

DEDICATED TO RESTORING THE AMERICAN

Chestnut Tree

The Pennsylvania Chapter of
The American Chestnut



The Kelley Tree.
90 Year Old Survivor in Camp Hill, PA.
24" DBH
Pollinated and harvested in 1999.

Volume 5 Number 2

Printing of the *Chestnut Tree Newsletter* is courtesy of The News Printing Company of Claysburg, PA

June 2000

Mailing cost of this newsletter is courtesy of The National Tree Trust, Washington, DC

Mont Alto Member's Meeting on April 7th and 8th was a Great Success!!

The Mont Alto Campus of Pennsylvania State University was the scene of a very enthusiastic meeting of 91 PA members including TACF members from MD, DE, NY and representatives from the TACF Staff. The theme for the meeting emphasized the close working relationship of the Chapter with both Penn State University (PSU) and the PA Department of Conservation and Natural Resources (DCNR). The guest speaker

was **Alex Day**, PA Chapter member and Tree Nursery Manager for DCNR who gave an in-depth presentation of forestry in PA today.

The afternoon workshops included a campus planting of several generations of chestnut trees with three large signs to explain the history and recovery of American chestnuts. Even a heavy rain storm at lunchtime didn't dampen the spirit of the meeting.

The **staff at Mont Alto** went that "extra mile" to insure our comfort and outstanding support. **Thanks**

TACF recently received a letter from Norman Borlaugh, Nobel Laureate, one of the Founding Directors of The American Chestnut Foundation and now a TACF Honorary Board Member.

An excerpt from his letter:

"..... I have been fascinated by the progress that has been made in the incorporation of blight resistance into the American Chestnut. All who have collaborated in this adventure, are to be congratulated for the progress that has been achieved.

I can fully appreciate the importance of this project, for I was a young forester working at the Northeastern Forest Experiment Station in the early 1930s when the



The PA-TACF Chapter meeting at the Mont Alto Campus, PSU General Studies Hall on April 8th

last of the big chestnuts were being killed by the blight. I was too young and inexperienced at that time, to really understand its implications. But as I continued my studies, and especially when I went into plant pathology, I came to realize what a disaster I had visioned in those early years.

After shifting from my forestry career to genetics and plant pathology and breeding of wheat, where I worked in innumerable countries around the world, I have come to appreciate the great genetic variation in pathogens of our crop and forest trees. For that reason, I am especially fascinated by the work you are doing.

With best wishes for continued success on this very worthy program—the TACF Breeding Program for incorporating chestnut blight resistance into the American Chestnut—I remain,
Sincerely, Norman E. Borlaugh"

Kirkland Tree Planted at Shippensburg University

The winter issue of the TACF Journal had a memorial to **Dr. Gordon Kirkland**, a member and supporter of the American chestnut cause. The Pa Chapter provided a 'Nanking' Chinese chestnut tree, via Dr. Greg Miller, to the University which was planted in a ceremony honoring Dr Kirkland on April 5th.



PA Chapter Leadership - Nominations and Elections

Elections of Chapter officers by our membership will be held this year. A recently appointed nominating committee is seeking volunteers and nominations from the general membership. There are several positions to be filled and we would like to have at least two candidates for each of the six following positions: Chapter President, Vice President, Board Coordinators for Data Management, Education, Communications, and Finance. These coordinators need not be technically qualified in those functions, but only able to pull together committees and action personnel to accomplish the function.

All these positions are for a two year term. The Vice President will also be the President Elect and will serve as the President after two years.

Please help by volunteering as a candidate or nominating a member. Call any member of the Nominating Committee as soon as possible. Their names and phone numbers are:

President Al Eelman - (610) 558-9480

Ann Leffel - (717) 927-9557

Bill Lord - (412) 793-0255

Tom Pugel - (610) 346-6198

Dave Armstrong - (717) 852-0035

Election Schedule:

This NL: Volunteers and Nominees Requested From members

September NL: A ballot with candidate's information published

November Member's Meeting: Officers installed

Executive Board Meeting Results

The Executive Board met on April 7th after the Coordinator's meeting at Mont Alta and discussed the following agenda items.

1. Breeding Program. Dr. Bob Leffel, Chapter Scientist outlined a proposal to pollinate American trees throughout PA this year. See his article on page 4.

2. Financial Report. As of March 19, this year's income for the PA Chapter's income was \$7301.68 and the expenses were \$1813.62 for a net increase of \$5488.06. Total current assets amounted to \$27,073.71. Our income was helped by three grants totaling \$6666.00 from Exxon Corp, The Wild Turkey Federation, and the National Tree Trust.

3. Farm Show 2001. We discussed moving the location of our exhibit from the Farm & Family Section on the 2nd floor to the Main Exhibit Area on the first floor. The board approved a change for 2001 as a one-year evaluation

4. Reorganization. The results of the member balloting from the December newsletter were that 85 votes were received, all approving the reorganization. The Board reviewed a chart of the reorganization and discussed the need to have additional board members. A motion was made and approved that we would have no less than nine and no more than sixteen positions on the board to allow for future changes. But we would fill them only if needed for additional Chapter Functional Coordinators. Elections will be necessary this year for a President, Vice President/President Elect, and four* Board Directors. Three Board members will serve out their terms through 2001.

(*Current Board Member Ann Leffel will fill the new position of Director of The Tree Breeding Program. Board Member Tom Pugel selected the position of Director of Membership. Board Member Bill Peifer agreed to stay on.

5. Bylaws . A draft copy of the Articles of Incorporation and Bylaws was distributed for review and comment.

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(PA-TACF)

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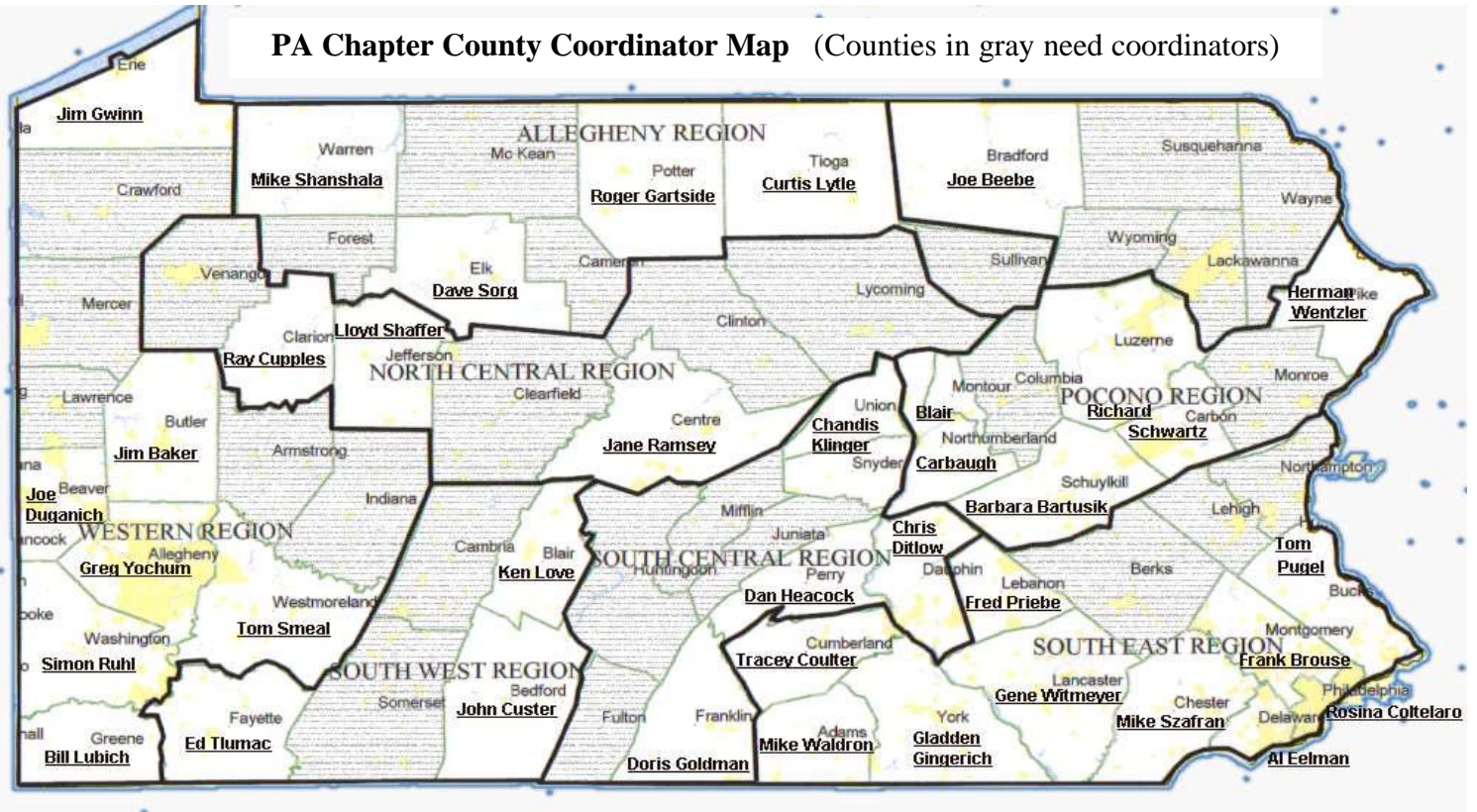
The Chestnut Tree newsletter is published four times a year, March, June, August and December, by the Pennsylvania Chapter of The American Chestnut Foundation.

The PA Chapter bylaws provide for an Executive Board composed of four officers and six board members. The Board meets several times per year. The Region

Coordinators are invited to participate in meetings. All members are invited and encouraged to attend meetings.

TACF was founded in 1983 as a 501(c)(3) non-profit organization. Its sole goal is to restore the American chestnut tree through co-operative research and a scientific breeding program.

We do not discriminate with regard to race, religion, color, natural origin, gender, age, or disability.



County Coordinators are the Backbone of PA-TACF

such as: American chestnut tree location, planting site selection, chestnut displays and presentations, pollination, harvesting, membership, and other member activities. The Region Coordinators and the PA Chapter provide support and assistance to the county coordinator as requested.

Currently we have 36 County coordinators covering 40 PA counties out of 67 as shown on the map above. **If your county has no coordinator, please consider volunteering. We can use the help.**



County and Region Coordinator Meeting on April 7th, at Mont Alto, PA. Attended by 31 coordinators and key personnel discussing methods for working in their local areas. Pictured L. to R. are Dr Ron Stanley, Tom Pugel, Mary Stanley, Eugene Witmeyer, Dr. Bill Lord, Mike Szafran, John Custer, George Dickum, and Tracey Coulter.

PA-TACF Purchases an Easy-Up Shelter for Outdoor Events



The easy-up shelter for outdoor events opens in 60 seconds; is portable and has a back curtain for windbreak. Available at the York office

Much of the future success in leadership and the tree breeding program of the Chapter is in the hands of a group of local coordinators. These grassroots volunteers are extending the Chapter functions down to the county level. They do the vital coordinating work with our members in the counties



From the Chapter Scientist: **PA-TACF Year 2000 Research Program - Dr. Bob Leffel**

Our members and cooperators have seeded or transplanted our Year 2000 orchards, our sixth season of operation! We've seeded 4846 'Clapper' BC3's; 886 'Graves' BC3's; 466 BC2's; and 577



The Leffel Farm is now the Back Cross Farm. Ann & Bob are shown with Ann's mother Margaret Green and Sara Fitzsimmons, Intern from Duke University

BC1's since 1995, a total of 6775 BC seed plus checks — plus thousands of seed from PA-American chestnut trees in PA-American nurseries.

**N O W ,
G R O W — with best cultural practices — trees eligible for inoculation in their 5th or 6th growing season (1 1/8 inch DBH or greater). We'll inoculate some of the trees in the 1995 Reineman**

Wildlife Sanctuary BC1 orchard — and also the trees in the 1996 Brogue BC3 orchard — this year!

Drs. Hebard and Sisco recommend that we complete the hybridization involving the Graves source of resistance this year. Utilize new, verified PA-

Americans if available, but those previously used for Clapper BC3's may be used if others are not available. The August 1999 Review of TACF Breeding Program recommended the utilization of new sources of resistance to chestnut blight. Thus, we plan to create multiple-sources of resistant germplasm, utilizing the phenomenon of cytoplasmic-genetic male sterility reported by Shi and Hebard (Journal of TACF 11 (1) 38-47.1997) and open pollination of selected populations. It appears that the American chestnut carries sterile cytoplasm and the Chinese chestnut carries the nuclear dominant gene(s) that interact with the sterile cytoplasm to produce male sterility. Shi and Hebard found that (Chinese x American) F-1's were male fertile but (American x Chinese) F-1's were male sterile (no anthers). We want to confirm this by making our crosses this year reciprocally, i.e., CxA and AxC, 10 seeds for each cross. We should be able to utilize this system of sterility in breeding: in backcrossing, we should be able to select for or against male sterility as we need to. Initially in F-1 and first generation(s) of backcrossing, we will select for male sterility and outcross via open pollination with a different population of PA-American chestnuts each generation. Each BC generation should segregate for male sterility and male fertility, allowing us to eliminate male sterility and select for male fertility upon recovery of American phenotype. This will be

Champion Chestnut Trees

Pennsylvania Forestry Association is working on a new issue of *Big Trees of Pennsylvania*. Since the two former state champion American chestnut trees died, we have been seeking a new state champion. Only one tree has been nominated so far. It is in Sproul State Forest and has a circumference of 57 inches at breast height estimated height of 105 ft., and an average crown spread of 35 ½ feet. If you find a bigger tree and would like to nominate it we would like to hear about it. While you are searching for flowering trees, take your measuring tape with you.

It's a Passion!!

We quote from a letter from member **Chris Cassel**, Horticulture Instructor, Milton Hershey School, after his visit to Brogue Nursery with students, Brent and Melissa, and Greenhouse Manager Steve: "Thanks for having us down to tour your Nursery. We learned a lot in the short

visit. Seeing your nursery helped to show us exactly how much time and energy you have put into this project.

Brent made a comment to me on the way home that I thought I should share with you. He said that the American Chestnut Project is one of the most unselfish acts that he has ever seen.

You and your husband (Ann & Bob Leffel) are putting all of this time and energy into something that you will never truly see the rewards from. It was great to be able to show my students that everything is not about money, but doing what you enjoy and love."

It is with great sorrow that we report the death of member **Bob Harrison** of York County in April. Bob was one of our American nursery growers. Even though he was unable to care for his planting this last year due to illness, he still worked at advancing the Foundation by doing all he could to recruit new members and encourage new



The Grower's Corner

Tips on and Experiences of Planting, Pollinating, Harvesting and Nut Storage from around Pennsylvania

Storing Chestnuts the Natural Way

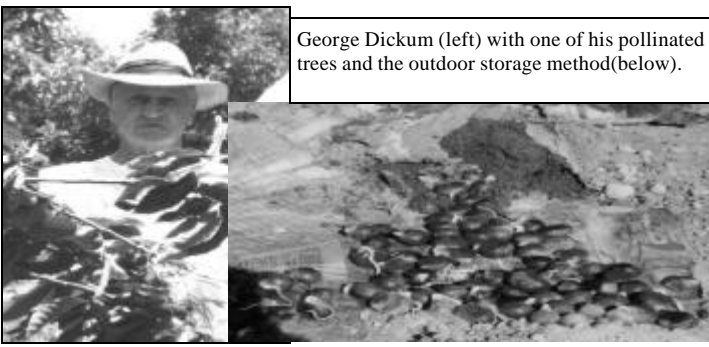
by: George Dickum

George is a member of the Northern Nut Growers and a loyal supporter of PA-TACF.

At the Bedford County Nursery, we stored chestnuts that were picked up soon after they dropped to the ground. We cleaned and stored them in a pretzel can that was lined with newspaper - bottom, sides and top. The paper was in 6-8 sheet layers and not moistened. The container was placed in a refrigerator until early spring. The lid was removed periodically to check for mold and some were eaten. We found that as the chestnuts stratified, they became much sweeter. Any with mold were washed in one gallon of water mixed with 2 tablespoons of Clorox bleach then rinsed in cold water.

Stratification of another batch of chestnuts was done outside naturally. We dug a 4'x4' area about two inches deep. The bottom was covered with six to eight layers of newspaper. Chestnuts were then placed on the paper in a single layer, covered with more newspaper and a plastic fly screen for rodent protection.

In early March, we peeked in and happily found clean nuts with sprouting roots. There was also no problem with mold or predators.



George Dickum (left) with one of his pollinated trees and the outdoor storage method(below).

Bagging and Pollinating Chestnuts

From: *TACF Sheet POLLINATION: Making Controlled Pollination of Chestnut, dated Summer 1995.*

(Copies can be requested from the York office)

Chestnut flowers to be pollinated will have to be covered with a bag (corn shoot bag) to exclude random airborne pollen from fertilizing or blocking them. Bag female flowers (burs) when they have

exerted their styles 3-5 mm or about 1/8 inch.

Remove all male catkins and most leaves around the

the bur plus



male part of the bisexual catkin.

In general, pollinate 12 days after bagging. The female flowers are receptive when the styles turn yellow and spread across the top of the bur. Replace the bag and leave until September harvest. Control bags are used to tell if you have had contamination from another source. They are not removed at pollination time. Be sure to record all your data and mark the bags. Pollen and pollination supplies can be obtained from the Leffels.

Chestnut Orchard Maintenance

Weed Control

At the Codorus State Park in York County, **Dave Armstrong** is experimenting with commercial black mats to control weeds. By folding the mats two or three folds toward the center, it is easier to pin and prevents mowers from catching the edges. It is easier and safer to use a herbicide around the edge of the mats rather than closer to the tree. If herbicide is used close to the tree tube Dave recommends closing the tie holes with caulking compound or masking tape.

Tree Tubes

Titled Proceedings of the Tree Shelter Conference June 20 -22 1995 published by the USDA noted "Five foot long clear acrylic and brown shelters, 4 inches in diameter, were used to shelter the red oak seedlings. Height growth of red oak seedlings in the control and clear tree shelter groups was significantly greater than the brown plastic shelters." "Clear tree shelters transmitted almost twice as much photo synthetically active radiation as brown plastic shelters. Red oak seedling growth was greater in the clear shelters when compared to brown shelters." **Bob Summersgill's** observations on white tree shelters was the noticeably larger stem size giving support to the tree when the shelter was removed. Bob's conclusion "Maybe the light tree shelters would take care of the problem we have now with our trees falling over when the 4 and 5 foot shelters are removed".



Breeding Program Springs into Summer

by Ann Leffel -Breeding Program Coordinator

Orchards!

What a spring!!! It started off with the Grower's Meeting on March 18. Forty-one folks arrived at the Leffel Farm, experienced and new



growers. We couldn't accommodate everyone in the house, so we met in the garage. It was a bright sunny day, but what a cold wind! If it hadn't been for the hot apple cider, hot coffee, hot tea, and donuts we would have expired, but the meeting was brisk. Reports and instructions were given, planting plans distributed, discussions took place. Everyone welcomed the opportunity to retreat into the house to the wood stove and the warm kitchen when hot lunch was served. In such cozy surroundings, everyone got to know one another quickly. The chicken corn soup, beef BB-Q and world famous Sechrist hotdogs renewed us for the afternoon, even though chapter scientist **Bob Leffel** required hot dog eaters to participate in a taste test. Orchard tour and planting demonstration followed lunch and then distribution of seed, tree shelters, and stakes and the growers were off toward home with the planting days before them. The dedicated, experienced growers latched on to new growers and new partnerships, and friendships were forged. It's my favorite meeting of the year-so full of promise! And as I write this article the promise is already revealing itself. Those seeds planted in late March and April are pushing through the soil with new life as young trees. I like watching trees grow better than watching grass grow. The trees can grow for a long time before they need cutting.

It's great to announce that two regions, Allegheny and Northeast, set out their first backcross orchards, a BC2 in **Sugar Grove, Warren Co.** by **Kurt Berger** and a BC3 in **Lake Ariel, Wayne Co.** by **Jerry**

Samson. And the first American Nursery was established by Allegheny Region Coordinator, **Mike Shanshala.** Now each of the 8 regions have at least one backcross and one American planting.

Maryland launched its first BC3 Orchard at **Thorpe Wood** with help from PA Chapter and members on March 25. The last planting of this spring was that of 50 young PA-American seedlings at the Boyd Big Trees Conservation Area of the PA Bureau of State Parks just north of Harrisburg on Saturday, May 27. North Central Region Coordinator **Lee Saufley** and Dauphin County Coordinator **Chris Ditlow** in cooperation with **Harold Bloom**, Park Manager of Little Buffalo State Park Complex and **John Miele** with State Parks Resource Management arranged for the morning educational program at Fort Hunter, followed by the planting at the Boyd site. Environmental education will be a main feature of the Boyd Conservation Area and PA-TACF is pleased to become a first educational project for the area.

Inoculations!



Bob Summersgill and Bob Strasser planting at Thorpe Wood on March 25th.

This spring is an exciting one for the PA Chapter. The big news is that we will be doing our very first inoculations of BC3 trees bred in PA. Dr. Hebard will conclude his vacation by visiting the Leffel Farm on Memorial Day, May 29 to instruct two teams of PA tree growers on inoculation procedures. This is going to be difficult! After nurturing these lovely trees for four full years, we have to infect them with that dastardly blight and watch them die. But our members are used to making sacrifices of time, effort, money,



and safety for the long term benefit of others, especially our pollinators and growers. So now we have to sacrifice trees. At the end of the summer the cankers will be measured, length and width. It will all be recorded. Next spring the final selection will be made among the remaining 1996 BC3 trees, and only the best of those will continue in the breeding program. Thus, we will, move from the fourth to the fifth generation of trees, the intercross of BC3's — the generation that has the potential of producing the first blight-resistant 95% or more of the American chestnut tree seed. We're on the move folks!

Pollination

CALLING ALL MEMBERS!!

SEARCH OUT NEW FLOWERING AMERICAN CHESTNUT TREES!!

With the pollination season approaching, and the chapter plan to obtain 20 'Graves' BC3 lines and 20 new F-1 lines as reported by Bob Leffel, we need to locate not only 40 new flowering PA American chestnut trees, but we also need to locate 20 flowering Asian trees. Now all you folks who have previously reported large Chinese trees to us, will have the opportunity to use your trees.

The August 1999 Science Review of the TACF breeding program recommended the utilization of new sources of blight resistance. Furthermore, one of the reviewers thought it best that each breeding region or state use different sources of resistance. So we are seeking four Chinese, Japanese, or Korean chestnut trees from each of our eight regions that are 30 or more years old, that show no signs of blight, and of course that produce both male and female flowers. Tree form is not a sole consideration. Blight resistance, age, and verification of identity are the important criteria here. Origins of seed or tree and name of grafted cultivars would be most helpful also. And, of course, permission to use the tree in the breeding program. Now is the time! The male catkins are beginning to emerge! The female flowers will follow a little later, and the time to bag for controlled pollination is when the catkins start to bloom with their creamy bottle brush bloom. *See the article on pollinating in the Growers Corner on page 4.* It won't be a huge job because we only need 10 nuts produced on the Chinese tree using an American tree for pollen and then 10 nuts on that same American tree using that same Chinese tree for pollen. A reciprocal cross. So locate a pair of trees and start

your own hybridizing program. Do 20 for the chapter and some for yourself. Send your leaf samples to **Blair Carbaugh** or **Dave Armstrong** with your tree locator form, which gives you the directions for taking samples. Verification of a tree's identity is important! If you are interested in learning to hybridize, we can teach you. It isn't a difficult procedure if your trees are accessible. But timing is important for success. We have a number of pollinating teams working the state, but we need more, especially in the northern tier of counties. To report your trees and/or your interest in becoming active in the breeding program, contact your county coordinator, or your regional coordinator, or the York office, or Ann Leffel. We need your help.

After the Blight, What Replaced the Chestnut in Pennsylvania ?

From: *Replacement of the Chestnut in Pennsylvania by John E. Aughanbaugh. Bulletin 54, Commonwealth of Pennsylvania, Dept. of Forests and Waters, Published in 1935.*

Dr. Jim Bailey, Forest Geneticist DCNR, Bureau of Forestry, provided us with a copy of this study. "The major purpose is to determine what Nature is doing to replace chestnuts with other species, how satisfactory natural replacement promises to be, and what can be done artificially to promote or improve the natural replacement process." The study began in 1930 in the Mont Alto State Forest and was later extended to all parts of the state where chestnut was formerly abundant. Nearly 3000 plots in chestnut openings were studied.

The conclusions included:

1. Stimulated growth of most trees in openings formerly dominated by chestnut; diameter growth had increased 80 percent during the decade following death of chestnut and was greatest within five years after the chestnut was dead.
2. The species replacing chestnut included those that were most closely associated with it: from 35 to 50 percent consisted of oaks, with rock (chestnut) oak leading; about 50 percent of the young growth consisted of less desirable species, with red maple leading. (Sound familiar?!)
3. Nature's efforts to replace the chestnut must be supplemented by silvicultural improvement practices.



Pennsylvania Chapter
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PA Chapter Calendar Notes

An **Executive Board meeting** on June 3rd will be held at the York Office at 9 am to discuss reorganization bylaws, operations, and activities for the remainder of year 2000.

Meadowview activities for June will consist of bagging American chestnuts during the week of June 11 and pollinating the week of June 19 in the mountains near the Meadowview, VA farm.

The PA-TACF **June pollination** recommendations are outlined in Dr. Leffel's article on page 4.

Interested **Maryland members** are invited to attend a meeting at Thorpe Wood, 9:30 am, June 24 to help Dr Doug Boucher with research on wild chestnuts in the MD forests. For information call Dr. Boucher (301) 696-3662 or Barbara Knapp (301) 428-0044.

Directions to Thorpe Wood can be obtained on the internet at: www.thorpewood.org.

Agriculture Progress Days in August will be at the PSU, Larson Ag Research Center in Rock Springs, PA. We will conduct the display like the PA Farm show exhibit and request volunteers to help out. It is the largest outdoor agriculture show in the east attracting 45 to 50 thousand visitors with 300 exhibitors.

The next issue of the *BARK* will contain details of the **TACF annual meeting** in October at Abbingdon, Va.

The **PA-TACF November Chapter meeting** location and date will be discussed at the June Executive Board meeting and published in the September newsletter.

PA Chapter Calendar
June 3 Chapter Board Meeting - York
June 11 through June 23 Volunteering at Meadowview, VA
June 15 Pollinating Season Begins

June 24 Maryland Group Meeting
August 15, 16, 17 AG Progress Days, PSU
August 31 NL Mailing with Officer Candidates and Member Voting Ballot
September 15 Harvesting Season

October 21, 22, & 23 TACF Annual Meeting. Abbingdon VA.
November ? PA-TACF Chapter Meeting
November 30 NL Mailed