

THE

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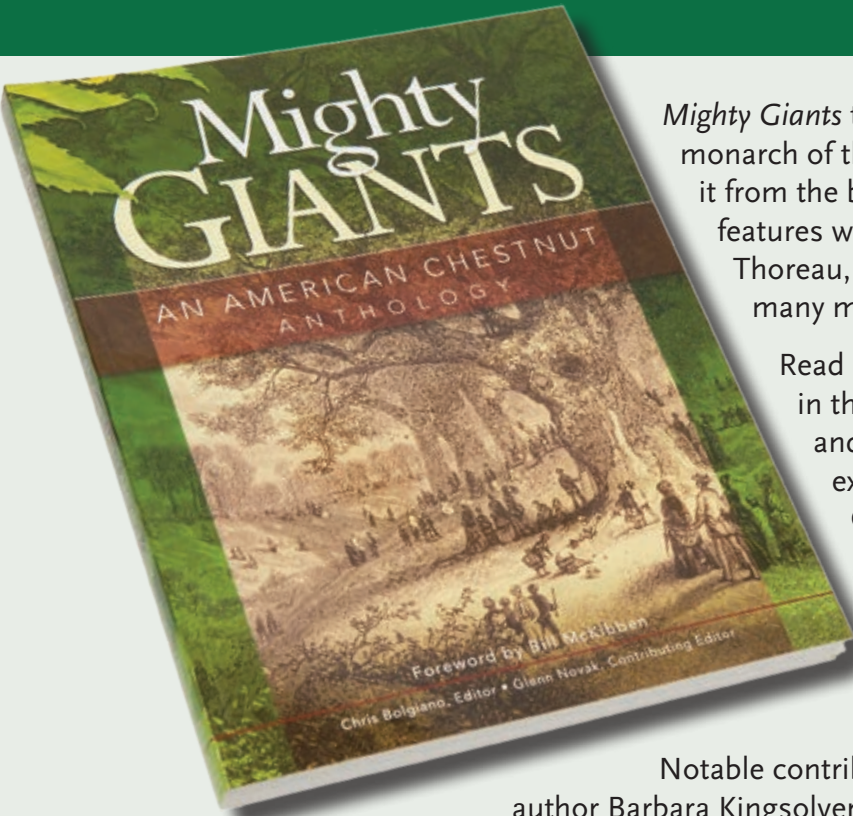
OF THE AMERICAN CHESTNUT FOUNDATION



Special Edition: Celebrating TACF's 30th Anniversary
Highlights from the 30th Annual Meeting

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price includes shipping





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The Mission of The American Chestnut Foundation

Restore the American chestnut tree to our eastern woodlands to benefit our environment, our wildlife, and our society.

We harvested our first potentially blight-resistant nuts in 2005, and the Foundation is beginning reforestation trials with potentially blight-resistant American-type trees. The return of the American chestnut to its former range in the Appalachian hardwood forest ecosystem is a major restoration project that requires a multi-faceted effort involving 6,000 members and volunteers, research, sustained funding, and most important, a sense of the past and a hope for the future.



About Our Cover Image

This issue's cover image was taken by Amy Miller of Empire Chestnut Company. Amy captured this photograph in Empire's Chinese chestnut orchard in Carrollton, Ohio.

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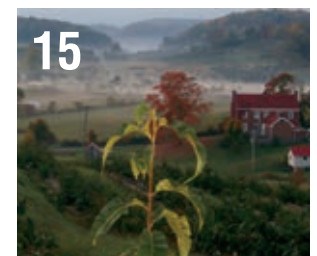
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Background photo: Backcross orchard in Blooming Grove, PA
Photo by Sara Fitzsimmons

Reawakening the Hope of Restoration

Introduction given by Dr. Kim Steiner, Chairman of the Board of Directors, at TACF's 30th Annual Meeting in Herndon, Virginia, October 19, 2013

Many of us over the age of 50 or so can remember when the world's entire population of California condors was fewer than two dozen, and of whooping cranes even fewer. Each species now numbers between 400 and 500 individuals, thanks to heroic conservation efforts. Their footholds in the wild are still tenuous, but they are probably no longer in danger of extinction.

There are many stories of successful efforts to save species on the brink of extinction, though few are as dramatic as these two. Almost all involve warm-blooded animal species – charismatic megafauna, as conservation biologists call them.

One of the greatest successes was that of the American bison, which was reduced from a population of 60 million or so to a remnant of fewer than 1,000 in the space of 50 years during the 19th century. Now there are more than half a million buffalo.

One dramatic failure was the loss of the passenger pigeon, which happened within the lifetimes of some people still living. The last passenger pigeon died in the Cincinnati Zoo, 100 years ago next September 1st.

Usually, successful efforts have been the result of massive public interest and enormously expensive restoration efforts. The condor project alone has cost over \$35 million, and many, many millions more measured in the economic impact of regulations to protect the species.

The mission of TACF stands almost alone among these crusades in its focus on saving a single tree species, and our budget is relatively modest by comparison. Our object is not one of the charismatic megafauna, yet the American chestnut is charismatic enough that our mission has captured the imagination of millions, most of whom are *not yet* members of the Foundation. One of our former Board Chairs, Dick Will, has said the American chestnut is the “giant panda” of the tree world, and I agree. There is hardly a tree in America, short of the California redwood (pun intended), whose preservation would appeal to our sensibilities as strongly as does the chestnut.



TACF Chairman Emeritus Dick Will stands beside a Restoration Chestnut 1.0 he planted five years ago at his home in West Virginia. Photo by Carol Will

In a way, we don't face the same challenges confronted by those who strive to save species whose very existence is threatened. It is true that without our help the American chestnut is probably doomed to extirpation from the forests it inhabited originally. But the American chestnut is in no danger of extinction. It will always be preserved, even if only in places where the blight is not present.

But the truth is our mission is far more ambitious and difficult than merely preserving a species. No one has ever seriously contemplated restoring 60 million bison to the American plains, and even if the passenger pigeon were still around no one would suggest returning it to its 19th-century population level of *four billion birds*. Yet, that is exactly what we propose to do with American chestnut – restore it to its estimated 19th-century population level of *four billion trees*. And we have the further challenge of imbuing American chestnut with a genetic characteristic that it does not naturally possess – resistance to the chestnut blight.

These goals seemed practically impossible 40 years ago when I was being trained in forest genetics as a graduate student. But our little organization has not only changed that calculus, it has catalyzed millions of dollars in research investment in chestnut by universities, government agencies, industry, and other foundations – an aggregate enterprise that was virtually non-existent 40 years ago.

To state it another way, TACF has almost single-handedly reawakened hope that the American chestnut can be rescued. We are carefully laying the groundwork for success in our long-term mission. People believe we will succeed, and we will. Of these things we can be very proud.



In October volunteers monitored American chestnut seedlings on a CIG site planted this spring near Pound, Virginia. The site had an 81% survival rate with seedlings growing an average of 15 inches in seven months time. Photo by Matt Brinckman

TACF's Conservation Innovation Grant Enters Third Year

This year has seen much progress in TACF's Conservation Innovation Grant (CIG), awarded in 2011 by the Natural Resources Conservation Service (NRCS) to establish forest plantings on reclaimed mine sites in Appalachia. This three-year project will reforest approximately 360 acres on 12 reclaimed mine sites across five states (Pennsylvania, Ohio, West Virginia, Virginia, and Kentucky) with high-quality native hardwood species including more than 12,000 Restoration Chestnuts 1.0.

A key component of the CIG project is the manner in which the land is prepared. Traditionally, mine reclamation involves compacting the soil and seeding with competitive, non-native grasses. For the CIG projects, the land is prepared using the Forestry Reclamation Approach (FRA), a method developed by the Appalachian Regional Reforestation Initiative, which creates a loosely graded soil to help trees grow successfully. This method also allows water to infiltrate the ground more easily and releases it more slowly from the site.

In 2013, five reclaimed mine sites were planted in Virginia, West Virginia, and Pennsylvania. Additionally, TACF and its partners hosted 14 training workshops to educate mine inspectors, students, landowners, and others about issues pertaining to mined land reforestation, chestnut restoration, and NRCS programs. The grant additionally provides funding to continue development

of TACF's Trees Database which will store, share, and track data on American chestnut plantings.

Over the next six months, TACF staff plans to host six additional training workshops and evaluate, select, and prepare the final six CIG sites.

As the project advances, "Why use the American chestnut for this purpose?" is a question we often hear. Virtually all of the land mined in Appalachia was once forested, and in the natural range of American chestnut. Historical accounts and studies have shown American chestnuts are one of the fastest-growing native hardwoods in North America, and are hardy trees that are well suited to the dry, rocky conditions found on many mined lands. Therefore, planting American chestnuts on reclaimed mine lands is a win-win situation for advocates of both chestnut restoration and proper mine land reclamation. This project is the largest planting of potentially blight-resistant American chestnuts attempted by TACF and will provide us with useful data for future restoration efforts.

Establishing these CIG plantings would not have been possible without the assistance of many partnering agencies and organizations, and the countless hours of work spent by our members and volunteers who assisted in the planting and monitoring of these projects. We would like to thank you for your efforts!



Nearly 20 feet tall, this Restoration Chestnut 1.0 was planted on National Forest land in Tennessee, in 2009, as part of the external grant provided to Dr. Stacy Clark of USDA Southern Research Station. Research technician John Johnson stands beneath the tree. Photo by Stacy Clark

TACF's Science Cabinet Awards \$20,000 in Research Grants

The science cabinet approved funding for five external research grants at TACF's 30th Annual Meeting in Herndon, VA, on October 18, 2013.

- \$8,580 to Dr. Margaret Staton at Clemson University for "Increasing the Utility of Existing Chestnut DNA and RNA Sequence Data through Bioinformatic Analysis." This research will help accomplish three tasks: identification of single nucleotide polymorphisms (SNPs) between American and Chinese chestnut; structural and functional annotation of the current version of the Chinese chestnut whole genome sequence; and characterization of differences between American and Chinese gene sequences in the Quantitative Trait Loci (QTL) for blight resistance. The SNPs will simplify identification of backcross hybrids between Chinese and American chestnut and facilitate selection for desired genes during backcrossing.
- \$2,070 to Dr. William MacDonald and Mark Double of West Virginia University for "Assessing the Integration of Host Resistance and Hypovirulence." The purpose of this project is to evaluate whether treating blight-resistant chestnut trees with hypovirulent strains of *Cryphonectria parasitica* yields better control of blight than either control method by itself.
- \$1,500 to Dr. Heather Griscom of James Madison University for "Habitat Preferences of American Chestnut in an Appalachian Cove Forest." This project will evaluate the relative growth and competitive ability of chestnut seedlings on rich versus poor sites. Additionally, it will evaluate whether the effects of gap size differ between rich and poor sites for growth and competitive ability of seedlings.
- \$1,000 to Dr. Steven Jakobi of Alfred State College for "Nutrient Media for Determination of Sexual Compatibility of *C. parasitica* Isolates." This project will help to develop a simple, time-saving technique for making crosses of *C. parasitica* on defined media in the laboratory. That will facilitate studies of the genetics of *C. parasitica*, including its virulence, enabling us to better know our enemy.
- \$6,850 to Dr. Stacy Clark of USDA Southern Research Station for "American Chestnut Research in the Southern Region." This research is to continue evaluating chestnut plantings established between 2009 and 2011 and to evaluate whether container-grown seedlings are a better planting stock than bare-root seedlings.



Symposium Features Threatened Tree Species Around the US

Less than two weeks after speaking at TACF's Annual Meeting in Herndon, VA, TACF President & CEO Bryan Burhans and SUNY-ESF researcher Dr. Bill Powell reconvened at a conference in

Asheville, NC, but this time, the topic was broader. Instead of focusing on the restoration of one tree species, the Alliance for Saving Threatened Forests 2013 Symposium explored the status of and restoration efforts for multiple tree species threatened by invasive forest pests in the US. Hosted by the Alliance for Saving Threatened Forests, the symposium provided more than 100 scientists, forest professionals, and concerned citizens the opportunity to come together to discuss their ideas, progress, and future goals.

continued on page 7



Lynn Hitchcock



Join the effort to restore the American chestnut tree to our eastern woodlands by making a gift today.

We are well on our way to bringing back the American chestnut. You can help by making a year-end tax-deductible donation.

**Donate online at www.acf.org
Call 828.281.0047**

Top **5** Reasons to Save the American Chestnut (in a nutshell)

- 1 Healthy forests** – restoring the chestnut will improve biodiversity in our forests.
- 2 Restoring an American legacy** – the American chestnut is an important part of our history and culture.
- 3 Food for wildlife** – chestnut trees provide an abundant and nutritious food source for animals.
- 4 Reclamation** – fast-growing and tolerant of poor soils, the American chestnut can help turn degraded landscapes into forests.
- 5 Road map for the future** – we're creating a template for restoration of other threatened species.



THE
AMERICAN
CHESTNUT
FOUNDATION*

**Thank you for helping
to bring back this
magnificent tree!**

Symposium continued from page 5

Both Burhans and Powell spoke about the restoration of the American chestnut as a prototype for other species. Burhans shared the background of TACF's 30 years of chestnut research; the successes that made the Foundation's mission stronger, and the setbacks that were transformed into valuable learning experiences. He also shared the future possibilities for chestnut restoration that scientists are currently exploring. Powell gave an overview of the chestnut transgenic program at SUNY-ESF and how those tools could be employed to save other threatened trees. Other topics presented at the event included innovative research on hemlocks, firs, and ash, and the pests that are associated with each.

The Alliance for Saving Threatened Forests began as an organization with a focus on finding hemlocks resistant to hemlock woolly adelgid, but the group quickly identified the need for an organization that could be a resource for all threatened trees in the US. Much like TACF, the Alliance is working to re-establish stands of trees that have been decimated by pests like the hemlock woolly adelgid, balsam woolly adelgid, and emerald ash borer. For more information, visit www.threatenedforests.com.



Alabama Member Remembered for His Enthusiasm for the American Chestnut

Alabama Chapter member Wylie Pierson Johnson passed away peacefully on November 2, 2013, at his home in Vestavia, Alabama, at the age of 94.

Johnson's enthusiasm for American chestnuts made Alabama news when in 2011, the chapter planted two Restoration Chestnuts 1.0 on his property in Bibb County, AL. The event was attended by Johnson, his family, several state foresters, and past Alabama chapter president Mac Phillipi. "Wylie remembered enjoying American chestnuts as a boy and desired to play a part their return," said Phillipi. "And he did!"

Johnson's family is requesting loved ones remember him with donations to the Alabama Chapter. Memorial donations can be sent to TACF, 160 Zillicoa St., Asheville, NC 28801.

In Memory of and In Honor of Our TACF Members September-November 2013

In Memory of

Ernest Barrier

Douglas Hundley

Delbert L. Christensen

Joan and Dennis Mills

Elizabeth Van Bossuyt

Gerald and Eileen Colbert

George A. Graham

Knox Family Foundation

Jay Frank Davidson

Guy and Normalee Anderson

Betty Chamberlin

Robert and Florinda Mendelsohn

Janice Reed

Duane and Barbara Saufley

John Young

Wylie Pierson Johnson

William and Laurie Hereford

Neva Williams

In Honor of

Joe Reardon

East Central Ohio

Forestry Association

Historical Timeline: The American Chestnut Foundation

**Pre-
Foundation
Years**

1904 - 1982



1904 Chestnut blight first noticed in Bronx Zoological Park in New York City

1905 The blight fungus identified by William Murrill at the New York Botanical Garden in New York City

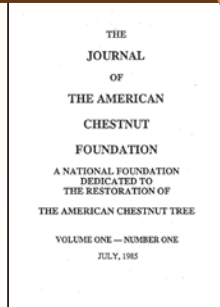


1911 Pennsylvania Chestnut Tree Blight Commission undertakes efforts to control spread of the blight (efforts discontinued in 1913)

1913 Plant explorer Frank N. Meyer identifies chestnut blight growing on chestnut native to China



1983 The American Chestnut Foundation established and Philip Rutter becomes President and CEO



1985 Creation of *The Journal of The American Chestnut Foundation*



1989 TACF establishes the Wagner Research Farm, a breeding station in Meadowview, VA, and hires Dr. Fred Hebard to manage the breeding program



1997 Marshal Case hired as President and CEO



1998 Dedication of the 93-acre Glenn C. Price Research Farm in Meadowview, VA

2004 New breeding efforts launched in Seneca, SC, to combat *Phytophthora* root rot



2005 The first potentially blight-resistant chestnuts (Restoration Chestnuts 1.0) harvested from Glenn C. Price Research Farm



2010 *The Journal of The American Chestnut Foundation* overhauled to a full-color magazine

Dedication of the Glenn C. Price Laboratory at Meadowview

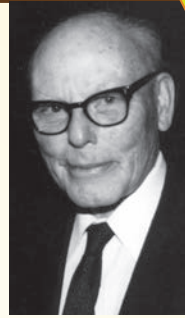


2011 State University of New York, College of Environmental Science and Forestry plants transgenic, potentially blight-resistant American chestnuts at the New York Botanical Garden

1922 USDA breeding program, begun by Walter van Fleet in 1911, reactivated under G. Filippo Gravat (program abandoned in 1960)

1930 Arthur Graves undertakes a chestnut breeding project under the auspices of the Brooklyn Botanic Garden

1947 Graves transfers the chestnut breeding project, placing it under the auspices of the Connecticut Agricultural Experiment Station



1980 Charles R. Burnham becomes interested in breeding a blight-resistant American chestnut



1990 John Herrington hired as President and CEO
TACF headquarters established in Bennington, VT



1991 Researchers begin a biological control study with hypoviruses at the American chestnut stand in West Salem, WI

1995 TACF's Pennsylvania Chapter initiates the first successful chapter breeding program



2009 Bryan Burhans hired as President and CEO
TACF headquarters move from Bennington, VT, to Asheville, NC

In partnership with the US Forest Service, US Forest Service Southern Research Station, and the University of Tennessee, the first Restoration Chestnuts 1.0 are planted in real forest environments



2012 TACF's 16 chapters report over 450 regional breeding and test orchards were planted in 20 states, including the first seed orchards in 5 states

TACF's board of directors approves the initial draft of the American Chestnut Restoration Plan



2013 TACF celebrates 30 years of restoring the American chestnut



State Chapters

1990 The New York Chapter established as TACF's first chapter

1991 Connecticut Chapter established

1994 Pennsylvania Chapter established

1996 Indiana Chapter established

1999 Maine Chapter established

2001 Massachusetts/Rhode Island, Carolinas, Tennessee, and Kentucky Chapters established

2003 Maryland Chapter established

2005 Georgia and Alabama Chapters established

2006 Ohio and Virginia Chapters established

2007 Vermont/New Hampshire Chapter established

2010 West Virginia Chapter established

Chairmen

1983-1992 Philip Rutter

1993-1994 Paul Read

1995-1998 L.L. Coulter

1999-2001 James Ulring

2002-2006 Herb Darling

2007-2009 Richard Will

2010-2012 Glen Rea

2013-present Kim Steiner



Dr. Kim Steiner, Chairman of TACF Board of Directors, welcomes attendees to the 30th Annual Meeting in Herndon, Virginia.

The American Chestnut Foundation's 30th Annual Meeting Highlights

Photos by Jon Taylor

Over the past 30 years, TACF has almost single-handedly revived and energized efforts to restore the American chestnut, elevating chestnut to the forefront of conservation issues in the eastern United States. Our 30th Annual Meeting in Herndon, Virginia, honored our past by looking back over the previous 30 years and charted our future by looking ahead to the challenge of restoring this once-dominant tree species to the forest.

The conference was kicked off with presentations by Dr. William Powell, Co-director of the American Chestnut Research and Restoration Program at the State University of New York, College of Environmental Science and Forestry; Holly Shimizu, Executive Director of the United States Botanic Garden; and Bryan Burhans, TACF President & CEO. The three speakers set the tone for what would be a remarkable series of presentations and workshops exploring a variety of chestnut research around the range. From hypovirulence studies and cutting-edge transgenic research to fungal interactions on American chestnuts planted on reclaimed coal mines and the potential for chestnut as a global food source, new learning opportunities were boundless for all the meeting attendees.

Our evenings were also full of excitement. Friday evening we were thrilled to welcome Phil Rutter, a founder of TACF and its first president. Saturday we heard from another founder, Don Willeke, TACF's current general counsel and board member. Both speakers shared their early experiences of collaborating with some of the greatest scientific minds in an effort to establish The American Chestnut Foundation.

We hope you will enjoy this collection of photographs from the event. We invite you to visit our website at www.acf.org/annualmeeting.php to view speaker presentations and the 30th anniversary slide show.



Deborah Fialka and Madeleine Nawar of the Virginia Chapter practice chestnut leaf inoculations during a Saturday workshop led by Andy Newhouse of SUNY-ESF. Leaf inoculations are a screening technique used to estimate chestnut blight susceptibility on trees of any age with minimal damage to the tree. After receiving technique background and viewing demonstrations, attendees had a chance to practice the method themselves.

An attendee practices the leaf inoculation technique by inserting a plug of blight inoculum into the mid-vein of a chestnut leaf.



Dr. Martin Cipollini of the Georgia Chapter presented a workshop on monitoring and controlling ambrosia beetles in chestnut orchards. Following Dr. Cipollini's presentation, attendees had an opportunity to create their own ambrosia beetle traps out of common household products. Pictured are Linda McGuian, Martin Cipollini, Sam Watkins, Matt Brinckman, and Cathy Mayes.



Cathy Mayes of the Virginia Chapter shows off the ambrosia beetle trap she built in Dr. Cipollini's workshop.



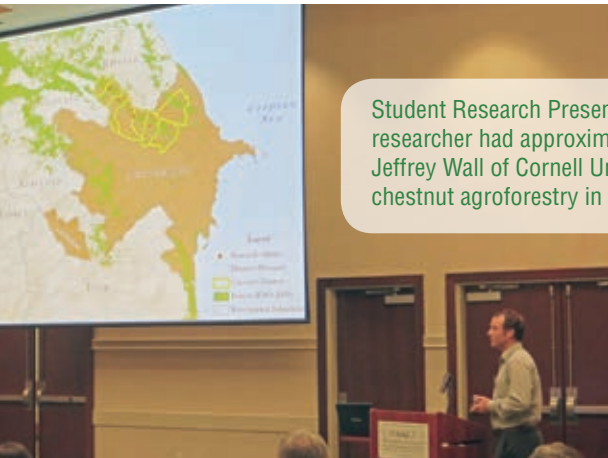
Dr. Dennis Fulbright of Michigan State University discusses the opportunity to initiate chestnut farms in North America based on observations from farms in other countries.

TACF 30TH ANNUAL MEETING

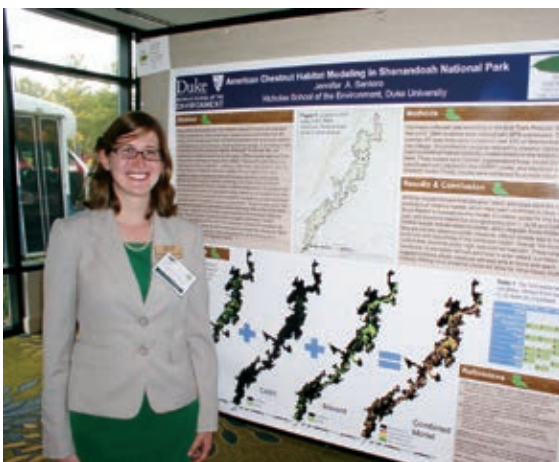
The Connecticut Agricultural Experiment Station scientists have long been contributing to studies on American chestnut growth, timber use, breeding, and host and pathogen interactions. Dr. Sandra Anagnostakis presented a fascinating overview of the station scientists and their contributions.



Student Research Presentations were a new element in the annual meeting schedule this year. Each researcher had approximately 10 minutes to give a snapshot presentation to a packed room. Pictured here, Jeffrey Wall of Cornell University Department of Natural Resources presents his research on “Traditional chestnut agroforestry in the Caucasus Region: A model for sustainable mixed-use landscape in the US.”



For the second year in a row, TACF’s annual meeting poster session drew over 20 chestnut researchers from all over the United States to display their work. This session gave meeting attendees an opportunity to learn about a wide variety of ongoing investigations and pose questions to the researchers.



Jennifer Santoro, 2013 Duke Stanback Intern and graduate student at Duke University’s Nicholas School of the Environment, presented her research on American chestnut habitat modeling in Shenandoah National Park for both the poster session and the student research presentation session.

Students from around the chestnut range presented their research for the poster session. From left to right: Elise Elwood, College of William and Mary; Hannah Angel, University of Kentucky; Kathryn Vescio, Penn State, Harrisburg; Taylor Cochran, Miami University; Caleb Cochran, Miami University; Jennifer Santoro, Duke University; and Michael McCampbell, Frostburg State University.





The anniversary gala on Saturday night featured a gourmet chestnut meal, a silent auction featuring chestnut art and woodwork, and a slide show of images from the foundation's 30-year history.



Dr. J. Hill Craddock beside three of the 2013 photo contest finalists. Directly to his left is the photo taken by his student, Anshpreet Kaur. The photo in the center is the contest winner, *Ghost Chestnut*, by Jon Taylor. Photos can be viewed at www.acf.org.



Dr. Bill Lord received an award from TACF Board of Directors for his hard work and dedication to preserving the foundation's history. Other award recipients included Brian Clark, Greg Miller, and Greg Weaver, who were honored for their outstanding volunteer service. Photo by Judy Antaramian



Sunday morning, Dr. Fred Hebard, TACF Chief Scientist, led a tour to a large, surviving American chestnut tree on the property of Virginia Chapter President Jack LaMonica in Marshall, Virginia. Photo by Jack LaMonica



The American chestnut on Jack LaMonica's property is an impressive 24 inches in diameter at breast height. There is an especially high concentration of large, surviving American chestnut trees within 50 to 75 miles of Washington, DC. Photo by Jack LaMonica

**Give A Gift They'll
Remember All Year**

**Membership in
The American
Chestnut
Foundation**



Photo by Brian Fox

A gift of TACF membership for your friends or family members is ***a gift that comes from the heart.***

It's an opportunity to share with them one of the greatest environmental success stories of our time.

And it's a chance to help TACF reach our goal of restoring the American chestnut to our eastern forests.

**Three easy ways to share the
gift of membership:**

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- Order online at www.acf.org



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From Thirty Years Ago to Thirty Years from Now

The Banquet Address at the 30th Anniversary Annual Meeting of The American Chestnut Foundation

By Donald C. Willeke, a Co-founder, Director and General Counsel of The American Chestnut Foundation; former Secretary; former Vice Chair for Science; and first Editor of *The Journal of The American Chestnut Foundation*: October 19, 2013

Introduction and Apologies

The title of my address is “From Thirty Years Ago to Thirty Years from Now,” and I was asked to speak to you on that subject because I am the last of the original founding directors and officers of The American Chestnut Foundation (TACF) who is still working with the Foundation. My remarks are directed primarily to our regular contributing members—those who are the backbone of our organization.

Before I begin, I must deliver an apology, which is a rare thing for me to do: When our president asked me to address this banquet, I thought it would be easy. I have given hundreds of banquet and convention addresses during my service as president of American Forests and chair for the National Urban Forest Council and Minnesota’s Urban Forest Council. When it came time to prepare my talk for tonight, I ran into a huge problem. I had thought I could emphasize the tremendous efforts volunteers and employees of our Foundation have made over the past 30 years, and so I started listing all the people I wanted to mention, many of whom are here tonight but many are no longer with us. When my list got to nearly 90 names, I realized that if I said only 20 seconds worth about each person’s contribution, I would use up all my allotted time.

So I have reluctantly decided that in speaking of a 60-year span in the life of our Foundation, I must omit describing most of my wonderful colleagues—past and present—by name and accomplishment and just concentrate on our Foundation itself: Where did it come from? Where has it been? Where is it now? And where will it be going?

I must also make a second apology: In the short time I have, I must omit the telling of many important acts that have occurred and contributions—scientific, financial, and sweat-generating—made over the past 30 years. For that, too, I apologize.



Don Willeke shakes hands with Former President Jimmy Carter at the dedication of a chestnut exhibit at The Carter Center in Atlanta, GA, on September 21, 2005.

From Thirty Years Ago to Today!

Our Foundation’s story began—as have so many great things in America—in the state of Minnesota; actually, it began over 32 years ago. In 1981, I had been leading the battle for Minnesota’s urban forests since 1974 as chair of its Urban Forest Council. In my work I often consulted my now departed dear friend and mentor, Dr. David French, who headed the University of Minnesota’s Department of Plant Pathology.

One day Dr. French said to me: “Don, given your interest in trees and your past questions to me about the fate of the American chestnut, you may want to join some of my colleagues at some meetings we’re having at the University of Minnesota.” I did, and there I met Philip Rutter and the internationally prominent cytogeneticist, corn breeder, and University of Minnesota Professor Charles Burnham, and a number of other Minnesota scientists. I learned that Dr. Burnham had been conferring with Nobel Peace Prize Winner Dr. Norman Borlaug, who had been Burnham’s student, about the fate of the American chestnut, which many scientists considered “dead and gone.” Dr. Burnham, then in his 80s, was one of the people who had worked on the development of hybrid corn many decades before, and he disagreed with the experts. So... like any good Minnesotan, he took it as a challenge.

The nineteenth-century newspaper editor Horace Greeley is reported to have said: “Go west young man, go west!” But he is also reported to have added, “But don’t go to Minnesota because they can’t grow apples there.”

In the mid-1800s, this statement only challenged Minnesotans, and as a result some of the finest varieties of apples were developed there, which continues to this day. Have you ever had a Honey Crisp, Haralson,

Wealthy, or one of the other 100-odd Minnesota-developed apples? The same has occurred there with azaleas and grapes. And, of course, the development of rust-resistant wheat was led by Minnesotans, including Dr. Borlaug.

So Dr. Burnham got to work, and also assembled what I call a “Chestnut Brain Trust” of remarkable scientists. You can read their names in the superb history of our Foundation that my friend Dr. William Lord has assembled. If I described their efforts and thanked them all, I would be right into the speech length I have avoided.

Those scientists knew that the United States Department of Agriculture had tried before to breed blight-resistant chestnuts; but when their first generation American-Chinese hybrids had less resistance than their Chinese parents, they bred the progeny back to Chinese again to try to get more resistance. Predictably, they ended up with trees that were largely the shorter, less hardy Chinese in form and overall genetic composition.

Dr. Burnham knew working with corn and wheat involved the now-famous backcross method, and if used with chestnut the recurrent parent would be American—not Chinese. Thus, even though fewer and fewer progeny would carry the gene for resistance to blight and therefore would be selected to advance to the next generation of backcross breeding, the resulting trees would be more American in form and other genetic characteristics. Finally, unrelated lines could be crossed to double the genetic material for resistance. It worked just fine for corn and wheat plants, so it should work for the American chestnut, the plant that Dr. Borlaug called “the grain that grows on trees.”

With the advice and cooperation of the Chestnut Brain Trust, chestnut breeding work that the originators had started was continued. But there were two huge problems: (1) no money and (2) no land. Dr. Burnham contributed \$5,000 of his own retirement income to support a modest breeding program employing the scientific methods he and other Minnesotans had used with such success in other species. And when there was no more space in the relatively inhospitable climate where the great University of Minnesota is located, some plantings of early chestnut breeding efforts made by Dr. Burnham were placed at Oberlin College, and some others were set out in several forest preserves. But all were soon lost, as was other important breeding material.

Nevertheless, Drs. Burnham and Borlaug figured that employing the backcross method of plant breeding would work. Dr. Burnham started with some crosses

that existed in 1980 between blight-susceptible American chestnuts and blight-resistant Chinese chestnuts that had been provided by Dr. Sandra Anagnostakis and Dr. Richard Jaynes at The Connecticut Agricultural Experiment Station. The scientists figured blight-resistant chestnuts could be developed by about the year 2040, or in about 60 years. After that, restoration could take another 40 years or more. So they were talking about a 100-year effort.

I was in my early 40s at the time, so I thought I probably would not see the final result; but I’m a tree advocate, and I believe in Reverend D. Elton Trueblood’s famous comment, “A man has at least made a start on discovering the meaning of human life when he plants ... trees under which he knows full well he will never sit.” And in my speeches on urban forestry around the nation, I often combined this with Dr. Margaret Mead’s famous comment, “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has.” So my colleagues and I never doubted we could and we would change the world by bringing back and then restoring that most important of all American deciduous trees, the American chestnut.

During 1980 or 1981, I first attended meetings of the Chestnut Brain Trust. I was the first non-scientist in the group. So we set about solving the problems of no money and no land. Now you all know the old saying: “If the only tool you have is a hammer, every problem looks like a nail.” Thus, to a business and corporate lawyer like myself, the answer looked like a very obvious legal nail: create a permanent corporate body that could raise funds and own land in perpetuity and do the century-long job of restoring the American chestnut.

So I helped the scientists nail down our answer. After some argument, and you know how academics love to argue, the people in our meetings at the University of Minnesota agreed with me. On June 22, 1983, my 43rd birthday, the Articles of Incorporation of The American Chestnut Foundation were signed and filed with the appropriate authorities. Philip Rutter became the first president and chief executive officer.

Along the way it was decided the Foundation needed an “official publication” and so *The Journal of The American Chestnut Foundation* was born two years later in July, 1985. I know, because I typed each and every word of volume 1, number 1, and subsequent early editions of *The Journal*, not on a Macintosh, which had not yet even been invented, but on Apple Computer’s “Lisa” machine—the precursor of the Macintosh, which



Thanks to generous support from Mary Belle Price, Brad and Shelli Stanback, TACF's Ohio Chapter, and the Norcross Wildlife Foundation, TACF was able to build and equip the Glenn C. Price Research Laboratory.

had cost me \$8,000 even though it had few characteristics of modern inexpensive laptops.

It soon became clear to the new Foundation's board of directors that land for the breeding program was needed in the native range of the American chestnut, despite Rutter's successes in growing chestnuts near Rochester in southern Minnesota. And it also became clear that to raise sufficient funds to succeed, the Foundation would need to appeal to people and institutions located in that native range. Minnesotans can do a lot, but we are modest enough to know we can't save the entire world solely by ourselves! So under Rutter's untiring leadership, land was located in southwestern Virginia and he loaded his car with lots and lots of small potted chestnut hybrids and headed east.

Through the superb generosity of several people most of you know very well, and with the self-sacrificing and untiring efforts of a young scientist named Dr. Fred Hebard, the Foundation's first research farm was established. Dr. Hebard made many trips to Connecticut to begin the breeding work, planting the offspring near Meadowview, Virginia, in the late 1980s on land that was owned by a Minnesota-related family, the Wagners. Sensing the Foundation needed full-time leadership, Rutter led the Foundation to hire its first executive director, John Harrington, who was succeeded by Marshal Case and now Bryan Burhans. Dr. Hebard and

our three executive directors all have made great contributions which would take hours to describe.

The four TACF research farms that have been obtained with the great help of Mary Belle Price and the Wagner family and many other hugely significant figures have made possible an accelerated chestnut breeding program that is truly amazing.

Dr. Ronald L. Phillips, the Regent's Professor of Genomics at the University of Minnesota, and at that time the Senior Scientific Advisor to the United States Department of Agriculture, headed the team of outside scientists who conducted our first scientific audit in the 1990s. I will never forget when Dr. Phillips delivered the team's report to the board of directors at a time when I chaired the science committee—or science cabinet, as it is now known. After viewing the many thousands of trees Dr. Hebard had carefully grown and documented, Dr. Phillips—who is a very quiet and soft spoken man—responded to my quere as to what he thought, and he quietly and softly said: “I'm just blown away by seeing what the Foundation has done.” Scientists like Dr. Phillips rarely talk like that!

Since then, many other scientists and laypersons have also been “blown away” by seeing what the Foundation has done with very limited resources in terms of tree breeding and other scientific work on chestnuts. Amongst those “blown away” people was a layman,

the late Glenn Price, and his lovely wife and now widow, Mary Belle Price, who have helped to make possible our additional research farms and fine laboratory. Dr. Hebard and our other scientists (all of who deserve mention here but unfortunately will not get it) have greatly reduced the time between generations of trees and have accelerated the backcross breeding process beyond what anyone had thought possible, because they can get chestnuts to flower at very early ages.

From the beginning, the Foundation has not just focused on breeding, and all of our members need to understand this. Our approach has been to work on everything, and to investigate every possible approach which could aid the restoration of the American chestnut. Directly, and through small but important research grants, the Foundation has stimulated work in many areas. Here are some of them:

- Back in 1985, the very first issue of *The Journal of The American Chestnut Foundation* contained an article by Dr. William L. MacDonald, who was then a new director of the Foundation and later its long-serving treasurer, entitled “Hypovirulence: A Potential Biological Control for Chestnut Blight.” We have continued to emphasize this field right from the beginning. I know because I had to argue strenuously that we do so in early board meetings. Under Dr. MacDonald and Dr. Dennis Fulbright (also a Foundation director and secretary at various points and editor of *The Journal*), strong research is continuing into hypovirulence in Wisconsin and Michigan, especially at the West Salem, Wisconsin, stand, which was preserved for research by the Foundation under Dr. MacDonald’s leadership.
- One of the Foundation’s earliest grants was to Dr. Paul Read (who became president of the Foundation after Philip Rutter) for *in vitro* propagation of chestnuts, and we have continued to sponsor this research in other institutions.
- We have focused on the devastation that *Phytophthora cinnamomi* causes to chestnuts in low-lying, moist areas. This research is ongoing under Dr. Joe James’ enterprising and vigorous leadership and personal hard work.
- Through the excellent work of our New York Chapter under the leadership of former Foundation President Herb Darling and our beloved friends Arlene Wirsig and the late Stan Wirsig, genetic transformation of chestnuts is being investigated and much progress is being made by Dr. William Powell and his colleagues.
- The Foundation has also promoted research on reestablishing chestnut on lands previously mined for coal. Amazingly, we discovered we could establish vigorously growing chestnuts when the mined soils were properly prepared for tree planting with only minimal grading.
- We have sponsored research, working with the U.S. Forest Service, into the genomic analysis of chestnuts that has gained much scientific attention.
- Our work, and that of our affiliates in the West Salem, Wisconsin, stand and in Michigan, has provided much insight into chestnut silviculture and how the American chestnut could thrive and spread if freed from the blight, and how hypovirulence could be used to ameliorate chestnut blight.
- The superb and dedicated volunteers in our state chapters have done wonderful work in many areas, including regional adaptation of our breeding lines, preservation of local and regional chestnut genomic material, and restoration projects, amongst many other activities. Our state chapters represent the front lines of the Foundation. They are the backbone of our on-the-ground efforts. The current issue of *The Journal of The American Chestnut Foundation* amply illustrates the multitude of those efforts being made by the chapters.
- We continue to investigate what our Senior Scientific Advisor, Dr. Albert Ellingboe, always warns us about, namely the well-known and often observed scientific phenomenon of “host–pathogen interaction.” Indeed, what is happening to wheat right now due to the devastating “Uganda 99” strain of rust (to which Minnesota scientists have found a possible remedy) should be warning enough that we ignore this threat of host–pathogen interaction at great peril to our mission of restoration of the American chestnut.

So...Where Are We Now?

Like little kids in the car on a long road trip, many of us who are “kids” in our hearts and minds continue to ask: “Are we there yet?”

And the adults amongst us answer: “No—we have a ways to go, but we are making progress. So be nice and sit down and talk to each other.”

Every area in which the Foundation is working is showing great progress. So if you are impatient or—like me—curious, sit down and talk at this meeting with

Drs. MacDonald and Fulbright about hypovirulence; or to Dr. James and Dr. Paul Sisco about resistance to *Phytophthora cinnamomi*; or to Dr. Hebard and our other scientists about the most recent BC4F3 crosses; or to former President Darling and Dr. Powell about our genetic transformation work; or to Rex Mann, Dr. Brian McCarthy, Dr. Carolyn Keiffer, and Nathan Hall and other scientists about chestnut regeneration and restoration, especially on surface mine land spoils; or to any of the other brilliant and dedicated scientists and laypersons working in many Foundation areas who are in attendance at this 30th Annual Meeting. Indeed, one of the great pleasures I have had over the last three decades is to meet and talk with such wonderfully intelligent and immensely dedicated people who are giving so much of their lives to the many facets of our Foundation's mission, namely that of the restoration of the American chestnut.

I urge you all to seek out these people and the many others at this meeting, including our highly dedicated regional coordinators and state chapter presidents and representatives, and just ask them: "What are you doing, and why and how are you doing it? Please explain it to me." If you do this, you will experience some of the joy I have had in this quest.

Are we making progress? Yes, very definitely! Do we have a long way to go? We sure as heck do—we think we have at least another 70 years to go before we will have achieved the Foundation's mission of restoration of the American chestnut. Will any of us live to see it? Maybe Foundation Director and Treasurer Steve Barilovitz's son might, whom I took great pleasure in introducing to many Foundation members years ago when he was a young teenager, but most of us here tonight will not.

But should that mortal fate deter us? Not if we believe what Reverend Trueblood, Dr. Mead, and the Prophet Isaiah (about whom more in a minute) believed.

Where Do We Need To Be in Thirty Years and How Will We Get There?

The great Danish physicist Niels Bohr said, "Prediction is very difficult, especially if it is about the future." As a Minnesotan, I've always believed we can do the difficult right away. The impossible will take us Minnesotans, and the rest of us TACFers, a little more time...and so it has!

First a little background. Early on—about 1994, I think it was—while I was president of American Forests and also serving as secretary and general counsel and a



Dr. William Powell, Dr. Charles Maynard, the SUNY-ESF research team, and members of the New York Chapter of TACF pose by a transgenic, potentially blight-resistant American Chestnut at the William White orchard in upstate New York.

director of our Foundation, I went to see the Associate Director of the United States Forest Service in charge of Research, Dr. ...well...let's just refer to him as Dr. X... in his USFS office in Washington. I briefed him on the work of The American Chestnut Foundation, gave him a lot of our technical materials, and asked him if it would be possible to find a little room in the USFS budget to support chestnut research. "Impossible" was his curt and dismissive reply, and he added: "The chestnut is gone and its place has been taken in America's forests by other trees." I left his office dejected and beaten down and walked on the Washington Mall for an hour to calm my frustration.

But I am happy to report that instead of the chestnut's place being taken in the forest by other trees, Dr. X's place has been taken in the U.S. Forest Service by people with far greater vision, and the Forest Service's present group of wise and far-seeing people has become a wonderful partner of our Foundation.

OK! My "Plan A" had failed, so I tried "Plan B." After my disappointing visit at the USFS with Dr. X, I went to a senior official of Westvaco, which was then the largest owner and lessee of timberlands in the eastern U.S. I told him all that we were doing in the Foundation, and invited him to send his scientists down to Meadowview to see for themselves. Then I asked him if Westvaco, which has since been merged away, could contribute \$250,000 a year to chestnut research. He said: "No, Don, we can't, because we at Westvaco are seeking ways to obtain 'order of magnitude' increases in wood fiber production on our eastern U.S. lands." I replied: "If it is not a business secret, could you share with me the species you are promoting, since I wonder if it has any of the capabilities of the American chestnut?"



Georgia Pacific employees Julie Baty and Erica Barnett work with TACF volunteers and staff to establish a test planting on Georgia Pacific land. Plantings like these help TACF test and evaluate the blight resistance and the American growth characteristics of our trees.

His response: “No problem. It’s eucalyptus. We can’t do anything with the chestnut.” I left his office dumbfounded. As an American conservationist, and a tree lover, I wondered if he were not a direct mental if not genetic descendent of the royal Bourbon family that ruled France for so long and ended so disastrously, and whom Charles Maurice de Talleyrand famously excoriated by saying, “They have learned nothing and forgotten nothing.”

As a major footnote, I’m happy to report that the enlightened management at the new MeadWestvaco is working with the Foundation by supporting our legacy tree orchard and helping us test our trees. In addition, Georgia Pacific is also helping the Foundation. Both of these large entities now clearly see the potential future of the American chestnut and what it could do for them and for America.

So...after those two futile and frustrating encounters with the powers that then existed, I thought, like the Little Red Hen in the children’s story you all know so well and have read to your kids and grandkids hundreds of times, “All right. We shall just have to do it all ourselves.”

And we did my friends. We sure as Heaven did! We are the “Little Red Hens” of the tree business.

I have told you these two sad stories to warn you of the troubles we face in the future. And I must caution

you as well that the Foundation would never have survived and thrived without the immense generosity and dedication of Brad and Shelli Stanback and the Stanback family, Mary Belle Price, Dick Will, and a few other large donors.

But we cannot rely solely on them forever. We must find new sources of revenue and we must combat new stumbling blocks to our success. What are those stumbling blocks? Here are the main ones:

The greatest trouble is stupidity. As President Harry Truman reportedly said about Washington, DC: “If stupidity was a crime in this town, we’d have to use the stadium as a jail.” Whether we like it or not, we have to use every possible tool to combat ignorance about the American chestnut.

The second problem we face is apathy. Some will say: “Almost no one cares about the American chestnut anymore.” My simple answer is: “The only ones who do not care are those who do not know what it was, nor what it can once again become.” So we must make a strong effort to tell others of both the past and the future of the American chestnut so its history and its potential are not lost.

The third greatest stumbling block is those who do not take the long view and plan for the future. Many of you know of the fights I and others have had to keep The American Chestnut Foundation from giving away its birthright and—like the Little Red Hen—to keep the Foundation from giving away the products it has worked so to achieve and obtain, rather than utilizing what it has produced as leverage to supply the energy and lift needed to achieve the century-long goal of the ultimate restoration of the American chestnut.

Make no mistake about it: Our fight to restore the American chestnut will take not only resistance to stupidity and apathy, but also a very determined and dedicated effort to find the resources to finance this fight. Finding those resources should be the first and paramount goal of the next 30 years of The American Chestnut Foundation.

I say that because the *financial* needs are great—far greater now than they were when I made my futile appeals to the U.S. Forest Service and Westvaco.

But just as the needs are great, so the vision is equally great if not greater. Our vision is nothing less than hundreds of different lines of “American-style chestnut trees”—with resistance to chestnut blight and *Phytophthora cinnamomi* achieved through conventional



An American chestnut rises skyward from its hilltop overlook of TACF's Glenn C. Price Research Farm.

breeding and hopefully aided by new scientific techniques and hopefully also protected by hypovirulence factors to debilitate the blight fungus. Those trees will be planted widely throughout the natural range of the American chestnut, and those trees will be aggressively propagating on their own as only the chestnut species knows how to do in so-called “disturbed” forest ecosystems (and what of our American forest ecosystem is not disturbed these days?). And all the while they will be providing the timber, wildlife cover and sustenance, carbon sequestration, scenic beauty, mine land spoil reclamation, and the many other benefits that only the American chestnut is capable of giving us in such great abundance.

Conclusion

But let me conclude by telling each of you that our work on the American chestnut can give to every one of us as individuals and participants far more than we give to that great tree that was once 25% of our Eastern forests.

Our work on the American chestnut can give us the satisfaction of fulfilling Thomas Jefferson’s view that “The greatest service a citizen can render to his country is to add a useful plant to its culture.” We—if we succeed—will be ADDING BACK to America’s culture perhaps the most useful tree in all of God’s Creation.

And speaking of the Creator reminds me of the well-known last line of Joyce Kilmer’s famous and often improperly maligned poem, that “Only God can make a tree.” Maybe Mr. Kilmer should have added a final line (even though it would not rhyme). He could have

written: “But each of us can help.”

Many of you know of my great fondness for the writings of the Prophet Isaiah. I had to memorize great chunks of his book when I was a boy. I love its poetry, and I especially love Isaiah’s frequent references to trees. But most of all I love his wonderful prophecy in Chapter 55 of the coming of a time of peace when:

“Instead of the thorn shall come up the fir tree,
And instead of the brier shall come up the
myrtle tree:
And it shall be to the Lord for a memorial,
For an everlasting sign that shall not be cut off.”

If Isaiah were writing 3,000 years later than he did, he might have written:

“Instead of the thorn shall come up the
chestnut.”

In any case, the beauty of that time of both arboreal peace and world peace is something that each of us who cares about the American chestnut should not only contemplate but also work for, because, as Isaiah prophesied, then:

“Ye shall go out with joy
And be led forth with peace;
The mountains and the hills shall break forth
before you into singing
And all the trees of the field shall clap their
hands.”

If we work hard enough, my friends: so they shall,
...so...*they...shall!*

The American Chestnut: 30-Year Forecast

By Lisa Densmore



The forecast for American chestnut trees is bright. With the Green Mountains as a backdrop, chestnut burs glisten in the sun on an American chestnut in Berlin, VT. Photo by Dan Comerford

Imagine turning onto Chestnut Street in Pick-Your-Town, USA. A line of American chestnut trees anchors the landscaping down the lane. From there, you turn up Chestnut Hill. Chestnut trees are scattered here and there, growing in people's yards. In fact chestnuts have returned to every place that carries the name. At Christmas, the chestnuts we roast over an open fire are harvested from American orchards rather than European ones. We buy furniture made from chestnut wood. Chestnut trees have returned to their historic range. It's an exciting outlook, the culmination of decades of research, experimentation, and technological advances, and it's plausible, much of it within 30 years, according to the leadership at The American Chestnut Foundation (TACF).

"In 30 years, we will have blight-resistant chestnuts," says Kim Steiner, Chairman of TACF's Board of Directors and Professor of Forest Biology at Penn State University. "It will be resolved. There will be no more thought of extinction. The blight will be a historical footnote. We won't have chestnuts all over our forests by then, but the process will be underway. There will be a few places with groves of living, unblighted chestnuts of impressive size that will give people hope of a total restoration."

"My grandkids will see American chestnuts as part of our forests in their lifetimes," predicts Bryan Burhans, President & CEO of TACF. "The tree will be transitioning from research and development to full reintroduction



J. W. Lauderbach's *Gathering Chestnuts* was published in the *Art Journal* of 1878 and is based on a scene from Philadelphia's Fairmount Park.

of the species. Whether the final product results from our backcross breeding program, genetic engineering, or both, we'll have trees that will survive a long time and provide timber and wildlife habitat. These trees will do what the 'old timey chestnut' did before. It will be possible due to advances in technology."

The Science

"Our strategic focus is on technologies that address the chestnut challenge," explains Burhans. "As we move forward, TACF scientists and partners will need to expand their efforts to develop advancements in technology and focus these developments to support our state chapters' breeding efforts. The key is to implement and improve our effectiveness to develop the best tree possible."

According to TACF Chief Scientist Dr. Fred Hebard, "We are not waiting for a technological breakthrough to develop a blight-resistant tree; we are already using

solid science. However, we are always striving to make improvements. For example, we are investigating the use of genetic markers as a technology to advance our breeding efforts. We're also learning how to use hypoviruses to overcome the blight fungus. We're gaining an understanding of which genes allow a tree to resist blight and other diseases like *Phytophthora*. It takes incremental steps to make trees better and better."

Over the next three decades, the path toward restoration will be more a biological tug-of-war than a straightforward march. The blight fungus will inevitably change due to selective pressures to overcome resistance, and then the trees must resist the new blight strain. Burhans is confident the information flow back and forth between TACF's backcross breeding program, which develops resistant trees using traditional breeding, and the biotech program, which puts resistant genes into chestnuts in a lab, will lead to trees that survive to maturity. He points to TACF's chapters as the critical piece in the breeding puzzle.

The Membership

Over the next 30 years, TACF will continue to depend on its state chapters to accomplish restoration. Chapters range in size from 100 members in West Virginia to 1,000 members in Pennsylvania and New Jersey. Currently, TACF has almost 6,000 members, of which 1,000 are very active in supporting local on-the-ground efforts. Still, TACF membership will need to grow if the foundation is to achieve its goals.

“Most of The American Chestnut Foundation’s members love to have their hands in the dirt,” says Sara Fitzsimmons, TACF’s North Central Regional Science Coordinator. “Most are planting trees. But we need to engage additional folks who love development, outreach, etc., in addition to planting. Breeding work alone can burn out a volunteer, yet we’re now asking our volunteers to do much more.”

When TACF was founded, it was primarily made up of professional scientists. Over time, TACF expanded its realm and recruited more and more citizen scientists, which led to the formation of its state chapters. In the future, new members will be needed to talk to their communities, manage websites, and contribute to newsletters. The size of TACF will inevitably increase, but its membership will still retain its enthusiasm for the American chestnut tree. How big will the membership become in 30 years? Fitzsimmons speculates around 30,000, with 5,000 active members at any one time, if TACF fully reaches its goals.

“Thirty years from now, the mix of people in TACF will have to have grown to get the job done,” explains Fitzsimmons. “In the restoration phase, we’ll need to do more as an organization, and we’ll need more money to do it, which means fundraising. We’ll also need public outreach because we’ll be more in the public eye. We’re hoping to change and revitalize forests that are public space; an outreach program will be necessary to build support for that. Within TACF, science has always driven enthusiasm. Members feel integral to the scientific process. In 30 years, we’ll need to sustain this enthusiasm even though not every member will be physically planting trees.”

The Government

Although chestnuts developed through the backcross breeding program will not require government approval prior to planting in the forest, trees developed through the biotechnology approach, currently under development at the State University of New York’s

College of Environmental Science and Forestry (SUNY-ESF), will require extensive government review and approval before any of them can be planted. This process will involve approvals by three government regulatory agencies: the United States Department of Agriculture (USDA), the Food and Drug Administration (FDA), and the Environmental Protection Agency (EPA).

“In the biotech program, right now we have four to five different trees that look really good,” says John Dougherty, a member of TACF’s Science Cabinet. “In one to two years, we’ll select a lead tree that is as or more resistant to the blight than the Chinese chestnut. Then we’ll begin the approval process, which will take a minimum of three years. We’ll learn a lot through this process that will feed back into the program. Then, we’ll feed more information and the results from our tests to the agencies as we get it. It’s a rigorous process and very good. It’s the same for a nonprofit organization as a multinational corporation. It’s going to take money, expert scientists, and public education. We need to tell the story of what we’re doing.”

TACF’s story in future years mirrors the criteria for getting through the regulatory process. The USDA will require the new American chestnut to look and behave like a traditional chestnut tree. It must flower and breed the same and have the same growth rate. Its nuts must have the same nutritional make-up and act as a food for wildlife, domestic animals, and people. Its timber must have the same graining, and it must reach canopy height. The FDA will look closely at its safety as a food, determining such things as whether its proteins and carbohydrates are the same. To pass the EPA’s testing, it will need to be identical ecologically, that is, supporting the same soil bacteria and invertebrates, and providing browse for deer. If the blight-resistant tree passes these tests, it will be approved for reintroduction into the forest.

“No one has done this before,” explains Dr. William Powell, Director of the Council on Biotechnology in Forestry at SUNY-ESF, who has been deeply involved in TACF’s genetic engineering program. “We can plant now under permit rather than start from scratch when the approvals are done,” says Powell. “We’ll have thousands of trees. The American chestnut will be the model for restoration. We could potentially apply the techniques we are developing to resolve many other tree issues such as the emerald ash borer, hemlock woolly adelgid, and thousand cankers disease, which affects walnut trees.”



A climber summits the canopy of the Berlin tree in Vermont. Photo by Dan Comerford

The Vision

In the future, in addition to having American chestnuts in the forest, eating their locally grown nuts, and being on the cusp of having trees mature enough to harvest, Powell envisions the chestnut tree as a potential replacement for ethanol fuels. “One mature tree can produce enough carbohydrates (nuts) in the same area as corn,” says Powell. “We’ll be planting multipurpose chestnut orchards separate from forests that are 100 acres in size. The best nuts will become human food and the low-quality nuts will be ground for livestock or ethanol. The farmer wins either way! We already have the trees, but they need to be confirmed in the field.”

John Dougherty likens the next 30 years to running a 400-meter relay. “We’re passing the baton at the 100-meter line right now,” he says. “We’ve got the stride right, the process; the length of stride, the time line; and the teamwork between our backcross and transgenic programs. One piece of knowledge in one program

aids the other.... If the government says this looks good, by 2030, there could be 6 million trees out there. We’ll be into our second and third generations in about half the time through experimentation, evaluation, and advances in technology.”

It will be difficult to miss 6 million chestnut trees. In 30 years, hikers along the Appalachian Trail will rest by them. People will read about them. A turkey hunter might lean up against one as he calls in a gobbler.

“I envision the American chestnut to be the panda bear of trees,” says Sara Fitzsimmons. “In 30 years, people will see chestnut trees. They’ll know about them like they know about panda bears. It will be a charismatic megafloa. And if chestnut trees are out there, it will stand for the good long-term health of that forest.”

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This American chestnut was planted nearly 40 years ago by E. Leroy Souther, Jr. Photo courtesy of the Souther family

His DNA Had a Cambium Layer

By Ernest Souther

E. Leroy Souther, Jr., who died March 14, 2013, at 98 years of age, lived in Livermore Falls, ME, and was a member of TACF from 1995 to 2006. His son, Ernest "Ernie" Souther, wrote this article in memory of his father.

Dad and I were in the woods at first light. Deer hunting was always very important to him. I was placed on higher elevation overlooking a good run, and Dad went to check some other spots. I was surprised to see him returning so soon. He said, "Follow me." His pace was not his usual hunting stride. He pointed at a tree still bearing leaves in mid-November. "Do you know what that is?" he asked.

"Looks like a beech to me."

"That is a healthy, nut-producing American chestnut."

He showed me some burs and told me to look around for some nuts. He found three and I one, but none of them was of good quality, he said. While he was looking for more, I spotted some burs still in the tree. I climbed it and went out on a limb as far as I dared. I threw an apple I had with me at a clump of the burs. It struck the clump, and two burs fell. Dad heard them hit the ground and was surprised to see me up in the tree. He went to where the apple had fallen, picked up the burs, and a wide grin covered his face. He held up six, full, round nuts. I got out of the tree and we left the woods.

Dad was as happy with those nuts as he would have been if we'd gotten a 10-point buck. That was my first experience with an American chestnut.

Years later, while I was in the Air Force, Dad told me of how a logging crew had cut down that tree; his disappointment was very evident. Over the years he planted many nuts and saplings he got through his forestry connections. In 1995, he joined The American Chestnut Foundation and shared their newsletter articles with me whenever I was home. Every time the blight took one of his plantings it was as if he'd lost a close friend. But he planted more--on low land, on high land, in different soils, in the open, under the cover of other trees; he was determined to succeed.

Later, while he was still able to get around, someone brought him some saplings that were the result of Asian and American chestnut backcross breeding. He planted them, but he still strongly favored seed from pure American chestnuts. Years after I got out of the service, he showed me two trees he had planted on a high ridge that seemed to be doing well.



As members of the American Tree Farm System, E. Leroy Souther pictured with his wife Melvina with their Tree Farm sign. Photo courtesy of the Souther family

In 1995, I drove him and my mother to my daughter's high school graduation in Florida. On the way back I figured Dad would like to take the Skyline Drive that overlooked the Shenandoah Valley. We saw much of agricultural interest and wildlife of many kinds. But when we stopped to stretch and walk a bit, he saw the tops of some American chestnuts. His excitement was without bounds! If he had been more mobile, I'm sure we would have spent hours there. A split rail fence edged the turnoff and he studied it closely. He said it was most likely American chestnut, had been there many years, and would be there long after he and I were no longer around.

By 2001, Dad became legally blind with macular degeneration. Not being able to read annoyed him to no end, so it pleased him when I read articles about American chestnut from *National Geographic*, the *New York Times*, and other magazines and newspapers. He beamed when I read to him about a tree found in Hebron, Maine, that was 95 feet high, the tallest known chestnut in Maine.

A few years later I bought 65 acres of woods from him, and the Small Woodland Owners Association of Maine (SWOAM) made a tour of the property. The highlight of the tour was the two American chestnut trees Dad had planted some 35 years before. He couldn't get to where they were, but waited at the base of the hill. Many of those who walked by him, either in conversation with him or with others, mentioned how healthy they looked. One man stopped and told Dad they were the

largest he had ever seen without blight. A forester asked me if Dad had pruned them. I said I really doubted he would risk any possibility of introducing the blight to those trees. Later when I asked him, he put on that grin of his, and said many people discouraged pruning, and they could do what they wanted with their trees; but those were his trees and he had observed that most of the blight infection began where the trunk and limb joined. So, yes, he had pruned them.

When my mother passed I was shocked at how much a 10"x8"x7" wooden box cost to put her ashes in. I told one of my brothers that Dad would have a box made of wood from his own property. So I collected samples of many species, and through my connections as a postmaster found someone who did quality woodworking projects. I had a box made, which my father held and examined, and showed off to his friends and family.

Dad belonged to many forestry organizations and was awarded Maine Tree Farmer of the Year in 1963 and again in 1990, when he went on to win 1st runner-up for the northeast region. Now he rests in the wooden box built entirely of wood from his own property. It is made predominantly of American chestnut and the lid is a combination of his beloved balsam fir, American chestnut, and Norway pine from the tree where he proposed to my mother in 1940.



Leroy's cremation box was built of wood from his tree farm, including American chestnut, balsam fir, Norway pine, white and yellow birch, maple, white pine, and red oak. Photo courtesy of the Souther family

Chestnut Kale Soup

Recipe and photo by Barbara Gallo Farrell, founder of the blog “Dish ‘n’ That.” Find more at <http://blogs.poughkeepsiejournal.com/dishnthat>.



Ingredients

- 3 tablespoons olive oil
- 1 large onion, chopped
- 3 garlic cloves, chopped
- 1 large carrot, chopped
- 2 medium stalks celery, chopped
- About 1/2 pound of kale, stems and ribs removed and leaves chopped into pieces
- 2 tablespoons tamari
- A few sprigs of fresh parsley, chopped
- Salt and pepper, to taste
- 2 cups canned plum tomatoes in juice, chopped
- 1 15-ounce can white beans, drained and rinsed
- 2 cups cooked, peeled chestnuts, chopped
- 3 cups vegetable broth
- 2 cups water
- 1 small rind of Parmigiano-Reggiano cheese (which should always be saved for recipes such as this)
- A few sprigs of fresh thyme, chopped
- 4-5 strips of Fakin’ Bacon, fried, drained, and chopped

This soup is a meal in a bowl. Serve it with a sprinkling of extra-virgin olive oil on top, a grating of Parmesan cheese, and a hunk of good crusty bread.

Directions

1. Heat the olive oil in a large soup pot and add the onion and garlic. Let the mixture sweat a bit, then add the carrot and celery.
2. Saute for a few minutes, then add the chopped kale.
3. Add the tamari and chopped parsley; cook a few more minutes.
4. Season with salt and pepper.
5. Add the tomatoes and cook another 5 minutes.
6. Add the beans, chestnuts, vegetable broth, water, and cheese rind.
7. Let simmer for about 45 minutes, stirring occasionally. Leave the lid on, but slightly ajar.
8. Take a look at it; add more water if necessary.
9. Remove the cheese rind.
10. Using an immersion blender, give the soup a few whirls until you achieve the desired consistency. Leave some chunks of veggies, though.
11. Add the freshly chopped thyme, the Fakin’ Bacon, and let simmer for another 10 minutes or so.
12. Taste and correct seasoning, if need be.

Chestnut Moments

During the holiday season,
our thoughts turn gratefully
to those who have made
our progress possible.

And in this spirit we say,
thank you and warm wishes
for the holidays
and a happy New Year.



Susan Bull Riley



<http://www.fs.fed.us/r8/chestnut/>