

Chestnut Tree



The Pennsylvania Chapter of
The American Chestnut Foundation

PA-TACF Contact Information:

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Fall Meeting Scheduled for Saturday, Nov 6

Chestnut Gall Wasp, Strip-Mine Reclamation, Service Learning, and Haun Orchard Tour

Date: Saturday, November 6
Location: Mercer County Cooperative Extension Mercer, PA (mercer.extension.psu.edu)
Time: 9:00 a.m. to 3:00 p.m.
Donation: \$10 (for lunch and break service)

Join us for our annual fall meeting in Mercer, PA. It's been several years since we had a meeting in Northwest PA—It will be worth the drive! We are honored to have the following speakers:



Lynn Reiske-Kinney, photo by Lee Thomas

Dr. Lynn K. Reiske-Kinney, Professor of Forest Entomology, University of Kentucky will present “**Chestnuts and the Gall Wasp**” Galling reduces tree vigor, prevents normal shoot development and can cause tree mortality. Chestnut production and chestnut restoration efforts throughout the eastern USA are threatened by the persistent spread of

this exotic invader.”

Service Learning is teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. **Dr. Uma Ramakrishnan** Assistant Professor, Envi-

Dr. Uma Ramakrishnan, in the field.



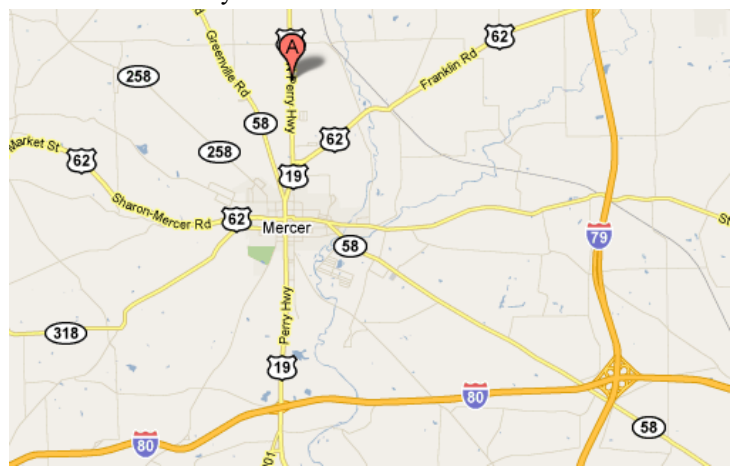
ronmental Science and Studies, Juniata College will discuss how she uses “**The American Chestnut as a Service Learning Project at Juniata College**”



Dr. Brian McCarthy

Dr. Brian McCarthy Professor of Forest Ecology, Ohio University and Ohio Chapter TACF President will present his work on “**Chestnuts and Strip Mine Reclamation**”

The meeting will end with an optional tour of the Haun chestnut orchard.



The Mercer County extension office is located on Rte. 19 (North Perry Highway), 1 1/2 miles north of the Mercer County Courthouse. It is a solar panel brick building on the west side of the road next to the Mercer County 4-H Park.

From Interstate 79 from the north, take the Mercer exit onto Rte. 62. Go south on 62 to where it intersects with Rte. 19. Turn right and go north on 19.

From Interstate 79 from the south, get onto I-80 west. From Interstate 80, take the Mercer exit onto Rte. 19 and go north through Mercer.

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.



Chapter President,
Alex Day

President's Corner By R. Alex Day

Each month of the year all TACF Chapters receive an updated membership listing from our national office in Asheville, NC. Topping this list are all the new members for the Chapter. As president I review this document regularly and am always pleased to see the hometowns of our new members, including our members in New Jersey. Currently our combined membership in PA and NJ is 982---by far the largest chapter in TACF! My impression is that our large membership is directly related to our outreach activities which occur throughout the year. If you are part of this tremendous effort, I offer my thanks and congratulations. If not, and you want to volunteer, visit us at www.patacf.org and sign up for some outdoor education and excitement.

By the time you read this column our third Restoration Branch event will have been completed. This fund-raiser event was **organized by Jeff and Lori Krause of Huntingdon** who are experienced in these events, and are Chapter members. Fund raising is the life blood of our organization and I want to thank Lori and Jeff for their leadership in hosting this event. The results will be posted in our next newsletter...Our chapter office is receiving inquiries from other members about hosting other Restoration Branch events, so it appears that the word is spreading. Wonderful!

Looking forward to next year, our Chapter will be planting some very special chestnuts. A small number of B3F3 nuts from the Penn State Arboretum orchard and several thousand B1 nuts from a CMS orchard will be out planted in separate orchards. Good things continue to happen in our Chapter!

At the end of 2010 I will complete my two year term in office. As immediate past president I will still be active as head of the nominating committee and will be searching for volunteers to serve as Chapter officers on our board of directors. If you feel the need for a change of pace in your life and want to travel to new places in our two-state Chapter area, just contact me or our Chapter office. 814-863-7192 (www.patacf.org)Keep up the good work and thanks for all your wonderful efforts on behalf of the Chapter and TACF.



Alex tells the ABC23 Outdoors audience about the Boyd orchard, near Harrisburg, PA



Jay Hoar teaches children (and teachers) about the American chestnut at Outdoor Adventure Days at Quemahoning Reservoir. (not shown: Karen Danes) Each year the event draws more than 1200 people to explore natural and historic resources and inspires a new generation to protect them. See **"The American Chestnut for Students" on Facebook.**

Three Cheers for the Educators in our Ranks!

Pete Lane and students from Westtown school at their spring planting. Pete is also assisting new volunteer John Wenderoth at the Tyler Arboretum orchard in Media, PA.





Pest and Diseases Image Library, Bugwood.org

Ambrosia Beetle Infestation in Maryland and Pennsylvania

By: **Robert Strasser**
with edits by **Sara Fitzsimmons**

A new pest control challenge faced the Maryland Chapter in the spring of 2009, and it's been reported in Pennsylvania through 2009 and 2010 as well. These tiny brown and black insects called ambrosia beetles measure no more than a couple of millimeters in length and had not been observed in the MD chapter's orchards prior to 2008, when they were found on 25 trees in one site in the eastern piedmont near Davidsonville. Unfortunately, they appear to be spreading rapidly in the state and were found on about 100 more chestnut trees in five additional orchards across the central region of the state in May of 2009, primarily at two locations in Frederick County.

There are many types of ambrosia beetles, but the ones that are currently threatening most chestnuts at this time are the Black legged ambrosia beetle, *Xylosandrus germanus*, and the Asian ambrosia beetle, *Xyleborinus saxeseni*. There are native ambrosia beetles, but both of these are of foreign origin. Their Latin genus name refers to the ambrosia fungus which is their food, introduced when fertilized females bore into trees ranging from 1-10 cm in diameter. Typically, ambrosia beetles prefer to attack stressed trees before healthy ones, but this may not be the case with these exotic pests. Regardless, they are known to attack a wide range of woody



Figure 1: White powdery "frass" columns indicate possible Ambrosia beetle infestation. Picture courtesy Robert Strasser.

plants.

The most obvious sign of ambrosia beetle infestation is the white powdery frass columns which can be observed extending straight out from the main stems in the lower parts of trees for as much as an inch (see Figure 1). On closer examination, holes approximately 1mm in diameter can be located in the bark and wood. Frass is relatively short lived, lasting only until washed or blown off of the stems, so one may not know that infestation has taken place before it's too late.

Infested trees are often late in breaking bud, so that can be a good sign of infestation.

Ambrosia beetles can be controlled by a combination of removal of infested trees and permethrin spray applications. Cutting off trees at ground level and immediately burning the material destroys the eggs, larvae and adults which inhabit the galleries inside. Monitoring traps baited with alcohol are set out in late winter and through the growing season, and are useful for tracking beetle activity and for timing the permethrin applications. Average time between egg laying and the dispersal of mated female adults to new host trees is 55 days. It is not well understood how or where the beetles overwinter, and in some cases, two or even three generations may occur in the same growing season!!

The key to both of these controls mentioned above, however, is proper monitoring and identification of the pest in an orchard. Alcohol traps may be fashioned out of soda bottles, called a Baker trap (see Figure 2) or modified Japanese beetle traps. Several extension bulletins recommend something called Lindgren funnel traps. Once the beetles are captured, be sure to take the beetles to your local extension agent for proper identification.

¹<http://www.ces.ncsu.edu/depts/ent/notes/O%26T/trees/note111/note111.html>

Asian Ambrosia Beetle Trap

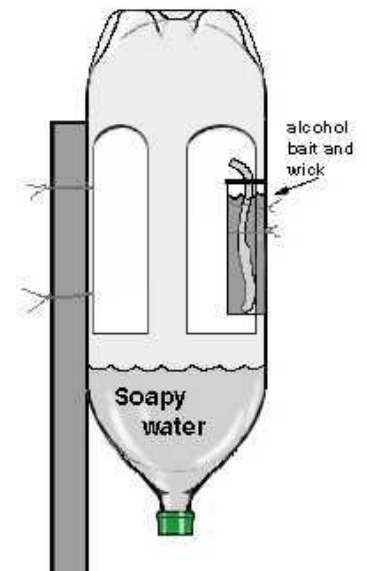
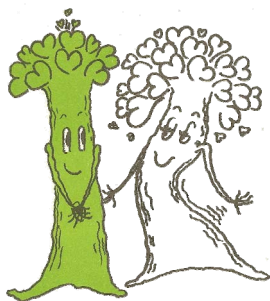


Figure 2: Sample Baker Trap¹, using alcohol and soda bottles may help to identify the Ambrosia beetle in your orchard.



BREEDING PROGRAM UPDATE

SARA FITZSIMMONS

*It was the best of field seasons.
It was the busiest of field seasons.*

With my apologies to Mr. Dickens, this was an incredible year in the field. Between the late freezes and frosts, long droughts, and countless volunteer hours helping log data, no one went for want of something to do this summer.

PLANTINGS

Several plantings went in the ground this year including a few demonstration orchards like the one at North Park near Pittsburgh. At the PSU Arboretum, about 1600 seedlings were planted. By planting seedlings this year, the critters were thwarted! Though extra care in the form of watering was needed during the hot months of June and July, I'm happy to report almost 95% survival of those seedlings. Many, many, many thanks to Paul Lupo, Jared Ernico, and Brendan Wilson for keeping them alive!

INOCULATIONS

For over four years now, TACF has been a part of ongoing efforts to identify the molecular backgrounds of resistance. PA-TACF played a key role in those efforts for the

past two years with a focus on the Graves B3 orchard in Rock Springs, PA, near Ag Progress Days.

In 2009, 9 volunteers logged 7 hours each of time collected leaf samples on every single tree. This year, over 15 volunteers helped inoculate those same trees over a period of three days. Another 8 helped measure the resulting cankers after 30 days. After 60 days, another 10 helped measure those cankers again. And, at 90 days, we already have 14 volunteers scheduled to help measure those cankers again.

In addition to the inoculation and canker measuring at Graves, we followed the same process at two orchards in New Jersey. Both of these orchards have Chinese chestnuts trees from a few different families. One is planted at Stokes State Forest and the other near Rosemont, NJ at Lark Nursery (see below).

Another 500 trees were inoculated at the Penn State Arboretum. Thankfully we didn't have to measure those cankers!

THANKS!

Many thanks to everyone who helped with all the field work this season. Special thanks to Jeff Krause and his crew at Raystown Lake; Don McCann, who hasn't missed an event in PA, yet; and to the NJ guys for braving some of the most harrowing weather.

NEWS FROM NEW JERSEY:



That's Joe Battersby from NJ Forestry Assoc pollinating a tree in Mount Laurel, New Jersey. He's on a 12 foot ladder using a 17ft pole!! Not Shown: Jennifer Bulava, Burlington County Park System.

We inoculated about 1000 Chinese chestnut trees between Lark Nursery in Stockton, NJ, and Stokes State Forest in Branchville, NJ in June. Many thanks to Clark Beebe, Bob Summersgill, and Les Nichols for braving the blazing sun, 92°F heat, poison ivy and wasps! All three volunteers came out to Stokes the next day with several other TACF members including John Kressbach and Ted and Dawn Del Guercio. Jack Shuart of NJ Forestry announced the event and 10 other volunteers came out to make short work of a big task.

NJ Forestry also started a large American chestnut orchard at their forest nursery in Jackson, NJ, with the objective to preserve the native NJ American chestnut lines. The Jackson orchard complements Deep Cut Park orchard in Middletown, NJ and which has about 50 trees. We have found several new survivor trees in Hartshorne Park, Middletown, and the Atlantic Highlands area that seem to have some resistance, showing healing cankers. If you would like to see any of these trees, or help with harvesting in New Jersey this fall, contact Tony Rosati at 732-673-1440 or e-mail ar728@comcast.net



Atlantic Highlands, NJ- American chestnut survivor found this summer

Atlantic Highlands, NJ- American chestnut survivor found this summer



Volunteer Spotlight

Dane Mitchell, by Gary Micsky



“One of the best examples of what makes volunteers a special part of the community.”

Dane Mitchell continues to be one of the best examples of what makes volunteers such a special part of the community. Not only can I depend on Dane for assisting in chestnut related activities, he usually recruits 2 - 3 additional volunteers. Dane is our Mr. Everything - Bur bagger, Pollinator, Pollen & Bur harvest/processor, Gall Collector, and my #1 assistant at multiple educational events. In addition, Dane currently serves as President of the Mercer County Cooperative Extension Board. Dane is a retired high school teacher who still enjoys learning new things and passing the knowledge along to others.



Dane helping to bag trees at the Haun orchard, Mercer County, PA.



Brendan Wilson, Sara Fitzsimmons, Rick Hartlieb (behind the tree) and Don McCann inoculate at the Graves orchard, PA Furnace. Thank you to the scores of volunteers who came out at the 30-day and 60-day intervals to measure cankers!

(photo right) Mont Alto students Mitch Oswald and Nate Rosenberg working at the Waynesboro Watershed planting. Photo courtesy of Peter Linehan. Project coordinator, Beth Brantley, Penn State Mont Alto.



***Welcome Back: Alex Kalanish of Central City, PA!* Thank you to the Garden Club of Englewood and Penn Cumberland Garden Club for your support!* Thank you Raystown Branch committee members for your hard work and enthusiasm.**



Robert Lingenfelter and Sara Fitzsimmons at the TNC West Branch campout/orchard maintenance event



This work crew has clocked thousands of hours towards chestnut restoration: Left to right: Tim Eck, Tim McKechnie, Dave Armstrong, and George Perry.



Mr. Day helps a visitor guess which wood is chestnut—and recruits a new member at Ag Progress Days in August. Thank you wagon tour drivers Paul Lupo and Tracey Harpster!

My Experience With Hypovirulence: Part Two

By PA Member, Mike Webb

bags, the kind used to keep things cold during transport. I just have to be careful the inoculum doesn't freeze.



Three dishes of EP 155. Far left uninfected; Middle, infected with CHV-1 (EP713); Right, Infected with Euro 7. Photo by Mark Double.

I grow the hypovirulent strains on PDA plates (potato dextrose agar in Petri dishes) available ready to use from Culture Media & Supplies.² I am always annoyed with the way the growth of the fungus is sometimes stunted on PDA. PDA from Culture Media & Supplies is normally pH = 5.6. Blight fungus grows best at pH = 4.³ I started ordering plates buffered at pH = 4. I don't have much problem with stunted growth now but it still happens. A special order is a 200 plate minimum. That isn't worth it if you only need a few but I think it is worth it for the amount I use. The price may be better.

When the fungi finish their growth, the plates are dumped in a blender with cold distilled water, 25mL per plate. They're blended to a nice, mostly smooth consistency. I use cold water because the mixture will start to warm up as the blender runs. Inoculum is stored in 50mL vials in the refrigerator. I try to take just enough with me each time. It is carried in an insulated lunch bag between two frozen reusable "ice"



Healed canker on large American chestnut at The Nature Conservancy's Harkness Preserve in Rockport, Maine. Note the inoculation holes along the left side where hypovirulent fungus had been applied in the 1970s.

It only warms up when it goes into the tree. Treated this way, it can be prepared in April and it will last the rest of the year. I use a 1/8 inch leather punch and hammer to make holes on the edge of the canker. I use an alcohol dip and flame sterilize the punch between trees. The inoculum is drawn up into a 6 mL syringe, about 2-3 mL at a time, through a fat 18 gage needle. The needle is removed. The syringe is carried in the bag with the vials to keep it cold.

Without the needle, the inoculum is injected from the syringe into the hole. The holes are covered with masking tape. Initial results were good. I became even more hopeful that with a good combination of strains in the inoculum I might keep many trees alive a long time. Then I started having some problems. Most of the GL43 trees are in an area that was cut in about 2000.

It is thick in the winter. It is much thicker in summer. It can be very hard to move through and find the tree that, "I know it has to be here!" I only covered about 110 trees by the end of the 1st summer.

**"I respect
C. parasitica.
It is very good
at what it
does."**

Some cankers couldn't be converted with what I had. Trees I had treated early were developing new cankers by the end of 2008. Some cankers that had started to heal now had spots on the edge where virulent blight was starting to emerge and expand. I think these are cases of new strains starting to grow in the old canker. I knew I had to concentrate on just a few trees so I could catch any new virulent infections early. I also was and am interested in improving the combination of hypovirulent strains I use.

Diana L. Mooji mentioned in her 1997 MS thesis 2 hypovirulent strains that together converted 43% of virulent strains paired with them.⁴ Each virulent strain represented a different compatibility group. That was too good to pass up. I contacted her adviser. He had the samples pulled from storage. Yes, they were viable. Unfortunately they were in

Ontario. OK, more paper work.

I applied for a permit to import them and after a very long wait I got them in April, 2009. They have the CHV-3 virus. They are an interesting contrast to the fungus infected with CHV-1. I now have a combination of hypovirulent strains that has been very effective in converting lethal virulent cankers to hypovirulent. It just doesn't work with every canker so it still needs to be improved. Also, it can't stop new in-



Hypovirulence cankers. Photo courtesy of Chandis Klinger

fections.

New ones start. I treat them. More start. I treat them. Keeping a few trees the size of large saplings or greater alive is steady work.

It would be much easier if the trees were in an orchard or yard where access is easy and I could walk from 1 to the next in less than a minute. But even in my backyard small cankers start and kill small sprouts faster than I notice them. I respect *C. parasitica*. It is very good at what it does. I know this is a losing battle but it is fun and it gets me out in the woods when I wouldn't otherwise go. I see things I wouldn't otherwise see like Pink Lady Slippers close to Mother's Day, large brown ants that farm aphids and aggressively defend their chestnut tree and the largest cicada emergence I'll ever see.

I really think hv is under utilized as a way to prolong the life of a tree valued because of potential for breeding or just because it is there. I plan to continue as long as I can.

Bill Lord, *A History of Hypovirulence*, <http://chestnut.cas.psu.edu/blight.htm>
<http://www.culturemediasupplies.com/>

Puhalla, John E.; Anagnostakis, Sandra L. *Genetics and nutritional requirements of Endothia parasitica*. *Phytopathology* (1971), 61(2), 169-73.

Mooji, Diana L., Master of Science thesis, *A prescriptive approach to using hypovirulence as a biological control of chestnut blight caused by Cryphonectria parasitica*. The University of Guelph, 1997.

Part One of *My Experience with Hypovirulence* appeared in Spring 2010 issue of The Chestnut Tree. Access it here: <http://sfr.psu.edu/public/chestnut/newsletters/pa-tacf-news>.

For more information, contact Mike at WebMi@yahoo.com

Chapter Wishlist: 2011

- A laptop for volunteer outreach
- Locate, and be awarded capacity-building grants!
- A chainsaw or two (our old ones are always breaking down)
- New microscope (We're borrowing one now)
- Camera for microscope (would be great to have for presentations)
- Measuring pole(s)
- Herbicides
- Landscape fabric
- Tree shelters (we needs about 2000 every spring for the Arboretum alone)
- Deer fencing
- Inoculation supplies: petri dishes, agar, alcohol, cork borers, etc



Summer drought stresses seedlings and volunteers! Jared Ernico, Paul Lupo and Brendan Wilson watered the B3F2 chestnut seedlings at the Arboretum at Penn State during the heat wave in July.



**Pennsylvania Chapter
The American Chestnut Foundation**

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University Park, PA 16802

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The Chestnut Tree Newsletter



Ken Allshouse shows scouts a scion at his spring planting at North Park in Allegheny County, PA.

**Chapter Calendar -
Fall 2010**



August 21: Restoration Branch, Raystown Lake, Huntingdon, PA

September 14: A Forest Stewards Webinar. Sign up at <http://rnrext.cas.psu.edu/PAForestWeb/>

October 2: Silver Lake Nature Center display

October 15-17 TACF Annual Meeting, Shepherdstown, WV.

October: Harvest Time around the state.

November 6: PA-TACF Fall Meeting, Mercer, PA

January 8-15, 2011: PA Farm Show, Harrisburg, PA



*This issue is dedicated in memory of long-time member **David Roy Pencoske**, of McKeesport, PA.. David wrote in his journals that he "hoped to have the opportunity to walk in a grove of American chestnut trees."*

Thanks to a generous donation made by his brother, Edward Pencoske, a chestnut orchard will be established in David's name.

