

News from the Connecticut Chapter of The American Chestnut Foundation

Winter/Spring 2020

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

Looking back over this past year, I have realized how much our chapter has had to diversify our approach to saving the American chestnut tree. At our annual membership meeting we heard Dr. Jared Westbrook summarize the genetic analysis of our backcross breeding program. While the initial intent of our founders was to have a 15/16ths American chestnut tree with enough blight resistance to return to the forests, the data showed that in many of our trees, not enough Chinese genes were present to convey the desired level of resistance. In July at the TACF Chapters Science Meeting, he presented the Foundation's plan

to add back the missing genes by crossing trees that have less than 5% Chinese genetic composition with various hybrid trees of greater Chinese or Japanese heritage to continue the backcross process. Further selections in our orchards will be steered by blight challenge, phenotypic characteristics and also genetic composition. Since Connecticut has a sizeable collection of hybrid chestnut trees at the Connecticut Agricultural Experiment Station as well as other locations, our chapter will also be instrumental in identifying hybrid trees that could potentially be used for additional lines of resistance in our backcross breeding program.

breeding program, planned to bring the American chestnut tree back. Over the years, scientific advancements in genetics and technology have given us new tools to incorporate into our efforts. TACF has been instrumental in funding the complete sequencing of the American chestnut genome and is currently funding the same for the Chinese chestnut, to better understand the role of genetics in blight resistance. Our foundation has incorporated genetic analysis into maximizing blight resistance in our backcross orchards. According to Dr. Jared Westbrook, TACF Director of Science, "Since 2015, TACF and collaborators have spent over \$1.8 million in genomics initiatives to accelerate selection in the breeding program, map genes for resistance, and understand how chestnut trees adapt to climate". Genomic funding has become up to 22% of TACF's total annual expenditures. The best way for us to continue supporting these scientific advancements is by regularly renewing your membership in TACF, or if you are not yet a member, please consider doing so. Continued membership will build the strongest Foundation to grow with the changing landscape of American chestnut restoration.



The female flowers in the foreground are overshadowed by the male's showy inflorescence display. The male catkins (rear) have been removed from the flower stalks exposing the female flowers (front)
Photo by Jack Swatt

Our chapter has also committed to supporting the Foundation's 3BUR strategy: Breeding, Biotechnology and Biocontrol United for Resistance. A big part of that will include the deregulation of the transgenic chestnut tree developed at SUNY-ESF. In November they submitted a Petition for Determination of Regulatory Status with USDA-APHIS. After the submission is reviewed for completeness, the petition will be made public on the Federal Register and it will open up a 60-day public comment period. When the public comment period opens, we will be contacting our members to encourage writing to the USDA-APHIS in support of this petition for deregulating. I strongly think that this may give our program a giant leap forward towards our goal of returning a blight resistant American chestnut tree to the forest.

When TACF was founded there was only one strategy, the backcross

-- Jack Swatt

President, CT-TACF

Eversource Works with CT-TACF to Pollinate American Chestnut Trees

By Jack Swatt

During the 2018 growing season several mature bur-producing American chestnut trees were reported to CT-TACF. One tree on West Flag Swamp Rd. in Roxbury produced sterile nuts inside the burs indicating that there was not another flowering chestnut tree nearby to supply pollen for the female flowers. Another tree in Nehantic State Forest in East Lyme was producing burs but we were unable to visit the tree early enough in the fall to determine if the nuts were pollinated. Since the trees were accessible by bucket truck, we contacted Eversource in the spring of 2019 to see if they could help us bring pollen from other flowering trees, up to the female flowers of these two trees and ensure that they can pass on their genes to future American chestnut generations.

Eversource utilizes tree services such as Lewis Tree Service, Asplundh Tree Expert Company and Distinctive Tree Care for their tree work. Eversource's Vegetation Management Supervisor, Doug Pistawka was able to schedule time with their arborists and each



CT-TACF volunteer Michael Gaffey removes the male catkins from the chestnut flower cluster to expose the female flowers - Photo by Jack Swatt

of the tree services to help with this project. Lewis Tree Service as well as representatives from CT-TACF (Jack Swatt and Richard Wilhelm) and Eversource Arborist David Boyle visited the Roxbury tree twice in late June and early July to first identify the female flowers and place protective bags over them, and then a second time when the flowers were ready for pollination. When Distinctive Tree Care met us at the Nehantic tree, the female flowers were already mature enough to pollinate on the initial visit. CT-TACF volunteers Ginny Patsun, Michael Gaffey, Jack Ostroff as well as Eversource Arborist Susan Stotts performed the pollination. Once pollinated the trees were not visited again until late September when both respective crews returned to collect the bags with the ripening burs inside.

When the burs were allowed to dry and open, the chestnuts inside were collected and prepared for winter storage. In the spring many of the seeds will be planted in our first Germplasm Conservation Orchards (GCO) and the rest will be potted to supply rootstock for future grafting and other TACF projects. Since three different trees were used to supply pollen for the Roxbury tree, the three sets of nuts harvested will have greater genetic diversity than if a single tree was used for pollen. A total of 221 nuts were collected from that tree. Only one source of pollen was used to manually pollinate the Nehantic tree, but on the day of harvest, CT DEEP Forester Emery Gluck led us to a second large American chestnut tree nearby that also contained many burs. Although that tree was not accessible by the bucket truck, the harvesting team was able to collect some burs with a pruner. Back at the original tree, in addition to the bags of burs pollinated manually, several other burs were collected which contained chestnuts that were open pollinated by the newly found second chestnut tree. The yield from the Nehantic trees unfortunately was lower than expected,

possibly due to pollination timing, weather or a host of other factors. In total, 32 nuts were collected from the Nehantic trees. Eversource Arborist Bear LeVangie also was able to help coordinate Asplundh to collect burs from a pair of open pollinated trees growing close to a road in North Granby retrieving 129 burs which yielded 213 chestnuts from the two trees. The CT chapter of TACF would like to thank Eversource, Lewis Tree Service, Distinctive Tree Care, Asplundh Tree Expert Company and our volunteers for working together to help preserve American chestnut diversity through this project. We would also like to thank the State DEEP for granting permission to perform the controlled pollination and collect the chestnuts from Nehantic State Forest as well as other state-owned properties. ●



Scott Hall of Lewis Tree Service prepares the Roxbury tree for pollination while CT-TACF volunteer Richard Wilhelm (R) and Doug Pistawka (L) from Eversource observe from below - Photo by Jack Swatt

Jim Gage - Stepping down from his position as Chapter's Treasurer

By Richard Bailey, CT-TACF Director & Bill Adamsen, Director and former Chapter President

With a heavy heart we accept Jim's request to step down from his position as the Chapter's Treasurer, after 15 years of loyal service.

I met Jim at a CT Chapter meeting in the winter of 2004. Jim had already been involved with the CT Chapter for several years. His involvement originated from having grown up enjoying outdoor activities such as hiking. Later he was greatly influenced by his brother-in-law – a founder of the Norfolk Land Trust – who had spoken to Jim about American chestnuts and the chestnut blight.

When Jim retired from United Technologies in 1993 he was looking for volunteer opportunities. Because of his talks with his brother-in-law one of the organizations he contacted was the CT chapter of TACF. Northern CT Land Trust (NCLT) president Culver Modisette had suggested that a connection with TACF might help NCLT fundraising. Having worked with Jim in developing a strategic plan, Jim, myself, several others still involved today formed a board and created an operational infrastructure. Jim told me he had served as Treasurer of the NCLT and upon hearing that I didn't relent until he agreed to become the Chapter's first Treasurer.

Jim was heavily involved in the Ellington orchard from the onset. A big goal of the program was capturing the diversity of the native trees we were finding in CT. In June of 2005 Jim helped with the pollination of an American chestnut in Enfield. He also located a tree near the entry of the Shenipsit State Forest in Stafford, and the nuts from those trees as well as others, were what was planted at the Swann Farm backcross orchard. Within NCLT, Jim advocated for the creation of the orchard and wrote several articles for the NCLT annual report and for NCLT newsletters about progress with the

orchard and TACF's mission.

Everyone was excited about planting nuts to start the orchard. No problem getting volunteers. Months later when the excitement has gone and the job is to maintain the orchard, volunteers were few and far between. Jim was always there when there was a job to be done.

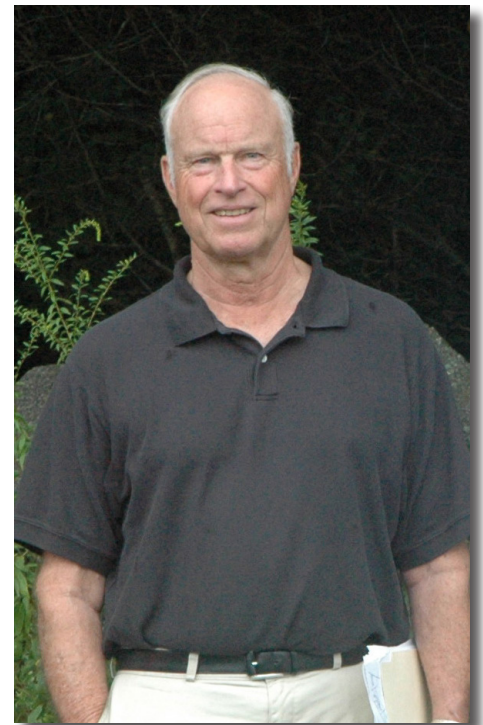
The Chestnut Foundation is not Jim's sole interest. Jim has been a director of the NCLT since 1995. He told me he doesn't think he was actually elected to the board. He just started sitting in on meetings and after a while they just accepted him as a member. I'm not sure when he became treasurer but it was before 2004. He also currently serves as chairman of the fundraising committee and a member of the acquisition committee.

Jim was one of the original members of the Ellington Conservation Commission when created in 2004. He remains active today. When the town acquires a new parcel of open space, Jim is often the one who writes an article for publication in local papers.

Jim has been a member of the steering committee of the MassConn Sustainable Forest Partnership (MassConn) for many years. It is a voluntary association of public and private forest conservation entities committed to working together to increase land protection and sustainable forest management in 38 towns in south central Massachusetts and northeastern Connecticut. It consists of land trusts, conservation organizations, state and federal agencies and foresters. The members of this partnership realize that political boundaries are irrelevant to plant and animal communities, and to ecosystem processes, making it essential to work together to conserve land in a meaningful way on a larger, regional scale, and to tap into resources that are not available to organizations working alone. The mission of MassConn is to work with partner groups to identify key areas in the region for conservation, to

collaborate on land protection efforts, to promote sustainable forestry practices, and to organize public outreach and education efforts in order to increase the pace and efficacy of conservation in the MassConn region.

Jim is quiet, smart, competent, hard-working, respectful and humble. Incredibly productive, Jim is the ultimate team member. I feel so incredibly fortunate that our paths crossed when they did. That I had the opportunity to work with and learn from this most remarkable man is a legacy I treasure and honor. His shoes will be hard to fill. ●



CT Chapter Board Member and Treasurer Jim Gage - August 30th, 2005 touring a proposed site for a TACF Backcross Orchard - Photo by Bill Adamsen

Chapter Resolution

In early November 2019, SUNY-ESF filed their Petition for Determination of Regulatory Status for the Blight Tolerant American Chestnut (Darling 58). Once it had been reviewed for completeness, USDA-APHIS will be opening up a 60-day public comment period on the petition. In order to prepare for the public comment period, the board of directors of the CT Chapter prepared and adopted the following resolution:

Whereas, the American chestnut tree was one of the most abundant and important trees in the eastern United States until the early 20th century when an invasive fungal pathogen from Asia decimated more than 3 billion trees throughout its natural range; and

Whereas, the American chestnut is now functionally extinct, unable to sustain itself in the wild, and facing extinction as the blight remains an ever-present threat to any trees that might hope to grow from the long dead stumps of remaining chestnut trees; and

Whereas, the disappearance of this tree represents a devastating loss to wildlife, to ecological balance in the forest, and to farmers who depended on consistent chestnut harvests and to citizens from Maine to Alabama who appreciated its beauty and symbolism as a feature of the landscape; and

Whereas, The American Chestnut Foundation (TACF) has led a 37-year research and breeding program seeking to restore this iconic tree to its native range by developing a blight tolerant tree that can be sustained in the forest. TACF's work has included a backcross breeding program, biological controls, and biotechnology, involving thousands of plantings, hundreds of research projects, genomic testing using the most advanced science available, thousands of volunteer hours in 16 states, and private financial support from thousands

of individuals, foundations, and other sponsors; and

Whereas, the Connecticut Chapter of The American Chestnut Foundation has contributed to the breeding program of TACF by backcrossing Chinese-American hybrid trees developed by TACF with Connecticut native American chestnut trees, thereby establishing seven backcross orchards, and using seeds from those orchards to establish two backcross seed orchards; and

Whereas, the Connecticut Chapter of The American Chestnut Foundation has contributed to the mission of TACF by educating the public of TACF's efforts to restore the American chestnut at fairs, garden shows, lectures and web-based and social media; and

Whereas, the Connecticut Chapter of The American Chestnut Foundation has contributed to genetic research being performed by TACF by collecting various plant material samples from Chinese chestnut, Chinese-American hybrids and pure American chestnut; and

Whereas, scientists at the State University of New York College of Environmental Science and Forestry (SUNY-ESF) discovered a method to enhance the American chestnut's blight tolerance using the tools of genetic engineering and molecular biology. During a 30-year research effort, SUNY-ESF have innovated a process for inserting a gene from wheat into the American chestnut in a way that significantly enhances the tree's blight tolerance while decreasing the pathogenicity of the fungus, with no pest risk to plants, no detriment to human or animal health and no adverse effects on the environment; and

Whereas, after rigorous testing, SUNY-ESF has applied to USDA-APHIS for

approval of a Petition for Determination of Nonregulated Status for Blight-Tolerant Darling 58 American Chestnut; and

Whereas, if Darling 58 American chestnuts are granted nonregulated status, they will be made available for not-for-profit distribution to the public, and to groups including private, indigenous, state and Federal restoration programs for the purpose of conserving and restoring this species to the forest and continuing vital research; and

Whereas, native trees and forests across the U.S. face an unprecedented array of disease, decline, and decay caused by climate change, invasive plants, non-native insects and fungi, and manmade disturbances, and biotechnology offers some hope that we can restore forest health, and that restoring the American chestnut can be a model for saving other threatened species; and

Now, therefore, be it resolved by the Board of Directors of the Connecticut Chapter of The American Chestnut Foundation that, the Connecticut Chapter of The American Chestnut Foundation supports SUNY-ESF's Petition for Determination of Nonregulated Status for Blight-Tolerant Darling 58 American Chestnut and urges USDA-APHIS to approve the Darling 58 so that the American chestnut can be restored to its native range in eastern forests.

Passed and Adopted by the Board of Directors of the Connecticut Chapter of The American Chestnut Foundation

Date Feb 13, 2020

Signed by Jack Swartz
President

Orchard Updates

Norcross Chestnut Seed Orchard

By Ginny Patsun

Seeds that did poorly after the 2018 planting were replaced thanks to Richard Bailey who germinated enough seeds in time for the re-planting in early June. A small group of volunteers added an additional 100 seedlings. There were no plans for additional plots to be planted for 2019. There are approximately 750 trees now growing at the orchard.

2019 was the first season since the orchard's inception in 2017 the gypsy moth caterpillars did not invade. There were a few quarter-inch long caterpillars found on the leaves, but not enough to warrant treatment. I waited them out until they disappeared. Minimal damage had been done to the foliage and the trees continued adding leaves throughout the rest of the season.

The orchard has one perennial flower strip that extends the length of two 30-foot chestnut tree plots. Some of the perennials include milkweed, mint, and various composites. Native and honey bees have been observed at the orchard,



CT-TACF Board member and orchard manager Ginny Patsun hammering the tutors to help the young chestnut trees grow straight
Photo courtesy of Ginny Patsun



as well as several kinds of butterflies, and a hummingbird or two. Among the flowers is a solar-powered disappearing water fountain which acts as a water source for birds, insects and toads, and is an aesthetically pleasing addition to the orchard. Grass mounds had been planted which serve as a hiding place for various insects, and the remainder of the orchard that is waiting for more trees to be planted remains fallow and mowed every two years. This provides a hunting ground for birds in search of insects.

Because the orchard is located in the middle of a hay field, I felt it was necessary to add variety of plantings to increase diversity. The more diverse the organisms, the better for the trees. The flowers and grasses attract predators that keep the mischievous insects from overpopulating and damaging the trees. Diversity makes the orchard work more enjoyable and a lot can be learned from the complexity of nature. Every season brings new discoveries and excitement over the new growth of the perennials and the chestnut trees. 🍓

Wigwam Brook Orchard

By John Baker

On June 20, Kendra Collins, Regional Science Coordinator of The American Chestnut Foundation (TACF) in Burlington, VT, and her summer intern joined Jack Swatt, president of the CT-TACF Chapter and about eight or so local volunteers at the Wigwam

From left: Jack Swatt, Mike Gerak, Mark Vollaro, Kendra Collins, Becky Purdy, Deni Rangelova, Beverly Baldwin, John Baker (Wigwam Brook Orchard Manager) and Keith Johnson. Jay Coles also participated.
Photo by Rich Martin

Brook Sanctuary chestnut orchard to inoculate the chestnut trees for blight resistance. Kendra had grown two batches of blight fungus, one stronger than the other, and these were inserted into nail-sized holes on the trunks, about a foot apart, of about 250 of the chestnut trees.

In a few months, the trees should show signs of blight (or not), and in a year blight resistance should be able to be determined – probably in about 50-70 trees. The nonresistant trees will be removed, and the inoculation area on each will be destroyed.

Thanks to everyone for their help. It was very much appreciated. 🍓

In Memoriam

Garrett Smith, a long-time director of the CT-TACF was very active performing many tasks and planting in most of our orchards. On May 4th, Garrett's family gathered at Wigwam to spread his ashes amongst the chestnut trees he loved so much. This was indeed an honor for LHAS, as Garrett was an inspired and thoughtful gentleman who helped develop our orchard. We hope he rests in peace amongst the trees and the mission he loved so much; God bless him.

American Chestnuts Found at Bull Hill Preserve in Thompson

Finding the tree

By Jack Morris

I belong to the Meshomasic Hiking Club, an organization with about 150 active members that sponsors daily hikes scattered throughout Connecticut. A recent article in the Hartford Courant had alerted us to a newly announced Wyndham Land Trust preserve located on Bull Hill in Thompson. In September of 2019, the club organized a hike to investigate this preserve, including a trek up to the Three Trees vantage point atop Bull Hill.

After enjoying the magnificent view, we headed south down an old rutted tote path and in a very short distance one in our group said something like, “Hey, look at this tree with all the pods on it.” I had actually gone past it without notice and turning around realized that the hiker had spotted something very

rare: an American Chestnut tree with burs. I spent a few minutes admiring and photographing the tree, removing a bur for later investigation. I also made sure that its location had been stored in my GPS handheld tracking unit.

Returning home, I opened the bur expecting the nuts to be flat and infertile, but found one nut that appeared round indicating it was fertile. I contacted Jack Swatt from the CT Chapter of The American Chestnut Foundation (TACF) and he suggested that I join him to return to the site with the intent to harvest the burs and recover the nuts for TACF chestnut restoration activities. 🍂



David Morse (l), Jack Morris (c) and Stewart Morse (r) collecting the chestnut burs at Bull Hill - Photo by Jack Swatt.

Photo by Jack Morris



Collecting the Chestnuts

By Jack Swatt

Since late September is the time when chestnut burs start to open up, I had to act quick to prevent the nuts from becoming a squirrel feast. We returned to the site along with Grace Jacobson, David Morse and Stewart Morse, three local volunteers who were also interested in seeing this tree. While hiking to the site we noticed many small chestnut sprouts growing in the understory along the trail.

As Jack Morris led us to the top of Bull Hill, the forest opened up into a large shrubby habitat, the result of a recent timber harvest. Since chestnut sprouts grow quickly when the canopy is removed by natural or manmade processes, I knew that this site held great potential in finding additional chestnut trees growing tall enough to flower and produce nuts.

Collecting the Chestnuts (continued)

From the Three Trees vantage point we could see the small American chestnut tree loaded with burs, some already opened, but many still closed up. I also scanned the surrounding opening to look for burs covering the top branches of other maturing sprouts.

While there were many trees reaching a height similar to the bur-loaded tree, no other tree was found to be holding the nut-containing burs we were looking for. Moving down the trail we relocated the tree and found that all the burs were reachable with a 12-foot telescoping pruner and quickly collected them. After the burs completed opening over the next week or two, I was able to collect an astounding 238 nuts, some of which will be planted in the spring in our first Germplasm Conservation Orchards. Those nuts will play an important part in preserving American chestnut genetic diversity, which is just one step

in breeding a blight resistant American chestnut capable of returning to the forests of the Appalachian Range.

Since the one tree contained fertile nuts and chestnut trees do not self-pollinate, at least one other tree has matured enough to produce male flower catkins and potentially may produce female flowers in the future. With the open surroundings and bright sunshine, this area has the potential to harbor several future nut producing trees. We intend to return to Bull Hill in late June to early July when the chestnut trees are flowering and easy to find.

We hope that members of the Wyndham Land Trust and the Meshomasic Hiking Club would like to join us in our quest to find more chestnut producing trees at this location. Thank you to the Wyndham Land Trust for preserving this spectacular property. 🍂



Volunteer Opportunities

The chapter is in need of a new Treasurer (see page 3). If you would be interested in filling this position, please contact tacf.ctchapter@gmail.com to be referred to the Nominating Committee.

If you are interested in helping with orchard work, finding or verifying American chestnut trees, or helping with our newsletter, contact Jack Swatt at jswattchestnut@gmail.com

Additional volunteer opportunities and events may be added at any time. Please check out our event calendar at www.acf.org/events/category/ct for the latest information.

CT-TACF Officers and Board of Directors

Officers:

President – Jack Swatt

President Emeritus – Star Childs

Vice President – Dr. Jack Ostroff

Treasurer – James Gage

Secretary – Florian Carle

Board of Directors (term ending):

Christian Allyn (2021)

Florian Carle (2021)

Star Childs (2021)

Michael Gaffey (2021)

Jane Harris (2021)

Dr. Jack Ostroff (2021)

E. Woods Sinclair (2021)

Bill Adamsen (2020)

Dr. Philip Arnold (2020)

John Baker (2020)

Dr. David Bingham (2020)

Jim Gage (2020)

Bert Malkus (2020)

Ginny Patsun (2020)

Mark Vollaro (2020)

Email: tacf.ctchapter@gmail.com

The many chestnut burs stand out against the bright background of the blue autumn sky Photo by Jack Morris



Upcoming Calendar of Events

CT Flower & Garden Show

February 20-23, 2020

We will again be holding an exhibit at the 2020 CT Flower and Garden Show at the Connecticut Convention Center in Hartford. This is a great event to educate others about chestnuts and to share our mission with the public. We will be needing plenty of volunteers to help staff the exhibit. More information will be available closer to the event dates but if you are willing to volunteer, contact Jack Swatt at jswattchestnut@gmail.com.

Annual Membership Meeting

May 2, 2020 at 10 am

CT Forest & Park Assoc., 16 Meriden Rd, Rockfall, CT

Orchard Plantings in Wallingford, Woodstock, and Haddam Neck

May, 2020

We will need volunteers to help with planting American chestnut seeds in 3 new Germplasm Conservation Orchards. We are also in the planning stages of possibly planting a seed orchard in Winchester.

Details will be made available as it gets closer to planting season.

New England Region Grafting Workshop

May 30, 2020

Urban Forestry Center, 45 Elwyn Rd, Portsmouth, NH. Learn chestnut grafting techniques from Dr. Hill Craddock, Professor of Biology and Environmental Science at The University of Tennessee Chattanooga, and TACF board member.

Presentation on Restoration Efforts of the American Chestnut at Great Hollow Nature Preserve

June 6, 2020

Great Hollow Nature Preserve, 225 CT-37, New Fairfield, CT. After the presentation we may walk the trails at Great Hollow Nature Preserve looking for American chestnut sprouts surviving in their forests.

Hike at Bull Hill Preserve, Thompson with Wyndham Land Trust

June 27, 2020 at 10 am

Meet at the parking area on Bull Hill Rd to hike to the clearing and search for additional flowering chestnut trees where a tree was found in 2019 producing fertile burs (see article). Directions will be posted on our website.

Hike at Nehantic State Forest

June/July, 2020

See two of the largest flowering wild American chestnut trees in the state.

Exhibit at the Durham Fair

September 24-27, 2020

Presentation on Restoration Efforts of the American Chestnut at New Canaan Library hosted by the New Canaan Land Trust

October 17, 2020 at 10:30 am

Walk at one of New Canaan Land Trust Properties at 12:00

151 Main St., New Canaan, CT. After the presentation we will reconvene at one of the New Canaan Land Trust Properties to see several American chestnuts surviving in their forests.