

# ***American Chestnut Cooperators' Foundation***

## **2013 Newsletter**

Dear Friends and Cooperating Growers:

### **GROWER REPORTS:**

In 2012, we received 185 reports from growers in 28 states plus Quebec and Prince Edward Island, totaling 3,122 ACCF chestnuts surviving. So far this year, 10 growers have reported 247 ACCF chestnuts surviving. We look forward to your reports with hope that the 2013 numbers may once again surpass previous years' reports.

When November arrived, and all orders had been filled, with extras sent to established growers who had indicated they could plant more than 10, we still had many more chestnuts left than we had places to plant them. *We cannot safely store chestnuts here after October.* Most empty planting cages in research plots received one 2012 chestnut, then we converted several larger cages into miniature nursery beds to plant small, odd seed lots, ranging from 5 to 16 nuts per cage. Luckily, only one of these beds was penetrated by rodents, so instead of planting nuts this coming November, we shall be transplanting seedlings. You may read in this year's virtual tour the method used to turn a planting cage into a small forest nursery.

Well above normal rainfall in our area throughout spring has produced wonderful chestnut growth and above 90% germination. Most losses among our seedlings were to rodents in several plots, and to a hard freeze on May 14 in the Rocky Mt. Road plots in western Giles County. Remaining under our care are 904 chestnuts grown from seed. This figure does not include the native chestnuts growing in most forest plots or many ACCF chestnuts which have either failed blight resistance tests or were not judged best in their family in a breeding orchard and must be continuously cut back to prevent them from fertilizing the chosen chestnuts and also protected from deer so that they may make healthy stocks to support future grafts.

### **HARVEST:**

157 cooperating growers planted at least 3,725 seednuts from the 2012 harvest; we did not yet learn the numbers planted by a few growers who helped at harvest

and took their chestnuts home in the bur to process themselves. **Jane and Jim Reilly**, saved us a huge load of work by taking nearly one third of the harvest in the burs. **Melissa and George Collins** and family helped one morning in another breeding orchard, returned home also with a few bags of burs, to process themselves, and planted 186 chestnuts. In the first location, the chestnuts must have been fully pollinated, 3 per bur, while most of the Collins burs held fewer chestnuts, showing how heavy rains during pollination can decrease the numbers of chestnuts per bur. Unfortunately, we have had heavy rains almost daily for the last two weeks in June and the first 11 days in July.

Volunteers to help at harvest should contact us via email at [allaccf@gmail.com](mailto:allaccf@gmail.com) We harvest from nine a.m. till noon on weekdays in the second half of September, and sometimes also in early October. Precise dates cannot be fixed until September, when we can better predict on which days help may be needed. Harvest volunteers may take home at least one dog food bags full of chestnut burs.

#### **TURKEY RUN VIRTUAL TOUR:**

Turkey Run consists of a pair of side-by-side forest research plots started under a National Wild Turkey Federation (NWTF) grant in 2002, and named for a logging road in the Jefferson National Forest. When Ed Leonard showed me the area, we saw no turkeys. But since then, on my way to these plots, I often see one or more turkeys running up the road ahead of my pickup.

A mile or so past the gate and 100 yards uphill from the road, two east-facing select cuts are separated by a steep and narrow, timbered drain. The cuts were less than 10 years old, grown back to dense cover. Ed offered to have the Blacksburg Ranger Station crew clear and prepare both sides for planting American chestnuts. Instead, because there were so many native chestnuts in various stages of blight infection, I asked to have the competing trees cut back to make full sun for a grafting plot. We let the dogwood grow, along with mountain laurel, pink and flame azaleas, blackberries and blueberries. In spring it is a lovely place to bring a picnic lunch.

My idea was to collect scions from one-year-old, second-generation (Miles x Ruth) seedlings and graft them into the established chestnuts at ground level. Successful grafts into mature root systems in full sun can grow more than twice as fast as seedlings; they may reach 1.5 inches in diameter and flower within three years. This

could permit resistance testing in four or five years instead of the usual minimum 10-year interval between selections.

We did most of the grafting in spring of 2002 and 2003. Soon we had 16 grafts left of the timbered drain and three to the right. Many approached 10 feet tall and one was even taller. NWTf people and quite a few cooperating grower/grafters who contemplated making forest chestnut plots came for tours and were impressed. But early success was swiftly followed by a long series of disappointments and challenges, adding up to quite an education... the hard way.

In ideal forest sites you will find large tree stumps for solid evidence that big trees can grow there, as well as deep, well-drained, sandy loam soils, which produce the rapid growth desired in chestnut plots. These sites require regular, extensive management to keep competing trees from shading the chestnuts. This job proved too much for me. We first got help from family and other volunteers wielding loppers and hand saw, followed by hired high school students using the same tools. In 2004, we abandoned the upper half on the right side because bears were disputing that territory. In 2007, we brought in a professional tree service to clear a small cove on the lower right, judged to be the best place to plant chestnuts by direct-seeding. Since then, this is the only part of Turkey Run which is always in full sun because better site preparation put the job of keeping it open within our capacity. In 2010, we gave up on managing the upper 10 yards on the left side. All the while, other trees and briars were growing out of control, obliterating trails and shading the remaining grafts, in spite of the volunteer and hired help. No doubt, this is why Ed had recommended clearing and preparing both sides for planting.

During the ongoing battle with encroaching forest, one by one, my big grafts failed. Here is where I lost faith in the bark graft. The Italians warn that bark grafts make the weakest union and advise pruning the graft early in the first year, to strengthen the union and reduce the amount of weight exposed to the wind. Considering the rampant growth of other trees, I was unwilling to prune grafts; high winds pruned several back to nothing. New shoots, where the first grafts flopped, were perfect for making whip grafts, where you must match the diameter of scion and stock. Whip grafts make the strongest union and may not need to be pruned.

Among my surviving original grafts, some became heavily blighted at the base and died before reaching 1.5 inches in diameter. Nine grew to the required diameter for useful blight-resistance expression and made swollen cankers following first

blight attack, most often on the lower trunk, but sometimes also in small branches. We inoculated hypovirulent strains of the blight fungus on the margins of trunk cankers; nevertheless, within a few years, five of them died, followed three years later by another after it first produced two nut crops from pollen brought to the tree. On its back side which was shaded out by a dense laurel bush over seven feet tall, the canker could not be controlled.

Meanwhile whip grafts were growing too slowly, some began to die mysteriously with no signs of blight, and one of the chestnuts, after its first graft was killed by ambrosia beetles, did not sprout back. This suggested weakened root systems, and excavations revealed extensive tunneling around all chestnut roots. Some roots had blight where there were air spaces; others showed widespread gnawing. Moles and voles killed at least eight grafts. Unwilling to abandon a great growing site, we began regular sweeps, looking for holes and probing for tunnels into which we put baited poison supposed to kill rodents (Prozap worked best). In 2010, Karl Cooper and chain saw widened what remained of the central trail on the left side to make eight yards of space for direct-seeding a dozen more chestnuts.

We began direct-seeding chestnuts in 2003 on a very small scale: six along the central trail on the left side and one in a newly cleared space near the trail on the right side. In successive years, as we had extra nuts to plant, we added more, a few to several at a time, often in planting holes where the previous chestnut failed to grow, died of drought or was killed by unidentified rodents. In 2008, we planted 65 in the large, new clearing on the right; two of those seedlings survive. In 2009, we replanted all but seven of the same holes; eight of these seedlings survive. In 2010 we redug all the planting holes, removing encroaching roots and including a dose of poison below each planting place, and planted, as usual, inside short protection shelters covered with netting, also scattering a few moth balls (thought to deter varmints by scent) inside the cages around most shelters; two of those seedlings survive. Raccoons pulled away all shelters and stole the chestnuts. In 2011 we transplanted several year-old seedlings from other sites, to be sure of having something growing here; most of these survive. Next, we removed all the shelters, redug the area inside cages, pressed three chestnuts into the prepared soil, covered with an inch of soil, then stomped the planting places to pack the soil and make it look like nothing had been planted; for good measure we scattered chili powder before setting the cages back in place to make small nursery beds; *all* these chestnuts grew and 25 survive here (the rest we transplanted in other plots). This was a big surprise, because these chestnuts had been harvested before they were

completely filled out, to save the graft on which they grew from breaking when it was weighed down, like a fishing pole with a big one on the line. After the 2012 dormancy period, we transplanted the smaller seedlings to individual cages, leaving the largest in place, and often we had to move its cage to center the chestnut. Nearly all these chestnuts and the transplants have survived.

In the empty cages on the left side, we have 19 planting places in which one transplanted seedling and seven from direct-seeding survive, mostly planted since 2007. Also surviving at Turkey Run are four large grafts. One with the help of imported pollen produced three nuts last fall; they are among those growing nearby. And one small graft struggles on, its resident voles periodically knocked back with poison.

Lessons: Forest plots require much more work than can be imagined, so start small unless you have regular, reliable help. Always prune bark grafts by June. When doing battle with varmints, trickery may be most useful; also, never give up in a good site, except in the case of bears.

#### **GRAFTING:**

I made 60 new whip grafts, mostly in March, sometimes grafting in the snow. By early May, nine grafts were growing strongly, but they did not include the four individuals I most wished to succeed, because of the difficulty to reach them in late February or early March when we collect scions. Since some good-looking scionwood from each remained, I cast aside deeply held prejudice and made eight bark grafts. Six of these are growing strongly; *they shall be pruned*. The May freeze in Giles County killed one of last year's grafts, and several others were killed by blight when soil washed away from the graft union during winter. At this time, 72 of my grafts survive; 15 of them bear nuts and five more have made their first catkins this year.

We treated all grafts smaller than six inches in diameter with **Bayer Advanced** insecticide in early April and none of them were attacked by ambrosia beetle which has been a problem in most research plots in past years. I have no doubt that this pest will remain in our neck of the woods because of large numbers of young native chestnuts released near many woodland plots.

#### **OUTSTANDING COOPERATORS:**

We thank the **Mary Moody Northern Foundation** and **Virginia Tech** for plot maintenance on Salt Pond Mountain. Thanks always to **John Buschmann** for supporting ACCF research and plot maintenance in the Lesesne. Many thanks to **Carol Croy, Rick Gendreau, Kerrin Hester, Vicky & Eli Lewis**, in addition to **Jane & Jim Reilly**, and most of the **Collins family**, for volunteer help at harvest. Special thanks to **Corry Shaffer and his father** who removed chestnuts from burs with me one fine afternoon, my lucky day.

Walking up the central trail into the left Turkey Run plot early last May, as I paused near the first few cages to look at the big graft which made nuts last year, a large tom turkey erupted from bushes, not two yards away, and flew to the top of a tall oak on the bottom edge of the plot. Behind the bush I discovered a large nest with 15 eggs, retreated, and did no more work there till June. We wish your chestnut work may be similarly rewarded by occasional, wild surprises.

Respectfully submitted,

Lucille Griffin, Executive Director

#### **Other ACCF Directors**

**Gary Griffin**, President, Plant Pathology, Virginia Tech

**Ed Greenwell**, Vice President & Director of Tennessee chestnut projects, Electrical Engineer, McEwen, TN

**John Rush Elkins**, Secretary, Professor Emeritus Chemistry, Concord College, WV

**Joyce G. Foster**, Treasurer, Research Biochemist, Beaver, WV.

**Dave McCurdy**, Director & Nursery Superintendent Emeritus, Raleigh, NC

***Dedicated to the restoration of American chestnuts***