DEDICATED TO RESTORING THE AMERICAN

Chestnut Tree

The Pennsylvania Chapter of
The American Chestnut Foundation

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Fall Member Meeting : Saturday, November 1 Community Arts Center, Williamsport

Forest Management Decision Tools, Seed Predation, and Insect Pollination Top List at Annual Fall Meeting.

Dr. Michael Steele, Keynote

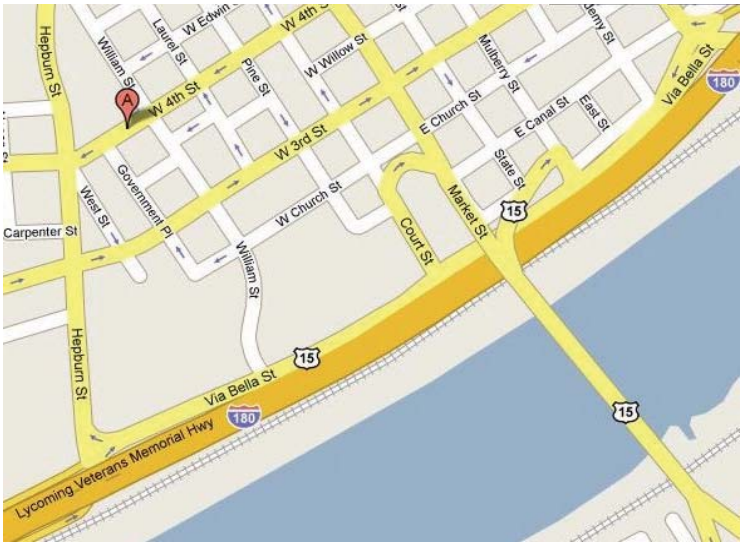
Join us at the historic Community Arts Center in Williamsport, PA for our annual fall meeting, from 9:00 a.m to 3:00 p.m. Lunch and refreshments will be provided for a donation of $10.00 per person. The meeting will be in the Capital Lounge on the Mezzanine Level (second floor of the theatre) You can access the room by taking the elevator located in the Outer Lobby to 2R.

Dr. Michael A. Steele of Wilkes University is our keynote speaker. His presentation will be on his research with seed predation. We are pleased to have **The Nature Conservancy** present an overview of its Forest Decision Tool, and **Dr. Bill Lord** on the impact of insects and wind on chestnut pollination. (see page 4)

The meeting will also include opening remarks from our Chapter President, Chandis Klinger, and Sara Fitzsimmons will provide a breeding update and summary of her chestnut research trip to China. If you have a question for our group, or wish to share an item of interest, there will be an open Q+A throughout the day. If you are a new member, or interested in becoming a member, this meeting is a great place to learn about PA-TACF and our mission. Hope to see you there!

In the event of snow, please call the Leffel Center at 814-863-7192 for a recorded message about the meeting or join the PA-TACF listserv to keep up to date.

Meeting Location:
Community Arts Center
220 West Fourth Street
Williamsport, PA 17701
800-432-9382
For a map of parking locations:
http:// www.parkwilliamsport.com/
For detailed directions to the CAC:
http://www.pct.edu/COMMARTS/



Parking is free on Saturdays! Williamsport's two parking decks are located on Third Street. There are also a variety of parking lots and adequate on-street parking you may access. The Arts Center is between William Street and Hepburn, only a block or two away.

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President's Corner

By Chandis Klinger

This year, our 25th year of existence, has been a productive and busy year. Many thanks to the 1000+ PA/NJ members and volunteers who do the work of ground preparation, sowing, maintenance, pollinating, harvesting, and also the office staff to coordinate the program. Without your cooperative effort, it would not be possible.

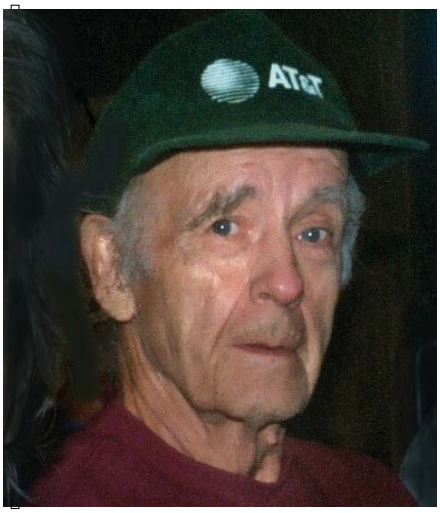
Part of the 25th celebration is walking the Appalachian Trail. Thanks to Tracy Coulter for coordinating the effort through PA and we thank the volunteer walkers who walked the trail. Walkers were responsible to note American chestnut trees along the trail. There are 228.8 miles of trail in PA and we expect every mile to be walked at least once. There will be more celebration at the annual TACF meeting in Chattanooga on October 25 and 26.

We received several grants. The Hardwood Development Council (HDC) provided us with $4000 to hire a summer intern to assist Sara, our breeding coordinator, and a supply of "FROM THE WOODS" pamphlets. We also received a $10,000 grant from an anonymous donor. This grant provides operational support and a portion of a summer hire in 2009.

For years, Tim Eck has been planning to establish a 5th generation Graves seed orchard at the Lancaster County Conservancy. This year he got a $25,000 ALCOA grant and established the start of the orchard. The project partners with the National Wild Turkey Federation, Pennsylvania Game Commission, Izaak Walton League, Chestnut Grove Foundation, and several local businesses. In 5 years we expect to start harvesting B3F3 highly blight resistant nuts from these Grave line trees. The conservancy has agreed to consolidate the CMS on the property for the next CMS generation. Because of their strong infrastructure, the conservancy is an ideal cooperator for these programs. We expect to have the relationship to continue and improve into the future.

In the Arboretum at Penn State, an additional 1000 seed were sown. While we got a few B3F3 nuts this past year, it will be a few more years until we get better nuts with more diversity.

My term of presidency will expire at the end of this year and this is my last Presidents Corner to write. I thank you for allowing me to serve you for the past 2 years. It has been an enjoyable experience. I especially thank Sara and Sue for their outstanding support.



This issue is dedicated to the memory of Joseph Planinsek, chestnut advocate, PA chapter volunteer, and friend . Thank you for all your work and support.

Joseph Planinsek
Jan. 17, 1923 -Nov. 1, 2007

2009 Chapter Wishlist:

Bucket trucks are needed for spring pollinations in Passaic County, New Jersey. If you know of a local fire company, electric company, or arborist that would like to donate equipment for a day, or would like to help find one, contact Ron Farr at farrforest@yahoo.com or call the Leffel Center at 814-863-7192

Weevil Woes by Sara Fitzsimmons

The little worms are the larvae of the chestnut weevil. There are two types of weevils, the lesser and the larger, each of which fly around starting at different times. The lesser emerges and starts flying around in May/June; the greater emerges around in August/ September/October. From what I understand, spraying is difficult to time. I think the gist is to get the weevils in their adult form before they can oviposit in the developing nuts. Killing all of them can be difficult. Most everyone I know recommends good sanitation practices (described below) in addition to, or opposed to, spraying.

You can see the adults of both species of weevils by looking here: http://www.insectimages.org/search/action.cfm?q=chestnut%20weevil They're actually kind of cute, really. They oviposit eggs into the nuts about when they're going to be ripe, the greater ovipositing just before the lesser.

> "The best way to control the worms is to heat treat the nuts as soon as possible after harvest."

The best way to control the worms is to heat treat the nuts as soon as possible after harvest. It works by heating up the weevil egg/larvae to a degree that it dies. The weevil will not die below something like 117°F-, whereas the embryo will die around 123°F+. The protocol calls for 120°F for 20minutes. I usually can just use tap water and a candy thermometer. I fill a large pot w/ water, making sure it's up around 120°F-121°F and then keep adding hot water from the tap as needed to keep it at least 120°F.

*Photos courtesy Ric Bessin, University of Kentucky Entomology*http://www.ca.uky.edu/entomology/entfacts/ef206.asp

Good sanitation measures all the way around will help significantly in reducing weevil populations. Removing not only the nuts, but the husks and leaves every fall can help reduce populations. This should be done for about 3 years in a row, as weevil larvae can overwinter in the soil for 2-3 years following emergence from the nut. Some growers of large orchards of Chinese chestnuts suggest releasing chickens or guineas under the trees to eat the weevil larvae.

You can spray, but this is tricky. The best time to spray tends to be when the weevils are active and flying around, and before they've mated and started laying eggs. The protocol as defined by Dr. Sandra Anagnostakis (of the Connecticut Agricultural Experiment Station) and Dr. Greg Miller (of the Empire Chestnut Company in Ohio) is to spray weekly during the last month of nut ripening -- in Pennsylvania, this would be the last week of August (in the farthest southern reaches) throughout September. (http://www.ct.gov/caes/cwp/view.asp?a=2815&q=376866)

Going Green Night at the State College Spikes game.
Standing, L to R: Ben Burns, Phyllis Burns, Bill Burns , Chandis Klinger, Violet Klinger, Jason Whitney, Robert Lingenfelter ;Seated, L to R: Anne Whitney, Alex Day, Sandy Day

Your Vote Counts 2009 Election Ballots

Look for your 2009 Board election ballots in the mail. Nominees for the Vice president position and 3 board member positions are included on the ballot.

Chestnut Pollination: Wind or Insect? By Dr. William Lord

A review of the table to the right shows that the chestnut has traits more adaptable to insect than to wind or air borne pollination.

Wind/Air Pollinated traits	Insect Pollinated traits
Color of flower = no advantage	Color of flower attracts insects
Odor of flower = no advantage	Odor attracts insects
Nectar of no advantage	Nectar attracts insects and draws them into contact with stamens and stigmas
Copious pollen	Nutritious pollen
Pollen, small, light weight, smooth exterior	Size not a factor. Irregular exterior
Large, exposed stigma	Size of stigma less important than location accessible to insects
Bloom before leaves, cool, windy	Bloom after leaves, warm, not windy
Simple flower structure, not petals	Petals serve as perch for insects
Flowers hanging free as in catkins	Catkin form of no advantage to insects
Location of stigma and anther not important	Stigma and anthers close to each other, as in a perfect or complete flower facilitates insect pollination

The chestnut flower has a bright cream color, a visual signal for insects. It has a strong odor, described by some as fetid, but highly attractive to insects. The nectar of the European chestnut attracts bee keepers who transport their hives to chestnut groves in bloom to produce a gourmet brand of honey. The nectar is less preferred by bees than that of other current flowers and the bee keepers locate their hives with this in mind. Nonetheless, enough nectar is collected to maintain a going enterprise.

The pollen is also very nutritious and a wide variety of insects come to feed. The chestnut has a very small stigma, the site where pollen first lands to effect germination. A small stigma is not conducive to wind pollination. The chestnut blooms in late spring, early summer when the weather is warm and less windy and more adapted for insect activity. The tree is in full leaf, no hindrance to insects, but not favorable for wind pollination. Pollen, small in size and with a smooth exterior favor wind pollination. Large pollen with a rough exterior is adapted to sticking to an insect. In this regard chestnut pollen in very small, about 15 microns in length, and with a smooth exterior. However, chestnut pollen is described as "heavy" or sticky," presumably due to the clumping of pollen by nectar.

The closely related oaks are much more suited for wind pollination. The pollen is larger, about 45 microns in length, but they have smooth exteriors. The flowers bloom in early spring before the leaves have developed. The staminate flowers hang freely from branch ends in pendant catkins and release their pollen to a vigorous wind facilitating contact with the female flowers located separately on the outer twigs and branches.

A) Assassin bug (Reduviidae Family): a beneficial insect that preys on other insect eggs, larvae and adults; B) Tumbling flower beetle (*Mordella* sp.): feeds on pollen of several species, including chestnut. C) leatherwings (*Chauliognathus* sp): also known as soldier beetles: feed on pollen, eggs and larvae of other insects; photos courtesy of Tim Eck

....Continued from page 4

In contrast, chestnut air borne pollen depends more on drifting convection currents. They ascend with sun-warmed air in the morning and descend with the coolness of evening. In this manner it encourages and maintains chestnut growing in pure stands on mountain slopes and hill sides. Rising air would carry pollen into trees higher on the slope, and when the air cooled, it would bring pollen downward, resulting in an overall mix of pollen throughout the stand.

"The evidence supports that chestnut pollination is air borne and by insects"

The evidence supports that chestnut pollination is air borne and by insects.

In nature change is an ongoing process to adapt and survive. Which way, if any, is the chestnut adapting, more toward air borne or more to insect pollination? Gray's Manual of Botany, 8th edition, 1950, describes the "Pistillate flowers" with "abortive stamens 5-12". This would indicate that the female flower which occurs at the base of the bisexual catkin, was once a perfect flower. Complete or perfect flowers with petals support and attract insects.

There are two pollination studies by European scientists, "Investigations on Chestnut Pollination " by A. Manino et al., Proceedings of the 6th Pollination Symposium, 1991. And " Importance of Insect Pollinators for the Production in the Chestnut", D. de Oliveira et al., Proceedings of the 8th Pollination Symposium, 2001.

The first study concluded that flowering branches accessible to insects produced a better nut crop than caged flowering branches that prevented insect contact. Wind pollination also occurred. "The honeybees resulted to be the most abundant insects, followed by beetles, especially cerambycids [horned beetles], syrphid [hovering] flies, and bumble bees, while the other insects, including butterflies, were more occasional.

The second study concluded that, "…we can advance that the chestnut tree is a entomophilous species and that insects are responsible for the majority of the production of the chestnuts." Neither study described actual insect pollination.
Editors note: Hear Dr. Lord speaking on this topic at the fall meeting, November 1, in Williamsport, PA.

News From New Jersey
...by Tony Rosati

Pollination work was done at Holmdel and Tindall Park. Tindall has a population of flowering American chestnut trees that appear to have some blight resistance. The Monmouth Shade Tree Commission and Monmouth County Park System and the PA-TACF have teamed for this work. The Shade Tree Commission support is essential in providing equipment, park access and expertise.

A small orchard of Americans was planted in Deep Cut Gardens County Park, which is deer fenced. Seed from the disease-resistant Americans from Tindall park was used. A deer fenced arboretum is also being planned in Holmdel Park and specimen trees will be planted there. The Park System is a strong supporter of the PA-TACF program efforts.

John Kressbach stands next to a 3-year-old F1 at the Schooley's Mountain orchard, New Jersey.

Hiking for the American Chestnut

PA Chapter treks 639 miles of the AT

by Tracey Coulter

Nancy Hall at the midway point near Pine Grove Furnace

As of mid-August, with 37 hikers reporting, we have covered 639 miles. That's nearly three times the entire length (229 miles) of the Appalachian Trail in Pennsylvania! Great job! **Many thanks to all of you who have already reported your miles and your tree counts.** For the rest of us, (I have 14 miles to go yet) we still have a few weeks before October, leaf fall, and the annual meeting in Chattanooga. There is no limit to the number of hikers we can record – the idea is to get out – to enjoy this amazing trail and a tree that once helped to sustain life along it.

> "...there are tales of bee trees, timber rattlers, and beautiful vistas."

The Trail is fertile ground for generating stories. Mostly I hear about sore feet and tired muscles, but then there are tales of bee trees, timber rattlers, and beautiful vistas, as well as chats with through-hikers that are "going to Maine", and who have never heard the saga of the American chestnut. And then there are the trees...

Mostly small trees – few exceeding the 24" circumference required to qualify as a "large" tree. The 15' distance from the trail frustrated some surveyors – "there was this tree just outside the 15' mark. I couldn't count it, but I noted it anyway." Consistent data collection has its downside. There still are a few sections available for the chestnut survey. Please contact Sue at the Leffel Center if you are interested in taking on a section. On the other hand, if simply want to "Walk a Mile for TACF", please send your name (and anyone else in and miles walked to me at trcoulter@state.pa.us.

Get out and enjoy the Fall in Pennsylvania!

Around the state in 80 Days:

Penn State intern, Dan Wilson

Hi TACF members! My name is Dan Wilson and I have been lucky enough to spend my summer working for TACF under Sara Fitzsimmons as an intern. I started out the summer knowing little to nothing at all about The American Chestnut and its demise throughout its eastern home range, but have gained an immense amount of knowledge through the teachings of Sara and also help through the volunteers within the organization. I traveled around Pennsylvania and some bordering states in order to see different generations of trees and the differences each displayed, then understanding much more of the how the program works. I then had the pleasure of meeting some very nice and accommodating members and hardworking volunteers in order to bag the female burs for the controlled pollination of the trees. When it was time for the pollination of these trees I traveled back to these orchards and with the much appreciated help of some members these trees were then pollinated. When selected orchards were ready for inoculation, Sara and I headed out and with the help of other interns and volunteers, we were able to inoculate orchards with the selected fungi. I helped in the inoculation of Blair's B3F2 orchard where I finally saw how the breeding program was in effect with the growth and American traits of the trees further into backcross program. I was not just involved in the breeding program of the chestnuts I also was involved in the maintenance and the Penn State area. Along with help we cut grass, weeded and spayed the orchards in order to keep the aesthetic value alive along with keeping pests in control. *...Continued next page 7*

Terrific Treehouses event at Tyler Arboretum, Delaware County: Al Eelman, Lloyd Lupfer, and a visitor from another booth. Missing from picture: Peter and Juliet Lane.

I also had the opportunity to practice public speaking skills when I was asked to present to the very accommodating, and friendly Susquehanna Trail Society. This was my first public speaking venue and from the preparation for the speech I gained a large amount of knowledge about the breeding program, and also gained confidence when speaking to large crowds. I also got some public speaking exposure from the listening end, when I attended Kelly Deitrick's thesis defense dealing with the American Chestnut, and saw what it would take in order to achieve higher levels of education.

"I met many caring, nice people along my journey this summer-- the kind that you don't come in contact with in a lot of other fields"

This internship proved to be a great experience for me, and hopefully everyone I encountered during. I met many caring ,nice people along my journey this summer, the kind that you don't come in contact with in a lot of other fields and for that I am grateful, it's nice to know they are still out there. I believe this experience was rewarding for me to see in inner workings of a non-profit organization, and I saw the passion for the mission of TACF and all its members reflected by the Board. I would like to formally thank Sara and TACF for the opportunity to intern this summer, and also the Lanes, Saufleys, and Carbaughs for the hospitality I was shown on during our day and overnight trips. Also the volunteers that helped me everywhere I had the pleasure to work with them, the help was much appreciated. Thanks for a very informational and rewarding summer! *Editors note*: *Readers can reach Dan at djw5010@psu.edu*

Volunteers that care: from the left, Inoculation volunteers at Quakake BC1 orchard, Schuykill county (Jim Schuetrumpf, Jack Shafer, Vicki Brownell, Joe Lankalis, and Nancy Kyle); Bob Summersgill waters at Mt Paul, NJ, students at Westtown school, Chester County ring soil and planting in the spring.

Gary Micsky at the base of the Beagle Club tree in Sharpesville

Volunteer Spotlight: Gary Micsky

submitted by Tracey Coulter

Gary Micsky is a doer. Gary's plate was brim-full with a family, a farm, and a more than full-time job as an Extension educator when he completed his graduate degree in 2005. When I asked folks to talk about Gary, what they most often mentioned was his dedication and commitment to whatever he undertook. Fortunately for us, Gary has a passion for restoring the American chestnut. Gary was instrumental in organizing Mercer County volunteers to assist with locating, pollinating, collecting and growing American chestnuts.

Gary currently serves as Interim Mercer County Extension Director, coordinates local PA-TACF and Master Well Owner programs, educates 4-H youth, and is active the Mercer County Woodland Owner's Association. Jim Hissom, Mercer County PA-TACF grower and frequent tour host, calls Gary "the busiest guy in extension". Whether it's using his sharp-shooting skills to pollinate trees*, collecting seed, coordinating chestnut training, or sharing his enthusiasm for chestnut restoration, Gary is the energy behind the growing chestnut program in Mercer County.

*(*This year, Gary reported that marksmanship surpassed 100%, as 2 balloons exploded prior to trigger pull.)*

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

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The Chestnut Tree Newsletter

BREEDING UPDATE[1]

Sara Fitzsimmons

As you can see from the rest of this issue of the newsletter, there's been an incredible amount of work being done by our members and volunteers. Many thanks to you all!! But it doesn't leave lot of room here! I'll try and be brief—but I'll be less so in the next issue!

1. **Planting:** Several new orchards were established this spring, along with replants of other orchards. With the help of Bob Summersgill and Tom Pugel, we expanded the Johnson orchard in New Jersey. We also installed a demo w/ WPC near Fallingwater in western PA.
2. **Inoculations**: We had several great inoculation events this year. We inoculated another orchard of B3F2s at the Carbaugh's orchard. At that event, we had the VA and MD Chapter interns come and help. We had a diverse crowd come to help at the Quakake inoculations—many thanks to them (page 7). And we completed inoculations at the Kuhns BC3 planting.
3. **Pollinations:** A focus on pollinations this years was toward making B3F2 seed though some new F1 pollinations were created in the west. We'll look for a new push of these next summer.

Harvest time is approaching!

Harvesting at Highland Park,BC2 F2 orchard, Pittsburgh PA, photos courtesy of member/volunteer John Hempel

Want to help harvest? If you would like to help in your area, watch for notices on the PA email listserv or call the Leffel Center at 814-863-7192. We'll need help throughout the state!!

[1]*For basic information on TACF's breeding program, visit: http://www.acf.org/r_r.htm and http://www.acf.org/Q&A.htm*