, it gives us optimism that in a few years, we might be planting chestnut trees with a much better defense against this devastating fungal infection that was introduced over 100 years ago.

While there is justified optimism, we still need to continue the hard work to get there. We are continuing to inoculate our Backcross breeding orchards to select the most resistant nuts to plant into our Seed orchards. By starting our first Germplasm Conservation Orchards (GCO) this past year, we have seedlings started from eight new pure American chestnut mother trees. The harvest of nuts this past year was not as good as expected, but we should be able to add to that number this year. In order to reach our goal of 35 new American chestnut sources we need to continue to search the forests of Connecticut for more surviving trees. We also need to perfect our grafting methods to be able to add germplasm from non-flowering trees. I'm looking forward to the day when we can openly meet in groups again to be able to fulfill these objectives and continue our work towards restoring this iconic species.

President, CT-TACF

Adapting to the pandemic - CT Chapter work continued in 2020

By Florian Carle



CT-TACF Fall 2020 Board Meeting over Zoom – We cannot meet in person but we still see each other!

The COVID-19 pandemic has impacted us all and is unlike anything we have experienced in our lifetimes. Our own well-being and that of others is of constant concern, and life's daily routines have been upended.

It is an eerie feeling to experience a worldwide pandemic which is not without reminding us of the fate of American chestnut trees which died by billions when humans accidentally brought the blight to the US. At some point, the Pennsylvania State tried to impose "social distancing" to trees by cutting wide firebreak to stop the blight.

Following the guidelines of the TACF, the Connecticut chapter has continued its work in 2020 with one priority in mind: the safety of the board of directors, members, volunteers, and the wider community.

Early in 2020, we moved all in-person meetings to virtual platforms to avoid contacts, cancelled all events and exhibitions at local state fairs and flower shows, and drastically reduced our research activities.

However, as the world shifted to an online mode, CT-TACF started to offer online workshops and seminars. For example, chapter members learned

online how to graft scion wood collected from pure American chestnut trees onto Chinese or hybrid trees in May.

Last December, Jack Swatt presented virtually with TACF's New England Regional Science Coordinator, Kendra Collins, the chapter work at the CT Department of Energy and Environmental Protection (DEEP).

And this March, Jack will present "The American Chestnut: Can we

restore this once dominant tree back to the forests of Connecticut?" at the Environmental Learning Centers of Connecticut.

Additionally, as the world better understood the spread of COVID-19 and the methods to prevent further infections, the chapter took advantage of the summer warm temperatures and the low number of cases during the summer to organize "Chestnut hikes". These social distanced and masked hikes allowed attendees to get some fresh air in several state and land trust forests (Nehantic State Forest in East Lyme, Bull Hill Preserve in Thompson, and Last Green Valley in Plainville), observe chestnut trees during their peak flowering season in the summer, and during harvest season in the Fall, and learn more about how one can help bring these majestic trees back to our forests.

You can learn more about how we perform the work in orchards, plantations, greenhouses that are essential to keep the trees and other associated germplasm alive and well in the following pages of this newsletter. 🍎



Jack Swatt and his wife Julie (left), and Erin O'Connell from the Environmental Learning Centers of Connecticut (right) prepared sappling for Small Steam Assay before the winter, keeping social distancing. Photo by Florian Carle.

B3F3 planting brings back memories at Deer Lake Scout Reservation

By Michael J. Gaffey



Bruce Mantegna and Clyde D'Souza building a protective cage around the young chestnut tree seedling they just planted. Photo by Michael J. Gaffey

CT-TACF Officers and Board of Directors

Officers

President – Jack Swatt

President Emeritus – Star Childs

Treasurer – Dr. Jack Ostroff

Secretary – Dr. Florian Carle

Board of Directors (term ending)

Bill Adamsen (2022)

Christian Allyn (2021)

Dr. Phill Arnold (2022)

John Baker (2022)

Dr. David Bingham (2022)

Michael Gaffey (2021)

Jim Gage (2022)

Jane Harris (2021)

Dr. Bert Malkus (2022)

Jack Morris (2022)

Ginny Patsun (2022)

Mark Vollaro (2022)

E. Woods Sinclair (2021)

Contact

tacf.ctchapter@gmail.com

Jack Swatt, our staunch Connecticut Chapter President of The American Chestnut Foundation, invited me to join him on a planting of Chestnut seedlings in Killingworth at Deer Lake Scout Reservation. I could not have been more delighted at the prospect. My '97 Ford Ranger pickup was loaded, unnecessarily prepared, with every tool and a wheelbarrow to get the job done. Rolling up onto the Deer Lake parade ground in Killingworth was a fifty-year trip back in time for me as one day my father's troop stood smiling when I was awarded my final merit badge "Life Saving" to attain Eagle Scout Rank. I was back with Jack for an important mission. We were to plant a number of B3F3 backcross seedlings on a hilltop site congested with tree slash, somewhat as an experiment till we have more seedlings available. The camp ranger Mark Clifton with regular volunteers Paul Mantegna and son Bruce greeted us with all tools needed on an ancient slat bodied truck and had a backhoe mounted auger. Jack had stakes and tubes to boot (as they would protect against foraging critters).

I was then introduced to two volunteer scouts from Cheshire High

school who proved to be very excellent thorough workers, sophomore Clyde D'Souza and freshman Daniel D'Souza. We rolled up about a ½ mile over rough terrain to the slash plateau including passing the same chapel in the woods my brother and I attended back in the day. Each hole Paul augered was quickly backfilled with 12-to-18-inch seedling, loose earth and sprinkling of fertilizer, staked and then caged. The entire time my mind was flooded with memories of some of the best summer days of my adolescence-learning forestry, tracking and trailing skills and learning to tie knots that came in handy during a billion dollars worth of construction projects. With the crew at hand, we could have planted a thousand trees that day but for now I look forward to going back to plant more as they become available. Hopefully at maturity we will pollinate these trees with deregulated Darling 58 Chestnut pollen as the rest of tens of thousands of trees planted by TACF. They might contribute to Jane Goodall and Marc Benioff's "Trillion Tree Planting Program". We need people to contact their U.S. Senators and Representative to lobby for responsibly quick action by U.S.D.A. on Deregulation of Blight Resistant "Darling 58" Chestnut. It is U.S.D.A. Docket# APHIS-2020-0030. Then we may kick off the process of planting up to 500,000 blight resistant Chestnut seedlings within 5 years with the right backing.

In my lifetime each time I decided to provide a recommendation for someone I used the same character measures for potential employers. To what degree was the person Trustworthy, Loyal, Helpful, Friendly, Courteous, Kind.... Good to see that Scouting still offers those guidelines as evidenced by Clyde and Daniel D'Souza. I hope they never forget them as our country needs such leaders. 🍓

Bull Hill Preserve Chestnut Hike

By Jack Swatt



On June 27th, the CT Chapter held a chestnut hike along with the Wyndham Land Trust (WLT) and the Meshomasic Hiking Club to search for flowering American chestnut trees at the WLT Bull Hill Preserve. Last September, one of our members, Jack Morris, had come across a small surviving tree loaded with burs while on a hike with the club. The top of Bull Hill had been previously clear cut allowing many chestnut sprouts to regenerate. While we were collecting the burs last fall, we scanned the opening, but couldn't locate any more bur-producing trees. Since the nuts were fertile, we knew there had to be more flowering trees in that clearing.

WLT was very excited to learn about the presence of the surviving chestnut trees. We came up with a plan to hold a joint hike to search the area for more flowering trees when they would be more noticeable, in late June. On a warm, sunny Saturday, the turnout was great, but given the current pandemic, social distancing guidelines had to be reviewed for everyone's safety. The view from the top of Bull Hill was stunning, but while everyone else was enjoying the view, I began to scan for the telltale catkins of a flowering tree. One tree full of flowers was easily found, followed by a second right nearby. Seven flowering trees were found that morning giving us optimism that more fertile burs would be present in the fall.

When harvest season came around, we were eagerly waiting to see how many viable chestnuts this prime location would yield. On September 19th, volunteers from CT-TACF and WLT returned to the site with ladders, fruit pickers and other harvesting supplies hoping to fill our bags with mature chestnut burs. Unfortunately, the long, hot dry spells this summer did not favor a healthy chestnut crop and many of the newfound trees showed heavy damage from the blight and no burs. Only two of the trees had remained healthy enough to produce fertile burs. On a brighter note, an additional tree was found that day with healthy burs. It was a little further into the woods and not detected by the search

party in June. Overall, the day was a success as we obtained 170 nuts from 3 new sources of American chestnut germplasm.

Sadly, the tree that was found full of burs last year had succumbed to the blight, but its progeny are surviving as seedlings in some of our Germplasm Conservation Orchards planted earlier this spring. The additional nuts harvested this year will also be planted in GCOs to ensure their genetic contributions will continue for future generations of American chestnut trees. With continued habitat management, for the chestnuts and the view, this location can successfully produce chestnuts for years to come. 🍂



Top left: Attendees hiking to reach the chestnut trees - Photo by Marcy Dawley
Above: Finally reached the Chestnuts - Photo by Jack Swatt

A resilient tree: the Old Lyme Phoebe Griffin Noyes Library Chestnut tree

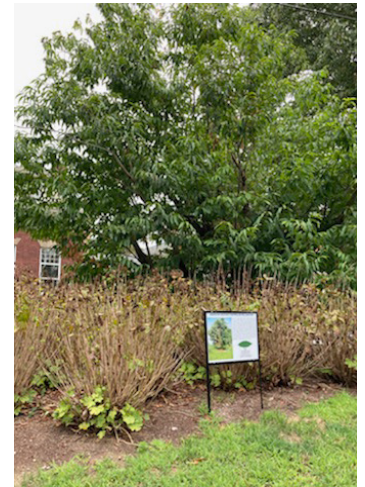
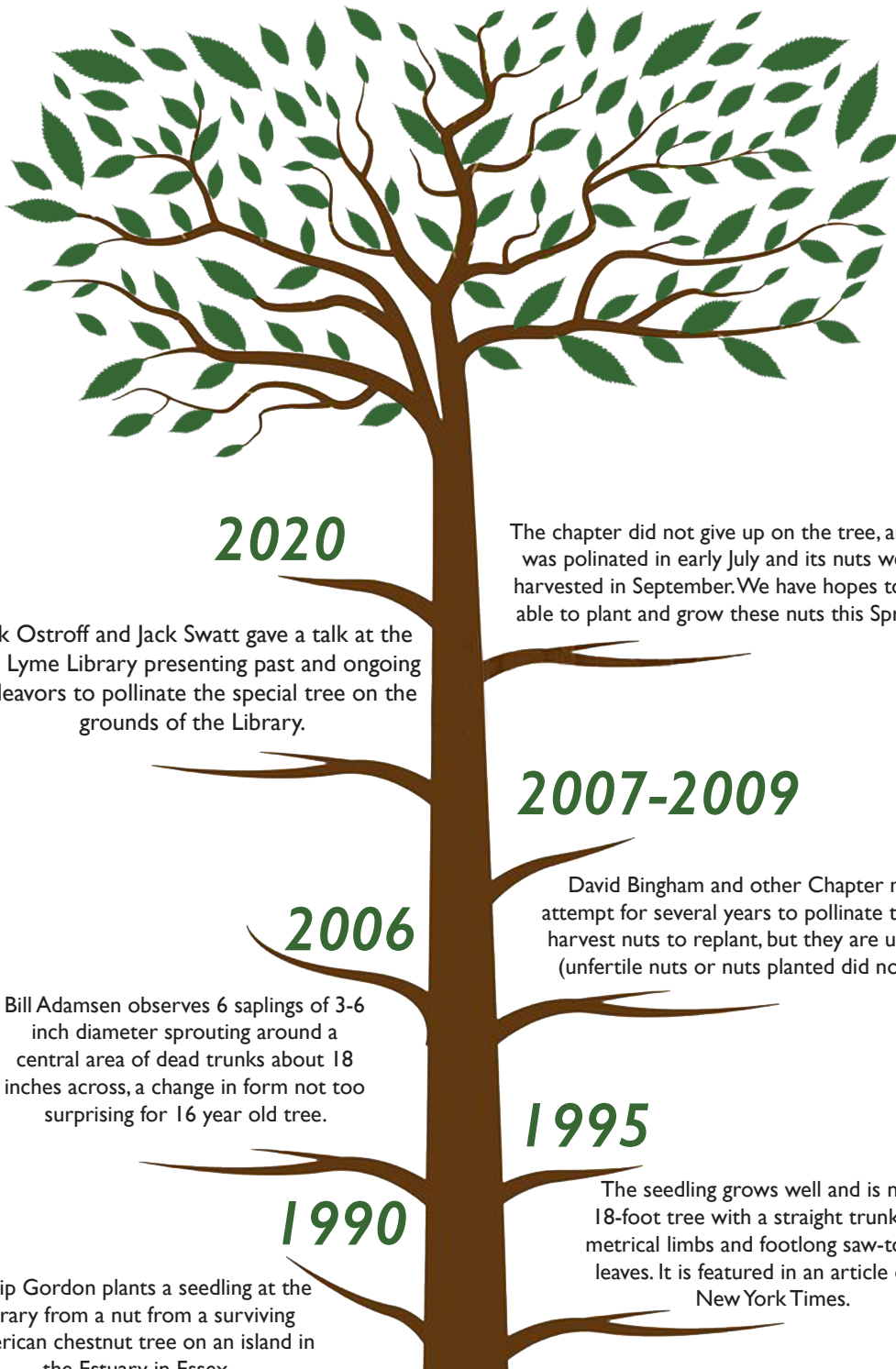
By Jack Ostroff & Florian Carle

In September, the Jacks of the CT Chapter (Ostroff and Swatt) gave a Zoom presentation, arranged by the Old Lyme Phoebe Griffin Noyes Library,

to present the work of the American Chestnut Foundation and discuss the history of the American Chestnut tree proudly growing on their grounds

We thought it was a great opportunity

to have a look back at the tree whose ancestors grew on Thatchbed Island in Essex, and grew from a seedling planted by research biologist Phil Gordon in front of the library in Old Lyme.



The tree in summer from of the Old Lyme Library website.




The tree in Winter 2020 - Photo by Jack Ostroff

Help us look for the lost Chestnut bee!



*Our chapter has partnered with the Massachusetts/Rhodes Island Chapter and entomologist Michael Veit to conduct survey this summer all over New England to look for the Chestnut bee (*Andrena rehni*) which was thought to be extinct due to the functional extinction of the American Chestnut tree. However, this bee was found in a Chinquapin tree in one of Connecticut's chestnut groves. This summer, SCSU students and TACF volunteers will conduct net catches in flowering chestnut trees.*

 *If you would like to be involved, please email us at tacf.ctchapter@gmail.com*

The CT chapter is on Facebook!

For many, this year has been a year of online work. While it created a sense of isolation, it also motivated all of us to seek new ways to communicate and to stay in touch.

The CT Chapter took this opportunity to rethink its communication scheme and we have created an online group on Facebook. Hosted under The American Chestnut Foundation Facebook Page, this community group allows every members to share articles, info, upcoming events that might interest Chestnut enthusiasts!

 *Join us at www.facebook.com/groups/cttacf*


Volunteers Needed

By Jack Swatt

As I mentioned in my opening letter, we are optimistic that we might have a more active year of chestnut volunteerism. One of the greatest needs we have is to establish a corps of volunteers throughout the state, willing to go out on the trails and search for more sources of American chestnut germplasm. We are looking for people who are willing to learn how to identify American chestnut and take leaf and stem samples to submit for identification. If trees are found large enough to flower, repeat visits would be needed to monitor the timing of flower maturation and later, bur production. We also need volunteers to follow up on reports of chestnut trees that we receive from the public through email, TreeSnap or iNaturalist. We already have a few locations to target for this coming year in Norwich, Hamden and Warren that hold potential for finding flowering chestnuts where we could train individuals who are interested.

Another goal for our chapter is to become successful at grafting American chestnut. Working with chestnut is notoriously difficult, but some people within TACF have become skilled at it. We are hoping to develop that expertise within our state chapter to increase our

ability to add new sources of chestnut germplasm into our GCOs. If you have had some experience with grafting other species of trees, or are interested in learning grafting techniques, we will be holding a workshop in grafting this spring utilizing scion that we have collected from surviving tree sprouts in Connecticut.

As always, we can use more help in any one of our backcross, seed or germplasm conservations orchards. This year we will be continuing to plant additional lines in the Winchester Lant Trust Seed orchard. We will also be challenging two of our mature backcross orchards in Canaan and Salem with two strains of blight to determine which trees hold the most resistance. Hopefully, the outreach venues that we have exhibited with in the past will reopen in the near future, so we could always use people willing to talk to the public about our mission. Given the uncertainty of the pandemic, many of these events are tentative and may be postponed or cancelled at any time. Please check our Schedule of Events in this newsletter, but for updated information, always go to our events webpage at <https://acf.org/events/category/ct/> 



What are we doing with the Chestnut trees you tag on TreeSnap?

By Florian Carle

Every time you visit the TACF website, attend one of our events, or even read our newsletter (see Jack's call for volunteer on the left), you will hear us ask for your help us find chestnut trees. As a chestnut enthusiast, you download the app on your phone and go hiking in CT forests in hope of finding a chestnut tree. Despite having numerous avenues, streets, and lanes named after chestnuts, these trees are not easy to find and it's always a great joy to smell the potent sent of a flowering chestnut tree (they are easier to spot in the summer! I often smell them before I can see them). You have the chance of finding a chestnut tree, snap a few pictures through the TreeSnap app, send a twig and leaves sample, and go on your merry way.

This is for us the start of a long process to identify, catalogue, collect samples, and use the tree to give future generations of American Chestnut trees a fighting chance against blight.



Florian collecting young leaves of hybrid chestnut trees in CAES Lockwood Farm. Photo by Martha W Lewis



Susanna Kerio, Assistant Agricultural Scientist at CAES, punching holes in young leaves of the Mahogany Chestnut tree in CAES Sleeping Giant orchard (Hamden) and Florian flash freezing the samples with liquid nitrogen to be able to extract its genetic material.

In CT, the leaf samples are sent to Kendra Collins, New England Regional Science Coordinator in Vermont for identification. She uses a microscope to observe the hair arrangement and structures called trichomes underneath the leaves to help her determine whether the tree found is a Chinese tree, a Japanese tree, an American tree, or a hybrid. The trees are entered in DentataBase, a database named after the American Chestnut tree Latin name *Castanea Dentata*, and a volunteer from our chapter is sent to phenotype the tree. They observe and thoroughly measure the tree (height and health of canopy, trunk diameter, exposed wood, stump sprouts, cankers size, blight sporulation...). This gives us a good first estimate of the blight resistance of this tree. A high tree with a healthy canopy presenting a few cankers probably possess more genes helping it fight the blight than a tree with multiple stump sprouts and a dead main stem. Pure American trees have potential to be added into our Germplasm Conservation Orchards while hybrid trees may be added to our Backcross program.

Backcross hybrids will under go an additional step: genotyping. A second wave of volunteers, often with a scientific background, are sent to the tree to collect a few tricky samples. We need to collect young leaves within a few days from sprouting (close

monitoring and perfect timing is of the essence here!) to be able to extract DNA and estimate the proportion of American chestnut versus ancestry from other chestnut species in hybrid trees. This is also a great way to predict if the tree has resistance to the blight. If it's the case, we return to collect multiple tissue types (catkins, female flowers, twigs, bark with cambium, and more young leaves) for genome annotation. Annotation is discovering the expressed genes by extracting RNA and mapping these genes back to the genome. As you might have heard with Covid-19 vaccine storage, since RNA is very fragile and degrade quickly, the tissue must be flash freeze with liquid nitrogen almost immediately after collection before being sent overnight on dry ice to the Arizona Genomics Institute for extraction.

All this data helps us make informed decisions on pollination, crossings, orchard management (planting, harvesting, cutting), and better understand which genes are responsible for blight resistance. This will allow scientists to bioengineer blight tolerant American Chestnut trees like Darling 58.

The Chestnut trees you discover and send our way receive a lot of attention and love (and minor freezer burns...). Thank you for helping us find new trees! 🍂



Upcoming Calendar of Events

All of the events scheduled are subject to possible change since we are not sure what the pandemic will look like this far in advance. We will follow all the CDC guidelines at that time to keep all of us safe.

Annual Membership Meeting

April 10, 2021 at 10 am

Hopefully, this will be the last year we have to meet over Zoom. After the Annual Membership Meeting, Dr. Leila Pinchot will give a presentation on “Restoring American chestnut to working forests”.

Orchard Plantings in Winchester, Manchester and possibly additional sites.

May, 2021

We will need volunteers to help with planting American chestnut seeds in at least one new Germplasm Conservation Orchard as well as planting additional seeds and/or saplings in the Winchester Seed Orchard. Details will be made

available as it gets closer to planting season.

Grafting Workshop

May 15, 2021

Private Residence in Wolcott, CT. Preregistration required.

Learn and practice chestnut grafting techniques with Jack Swatt, President of the CT chapter. Contact jswattchestnut@gmail.com to register.

Chestnut Hike

June/July, 2021

Potential sites that we will search for flowering American chestnut trees include:

- Naugatuck S. F. Mt. Sanford Block, Hamden

- Wyantnock S. F. Woodville Block, Warren

- Mohegan Park, Wilderness Rd. Norwich

We may also revisit Bull Hill Preserve in Thompson and Nehantic S. F. in East Lyme. Schedule of hikes will be sent via chapter email and posted on our website as it gets closer to that time.

Exhibit at the Durham Fair

September 2021

Fingers crossed that the Durham Fair will reopen this year and we can host an exhibit educating people about the American chestnut and our mission.