



Fall 2016

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LOCAL CHESTNUT RESTORATION:

Hang on for the Roller Coaster Ride!

By Carl Absher

When I retired a few years ago it was pretty easy to get involved with TACF. I am a forester and arborist so I already knew about some large survivors, I had harvested and planted a few nuts on my own, and I had volunteered a little with TACF both in Tennessee and Virginia. So, with a little more time on my hands, I was ready to go.

I spent a little time learning how to hand pollinate chestnuts with John Scrivani and Katy McCune at Lesesne State Forest and Hill Craddock at the Tennessee orchards and we were ready to go in Catawba. All I needed to do was recruit a few more chestnut nuts and we would soon have more potentially resistant seed nuts for a breeding orchard than we would know what to do with. Surely, we could expect at least three nuts from every bur we touched.

The first little snag came with the McPherson tree on Crawford's Ridge in Montgomery County. It is a pretty tall survivor standing at about 65 feet and was a challenge for our lift that only went to 50 feet. However, with the help of a good climber swinging over from the top of an adjacent tulip-tree we managed to locate and bag 30+ burs on the tree by the last week in June. Now all we had to do was

sit back and wait for harvest. Our next issue came at the September harvest. It was that most of the bags were scattered through out the woods. One of the farm workers recalled seeing a "pot chopper" a few weeks earlier circling and hovering over the ridge. Apparently, the white bags in the top of the tree caught the pilots' at-



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Celebrating the Virginia Chapter's 10th Anniversary!

The President's Letter

By Cathy Mayes

This year marks the tenth anniversary of the Virginia Chapter of The American Chestnut Foundation. Today we have 12 breeding orchards growing more than 3,000 hybrid chestnut trees, two all-American "mother tree" orchards, and more than 50 demonstration plantings. We have benefitted from thousands of hours of volunteer effort by hundreds of people across the state. We inoculated our two oldest breeding orchards this year and we will start seed orchards in 2017. Could you imagine ten years ago that the initiative, imagination, and dedication of our founders would lead to so important a contribution to the restoration effort in Virginia in just a decade?

To mark this milestone, our Vice President Kathy Marmet organized a symposium in Christiansburg titled *Genomics and American Chestnut Restoration: New Tools to Identify and Increase Disease Resistance*. The possibility of using genetics to identify blight-resistant seedlings is one of the most exciting developments in the breeding program. It has the potential to shorten the time to begin forest restoration by decades. We extend this special invitation to you and your guests to attend the symposium on October 28th.

As I reflect on the lessons and adventures of the past ten years, it strikes me how incredibly lucky we were at first, and then how incredibly unlucky we were as time passed. We began with dozens of wild, surviving chestnuts to pollinate; they bloomed on time; Bartlett Tree Experts, the Department of Forestry, and NOVEC were able to donate bucket trucks and truck operators for pollination and harvest; and our timing was perfect. As a result, we

produced hundreds of hybrid burs and planted 2-3 orchards/year. Then reality set in. In the past four years, we have had to deal with all kinds of bad luck: breeding seasons cut short by bad weather, seedlings drowning in excess spring rain, Asian ambrosia beetle infestations, fewer healthy surviving American trees to pollinate, and, as a consequence, waning volunteer opportunities.

In spite of these setbacks, we are well on the way toward accomplishing our goal of breeding a locally adapted, blight-resistant tree. Along the way, we have planted dozens of Restoration Chestnuts from our Meadowview Research Farms in public places around the state for people to see American chestnuts growing again. (The first northern Virginia-bred Restoration Chestnuts are still two generations away.) Many of our members have also planted Restoration Chestnuts on their own property. It is our expectation that these trees, which are not fully blight-resistant, will have enough resistance to survive long enough to allow the tree to resume its natural evolution.

Since embarking on the backcross breeding program, plant science has changed dramatically. Today, TACF also supports efforts to use modern genomics to produce blight-resistance in American chestnut and to develop a viral pathogen to attach the blight fungus itself. These developments will likely be part of the long term solution to restoring the tree to the Eastern forest.

Thank you to all of you who have supported this work with your time, money, and enthusiasm. May we have such a successful second decade.

Welcome Tom Saielli

Virginia welcomes our new Regional Science Coordinator, Tom Saielli. Tom received his M.S. in Forest Sciences from the University of Vermont in Burlington after earning his B.S. in Biology and Environmental Science at the University of Colorado in 2007.

Tom comes to the Mid-Atlantic Region (which also includes Maryland, Kentucky, and West Virginia) with significant experience with the TACF breeding program, having worked as TACF's Southern Regional Science Coordinator for four and a half years. Prior to that, Tom worked with New England Regional Science Coordinator Kendra Collins and Forest Service Researcher Paul Schaberg for three and a half years as a research technician investigating chestnut cold-tolerance at the University of Vermont. Tom also served as a Crew Leader with Wildlands Restoration Volunteers in Colorado, where he managed dozens of large-scale restoration projects and spent nine years as a medic and firefighter with the Nederland Fire protection District.

As Southern Regional Science Coordinator, Tom helped his southern chapters (Alabama, Georgia, Tennessee, Carolinas, and then Kentucky) finish their Meadowview Clapper and Graves lines and initiated seed orchards in many of the chapters. Tom also assisted in the development of mother tree orchards to conserve wild American chestnuts in various southern orchards and advanced a novel breeding program and screening strategies to develop chestnut hybrids resistant to both chestnut blight (*Cryphonectria parasitica*) and ink rot disease (*Phytophthora cinnamomi*).

Tom, his wife Karen, and their children, six-year-old Owen and three-year-old Anna, moved to Charlottesville Labor Day weekend. He is very excited to launch into



his new life in Charlottesville, but decidedly hates moving and hopes he never has to move again! He can be reached at the Chapter's Department of Forestry office, 900 Natural Resources Drive, by phone at (828) 450-9100 or by email at tom.saielli@acf.org.

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Fall Harvest Schedule

Fall is one of the busier seasons in the chestnut breeding program as we bring in the burs we pollinated last spring. We first retrieve the burs from their mother tree by cutting them out of the tree while they're still green, *i.e.*, before the squirrels get too interested. Then we let the burs ripen a week or two so they're easy to open. Then we carefully open, count, and pack the burs in peat for storage over winter. You are invited to participate in our fall harvest and bur opening or simply watch to see how it's all done.

Here's the tentative fall schedule. There are sometimes weather delays, so if you are interested in attending, please confirm the schedule.

Date	Activity	Contact
9/21	Harvest, Waterford	Jack LaMonica @ vachesnut@verizon.net
9/22	Harvest at SCBI, Front Royal	Jack LaMonica @ vachestnut@verizon.net
9/24-30	Harvest, Blacksburg	Carl Absher @ abshercp@gmail.com
TBD	Harvest, Charlottesville	Warren Laws @ wlawsii@aol.com
10/7	Bur opening Marshall	Cathy Mayes @ vachestnut@verizon.net
10/7	Bur opening, Blacksburg	Carl Absher @ abshercp@gmail.com
10/8	Volunteer celebration, Marshall	Cathy Mayes @ vachestnut@verizon.net
10/8	Exhibit at Georgia Pacific celebration, Big Island	Cathy Mayes @ vachestnut@verizon.net
TBD	Bur opening, Charlottesville	Warren Laws @ wlawsii@aol.com

7th Annual Chestnut Restoration Celebration in Meadowview, VA

The 7th Annual Chestnut Restoration Celebration will be held on Saturday, October 22, 2016, 1:00-5:00 PM at the Glenn C. Price Research Laboratory in Meadowview, VA. The event is sponsored by the Southwest Virginia Branch of the American Chestnut Foundation® (TACF). This is an opportunity for families to learn about the restoration of the American chestnut and enjoy an afternoon of food, live music and fun.

Celebration Events include:

Farm Tour – The public is invited to tour the Glenn C. Price Research Farm starting at 1:30 PM. After the orchard tours, visitors can also tour the lab where advanced genetic research is being conducted and

learn about volunteer opportunities. A variety of activities for kids will also be included.

Chestnut Roast and Beer – The event will feature roasted chestnuts, light snacks with a chestnut theme, and locally brewed chestnut beer provided by The Damascus Brewery.

Raffle and Door Prizes – Merchandise contributed by local merchants will be raffled and door prizes will be presented.

The Celebration is sponsored by the Southwest Virginia Restoration Branch of the Virginia Chapter of TACF. For more information email SWVABranch@acf.org or call (276) 944-4631.

Virginia Chapter Volunteers Inoculate First Orchards

This summer, volunteers from the Virginia Chapter, working under the direction of then Regional Science Coordinator Matt Brinckmann and intern Chris Coggins, inoculated trees in two of our breeding orchards. What's inoculation? This is done to figure out which trees inherited blight-resistance. Since all the trees in a breeding orchard (except a few Chinese trees planted for comparison purposes) have at least one close American ancestor, all have some degree of blight susceptibility. But some will have more than others. The way to find out which ones have the least blight susceptibility is to actually give the trees the same dose of the blight fungus and observe how they respond. This is called inoculation.



Inoculation involves drilling a small hole in the trunk of the tree, taking a small blob of fungus, pressing it into the hole, and taping over the hole to keep the fungus from drying out. We actually drilled two holes in each tree and inoculated each with two different strains of the blight fungus.

In December, we will return to the two orchards we inoculated to do our first assessments and start removing the most

blight-susceptible trees. We will do a second assessment in 2017 to find the trees that have the strongest blight-resistance in the orchard. Those trees will be left in the orchard. Everything else will be cut down. The strongest trees will then breed with each other, producing the next-to-final generation of backcross trees.

Chapter Announces Annual Membership Meeting

The Virginia Chapter will hold its annual meeting on Saturday, October 29 at the Christiansburg Library. The meeting will begin at 1:30 and last about 1½ hours. The meeting is open to the public, and members especially are urged to attend.

The annual meeting will cover essential business matters for the organization – the election of directors and the adoption of a budget. In addition, the president and committee chairs will review the accomplishments and issues of 2016, and Jared Westbrook will present a summary of the genomics talks of the day before.

Dick Olson and Cathy Mayes served as the Nominating Committee. Six directors' terms are expiring: Fred Hebard (Interim); Warren Laws; Doug Levin; Kathy Marmet; Cathy Mayes; and Rod Walker. Cathy, Kathy, Warren, and Rod agreed to serve another term. Fred agreed to serve a regular term. In addition, Tom Wild of Earlysville has been nominated to a three-year term.

The Board of Directors will meet at the same place on the same day from 9:30-noon. This meeting also is open to the public.

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tention enough that they looked closely enough at the tree to shred it with their prop blast. We recovered seven bags and from them we recovered only one viable nut. The following year we could not pollinate this tree because of an equipment breakdown and the next we could find no burs, possibly due to the larger poplars closing in over this survivor. That one little nut sprouted and is still growing. Can one tree be a line? Who knows? If it does well after its inoculation in a year or two it may have the opportunity to contribute its genetics to the future after all.

Plan B was not a bad plan and it was pretty simple. All we have to do is find more Mother trees. Along with a fellow chestnut nut, David Munn, we have spent many hours driving fire roads, walking ridge tops in old clearcuts and forest fires burns and generally enjoying a lot of time in the woods. We also followed up on leads from the Virginia chapter and acquaintances but without a lot of success most of the time. Commonly, the trees turn out to be Chinese chestnut, or the tree "... over a foot thick and 90' tall" turns out to be five inches in diameter and 30' in height with no sign of flowers.

In a conversation about chestnut trees with a vendor at a farmer's market, a gentleman told me about one of his neighbors who had an old chestnut and he had been trying to find someone who could use it to help bring them back. It was in his yard and right beside his driveway. By this time, I was getting a little jaded trying to convince folks that the chestnut that their granddaddy had planted in 1935 was, in fact, a Chinese chestnut that he probably got from USDA or the Forest Service. This particular tree was at an easily accessible spot so it was worth driving by on the way to Craig County national forest. Lo and behold, it was an American

tree! The elderly owner, a Mr. Caldwell, said that he had seen it die and sprout back multiple times but it was now at the largest he had ever seen. He was delighted to have us use it in the breeding program. The main trunk of the tree was only about eight inches in diameter and no taller than 35 feet. Its best characteristic came from its position in almost full sun and its heavy load of maturing burs. David and I counted 25 on just one lower limb. The following summer this was our primary tree. Matt Brinckman, then our Regional Science Coordinator, was surprised to see 85 bags on such a small tree. Based on what we saw the year before, I really expected to find many more than that. In early September, I stopped by just to see how it was looking before harvest. I was devastated to see that the blight had killed the main trunk from just above the very bottom limb. Almost all of those 85 bags were now clinging to dead limbs. Our burs on that surviving lower limb yielded three viable nuts. The voles killed one of those seedlings last winter but the other two are hanging on. Like the McPherson tree, there are not many of them but their chances are as good as any other individual trees. Mr. Caldwell's tree had several new sprouts coming from its root crown before the blight killed the top. They are growing rapidly and this tree may be a good candidate in another few years if we still need it.

David and I have had good success finding the little trees of five or six inches in diameter and 30' tall by the hundreds in the Jefferson National Forest and Blue Ridge Mountains. However, the large ones, greater than 12" in diameter, are a little more elusive. I had the occasion last September to be on a little country road near Roanoke. The trip was not about chestnut trees but as I was driving up this very narrow, winding country road a tree on the road bank caught my eye. There is very little traffic on the

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road and I had no qualms about stopping right there to check it out. It was larger than any chestnut we had found. There were some obvious cankers on the tree but it was so large and full I could not believe that it was anything but Chinese chestnut. The tree was growing on a very steep road bank about eight or ten feet above the road's surface. The trunk split into three forks a couple feet from the ground. The largest trunk was 15 inches in diameter and the other two were 8 and 10". The slope faced east-southeast and the tree had a full crown on the open side. It had hundreds of burs on its limbs but on this, and subsequent visits we never found a single viable nut. I managed to use a stick and pull down some of the lower limbs for a closer look at the leaves. They looked American but I still was not sure. The tree was directly across the road from a church camp and I could not believe that an American chestnut so obvious could not have already been recorded. I sent some of the yellowing leaves from that bottom limb to TACF's then chief scientist Fred Hebard and he confirmed what we only hoped; the tree was, indeed, a pure American.

The tree sat on the property of Monte Vista Acres Church Camp owned by the Church of the Brethren. Their board members support the work of TACF and they wanted their tree to be used in its breeding program. In fact, some of the board members started telling us about survivors that they know about so we have some more to check out there. Fast forward to June of this year and we are ready to pollinate and harvest a couple hundred nuts from this tree. It sits on the south side of the Blue Ridge Mountains so it's a couple of weeks earlier flowering than the trees in Catawba. We were ready to go but someone forgot to tell the Nanking trees at Meadowview and they were just



not ready yet. We delayed until the burs were starting to brown and just declared it a bust. That's not a big problem. We just freeze the pollen and delay our huge single tree harvest until 2017.

The first week in August Monte Vista Acres saw about eight inches of rain. During another heavy storm on August 9 the bank beneath this tree collapsed and the tree fell across the road. VDOT had no choice but to cut it up and clear it out of the road. The District Supervisor with whom I spoke said that the tree was some kind of "strange maple or oak tree." The phone line became very quiet when I told him what it actually was. Again, it was a catastrophic failure for the tree and they had no choice but to cut it out of the road.

This tree had 24 annual rings of almost steady growth. There is a small pock-

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et of decay in the center with no rings so the tree is probably 26 or 27 years old. I know the ages of a few other survivors just because I know when the timber was cut that released them. None of them are nearly this large yet and I assume it is because this tree had so much light and it had very few cankers. It may sprout again from the exposed roots but I doubt that it can ever grow into a very large tree again without this same thing happening.

In spite of our many failures, we have the trees in our orchard for 1½ lines of local trees for the seed orchards. Barring another catastrophe, we will be harvesting the nuts this fall so we will have three lines. The goal at Catawba was to have six lines in our little breeding orchard. In light of our past failures and as things stand right now, that may be a lit-

tle ambitious. It doesn't matter: we are going to do this one way or another.



Inoculating chestnut trees at Roland Orchard



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