

Chestnut Mast



Volume 10, Issue 1 Newsletter of the Carolinas Chapter of The American Chestnut Foundation Spring 2008

New American Chestnut Exhibit—Destination Center

Immediately inside the entrance to the Blue Ridge Parkway Destination Center (at milepost 384, south of US 70 and east of Asheville, NC) is an exhibit that educates visitors about the American chestnut tree. The exhibit uses the space over and around the stairwell serving the upper and lower floors of the building. A photograph of an American chestnut tree stretches from near the bottom of the stairs to the ceiling of the second floor, giving viewers a sense of just how large American chestnut trees once grew.

tion to develop a disease resistant tree that one day may regain its former glory. A second talks about “Protecting the Forest” and reminds people of the fragile nature of our forests and the

veins that end in curved teeth. Below the branch is a bench made of wormy chestnut and on the bench are bowls and candleholders made of American chestnut

wood that have been turned on a lathe. Split rail fencing and chestnut bark shingles displayed in the exhibit further remind folks of the many uses people of Appalachia made of chestnut wood.

Continued on page 6



The National Parkway Service and the Blue Ridge National Heritage Area partnered to have the Destination Center built. The center’s exhibits highlight the natural and cultural diversity, economic traditions, and recreational opportunities found in western NC. Three educational panels accompany the exhibit. The first, “Hope for the American Chestnut,” describes the polination program undertaken by The American Chestnut Founda-

tion to develop a disease resistant tree that one day may regain its former glory. A second talks about “Protecting the Forest” and reminds people of the fragile nature of our forests and the

A limb of a replica American chestnut tree hangs over part of the exhibit. The branch is covered with simulated leaves, nine inches long with parallel side

In This Issue

Chestnut Exhibit.....	Page 1 & 6
President’s message.....	Page 2-3
Glassy Mountain.....	Page 4
Book Review.....	Page 5
Steve Barilovits’ experiment.....	Page 6
Chapter Committees.....	Page 7
Annual Meeting.....	Page 8



THE AMERICAN CHESTNUT FOUNDATION

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Carolinan Chapter Endowment Fund

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President's Message

The Carolinas Chapter's high-elevation breeding orchards survived last year's exceptional drought fairly well. One example is the orchard planted by Chapter volunteers in the spring of 2007 at Cataloochee Ranch, near Maggie Valley in western North Carolina. The orchard, located on a beautiful hillside meadow at 5,000 feet, overlooks the ranch. Of the 284 chestnuts planted, the vast majority were B4 hybrid chestnuts (97% American), and the remainder, pure American, pure Chinese, and F1 hybrid chestnuts (varying percentages American) used as controls in future inoculation tests. Despite the drought, over 91% of the seeds grew to become healthy year-old seedlings. Board Member Judy Coker, joint owner of Cataloochee Ranch, hosted the Board's meeting on March 15 and led the group on a guided tour of the orchard.



Chestnut orchard at Cataloochee Ranch in Maggie Valley, NC

This past St. Patrick's Day, Paul Sisco led volunteers from the Cliffs at Glassy Mountain, a community located near Landrum, SC in planting our newest breeding orchard. The orchard is situated on the eastern slope of the Blue Ridge escarpment. We sincerely thank the Cliffs community for its support and its volunteers for their hard work in developing this new orchard.

Volunteers helped plant new chestnut orchard at Cliffs of Glassy Mountain in SC



Scott and Nancy Pryor hosted a Fall picnic on November 10, 2007 at their mountain home in Edneyville, NC. Those attending enjoyed views of the surrounding mountains and of the spectacular autumn colors. Guests enjoyed a delicious barbecue lunch while sitting at tables beautifully decorated by Nancy and her helpers. After lunch, folks toured Scott's hybrid chestnut orchard and then helped remove plastic mulch and weeds from around the young trees. The Chapter encourages members to visit our orchards. This fall, at the 2008 Fall picnic, we will have tours of Chapter orchards that are located near Sandy Mush and Long Branch, NC. I look forward to seeing you at the fall meeting and at those tours.

If you want to see American chestnut trees in their native habitat, join the group meeting this summer at Clingman's Dome in the Great Smoky Mountains National Park near the North Carolina/Tennessee border. Carolinas and Tennessee Chapter members will hike a portion of the Appalachian Trail and visit native chestnut groves growing near the trail. By being there, you can participate in TACF's 25th Anniversary Appalachian Trail Hike and visit with our Tennessee neighbors. We'll announce the date when Tennessee works out a schedule.

We've concluded our experiments for now to clonally

propagate chestnuts by leaf and twig cuttings. The effort was led by Bob Head, a horticulturalist from Seneca, SC and resulted in two successful rootings (or 10%) of cuttings from American chestnuts located in our range. We now are attempting to clonally propagate American chestnut trees using grafting techniques suggested by Bob Head, using cuttings from a wide sample of trees and hoping for a higher success rate. Being able to clonally propagate American chestnut trees is important since some flowering trees are located in places difficult to access. Cuttings from such trees, when cloned, can be grown in breeding orchards which are easy to access.

Joe James continues to screen TACF's hybrid chestnut families for *Phytophthora cinnamomi* resistance. By this summer, he will have screened nearly 7,000 seedlings. I've also started a small experiment (but large for me) in Charlotte to test which of several commercially available phosphite-based chemicals is most effective in combating *Phytophthora cin-*



namomi root-rot disease of American chestnuts using three hundred pure American seeds from Pennsylvania. The Ohio Chapter is working with our Chapter to determine if the same phosphite-based chemicals are effective in treating *Cryphonectria parasitica* (chestnut blight) infections. Such inter-Chapter cooperation is one of the strengths of our foundation. The Pennsylvania Chapter provided the pure American seeds for my experiment. The Carolinas Chapter is helping other Chapters and their members as well, harvesting about 1,500 American chestnut seeds last year that are being distributed by TACF.

Article by: Stephen Barilovits, III

Glassy Mountain



Several teams began work. 124 tubes had to be fashioned. Each included a rolled sheet of plastic inside of a flexible blue tube.

The tubes protect the seeds from root eating animals below ground and above. The tubes also filter out harmful radiation from the sun.



Another team began measuring and placing flags where the holes would be dug and seeds planted. In our orchard the seeds are five feet apart.

A team of three began cutting the holes with bulb digging tools. The trick is not to dig too deep.



4 inches deep was our goal.

American Chestnut: The Life, Death, and Rebirth of a Perfect Tree by Susan Freinkel

Susan Freinkel has woven together threads of biology, history, and biography to create a compelling narrative centered on the American chestnut. My family never stopped grieving the loss of the chestnut tree. I was raised on the legend of the chestnut as Paradise Lost. Ms. Freinkel, by contrast, stumbled onto the story of *Castanea dentata* as an adult. The chestnut, she observes, was a country tree, not a city tree like the elm. Its loss was felt most by rural folk, who did not write many books or poems.

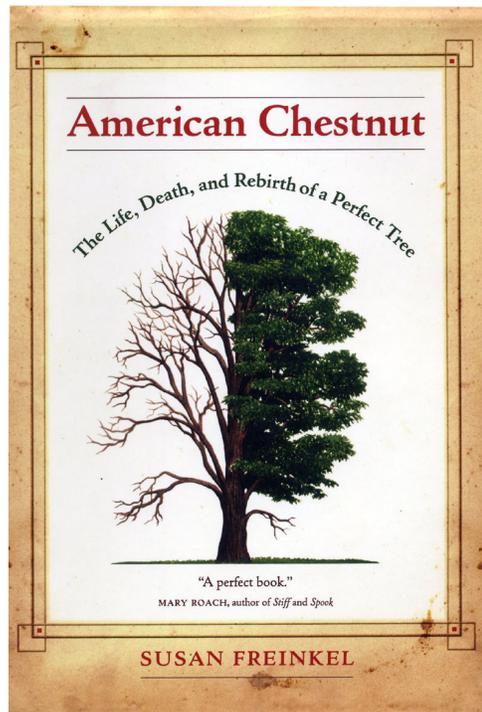
Her tale begins with the natural history of the chestnut, and the story of the blight first noticed by botanist Hermann Merkle at the New York Zoological Park in 1904.

It was with a growing sense of horror that scientists, foresters, and citizens realized just how lethal the blight was. In two decades it traveled down the eastern seaboard, killing an estimated four billion trees.

Ms. Freinkel then turns her focus to what came after. The federal government maintained a research program for decades dedicated to breeding resistant chestnuts. This effort produced some successes (the famous Clapper tree, for one), but they

were hampered by a focus on plant pathology, rather than genetics and plant breeding.

Enter The American Chestnut Foundation (TACF). TACF was born of the collaboration of Charles Burnham, a retired



University of Minnesota geneticist, and an energetic Minnesota farmer, Philip Rutter. Burnham looked at the existing programs, and realized that a key element had been missed. Backcross breeding, he felt, was the correct approach. Crop breeders use this to tweak varieties that are missing a single trait, in this case, blight resistance.

TACF is not the only kid on the block. Freinkel discusses

two other quite distinct approaches to breeding blight resistant chestnuts. Charles Maynard and William Powell, of the College of Environmental Science and Forestry at the State University of New York in Syracuse are at work, among others, to bioengineer a blight resistant chestnut by introducing genes from other species, or even developing new genes from scratch.

The American Chestnut Cooperators' Foundation (ACCF) pursues a quite different approach. Founded by Gary Griffin, Al Dietz, and John Elkins in 1985, the ACCF is working to breed blight resistant chestnuts from successive generations of purely American chestnuts that show resistance. They also work to maintain funding for graduate student research on large survivors.

Ms. Freinkel concludes with a thoughtful look at environmental restoration. Restoring a keystone species like the chestnut that has been missing for generations is not something to be taken lightly. Where will the new trees go? Will we cut existing forests to make way for the new hybrids? The challenge is for us to take the tools so painstakingly developed over decades to restore *Castanea dentata*, and to use them wisely.

Review by Jim Hurst

Steve Barilovits' experiment to determine whether phosphite products help to protect chestnut seedlings against *Phytophthora cinnamomi*

I've completed my spring plantings in urban Charlotte, NC.

I planted 270 pure American seeds in 5-gallon pots, three seeds per pot (suggested by Dr. Steve Jeffers of Clemson University) on raised platforms surrounded by squirrel-fencing in 90 pots. They were planted in Fafard special-mix potting soil augmented by Miracle-Grow fertilizer. All 90 pots will be inoculated with *Phytophthora cinnamomi* after several months of growth. The pots will be divided into two equal groups, one of which has mycorrhizal inoculations shortly after planting.

Each group will be subdivided into four sections - three of which will be treated with phosphite foliar sprays (aluminum phosphite, potassium phosphite, and urea phosphite), and the fourth will have no additional treatments.

Five pots with 25 seeds will be raised as controls with no spraying treatments, and no soil inoculations.



Separately, 20 B2 Graves hybrids, fathered by a native American chestnut on Crowders Mountain, and 20 pure Americans from Pennsylvania are being raised in separate pots.

Written by Steve Barilovits

New American Chestnut Exhibit—Destination Center

Continued from page 1

The silhouette of a pig foraging for chestnuts in the forest of the early 1900s reminds the viewer of what once was and what yet may come to be again—a forest dominated by trees so prolific in their production of fruit that the fall forest floor again is covered with sweet chestnuts.

When in Asheville or on the Blue Ridge Parkway, stop at the Destination Center at milepost 384 to view the American chestnut exhibit. A grand opening for the Destination Center is scheduled for April 14, 2008.

Article written by Doug Gillis

Chapter Committees



All members are invited to participate personally with one or more the following committees, which direct and focus the volunteer work within our chapter. All of them are great opportunities to get hands-on experience with the work of chestnut restoration, meet fellow chapter members, get out into the forests, or into the orchards.

Communications: This group is responsible for website maintenance, our newsletter, and other contacts with members. Board sponsors are Doug Gillis, Brian Joyce, and Carol Namkoong. You can contact the group's chair, Doug Gillis by email at dgillis001@carolina.rr.com or by phone at 704-542-0627.

Orchard Planting and Maintenance: This group is responsible for providing support for the maintenance of existing breeding orchards or the planting of new orchards. Sponsors are the orchard owners, but the work is coordinated by Paul Sisco, who can be reached by email at paul@acf.org, or by phone at 828-281-0047.

Low-Elevation Restoration: This group is responsible for finding and breeding low-elevation (Piedmont and coastal plain) surviving American chestnuts, screening for *Phytophthora cinnamomi* resistance, and establishing low-elevation breeding orchards. Board sponsors are Joe James, Lee Gragg, Steve Barilovits, and Doug Gillis. You can contact the group's chair, Joe James, by email at s4e4j4@bellsouth.net, or by phone at 864-972-1122.

Membership and Activities: This group is responsible for leading public and private presentations on chestnut restoration, conducting nature hikes at state and national parks, and contact with community groups. Contact Steve Barilovits by email at steve_barilovits@bellsouth.net or by phone at 704-376-1729.

Pollination Work at Meadowview: This informal group is working to coordinate our chapter's pollination effort at Meadowview, VA which will take place in early to mid June. Board member Scott Pryor is coordinating this work, and he can be reached by email at poppypryor42@intergate.com, or by phone at 770-932-2142.

Members who would like to serve on our board of directors should contact the chair of our board nomination committee by phone at 704-376-1729 or by email at steve_barilovits@bellsouth.net. Nominations for board membership will also be accepted from the floor at our annual meeting in August, 2008.



ANNUAL MEETING

DATE: AUGUST 16, 2008

TIME: 10 AM

WHERE: HANGING ROCK STATE PARK

The meeting will be held in the park auditorium-part of the headquarters complex.

Directions to the park can be found at:

<http://www.ncparks.gov/Visit/parks/haro/directions.php>

A map of the park is at:

<http://www.ncparks.gov/Visit/parks/haro/pics/parkmap.pdf>

The park is due north of Winston-Salem, NC.

The address and phone number are:

2015 Hanging Rock Park Road, Danbury, NC 27016

Office Phone: (336) 593-8480



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