



Fall 2021

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Virginia Chapter, American Chestnut Foundation Annual Membership Meeting, October 23, 2021

The annual general membership meeting for the Virginia Chapter will be held from 1 to 3PM in the Rockfish Valley Community Center (RVCC) at 190 Rockfish School Lane, Afton, Virginia. It is open to the public and via Zoom.

Our guest speaker will be Sara Fitzsimmons, Director of Restoration for The American Chestnut Foundation. Her presentation is titled: "The Role of the Virginia Chapter in the Science of American Chestnut Rescue, Reintroduction and Restoration." General Chapter business will be conducted.

At 3PM, Dr. John Scrivani will lead a tour of Lesesne State Forest. It was first planted with chestnut trees in the late 1960s by the Virginia Department of Forestry and is located about 10 miles from the RVCC.

Please RSVP to vachestnut@verizon.net and tell us if you will attend in person or need a Zoom invitation.

Sara Fern Fitzsimmons has worked with The American Chestnut Foundation at Penn State University since 2003, assisting chestnut growers and researchers throughout the Appalachian Mountains. Born



Sara Fitzsimmons
Director of Restoration

and raised in southern West Virginia (Hinton), Sara studied Biology at Drew University in Madison, NJ. She then received a Master's degree in forest ecology and resource management from Duke University's Nicholas School. After a short stint as an editorial assistant at *All About Beer* magazine, Sara returned to the forestry field, where she has been ever since. Sara hopes her research and professional work will facilitate long-term conservation and restoration of native

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The President's Message

By Warren Laws, Virginia Chapter President

The success of the Virginia Chapter in restoring the American chestnut tree depends on financial support from our generous supporters and many hard-working volunteers. We have seen this with our current fund raiser and the many volunteers who have planted and maintained our seed orchards, harvested, deburred and participated in our other projects. Unfortunately, not all donors and volunteers see the fruits of their support. For this reason, I have written an article in this issue on a tree in the Roland Farm breeding orchard. Some of you may think that our breeding program is our only effort to restore this tree. This is not so.

Dr. John Scrivani, Chairperson of our Biotechnology Committee contributed two articles, one on transgenics and the other on using trees in Lesesne State Forest to further biotechnology advances. John will lead a tour of this forest after our annual general membership meeting.



Our current fund raiser is doing well. My thanks goes to all who have responded. If you still want to donate, you can mail a check to VATACF, P.O. Box 158, Marshall, VA 20116.

Another way you can help is to volunteer to be on a committee. Our committees are: Administration, Biotechnology, Nominations and Membership. For further information, please contact me at vachestnut@verizon.net or 540-364-1922.



March 2019

The orchard at Sky Meadows State Park

Thanks to our volunteers, the chestnut seedlings at Sky Meadows are growing well. Some are now over 7 feet tall!



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tree species at risk from exotic pests and diseases.

John Scrivani received his Ph.D. in Forest Management from Oregon State University in 1985. After teaching forestry at Virginia Tech for



Dr. John Scrivani Secretary, Virginia Chapter Chairperson, Virginia Chapter Biotechnology Committee

four years, John took a Research Forester position with the Virginia Department of Forestry, where he managed field research, pine breeding, and forest inventory programs. He also worked on chestnut breeding at Lesesne State Forest. A long-time member of the Virginia Chapter, he has served terms as a Board Director, Secretary, Vice-President of Science, and President. John retired in



Lesesne State Forest

2017 but continues his efforts at chestnut restoration.

Zoom Presentations

The Virginia Chapter offers a monthly PowerPoint presentation on Zoom. It covers the history of the American chestnut tree, the blight and efforts to restore it. It is 45 minutes long. Our next presentation is on October 20 at 7:30PM. Please let us know if you would like an invitation to the Zoom session.

Recurring Monthly Zoom Presentation Schedule

October 20, 2021

November 17, 2021

December 15, 2021

January 19, 2022

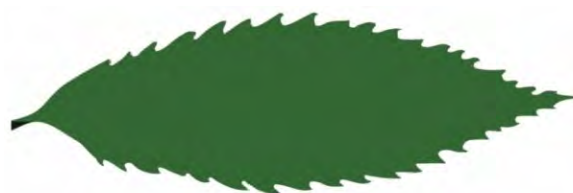
February 16, 2022

March 16, 2022

April 20, 2022

May 18, 2022

Each 1-hour presentation begins at 7:30 p.m. Please register for any scheduled program by emailing the Virginia Chapter of the American Chestnut Foundation at vachestnut@verizon.net. For more information, please contact Warren Laws (540) 364-1922 or Darrell Blankenship (276) 608-8120.



Lesesne State Forest

By Dr. John Scrivani

In late 1968, Arthur and Anne Valk donated over 422 acres to the State of Virginia for chestnut breeding. This land, now managed by the Virginia Department of Forestry (VDOP), is located in Nelson County – the Lesesne State Forest.

From 1969-1976 approximately 10,000 trees, supplied by Dr. Dick Jaynes of the Connecticut Agricultural Research Station, were planted under the direction of Jaynes and Tom Dierauf, research forester with VDOP. Trees with American, Chinese and Japanese pedigrees were included.

The 10-acre planting now forms a closed stand of 45 to 52-year-old trees. A nearly solid canopy of 60+ feet has formed.

Individual trees from the original planting were selected in 1972, 1975 and 1980, using the trees with best timber form, good vigor, and blight resistance. In 1980, 18 trees made the final cut, with blight resistance rated as fair.

In 1988 Tom Dierauf, myself and others started backcrossing these 18 selections and planted them in an adjacent orchard. This orchard is now a mix of first and second backcrosses and are 45-60 feet in height. Backcrossing and intercrossing continues today since they have excellent form and good vigor.

Another line of breeding was pursued at Lesesne, the use of ionizing irradiation to induce mutations with the hope of a mutation conferring blight resistance. Nearly all these succumbed to blight within a few years.

The failed irradiated orchard planting was repurposed to an orchard of large surviving Americans (LSAs). Tom Dierauf, forestry staff, and Dr. Gary Griffin grafted scion wood from various Americans found in Virginia onto the irradiated trees. While many have died from blight, several dozen LSAs are still thriving in this orchard.

Lesesne offers several populations of chestnut trees with the potential to further our breeding work. The best backcross trees have very good tree form, vigor, and moderate to excellent blight resistance. The large surviving Americans are a resource for both traditional and transgenic breeding. The large size of the orchards enables the Department of Forestry to collect hybrid, backcross, and American chestnuts to raise as seedlings at its Augusta Forest Nursery. Stating this fall, the Department will be offering some of these seedlings for sale.

Lesesne State Forest has played several roles over the years in efforts to restore the American chestnut. It has several genetically valuable populations and is a great place to see chestnuts of different pedigrees. What is even rarer, though, is seeing closed stands of mature chestnuts.

Roland Farm Orchard

By Warren Laws

Between 2008 and 2009, over 400 advanced hybrid chestnuts were planted in the Roland Farm breeding orchard near The Plains, VA. Some never survived while others died from the blight. The survivors were inoculated with the blight fungus. Those that exhibited good tolerance to the blight and had good American (vice Chinese) characteristics were kept. The others were cut down.

Only 14 trees remained. One of them is pictured below. There are few dead branches due to the blight. The trunk of the tree has blight cankers but seems to have good tolerance. The cankers bulge out, not concave. This indicates that the tree is doing its best to contain fungus growth.

Another indicator of good chestnut tree health is the lack of suckers.”



Canker bulging out

New sprouts of "suckers" are often produced by diseased trees.

This tree indicates that our breeding program has produced American chestnut trees with intermediate toler-



Chestnut showing no suckers

ance to the blight. So, what is next?

Chestnuts from breeding orchard trees such as these are planted in our seed orchards. The best trees in our seed orchards will be allowed to pollinate each other and produce chestnuts for reforestation.

The Virginia Chapter's Role in Transgenic Breeding

By Dr. John Scrivani

Researchers at the State University of New York College of Environmental Science and Forestry (ESF) have developed Darling 58 American chestnut (*Castanea dentata*) trees with enhanced blight tolerance. Blight tolerance was enhanced by adding a gene which produces an enzyme called oxalate oxidase (OxO). This enzyme has no direct fungicidal properties, but rather detoxifies oxalic acid (oxalate) produced by the fungus, thus preventing the acid from killing the chestnut's tissues. This allows the host, American chestnut trees, to survive the blight infections.

This transgenic tree could be crossed with successive generations of wild American chestnut trees. These generations are referred to as T1, T2, T3,... Estimates are that using about 1,500 wild American chestnut parents in five crosses (T5) would capture nearly all the genetic diversity of the species, provided these wild parents are gath-



Claytor Germplasm Conservation Orchard

ered from across the native range. Since Virginia had a large proportion of the native population, up to 500 trees from Virginia might be used.

In January 2020, a petition was submitted to USDA-APHIS for nonregulated status. If and when the Darling 58 tree is deregulated, it may take as little as 6-7 years to get to the T5 stage. In Virginia we have started to create a population of transgenic trees to well-represent the genetic diversity of Virginia chestnuts. We are doing this by expanding our portfolio of American Germplasm Conservation Orchards (GCOs). Current orchards include the Cathy Mayes Orchards at SCBI, the Claytor Nature Center Orchard, the Porter GCO and the Lesesne State Forest. We have plans to add at least one additional American GCO at the Blue Ridge School this fall.

In the meantime, under permit and strict procedures, we have started to make some T3 crosses in two of our American orchards, with pollinations in 2020 and 2021.



Blue Ridge School students shucking burs

Volunteer Profile—William Hamersky

I grew up in Williamsburg... Brooklyn, that is, (now the hottest neighborhood in NYC!) and always considered myself a naturalist, wanting to know all about the natural world: plants, insects, birds, mammals, astronomy, etc. I received my B.S. in Wildlife Biology from SUNY College of Environmental Science and Forestry in Syracuse, N.Y. and a M.S. in Biology from California State University in Hayward, CA.

After college I worked in mosquito abatement and as a general contractor in California. For over two decades I was a docent at Strybing Arboretum and Botanical Gardens in San Francisco.

My spouse and I moved to Charlottesville in 2015 where I attended Master Gardener, Master Naturalist, and Tree Stewards classes. It was through the Tree Stewards that I learned about invasive plants in Virginia. That led me to volunteering with the Blue Ridge Partnership for Regional Invasive Species Management (PRISM). In Tree Stewards I was reminded of the plight of American chestnut trees. I've planted a few chestnut trees on my property (as seedlings and from seed) and a few of them are doing well. I'd love to plant more and am in the process of "removing" some of our front lawn (with my wife's permission, of course!) in hopes of planting more chestnuts.



William with an IPA. But, is that chestnut beer he's enjoying?

That is, when I am not involved in my favorite hobby, medieval martial arts.

Jousting with my recently departed draft horse, Rohan, gave me tremendous joy. It also kept me off the streets and out of bars. Over the last 14 years I have taught spear throwing, lance and sword work, archery and jousting. While in California I volunteered with a guild of sword fighters going to many renaissance faires. I miss the fun and camaraderie I had doing this.

I also enjoy building things such as public park benches and bluebird houses. A few months ago, I supervised taking down, moving and reassembling a hoop greenhouse for growing chestnuts at the Virginia Department of Forestry in Augusta County. Some of it is hard work but very satisfying.

Southwest Virginia Activities

By Beth Merz

This spring, several SW region members volunteered to plant 600 American chestnuts in four similar oak forest sites. This was a test run for a more systematic project in the coming years to plant and monitor nuts in native woodlands, as they eventually must be able to survive to restore the species to our eastern forests. A germination test first assured us that most of the nuts were viable; so into the woods we went to plant several hundred. We learned that squirrels were extremely appreciative of our efforts, so unfortunately, relatively few



Volunteers planting seedlings at Meadowview Research Farm

of the nuts survived. Our next step may include some shelters!

We also gathered to thin, weed, and mulch the native plant garden fronting the Meadowview Research Farm headquarters. Several of us also assisted The American Chestnut Foundation's staff at the farm with planting backcross seedlings. Again, we hope that the coming year will bring more opportunities for group projects!

ELECTRONIC SERVICE REQUESTED

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 Virginia Chapter

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 AMERICAN
 CHESTNUT
 FOUNDATION®

