

# Chestnut Tree



The Pennsylvania Chapter of  
The American Chestnut Foundation

**PA-TACF Contact Information:**

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## Spring Meeting Scheduled for Saturday, March 24

Join us for the annual spring meeting on March 24 at the Milton Hershey School Environmental Center, 9:00 a.m.-3:00 p.m. The meeting includes great speakers, the raffle drawing, and supply/seed pick-up. Registration begins at 8:30 a.m. Suggested donation \$10.00 at the door. Please RSVP to 814-863-7193 or mail@patacf.org.



### Chestnut Biology 101

Come back to biology class with Sara. Learn the basics about the American chestnut for breeding, pollinating, or just general curiosity.

### TACF's Backcross Breeding Program: Raising Our Sights



*Dr. Kim Steiner, Professor of Forest Biology, Director of The Arboretum, Penn State University.* TACF's breeding program has been modeled from the beginning on a plan first outlined by Dr. Charles Burnham in 1981. We are close enough to completion of the Burnham plan in our Meadowview operations that we

must, for the first time, seriously consider what the next phase of our science program should look like. In this presentation Dr. Steiner will review the status of today's backcross breeding program and will offer a look at the unique challenges and exciting opportunities that lie before us.

### Planting Chestnuts on Reclaimed Minelands



Dr. Blair Carbaugh will discuss the challenges of planting and successfully growing chestnuts on abandoned/reclaimed mine land in Northumberland County—without extensive surface treatment, such as sub-soiling or end dumping.

### Directions to our Spring Growers Meeting:

1. From US 322, turn north onto Meadow Lane (TWP Hwy 755)
2. Continue on Meadow Lane for .05 mile to Crest Lane
3. Turn right to the Environmental Center

*Below: A = Environmental Center.*

*B = Supply Pickup location following meeting.*



**In the event of a snow emergency, please call the Leffel Center at 814-863-7192 for an update.**

KEEP INFORMED by joining the PA-TACF listserv.

If the meeting is cancelled due to inclement weather it will be rescheduled for March 27.



PA-TACF President Tim Eck helps kick off the Raystown Branch event at the C. Barton McCann School of Art.

### **Greetings once again from the President's Corner.**

First, I want to thank everybody who contributed to our fund drive. The board pledged nearly \$3000 in matching funds which was quickly consumed by the great response from the membership at large who sent in over \$6000. The largest sum was an anonymous donation of \$1000 to be dedicated to paying for the learning boxes.

I also want to thank Mark Banker and the private donor he enlisted to support our staffing needs with a pledge of \$10,000 per year for five years. And while I am on the subject of donations, please consider the logic behind purchasing more raffle tickets: If it made sense to donate \$20 or \$50 to help the chapter restore the American chestnut, think how logical it would be to buy \$20 or \$50 worth of raffle tickets. All the money goes to the same place because all the prizes were donated by other very generous members and friends. And you might win. If you want to contribute while stuffing the ballot box you can send your checks to PA-TACF, 206 Forest Resources Lab, University Park PA 16803. Please try to include six return address stickers for every ten dollars you send to spare Sue the writer's cramp. And maybe an extra one so she can mail you your tickets.

I want to thank everybody who helped make the PA Farm Show exhibit a success. We had lots of interested people visit us in our new location near the Woodmobile and hopefully got lots of new members too. Unfortunately, the hundreds of membership

forms we gave out to enthusiastic visitors probably got dumped on an end table somewhere with the other literature they picked up. That's what I do. It would be so much better if we had a way to enroll them by credit card instantaneously. Something to think about for the future.

Jeff and Lori Krause and their Raystown area branch had a tremendously successful branch event last fall. The event raised over \$20,000 for TACF through sponsorships, memberships, and auction items. A portion of the event proceeds also goes back to the branch and the chapter for local projects!

**Thank you Raystown Branch Committee Members for volunteering your time to help restore the American chestnut:: Lori Krause, Jeff Krause, Deb Ridgeway, Dan Detwiler, Dave Stubbs, Bill Riley, Alex Day , Richard Antes , Norris Muth ,Chris Shook , Mark Banker , Uma Ramakrishnan , and Jordan Weller .**

We are planning a branch event in the lower Susquehanna region for this August at the Drumore Estate (<http://www.drumoreestate.com/>) and would appreciate any volunteers to help out. All volunteers can help in planning and legwork, but we also need people who can find donations of art or merchandise for auction and other sponsors. You can call Sue or Sara at the Leffel Center (814-863-7192), or me (717-684-2078). Money raised will help support the local orchards.

Our planting dates this year for the orchards at the **House Rock Preserve are April 21 and April 22.** For other activities and opportunities to volunteer, be certain to check the chapter calendar on the cover and the web site. **And don't forget to send in your orchard reports.** And lastly, the Oram family plans to move to the Pittsburgh area in June, taking Sue with them. We are searching for a way to use her talents and experience in her new location as we begin the search for her replacement at Penn State. Respectfully, Tim Eck

### Second Annual PA-TACF Raffle Drawing March 24, 2012

**Tickets \$2 each or 3 for \$5  
Supports Chestnut Restoration in  
Pennsylvania and New Jersey**



**Grand Prize: Husqvarna Chain Saw with  
Protective Head Gear and Chaps Chainsaw  
Safety Lesson with Mike Powell.**



**Second Prize: Hand-  
painted Rain Barrel  
and Accessories.**

**Third Prize: Hand-  
crafted American  
Chestnut Stool**

**Fourth Prize: Hand  
Turned Chestnut  
Bowl**



**Winner need not be  
present to win. One  
winner per family.  
Tickets available from  
The Leffel Center 814-  
863-7192**

**PA-TACF wishes to  
thank Millheim Small  
Engine, Alex and  
Sandy Day, Tracey  
Coulter, Chris Ditlow,  
Jim Finley, and Mike  
Powell for your raffle  
prize donations/**



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### PA-TACF 2012 Board of Representatives Officers:

President, Tim Eck  
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Past President, R. Alex Day

#### Board Members:

Ken Allhouse                      Susan Smith  
Blair Carbaugh                 Alan Tumblin  
Jeff Krause                        Jim Walizer  
Robert Lingenfelter

#### Appointed Members:

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Jim Egenrieder, Treasurer  
Ron Farr, NJ Representative  
Sara Fitzsimmons, Science Coordinator  
Sue Oram, Secretary

If you are interested in a Board position or  
would like to nominate someone contact Alex  
Day at [fforaday@aol.com](mailto:fforaday@aol.com)



Jim Walizer braves the snow at our fall member meeting in October. Thank you Monroe County Conservation District for donating the meeting space and Roger Spotts for helping us out that day. MCCD will be helping with the chestnut learning box pilot at the environmental center. (photo by Ethan Habrial)



## WHEN YOU DON'T HAVE A D-TAPE....

Five years ago I saw my first D-tape. It confused me. I could not decide whether it was metric or

English. I was dumbfounded. A D-tape in this country is English and has the size of its units multiplied by *Pi*, or 3.14159. But, the number of units will be less because it is divided by *Pi*. A length of 10 inches on a D-tape is really 31.4159 inches. It tells you that a circle with a circumference of 31.42 inches will have a diameter of 10 inches. The tape measures diameters according to the formula:

$$D = C/Pi = 31.42/3.142 = 10 \text{ inches in diameter}$$

If you do not have a D-tape, you have to divide the measured diameter by *Pi*. That is very cumbersome for the human mind to calculate by inspection. If you should divide by 3 instead, you will have a 4.46% error which is unacceptable. If you happen to have a pocket calculator, you could avoid the error. If not, then you have to make a guess. If you have neither D-tape nor calculator in the field, you can still determine diameters with acceptable accuracy. All you need is a metric tape. A tape that is both English and metric is even better, but not necessary. It so happens that there are 2.54 centimeters in an inch. If you multiply that by *Pi*:

$$2.54 \times 3.14 = 7.98$$

That can be rounded off to an even 8. How is that useful? If you should measure a tree's circumference in centimeters, divide that by 8 and you will get the tree's diameter in inches with only 0.31% error. If you want to eliminate error completely, then divide by 7.98. But that is too cumbersome. An error of 0.31% is barely noticeable. Let's do a sample calculation. If the circumference is 13cm, that is really (8 + 5) cm. After you divide by 8, you get 1 +

5/8 or 15/8 inches. If the circumference is 30cm, that is really (24 + 6) cm. Divide by 8 and you will get (3 + 6/8) or 33/4 inches in diameter.

Every centimeter in circumference corresponds to 1/8 inches in diameter. Each 5mm equals 1/16 inches in diameter. Each 2mm equals 1/32 inches in diameter. If a circumference is measured to be 31.7cm, break that up into 24cm + 7cm + 0.5cm + 0.2cm, then divide by 8, and add 1/16 and 1/32, and the result will be 3 + 7/8 + 1/16 + 1/32, or 331/32 inches.

**Summary:** To be more accurate, you should divide by **7.98**. However, dividing by an even **8** is easier and only results in a **0.3%** error which is negligible in field work. Not having a D-tape is really no disadvantage with this technique.

**J.A.LANKALIS**



## Volunteer Spotlight: Rebecca Hirsch and family

This issue's spotlight is dedicated to new TACF member Rebecca Hirsch and her family. Rebecca and her girls jumped into chapter volunteering —working at Ag Progress Days, the PA Farm Show, and helping with the fall harvest. Rebecca is a science writer and editor. During the past year she has been researching and writing a book on the demise and revival of the American chestnut tree, a proposal that won the 2011 Anna Cross Giblin award from the Society of Children's Book Writers and Illustrators. We thank you for sharing your passion for chestnut s and volunteerism with the younger generation. Welcome Hirsch family!

## Planting Chestnuts on Reclaimed Coal Mine Lands in Northumberland County: Part Two

By Blair Carbaugh *(Editor's note: due to space limitations, this is a condensed version of the full report. Blair will be presenting the project and results at the spring meeting)*

**RESEARCH SITES:** Each site is a reclaimed mine land with some clumps of grass – warm and cold season – and a few scattered volunteer black locust, birch and occasionally a planted conifer species. None of these trees were removed. Planting protocol was uniform and is described later.

The sites mentioned in the text below are reflected in the map on this page. In the order that they are mentioned, they are located west to east on the map. The large green area in the middle of the map represents Weiser State Forest.

### **Burnside. 67 trees.**

Elevation: 1,302 feet, aspect is NE. This area is near the village of Burnside, PA, along route PA SR 125. It is a gentle slope that drains to a flat, less well drained roadside. It has a cover of warm season grass and occasional black locust. It is near the entrance to the county's Anthracite Outdoor Adventure Area. The site was recommended by Northumberland County Planner, Pat Mack, and will overlook that entrance to the park. 67 trees are planted in two rows on approximate 20' by 20' spacing. It is the plan of the county to highlight this research area and recognize TACF's research interests. The area is accessible by a 50 yard walk across rough terrain.

### **Roaring Creek Tract site # 1: 22 trees**

Elevation: 1700 feet. Level on edge of a staging area – grass, birch, moss, and lichen.

### **Roaring Creek Tract site #2: 20 trees**

Elevation: 1700. Steep slope – grasses, sweet fern, moss, and lichen.

### **Roaring Creek Tractsite #3: 23 trees**

Elevation: 1700. Slight slope at the top of a steep slope – small amount of grass, moss, and lichen. These three sites are part of a large old mountain side reclaimed mine land. They were selected because of difference in

slope. The soil is similar. It is a mountain-side turned over! It is accessible by way of a forest service road that has locked gates. Site #3 is the only one that requires an uphill walk of approximately 60 yards.

*Roaring Creek sites #4-6 are not part of the research project.*

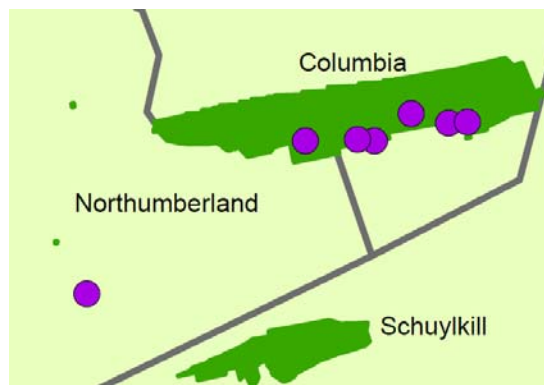
### **Roaring Creek Site #4: 30 trees**

Elevation = 1200' This site was at the bottom of the mountain along the forest road made available to the public. The residuals from making a parking lot were deposited and leveled. This substrate is largely clay with gravel and sandstone. We used the same planting protocol. There was a sharp soil contrast to all other sites. At the Roaring Creek tract, there was a clear cut made as part of their management scheme. It was located on top of the mountain near the mine land. I chose two areas for planting.

**Roaring Creek Site #5: 17 trees** Elevation = 1700'

**Roaring Creek Site #6: 10 trees** Elevation = 1700'

The personnel at Roaring Creek suggested planting sites #5 and #6, just to see what happens. These were planted using the same protocol. The Bureau of Forestry personnel were great support and help.



**PLANTING PROTOCOL:** All sites were treated with the same protocol.

The first chore was to drive a locust stake at each seed site. Distances were 20' x 20' or as near as a stake could be securely driven. Seven soil samples were taken from each of the research sites. The results were almost identical. Recommended amendments to the soil were 16 lbs. of dolomitic limestone to each 100 sq. feet, 2.5 lbs. 5-10-10 and 1 lb. of 0-46-0 to each 100 sq. feet.

Appropriate measures of each were applied to a three feet circle around each seed site. A seed planting site was cleared using a pick-hoe to remove grass and roots and find some loose soil. Cleared areas were approximately 12-14" in diameter and roughly 2-4" deep. Large stones were laid aside. The chestnuts were planted and a small quantity of peat mixture was added to the top of the seed and gently pressed to make contact with the seed. A TreePro tube was placed on the stake and surrounded the seed. Tubes were pressed in the soil and secured to the stake. To try and ensure rodent proof we often added some soil around the base of the tube.

## POST PLANTING MANAGEMENT

### Monthly Visitations:

**Early May** – Visit to each tree site. Note presence and size of sprout. Herbicide application around each tube to eliminate competition – especially grass. May be possible to replant in tubes without a sprout. Look for rodent damage or loss.

**Late May** – Revisit as above.

**June** – Revisit – weeding and note size of plant and list number of voids. Rodent damage.

**July** – Check for need to water; perhaps fertilize. Secure tubes.

**August** – Check for need to water. Secure tubes.

**September** – Water live trees if necessary. Note size of seedlings. Secure tubes

**October** – Secure tubes and stakes. Measure tree growth. Check for deer damage. (Install a fence?)

**November through March** – Pray.

**April 2012** – Replant, secure tubes and stakes, and fertilize.

**Repeat yearly!!**

## SUMMARY OF 2011 PLANTINGS AND SUCCESS AT THE BURNSIDE AND ROARING CREEK TRACT

Site	# of Seeds Planted	Live Seedlings	% Success
Burnside	67	29	43
Roaring Creek #1	22	17	77
Roaring Creek #2	20	20	100
Roaring Creek #3	23	20	87
Mine Land Totals	132	86	65
Roaring Creek #4	30	20	67
Roaring Creek #5	17	13	76
Roaring Creek #6	10	7	70
Non Mine Land Totals	57	40	70
<b>Grand Totals</b>	<b>189</b>	<b>126</b>	<b>67</b>

In November 2011, all trees live at Burnside and sites 1 through 5 at Roaring Creek received deer enclosure treatment. It will be interesting to see how many of the 126 treated seedlings will leaf out and begin growth in the spring of 2012.

## BREEDING PROGRAM UPDATE

SARA FITZSIMMONS



Several years ago, the PA Chapter completed the 20 lines of Clapper and Graves it set out to complete as part of the TACF Regional Adaptability breeding program. Since then, the orchards established as part of achieving those goals have been undergoing testing, selection, and harvest.

In addition to completing those long-standing goals, the Chapter has been focusing on other programs of interest including the American Germplasm Preservation project and the Cytoplasmic Male Sterility (CMS) / Multiple Sources of Resistance (MSR) projects.

### SELECTIONS

One of the largest selection and roguing events took place this past year at one of the PA Chapter's largest orchards. Established in 2001, the **Graves orchard at Rock Springs** originally held 1800 planting positions.

Due to various poor site issues (too wet, too basic, etc., etc), only about half that number ever survived. A total of 842 trees from the original planting were inoculated in June of 2010. Canker measurements were taken a total of four times, a massive undertaking! Those data are still being crunched, but ratings data were also taken in the fall of 2011 so that the orchard could be rogued that winter. The results of the inoculation and selection of that orchard can be found in Figure 1.

Some lines performed better than others. One thing to note is that the Chinese chestnuts and F1s performed relatively similarly. These results are one reason we have these checks in the orchard, to try and see whether there are significant issues with the site that might affect resulting resistance phenotype. That certainly seems to be the case at this site.

### HARVEST

The Chapter harvested almost 20,000 chestnuts fall including 14,000 American chestnuts, 2000 B3F2s for planting in Chapter seed orchards, and 400 B1s for continuation of the Chapter's CMS program.

### CMS / MSR PROGRAM

Last summer the Science Committee took initiative to visit and evaluate all established CMS / MSR plantings throughout the state.

Orchard Name	Orchard Type	County
Stone Wall Woods	B3F3	Westmorland
Washington Garden	Ceremonial	Washington
Codorus F2	F2	York
Raystown Progeny	B3F3	Huntingdon
Raystown B3F2	B3F2	Huntingdon
Palmerton – EPA	Test	Carbon

Table I. A selection of orchards established in 2011 as part of PA-TACF breeding and research programs.

Although a few orchards have been lost due to high mortality, a majority have survived to where selection based on male sterility could be made.

To date, all but two American x Chinese lines have exhibited male sterility. Any pollen contaminated lines and/or Chinese x American lines have been removed from CMS orchards. Resulting BC1 progeny are being planted at the House Rock Orchard in Pequea, Lancaster Co.

**2012 PLANTINGS**

***Palmerton EPA project***

The town of Palmerton is located in Carbon County at the foot of Blue Mountain. Through the early and mid 1900s, Palmerton was the home of a zinc smelting operation. Various types of waste and pollutions from the factory led to the contamination of groundwater, soil, and air, and all but eliminated vegetation across approximately 2000 acres around the plant.

In 1983, the site was officially listed by the EPA as a Superfund site. As part of the cleanup and re-vegetation process, the EPA is working with the PA Game Commission and other agencies. Several hundred acres have been successfully vegetated with grasses, but trees had not yet been part of the reclamation picture until recently.

Starting last year, a 2 –acre deer enclosure was erected along the Appalachian Trail at the top of Blue Mountain (Pat at Bash Contracting still reminds me how much of a pain that was!), and several trees were planted, including 400 American chestnuts and advanced backcross chestnuts. Because of the success of that initial planting, the EPA will expand that planting with an additional 2,200 advanced backcross, BC2F3 and BC3F3 chestnuts from TACF.

***Flight 93 Memorial Planting***

Throughout April, several plantings will take place at the Flight 93 Memorial near Shanksville, PA. The crash and memorial site were on the reclaimed portion of a still active strip mine operation. As a result, any planting that takes place will need to be preceded by operations that relieve soil compaction.

Working with ARRI (Appalachian Regional Restoration Initiative), PA DCNR, and other partners, several thousand trees will be planted, including up to 50 BC3F3 chestnuts to commemorate the victims of the crash.

***Other Planting Sites***

There will be several other plantings that are to take place in the upcoming year.

- The progeny test and Graves seed orchard established last year at **Raystown Lake** will both be expanded in the upcoming year.
- Tim Eck, PA-TACF President, has started a new partnership with the **Lancaster Solid Waste Authority**. They have set aside 2.5 acres for the Chapter to use as an American chestnut germplasm preserve.
- A new planting, one that will primarily look at establishment and management practices for advanced backcross chestnuts, will be established this spring at the **Trexler Nature Preserve**, near the **Lehigh County Zoo**.

Table II. Summary of number of trees planted, rated, and the average ratings by family and type.

Seed Type	Line	Avg. Rating	# Rated	Planted	% Survival to Rating
American		4.50	1	35	3
F1		2.53	24	29	83
Chinese		2.58	21	30	70
BC3	WV167	3.75	1	1	100
	AB419	3.76	54	136	40
	GL356	3.78	10	68	15
	AB248	3.92	22	181	12
	GL239	3.93	48	253	19
	BE138	3.95	43	216	20
	BE134	3.96	14	76	18
	GL185	3.97	9	99	9
	AB247	4.00	1	8	13
	GL98	4.05	5	66	8
	GL94	4.13	4	56	7
	GL443	4.18	48	217	22
	AB171	4.40	5	59	8
GL59	4.50	1	2	50	

Pennsylvania Chapter  
The American Chestnut Foundation  
206 Forest Resources Lab  
University Park, PA 16802

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RETURN SERVICE REQUESTED

The Chestnut Tree Newsletter



Chapter volunteer Keith Lingenfelter checks on the chestnut seedlings in the greenhouse at Penn State University.

For more information on how you can participate in these plantings and other Chapter activities, be sure to join our e-mail mailing lists by sending an e-mail request to [mail@patacf.org](mailto:mail@patacf.org).

**Chapter Calendar - 2012**



- March 16-17 TACF Board and Cabinet meetings, Abingdon, VA.
  - March 24: PA-TACF Spring Member Meeting, Hershey, PA
  - April 19-Chestnut Presentation Kalmbach Memorial Park. Macungie, PA
  - April 21, 22: Lancaster County Conservancy/House Rock orchard planting weekend
  - April 21-Upper Makefield Township's Earth Day at Washington Crossing Park.
  - June 2 -Appalachian Trail Duncannon Event
  - July-Ned Smith Nature and Art Festival, Mifflintown
  - August 14-16: Ag Progress Day's Penn State
  - August: Lancaster County Branch Event: Drumore Estate.
- Check out the full event calendar at [www.patacf.org](http://www.patacf.org) for more details