



Drawing by Dr. Fred Paillet

the New Leaf

*News from the Connecticut Chapter
of the American Chestnut Foundation
Autumn 2006*

Our mission is restoration of the American chestnut in the State of Connecticut

From the President

Before writing this column I reviewed the spring newsletter to gain a perspective on our progress over the past season. I wanted to reflect on how far we've come. It's quite incredible! To what do we credit such success?

We did achieve more pollinations than set as our goal in the Chapter's strategic plan. With six pollinations (see the report elsewhere in this issue) producing up to six new lines, we're 33% ahead of schedule.

We made huge strides in planning towards next year's pollinations. With the identification of six robust flowering trees across the state (and more reports coming in

continued on page 6 ...

Below: Blue -X[®] Tube planted seedling shows vigorous first season growth at the NCLT Swann test orchard site.



The Chestnuts at the Foot of the Giant

I am sure that many people who hike the trails of the Sleeping Giant happen upon the Chestnut Plantation which is east of the park, and on both sides of Chestnut Lane. This land was part of the property owned by Dr. Arthur Graves who studied and then taught at Yale, and it remained his "summer place" after he began working at the Brooklyn Botanic Garden in New York City. He had an abiding interest in chestnut trees, and wanted to find some way of restoring chestnuts to our forests. The two imported diseases which afflicted our native American chestnuts had already taken their toll when he bought this land. The first disease, a Phytophthora root rot called Ink Disease, effectively eliminated chestnut from the southern part of the range (the Gulf Coast) by the mid-1800s, and the second, Chestnut Blight Disease, killed all the remaining trees to the ground by 1950. Fortunately, chestnuts sprout from the base where the blight fungus rarely invades, and small trees grow, become infected, die, and sprout again. This is happening from Maine to Georgia, along the Appalachian mountain range.

Graves wanted to cross resistant, Asian chestnut trees with our native trees to breed resistant timber trees to plant in the forest,

continued on page 5 ...

Excitement in the Air: Pollination Update

During May and early June, CT Chapter members were busy reviewing confirmed and potential mother trees and making site visits to check accessibility and flowering. Leaves and twigs from unconfirmed trees that appeared to be American were examined under the microscope. We began to worry as, one by one, results came in: almost all were hybrids, not suitable for backcross pollinations - or not cooperating with flowering.

But then our luck began to change. An American tree I found in Stafford in 2005 was still healthy enough to bloom. New trees reported by member Mike McGee (Tolland) and Gerry Pleasent (Manchester) had leaf/twig samples express mailed to TACF staff scientist Dr. Fred Hebard who quickly gave approval. Dr. Sandy Anagnostakis generously gave us permission to pollinate the Roxbury and selected Rocky Hill trees at the Connecticut Agricultural Experiment Station's (CAES) Lockwood Farm in Hamden. To the five lines mentioned we added Board member David Bingham's Salem tree, which he has faithfully mud-packed for ten years. The Connecticut Chapter was now ready to go forward with pollination of six mother tree lines!

No remnants of tropical storms
continued on page 4 ...

The Northern Connecticut Land Trust Plans a Chestnut Tree Farm

The Connecticut Chapter of The American Chestnut Foundation (CT-TACF) and the Northern Connecticut Land Trust (NCLT) have signed a Germplasm Agreement to use TACF chestnut breeding material in tree farms to be established on Land Trust properties.

The Northern Connecticut Land Trust serves the towns of Enfield, Somers, Stafford, East Windsor, Ellington, and Vernon. The mission of the Land Trust is to protect open space. Currently more than 750 acres of farmland and woodlands are being protected.

One of the protected properties owned by the NCLT is the 56 acre Swann Farm, located in Ellington. The majority of this property is leased to a local farmer and is planted in feed corn, but in 2006 the Land Trust removed a one acre section from the lease for a test planting of pure American chestnuts. Twenty pure American nuts provided by CT-TACF were planted, ten in soil treated to increase acidity and ten in



untreated soil. Only one of the nuts in the untreated soil sprouted but the nuts in the treated soil did very well and the test proved this will be a successful site for a future tree farm.

The Land Trust plans to use this test site and expand it as necessary to plant hybrid nuts from local native American trees. Trees in Manchester, Tolland, and Stafford were pollinated this summer with BC2 pollen, provided by TACF's Meadowview Farm. Bartlett Tree Experts donated the use of equipment and operators to help in this pollination. We are currently awaiting the harvest from these trees to determine the number of nuts to be planted in the NCLT Swann Farm. Planting of the BC3 nuts at the Swann Farm is planned for the Spring of 2007.

The NCLT also owns a large property, named Whitaker Woods, in the Town of Somers, that is a potential future site for a chestnut tree farm. This is a newly acquired property that requires the reconstruction of a bridge to provide access to the planned location, so the earliest this site could be used for an additional tree farm would be 2007.

By Jim Gage, CT-TACF Treasurer and NCLT Treasurer

At left: Swann test orchard in Ellington. Photo courtesy of Gayle Kida.

New England Regional Coordinator Update

I began working as the New England Regional Science Coordinator in early May. What a great time I've had! I have traveled throughout Connecticut, Massachusetts, Vermont, Maine, Pennsylvania and Virginia, all in the name of chestnuts! In Connecticut, I have spent much of the summer investigating American chestnut reports, pollinating mother trees, visiting our orchards and potential orchard sites and meeting many chestnut enthusiasts, or "chestNUTS", as they are sometimes called. My time thus far with CT-TACF has been very educational and rewarding experience. I look forward to meeting more members and moving our chapter ahead!

By Leila Pinchot (203) 907-7429.

Northeast Utilities Support to Help Restore the American Chestnut

We're very pleased to announce that Northeast Utilities has made The American Chestnut Foundation the beneficiary of a shareholder "challenge" grant opportunity. Northeast Utilities, with 50,000 registered shareholders, is offering to make a \$5 donation to The American Chestnut Foundation for each shareholder who elects to receive the company's annual report and proxy materials in electronic form to reduce NU's use of paper.

"This is a wonderful opportunity to promote the revival of a great American tree while also providing greater convenience for our shareholders," Charles W. Shivery, NU chairman, president, and chief executive officer.



Salem Orchard Update

The Salem orchard was planted in the spring of 2006 as a nursery for 151 chestnuts that were gathered in the fall of 2005. The precious nuts were the result of pollination and harvesting of the Enfield American chestnut tree by volunteer members of the CT Chapter of The American Chestnut Foundation (TACF). Pollen from a blight-resistant BC-3 (second generation back-cross) tree from TACF's Meadowview Farm was used in that pollination.

The nuts are thus the 3rd back-cross generation, having genes that are about 94% American chestnut in origin. Because they come from a mother tree that is a pure American chestnut, they will be partially susceptible to the blight. But when they flower, and are crossed with other BC-3 trees, some of the resulting nuts should be resistant trees that still carry most of the traits for which the American chestnut is so famous. We hope that nuts from these future trees will provide appropriate seed for restoring blight-resistant trees to Connecticut's forests within the next decade.



Above: Salem Orchard work party. Photo courtesy of Bill Adamsen.

The Salem orchard is about 1.5 acres. We planted, in addition to the BC-4 nuts, open-pollinated controls to compare growth characteristics and blight resistance.

Ground preparation was done with a harrow on an open field after confirming suitable soil characteristics. Planting was done in Blue -X[®] tubes. Volunteers did mid-summer cultivation. No herbicides were used. 68% of the Enfield nuts germinated (compared to 58% of the control nuts). Some have apparently already succumbed to the blight, but over 90 Enfield backcross saplings have begun to sprout. There is a possibility that the Blue -X[®] tubes may have been planted too deeply, but so far germination is not too different from that in the Woodbridge orchard.

This was an educational summer in terms of deer exclusion (by fencing), frequent heavy rains, evidence of some loss to blight, and a significant Japanese Beetle invasion. After a fine early growth spurt, this orchard had a tough summer. Hopefully this will continue to be a mild fall and the trees will regain some strength to get them through the winter in good shape.

In addition to chestnut plantings, the deer exclusion is allowing for some plantings within the fence perimeter of other native species (viburnum, dogwood, etc.), to be monitored along with the chestnuts. These plantings will make the orchard of interest as an area of early forest succession and plant biodiversity as well as a chestnut grove.

By Orchard Manager Dr. David Bingham, CT-TACF Director

Woodbridge Orchard Update

The chestnut orchard of CT-TACF in Woodbridge, CT has had a good first year. Of the 168 nuts planted, 78.5% germinated. Most of the little trees are poking out of the Blue -X[®] tubes. Due to the weekly rain since the spring, watering has not been necessary. The 8 foot deer fence has been very successful in controlling predation. Insects have not been a major problem.

We received permission from the Town of Woodbridge to use "Roundup" and this has solved our weed problem. The work day organized by Leila Pinchot was a big success. We mulched the entire perimeter fence and applied the "Roundup". We also laid out the placement of stakes for next years planting.

Our nuts for next year are nearing harvest. Again, Leila has been the driving force. Feel free to visit the orchard at any time.

By Orchard Manager Dr. Philip Arnold, CT-TACF Vice-President



Dr. Phil Arnold, CT-TACF Vice President, and Woodbridge Orchard Manager, tending one of his his precious seedlings.

Pollination update ...
... continued from page 1

At right: Leila Pinchot examining
flowers on the Salem tree.
Photo Courtesy Bill Adamsen

to complicate pollinations this year, just sunny or lightly overcast days to help our effort. Bagging to trim off male catkins and shield female flowers took place June 19th through July 3rd, nearly overlapping with pollination July 5th through the 13th. Sara Fitzsimmons offered advice and accurately predicted bagging time for the Manchester tree by viewing an e-mailed photo of a flowering tip – thanks Sara for all your help!

The Connecticut Chapter also wishes to thank Bartlett Tree Experts for donating services of a bucket truck, which I coordinated with Mike DeSanto of their Simsbury office. Mike and Bartlett arborist Charlie White were dedicated to getting the truck there whenever we needed it, even though our flowers needed attention just before and after the Fourth of July holiday. I instructed Charlie with use of pollen containers and procedures to bag and pollinate the Manchester and Stafford trees; he also took care of the topmost flowers of Tolland.

For Tolland's lowest branches, Leila used a ladder for access, Brenda Tracey helped bag and Jim Gage pollinated some flowers. At Lockwood our ladder climbers were Leila, Garrett Smith, Phil Arnold, Ariel Pinchot and Julia Przedworski. I assisted with bagging and pollination of the earliest Salem flowers; David finished later maturing ones himself. The Salem tree is on a rocky hillside so we accessed most flowering branch tips by bending



them down with a padded pole pruner, tying them at a height within arm's reach.

Pollen selected by Dr. Hebard for the Tolland, Manchester, Stafford, Salem and Roxbury trees were from BC3 (third backcross) fathers at Meadowview Research farm in Virginia, which will make their offspring fourth backcrosses to American genes. The CAES Rocky Hill trees (considered one line, pollinated as a group because they all share the same mother) received BC2 pollen. Similarly, the Tolland line is made up of two adjacent trees both pollinated with the same pollen and considered as one mother tree. In addition to our Connecticut Chapter trees, Leila also performed pollinations at CAES Sleeping Giant for a TACF National Science Foundation project for Dr. Hebard. Our chapter and TACF thanks Bob Fries for providing the bucket truck for these pollinations with the assistance of Kenny Fries and Tony Fonte.

Our backcross harvest began a week earlier than expected on September 22nd and will likely continue through early October. How many fertile nuts will we produce? Harvested burs can take a

week or more to split and release seed, so time will tell. Final counts will be announced at the November annual meeting. We've succeeded in taking important steps toward reaching our 2006 Strategic Plan goal of creating six new lines, but results will depend on many factors. The pollination process literally has its ups and downs and includes lots of hard work, surprises and uncertainties, but to all who take the gloves on approach, it's also an exciting challenge!

By Gayle Kida, CT-TACF Director



Above: Arborist Charlie White from Bartlett Tree Experts pollinating (pre-bagging) the Stafford Tree



*Chestnuts at the Foot of the Giant ...
...Continued from page 1*

and he turned to the USDA Plant Importation Office for help. The first 130 chestnuts that Graves planted were set out in March of 1930, and included three species from China, one from Japan, and a Japanese-American chinquapin hybrid, all from the USDA in Beltsville, Maryland. He started making crosses, and continued planting new trees, keeping records that I still refer to today. The photograph (*) was taken in 1936, and shows young trees in the South Lot, south of Graves' house on the east side of Chestnut Lane looking towards Mt. Carmel Ave.

About 1934 Dr. Donald F. Jones, Chief of the Genetics Department at The Connecticut Agricultural Experiment Station, became interested in the chestnut breeding program, and participation by the Experiment Station in the project was begun. Two graduate students at Yale worked with these two men, and contributed important genetic information about the trees as well as making many more crosses. The theses of Dr. Hans Nienstaedt and Dr. Richard Jaynes, sparked interest in scientists elsewhere, and their subsequent papers on chestnut made people aware of the potential for scientific investigation in this project, as well as the potential for a very practical outcome.

In 1949, Dr. Graves sold 8.3 acres of his land to the Sleeping Giant Park Association, reserving its use for The Connecticut Agricultural Experiment Station for tree breeding. Then in 1950 the Park Association gave five pieces of land (including the 8.3 acres) to the State of Connecticut for Sleeping Giant State Park, still

reserving the use of the 8.3 acres for The Experiment Station. Since that time, the chestnut project has been administered by The Experiment Station with the cooperation of the Sleeping Giant State Park Rangers. Dr. Graves actively continued his work with chestnuts until his death in December, 1963.

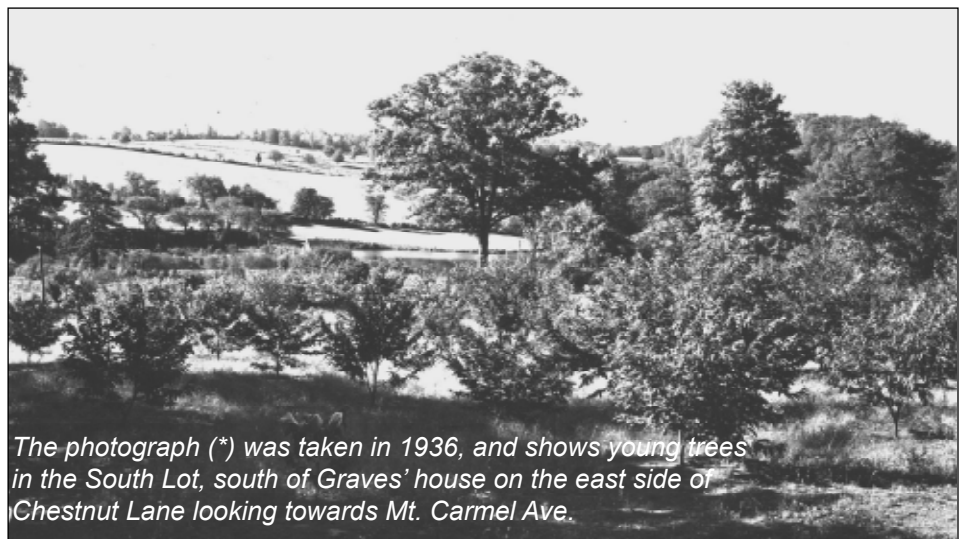
This Chestnut Plantation at Sleeping Giant is not a prototype of a commercial orchard. There are specimens of all of the species of chestnut, and numerous hybrids represented, and this is probably the finest collection in the world. One of my chores when I took over the chestnut breeding project in 1984 (after working on chestnut blight disease since 1968) was to figure out which trees were which, since trees were planted in different areas and row plans. Labels had fallen off, seedling trees had grown up between planted trees, and the rows going every which way presented a real challenge. The breeding program was already the longest-continuing chestnut breeding project in the U.S., and many people had added and removed trees (fortunately, they all wrote it down). New trees are still being planted, as those which don't live up to expectations are removed. In 2001, a scientist in Japan sent me seed

from two important native chestnut populations in Japan, and the resulting plants are now growing in the South Lot at the Plantation (in green tree shelters to protect them from deer).

I knew that chestnut workers all over the world were aware of our Plantation, but I continue to be surprised at the requests for cuttings and seeds that come in every year. In 2001, requests came from scientists in France, Denmark, South Africa, and Turkey, and from Tennessee, and Virginia in the U.S. Visitors to Connecticut call or e-mail me and ask for tours. In early December, four visitors from China braved a rainy day for a chance to see our trees.

Our farm manager, Richard Cecarelli, takes machines and crew to the Plantation to mow and prune at least twice a year, to help maintain order. My assistant, Pamela Sletten, and I rarely walk through without clippers in our hands. It's amazing how fast things grow! We must preserve this treasure for the work that continues at The Experiment Station, and for its value to people everywhere who know what the Chestnut Plantation at Sleeping Giant is really worth.

By Dr. Sandra Anagnostakis, CAES



The photograph () was taken in 1936, and shows young trees in the South Lot, south of Graves' house on the east side of Chestnut Lane looking towards Mt. Carmel Ave.*

From the President ...

... continued from first page

each week) next year already shows exceptional promise!

Two new CT Chestnut orchards mark the end of their first season - and signs are all positive. I encourage you to call their managers and make an appointment to visit.

A Norcross Foundation grant for \$4000 paid a significant portion of the cost toward fencing for the Woodbridge Orchard. An anonymous donation fenced Salem, and we've enough on the balance sheet to fence a third orchard next spring. Northeast Utilities has created a shareholder paper reduction program to benefit the CT Chapter and TACF. Offering \$5 per shareholder conversion, there is potential for significant program support. Bartlett Tree Experts donated bucket truck and arborist services for pollination and harvest, services we we would never have been able to afford. These grants and donations are validation that our mission is worth supporting.

But our greatest success has been our volunteer network. Volunteers provide CT-TACF labor, vision and dedication that can't be found elsewhere. Without our volunteers, this mission wouldn't be accomplished.

If you have an interest in getting involved, I'd suggest attending the annual meeting on November 11th at Sage Hall Yale (program elsewhere in this issue). I look forward to seeing you there.

Bill Adamsen, Pres., CT-TACF

Meet Connecticut Chapter Board Nominees

Michael Mcgee values any time he can spend outdoors, and has always been an avid hiker and bicyclist. He became aware of the American Chestnut blight when researching the lumber used to frame his 1819 house. It was of course framed with chestnut as were most houses built in the area before the chestnut blight. Since becoming aware of the tale of the American chestnut Mike became a member of TACF and began looking for specimens when out hiking or bicycling. It turns out that Tolland and the surrounding area were once plentiful in mature trees. There are now many small sprouts and small trees struggling to hold on. While exploring the area Mike stumbled across a few larger trees that had grown large enough to flower.

Mike is currently working as an Electrical Engineer and taking classes for a Masters in Management at Albertus Magnus, with plans to apply to the UConn School of Law this fall.

Below: Michael Mcgee



Ellery (Woods) Sinclair has lived in Falls Village since 1947 and began his professional career at the Housatonic Valley Regional High School, where he taught English and was that department's chairman until his retirement in 1992. With a life-long interest in the environment, Woods has lectured on turtles and tortoises as well as whales and occasionally makes

presentations on ecology. He is partially responsible for the high school horticulture program's being involved with the American Elm project. He also serves on Housatonic's Arboretum and Landscape Committee, and works with the Nature Conservancy's Northwest Highlands Project. Woods is chairman of the Falls Village Inland Wetlands/Conservation Commission and is the town representative on the Housatonic River Commission.

Simply, Woods reveres the American Chestnut. He welcomes the opportunity to be of service to an American icon, the American chestnut.

Below: Ellery (Woods) Sinclair



Voting for new Board of Directors takes place at the CT-TACF Annual Meeting on November 11,, 2006

Prestigious Norcross Foundation Grant Award

In June the prestigious Norcross Wildlife Foundation, Inc. announced a \$4000 grant to CT-TACF. The grant was awarded to cover orchard deer enclosure fencing for CT-TACF Orchards.

This significant award will have a positive impact on our program this year and into the future. Its impact will be felt at the Regional, and National level of our program, since the CT Chapter is a keystone of the broader attempt to bring regional diversity into the American chestnut breeding program.



2006 Connecticut Chapter Annual Meeting Saturday - November 11

Program

Once again we've got a great meeting planned and we hope you'll attend and bring a friend.

Attendance RSVP

If you plan on attending, please RSVP with an e-mail to rsvp@ctacf.org or call 203.866.2244 and leave message!

The Program Schedule

9:30am	Opening Reception
10:00am	Into - Dr. Phil Arnold
10:15am	Dr. Sandra Anagnostakis
11:15am	Dr. Charles Maynard
12:00pm	Lunch
1:00pm	CT-TACF Breeding Update
1:30pm	Dr. Chad Oliver
2:00pm	Dr. Ann Camp
2:30pm	Coffee Break
2:45pm	Gayle Kida
3:15pm	Leila Pinchot
3:45pm	CT-TACF Business
4:15pm	Chestnut ID Lab

Driving Directions

The meeting is at Sage Hall, 205 Prospect Street, New Haven. From I-91 North or South Take exit #3/ Trumbull Street onto Trumbull Street - go 0.9 mi. Turn Right on Prospect Street - go 0.2 mi Arrive at 205 Prospect Street, New Haven, on the Right

Parking

There is on-street parking near Sage Hall, and the Yale Parking Lots are available for Parking on weekends without charge. The Yale Skating Rink (the Yale Whale) is located on Prospect Street, directly opposite Sage Hall, with significant parking.

Speakers and Topics

Dr. Sandra Anagnostakis

Sandra was born in Coffeyville, Kansas and attended college at the University of California at Riverside, where she received a Bachelor's degree in the spring of 1961. In graduate study at the University of Texas at Austin, she worked with C. J. Alexopoulos in mycology. After receiving a Master's degree in Botany she joined the staff of CAES in the Department of Genetics (1966). She completed her Doctor of Agronomy degree at Justus-Liebig University in Giessen, West Germany in 1985, working with Professor J. Kranz.

Sandra has worked on the genetics of various fungi, including those that cause corn smut disease and Dutch elm disease. She has been working on chestnut blight disease (caused by *Cryphonectria parasitica*) since 1968. Current work includes studies of the ecology of the blight fungus and its control by hypovirulence, and studies of virulence in the fungus and resistance in the trees.

Topic: *History of Chestnut Restoration in Connecticut*

Dr. Chadwick Oliver

Pinchot Professor of Forestry and Environmental Studies, and Direc-

tor, Yale Global Institute of Sustainable Forestry. Chad, is a renowned expert in the fields of forest stand dynamics and landscape management, and sustainable forestry. He is an internationally known silviculturalist, noted for his understanding of both the dynamics of forest processes and the interactions of human societies and forests.

Topic: *Climate Change and Chestnut*

Dr. Charles (Chuck) Maynard

Professor and Director of the American Chestnut research and Restoration Center, SUNY-ESF. Chuck Maynard received his BS in Forest Management, M.S in Forest Biology, and PhD in Forest Biology with an emphasis on Forest Genetics and Tree Improvement, all from Iowa State University. Chuck has been with the College of Environmental Science and Forestry since 1980. He has been working with Dr. William Powell since 1987 on the American Chestnut Research and Restoration Project. "Bill designs the genes and I put them in."

Topic: *Chuck will be talking about designing genes for sustainable blight resistance, transferring those genes into chestnut cells and regenerating whole plants, moving from the laboratory to*

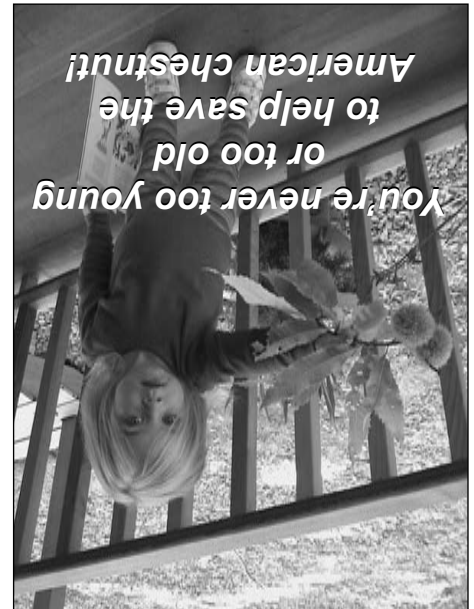
greenhouse and field trials, status of the first two transgenic chestnut trees to be planted in the field, and how backcross breeding project and the genetic engineering project can compliment each other.

Dr. Ann Camp:

Dr. Camp is interested in the dynamics of mixed species stands and the variables driving vegetation patterns at different hierarchical scales. Results of her research on sustainable patterns of late-successional and old forest habitats in fire-regulated landscapes have been widely incorporated in dry forest management and restoration efforts in the inland Northwest. Her research includes effects of biotic and abiotic disturbances on vegetation patterns at stand and landscape scales; interactions among disturbance agents and vegetation patterns, especially the roles of insects and pathogens in creating forest structures important to wildlife; and management alternatives for dense, marginally economic stands of small-diameter trees and consequences of different management practices on ancillary forest resources.

Topic: *Reintroducing Chestnut to the Forest*

Connecticut Chapter of the
American Chestnut Foundation
C/O Leila Pinchot
Yale University, Greeley Lab
370 Prospect Street
New Haven, CT 06511



Have You Seen Me?

I'm usually found at my mother's feet or very close by. So first you have to look for my mom.

You'll find her among the hardwood trees at the side of the road, on a sunny hillside, at the edge of the forest or in a clearing

Photo Courtesy Gayle Kida



where other trees have fallen or been harvested about ten years ago.

If you do discover where we live, please help the Connecticut Chapter by sending a leaf and twig sample, detailed location information and your name and phone number to the return address on this newsletter. Please be careful collecting samples and be courteous - get permission from property owners if you're near a house. The "Find a Tree" link to leaf identification guides, pictures of burs and instructions on how to send a sample is on the TACF website: http://www.acf.org/find_a_tree.htm

It will help you decide if you have found me or one of my Chinese cousins.

The New Leaf

Is a publication of the CT Chapter of the American Chestnut Foundation.

CT-TACF Chapter Office

C/O Leila Pinchot
Yale University, Greeley Lab
370 Prospect Street
New Haven, CT 06511
email: info@ctacf.org
web-site: <http://www.ctacf.org>

CT-TACF Officers

President: Bill Adamsen
Vice-Pres: Dr. Philip Arnold
Treasurer: Jim Gage
Secretary: Pat van de Kamp

CT-TACF Board of Directors

Dr. David Bingham
Dr. Robert Gregg
Rod Longley
Gayle Kida
Charles Dobos
John Anderson
Garrett Smith

