



THE AMERICAN  
CHESTNUT  
FOUNDATION

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Annual Report 2013

The mission of  
The American Chestnut  
Foundation (TACF) is  
to restore the American  
chestnut to our eastern  
woodlands to benefit  
our environment,  
our wildlife and  
our society.



On the cover: Large chestnut in Porters Flats, Great Smoky Mountains. The tree was 28 1/2 feet in circumference at 4 feet above the ground. Photo by Albert Gordon "Dutch" Roth. Courtesy of University of Tennessee.

# Message from the President & CEO

## Turning to the Next Chapter

As we reflect on The American Chestnut Foundation's first 30 years of work, one can only be impressed with the dedication, perseverance and results produced by the foundation's board, volunteers, partners and staff. It wasn't that long ago that most people felt the chestnut would remain merely an artifact in our history books, nothing more than a black-and-white photo, a reference made in an old newspaper, and a memory that would vanish with time.

Like any fledgling nonprofit organization, TACF struggled to gain momentum to gather the resources necessary to move the mission forward. However, TACF was able to rise to the challenge, and the first 30 years resulted in great successes in addressing our mission. A crowning achievement during this time was demonstrating that we could indeed produce a chestnut resistant to chestnut blight using a backcross breeding program and biotechnology.

TACF's first 30 years were nothing short of miraculous. The organization grew from the passion and intellect of some amazing founders: Phil Rutter, Don Willeke and Dr. Charles Burnham just to name a few. The organization continued to build momentum as new individuals joined our ranks and as our science progressed: individuals such as past CEOs John Harrington and Marshal Case, and scientists such as Drs. Frederick Hebard, William McDonald, Paul Sisco and Al Ellingboe. This growth was not important just for the sake of growth; this growth was needed to assemble the talents, visionary leadership and funding to accomplish our historic mission.

As the organization now looks to the future, the next chapter in our history will contain stories of great success; a realization that the power of dedicated volunteers, skilled scientists, a strong donor base and vision can make almost anything happen. Our next chapter will surely influence other ecological restoration challenges; in many respects it already has.

We must always keep in the front of our minds this truth: what we think is impossible today may actually become a reality tomorrow. The roadmap to our success is laid out by our ability to use science as a tool to unlock the mysteries surrounding disease resistance in trees, our creativity to develop new technological advances to overcome new challenges, and our focus on engaging new people in our efforts.

It's time to turn the page and restore the American chestnut back to our eastern forests.

  
Bryan Burhans



**TACF's first 30 years  
were nothing short  
of miraculous.**



A sight that hasn't been seen in decades in North America – mountains surrounding Skyland Cabins in Shenandoah National Park burst with white from American chestnut tree blossoms, circa 1912. Courtesy of Shenandoah National Park, National Park Service.

## Loss of a Keystone Species

At the turn of the 20th century, an estimated 4 billion American chestnut trees thrived in the forests of the eastern United States. Often called the “Redwood of the East,” the tree was remarkably fast growing, often reaching over 100 feet tall and 10 feet in diameter. It was also a prolific food source for humans, wildlife and livestock, producing up to 50 times more edible mast than its next nearest rival, the oak tree. Wildlife, including bear, wild turkey, deer, squirrels and many other birds and animals, relied on chestnut as a dependable food source. Its timber was light, straight grained and remarkably rot resistant, making it an important building material.

In 1904, a new fungus was identified, which causes chestnut blight. Accidentally imported from Asia, the fungus quickly spread throughout the range of the tree, and by the mid-1950s the American chestnut was effectively wiped out. Several efforts were undertaken to save the chestnut, but none proved successful. The loss of the American chestnut has been called one of the greatest ecological disasters of our time.



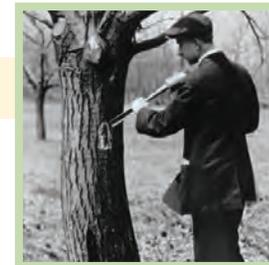
### Historical Timeline: The American Chestnut Foundation

**1904**

• Chestnut blight first noticed in Bronx Zoological Park in New York City.

**1905**

• William Murrill identifies the blight fungus 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).

# The American Chestnut Foundation Celebrates 30 Years

In 1983 a group of scientists set out to develop a blight-resistant chestnut using a backcross breeding technique. They founded The American Chestnut Foundation (TACF) and established Meadowview Research Farms in southwest Virginia. Twenty-two years later, in 2005, TACF announced that it was harvesting the first version of potentially blight-resistant seeds that would be known as Restoration Chestnuts 1.0. In 2009, TACF embarked on our long-held dream of planting potentially blight-resistant chestnuts in forest environments across the eastern United States.

In 2013, TACF commemorated 30 years of restoring the American chestnut. The organization has more than 5,500 members and 16 state chapters that maintain nearly 500 chestnut plantings in every region of the American chestnut's traditional range. 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. This is a thrilling time to be a member of TACF. We stand at a cusp of successes that have taken three decades of preparation and steady work to achieve, and the years ahead promise the fulfillment of dreams that began over a century ago.



## What Are "Restoration Chestnuts 1.0"?

The result of 30 years of advanced scientific research, breeding and testing, Restoration Chestnuts 1.0 are the first generation of potentially blight-resistant chestnuts produced by The American Chestnut Foundation to be suitable for widespread testing. We will not fully know the exact level of blight resistance inherent in these chestnuts until we have been able to monitor thousands of trees well into their maturity. Initial results are promising, suggesting large-scale plantings of these seeds could eventually create healthy populations that will survive and reproduce in the wild. This is just the beginning, however. TACF is continuing to breed better and more disease-resistant trees, and Restoration Chestnuts 2.0, 3.0 and 4.0 will certainly be introduced in years to come.

## Sowing Seeds of the Future

While full reintroduction of the American chestnut still lies many years away, TACF is leading the first steps toward this goal. Even as we begin to establish test plantings in forest environments, a more immediate challenge is to develop locally adapted blight-resistant chestnut trees. Our Restoration Chestnuts 1.0 are currently produced at Meadowview Research Farms. However, large-scale reintroduction of the chestnut will come from trees developed by our state chapters.

Seven of our state chapters – Pennsylvania/New Jersey, Carolinas, Massachusetts/Rhode Island, Maine, Indiana, Maryland and Tennessee – have begun establishing seed orchards and are on the road to producing regionally-adapted Restoration Chestnuts 1.0. Over the next decade, many more state chapter seed orchards will be established. Locally adapted trees represent the key to fully reintroducing the species to our eastern forests.



### 1913

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

### 1922

• USDA breeding program, begun by Walter van Fleet in 1911, is reactivated under G. Flippo Gravatt (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. Photo courtesy of GMFC Archives.

## Meadowview Research Farms and Glenn C. Price Laboratory

Meadowview Research Farms and the Glenn C. Price Laboratory are the epicenter of TACF's research and breeding program. TACF has five research farms totaling 166 acres and containing more than 45,000 chestnut trees. Led by Chief Scientist Dr. Fredrick V. Hebard, the research farms are where TACF develops advanced breeding lines and methods, and tends the Legacy Tree seed orchards that produce our Restoration Chestnuts 1.0. TACF has two Legacy Tree orchards located at Meadowview Research Farms, which contain 15,056 trees. In spring of 2013, Meadowview staff planted 10,100 additional trees within the Legacy Tree orchards.

The 2012 seed crop was the largest at Meadowview Research Farms to date and almost triple that of the previous year. Seeds were collected from more than 600 individual trees, requiring substantial coordination of people, equipment and materials.



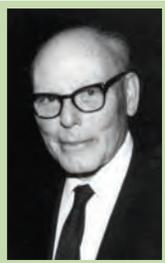
Inserting the bud from a Wagner Farm tree into a germinated Chinese chestnut sprout



Meadowview Research Farms

### Grafting Gives "Legs" to Trees

In an effort to convert the Wagner Farm at Meadowview Research Farms into a seed orchard for production of Restoration Chestnuts 1.0, several remaining trees on the property need to be moved. So this spring, scientists at the Glenn C. Price Lab began moving the trees to the Price Farm by grafting their buds onto the sprouts, or epicotyls, of germinated Chinese chestnuts. More than 80 percent of the grafts were successful and now more than 100 of the seedlings are growing at the Price Farm. Next year, TACF scientists plan to extend the grafting stock to germinated American chestnuts as well.



**1980**

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



**1983**

The American Chestnut Foundation is established. Philip Rutter becomes president and CEO.



**1985**

*The Journal of The American Chestnut Foundation* is created.



Peter Thomasson examines slices of chestnut bark under the microscope at TACF's Glenn C. Price Lab.



TACF staff Robert Kling and Sarah Dee harvest chestnuts at Meadowview Research Farms.

## Ethylene and Esterase: Potential Keys to Advancing our Mission

Our scientists at the Glenn C. Price Lab are working to better understand how the blight fungus attacks the American chestnut and how the tree responds to the attack. This research will advance our efforts to help the tree resist the disease and thereby advance our mission to restore the American chestnut.

With funding from the Forest Health Initiative (FHI) and in collaboration with Dr. Laura Hainsworth of Emory & Henry College, TACF scientists have continued to investigate ethylene, a plant hormone involved in defense responses. They have found a significant correlation of ethylene release from twig segments with the size of blight cankers on stems of a set of F2 progeny of chestnut. Scientists are hopeful that this assay will be useful in identifying blight resistance in American chestnut somatic embryos transformed with candidate genes for blight resistance.

Another study underway at TACF's Price Lab is assessment of esterase activity in Restoration Chestnuts 1.0. This study was conducted by Peter Thomasson, a graduate student from the University of Wisconsin. Researchers inoculated trees with and without blight resistance and analyzed esterase activity in frozen sections cut from canker tissues using a cryostat. Cell wall-associated esterase activity previously was reported to persist in cells of blight-resistant Chinese chestnut trees infected by *Cryphonectria parasitica*, but not to persist in infected cells of blight-susceptible American chestnut.

The 2012 seed crop was the largest at Meadowview Research Farms to date and almost triple that of the previous year.



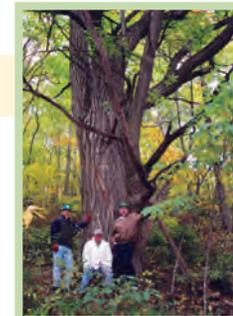
**1989**

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



**1990**

John Herrington is hired as president and CEO. TACF headquarters are established in Bennington, VT. The New York Chapter is established as TACF's first chapter. In partnership with SUNY-ESF and TACF, the chapter forms to advance work on transgenic American chestnuts.



**1991**

Researchers begin a biological control study with hypoviruses at the American chestnut stand in West Salem, WI. Connecticut Chapter established.

## Testing Our Restoration Chestnuts 1.0



Glenville State College students help plant a progeny test on a site near Cowen, WV. L-R: Tyler Karp, Broc Benner, Myriah Baird

This year, 19 new progeny tests were established.

### Recordbreaking Year for Progeny Tests

TACF relies on public and private partners to test our Restoration Chestnuts 1.0 in what we call “progeny tests.” The purpose of a progeny test is to assess the blight resistance and American chestnut character of the parent trees of Restoration Chestnuts 1.0. Progeny tests enable TACF to evaluate the success of its breeding program and to determine whether adjustments need to be made.

The abundance of seed from the 2012 crop allowed for a significant increase in the field tests of our Legacy Orchard mother trees. This year, 19 new progeny tests were established throughout the native chestnut range. This is a record number of progeny tests, and, as seed production increases, we hope to multiply plantings each year.

## Chestnut Reintroduction on National Forests

Thousands of Restoration Chestnuts 1.0 were planted on national forests in 2012 and 2013, fulfilling an important goal of the U.S. Forest Service to restore native trees to our forests and allowing TACF to test and evaluate our Restoration Chestnuts 1.0 in real forest environments.

### Restoration Chestnuts 1.0 planted in 2012-2013:

- 1,007 on the Jefferson National Forest in Virginia;
- 450 on the Green Mountain National Forest in Vermont;
- 592 on the Chattahoochee National Forest in Georgia;
- 719 on the Nantahala National Forest in North Carolina;
- 830 on the Monongahela National Forest in West Virginia; and,
- 700 on the Hoosier National Forest in Indiana.

Restoring American chestnuts to our national forests will benefit the health of the forests, provide a nutritious food for wildlife, and create more diverse ecosystems. We also engaged 65 community volunteers to assist with the plantings. Creating a deep connection to our national forests for citizens was an important intangible outcome of this project.



TACF Regional Science Coordinator Tom Saielli, community volunteers and U.S. Forest Service personnel plant Restoration Chestnuts 1.0 on the Chattahoochee National Forest.



**1993**

Dr. Paul Read becomes chairman of the Board.

**1994**

Pennsylvania Chapter is established.

**1995**

TACF's Pennsylvania Chapter initiates the first successful chapter chestnut breeding program. L.L. Coulter becomes chairman of the Board.

**1996**

Indiana Chapter is established.



Left: Spring planting takes place at a SUNY-ESF transgenic orchard.

## Biotechnology Approach to Blight Resistance

Since 1990, the New York Chapter of TACF and research teams led by State University of New York, College of Environmental Science and Forestry (SUNY-ESF) scientists Drs. William Powell and Chuck Maynard have been pursuing a biotechnology approach to producing disease-resistant American chestnuts. The first line of transgenic trees has demonstrated blight resistance in initial field trials. This year, SUNY-ESF has shown that transgenic American chestnut trees can produce viable pollen to produce nuts from which seedlings will grow that still contain the added genes. This means that transgenic trees may be able to be placed into future breeding programs to restore the American chestnut.

As of July 2013, the program has a total of eight sites approved by the USDA and planted with 1,324 transgenic American chestnuts. There are an additional 1,311 trees in the greenhouse to be planted and 2,500 shoots propagating, a portion of which will be used for the spring planting season.



High school intern Jennifer DeRosa works with her research mentors, technician Kathleen Baier (left) and graduate student Kristen Stewart (right). This summer, Jennifer had the opportunity to work with the SUNY-ESF lab to help screen transgenic F1 seedlings for the presence of the O<sub>x</sub>O gene from wheat, confirming the gene can be passed from one generation to the next.

## Predicting Blight Resistance with Leaf Assays

This year, the SUNY-ESF team published a study in the journal *Plant Disease* regarding a leaf assay for predicting blight resistance. Using a leaf assay, researchers can differentiate levels of blight resistance in *Castanea* (chestnut) species, years before traditional stem screening takes place. Currently, researchers are using this test as an early screen for the transgenic American chestnut trees to determine if a particular gene will enhance blight resistance.

Additionally, in collaboration with the Forest Health Initiative (FHI), scientists are investigating 27 individual genes that might be involved in blight resistance in Chinese chestnut. The testing is ongoing, but there appear to be two genes in this group that are predicted by the leaf assays to enhance blight resistance to intermediate levels. This will be confirmed with traditional stem assays, but the researchers are already beginning to combine these genes for future testing.



**1997**

• Marshal Case is hired as president and CEO.



**1998**

• The 93-acre Glenn C. Price Research Farm is dedicated in Meadowview, VA.



**1999**

• Maine Chapter is established. James Ulring becomes chairman of the Board.

# Research Funded Through TACF

TACF's External Grants Program is a valuable tool to stimulate research on chestnut trees by distinguished scientists. These research projects funded by TACF are underway and will help us understand the complex ecology of the chestnut and its interactions with the natural world.

## The Carolinas Chapter of TACF and Clemson University

The establishment of a genetically-diverse population of hybrid American chestnut trees resistant to both chestnut blight incited by *Cryphonectria parasitica* and to ink disease incited by *Phytophthora cinnamomi*

## State University of New York College of Environmental Science and Forestry

Preservation and multiplication of elite backcross American chestnut hybrids by micropropagation

## West Virginia University

Maintaining a backcross orchard planting to assess the integration of host resistance and hypovirulence

## University of Vermont; USDA Forest Service, Northern Research Station; and Vermont/New Hampshire Chapter of TACF

Assessing phenological differences among American chestnuts sources in a range-wide progeny planting

## USDA Forest Service, Southern Research Station, and the University of Tennessee

Analysis of the first test plantings using Restoration Chestnut 1.0 seedlings on national forests in the Southern Region

## University of Kentucky and the Pennsylvania Chapter of TACF

Enhancing American chestnut breeding program by better understanding Chinese chestnut species and chestnut blight in their native range

## West Virginia University, Michigan State University, and Wisconsin Department of Natural Resources

Survival and recovery of American chestnut trees historically treated with hypovirus

## University of Georgia

Optimizing American chestnut seedling root morphology



Dr. Jenise M. Bauman, the principle investigator of the "Plant and Fungal Dynamics in American Chestnut Restoration" study, stands next to a 7-year-old chestnut on a reclaimed mine site in Dresden, OH. Results show that chestnut trees are responding well to the soil conditions and the planting methods on this site. When assessing the plots in summer 2013 it was noted that many trees were tall enough to escape herbivory from deer and impose shade on the surrounding vegetation.

### Research Results: *Plant and Fungal Dynamics in American Chestnut Restoration*

Principle Investigator: Dr. Jenise M. Bauman, Miami University

Duration of Project: May 2012 – May 2013

Purpose: 1) To capture survival and growth data of American backcrossed chestnut on a field site in Dresden, OH; 2) Document natural cankers and report on field resistance of the backcrossed chestnut lines; 3) Conduct ectomycorrhizal (ECM) survey on chestnuts and incorporate beneficial fungi into inoculum for future Ohio plantings.

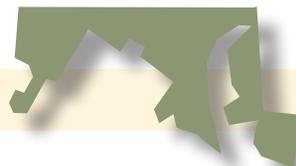


**2001**

• Carolinas, Kentucky, Massachusetts/Rhode Island, and Tennessee Chapters are established.

**2002**

• Herb Darling becomes chairman of the Board.



**2003**

• Maryland Chapter is established.



**2004**

• New efforts are launched in Seneca, SC. to screen material for resistance to *Phytophthora* root rot.

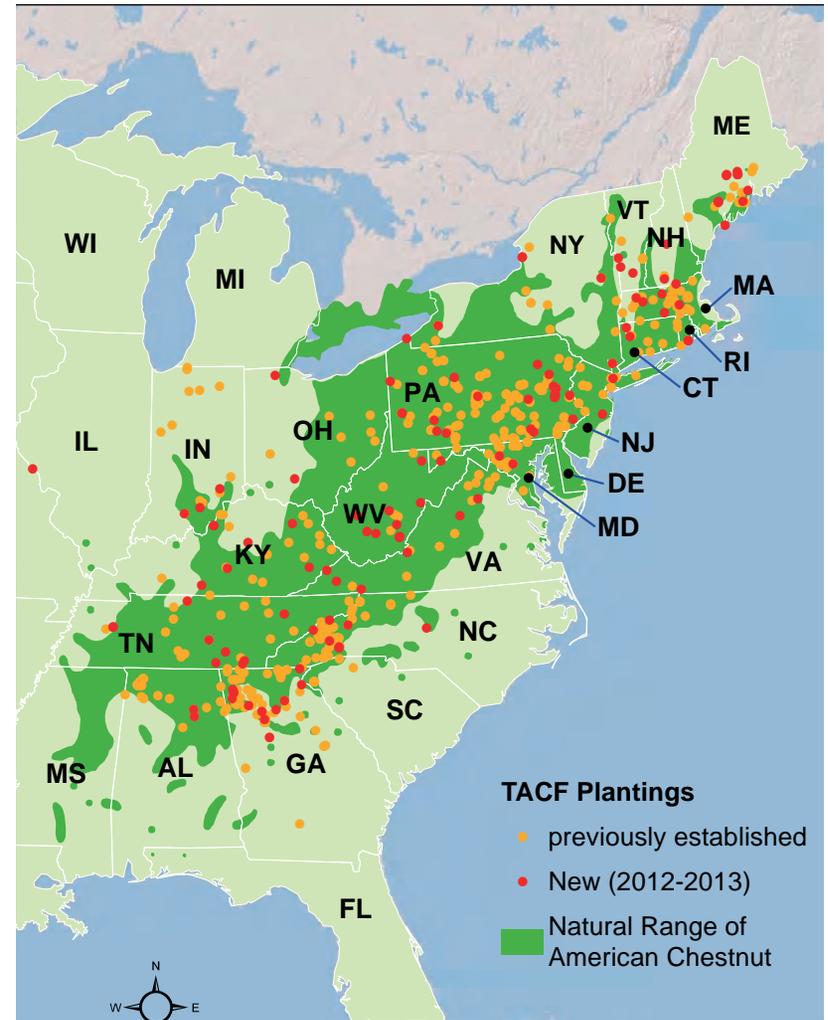
## Chestnut Plantings

Restoring the American chestnut will require decades or even a century of work to complete. For 30 years, our TACF volunteers have worked diligently toward making this dream a reality. Our model of partnering skilled scientists with volunteers to achieve a common goal makes TACF unique. This partnership is the reason why the organization is succeeding in our mission to restore the American chestnut.

TACF consists of 16 state chapters and more than 5,500 members located throughout the American chestnut's native range. Over the years, volunteers from our chapters have established and cared for nearly 500 chestnut plantings. In the past year alone, our chapters planted trees at 87 new locations.

Our breeding program depends upon these orchards to capture the genetic diversity of local chestnut populations as well as to conserve native American chestnut germplasm. Our members consistently use these chestnut plantings as an outreach tool to the public to spread the story of the American chestnut and help to educate the next generation of American chestnut caretakers.

This map depicts the orchards and plantings established and maintained by TACF's state chapters.



### 2005

The first potentially blight-resistant chestnuts (Restoration Chestnuts 1.0) are harvested from Glenn C. Price Research Farm. Alabama and Georgia Chapters are established.



### 2006

Ohio and Virginia Chapters are established.

### 2007

Richard Will becomes chairman of the Board. Vermont/New Hampshire Chapter is established.



### 2009

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

# TACF Regional Accomplishments



## New England Region

State Chapters: Maine, Vermont/  
New Hampshire, Massachusetts/  
Rhode Island and Connecticut

### Regional Stats

- Approximately 35,000 chestnuts harvested in 2012
- Approximately 10,000 chestnuts planted in 2013
- 18 new plantings established
- 27 outreach activities, serving 3,628 individuals
- 93 new members enrolled

### Accomplishments

- The tallest known native American chestnut tree in Maine was discovered in October in Hebron, ME, under a contest sponsored by the Oxford County Soil and Water District. The discovery of this 95-foot tree attracted media attention throughout the eastern United States.
- In addition to establishing three new orchards in 2013, the Vermont/New Hampshire Chapter pollinated more trees than anticipated and developed a partnership with Lake St. Catherine State Park through the Vermont Department of Forests, Parks and Recreation.
- The Massachusetts/Rhode Island Chapter forged a new partnership with Smith College, the site of their newest seed orchard. The college gave the chapter access to the land with a 30-year easement. When fully planted, this seed orchard will have 20 lines, with more than 3,000 trees, and will be selected down to 20 trees.



## North Central Region

State Chapters: New York,  
Pennsylvania/New Jersey,  
Ohio and Indiana

### Regional Stats

- Approximately 16,000 chestnuts harvested in 2012
- Approximately 9,000 chestnuts planted in 2013
- 21 new plantings established
- 56 outreach activities, serving 22,746 individuals
- 246 new members enrolled

### Accomplishments

- This March, Dr. Bill Powell of the New York State Chapter presented on the topic of American chestnut restoration at a TEDx DeExtinction event in Washington, D.C. The event was hosted by National Geographic and was considered the first-ever public exploration on reviving extinct species.
- Restoration Branch events held at the Drumore Estate by the Lower Susquehanna Branch and at the C. Barton McCann School of Art by the Raystown Branch attracted 63 attendees plus 41 new members, significantly boosting membership in the Pennsylvania/New Jersey Chapter and local awareness of American chestnut restoration.
- In an effort to encourage students to play an active role in preserving and restoring the environment, the Indiana Chapter planted 100 chestnut trees at a Salem Schools outdoor learning lab in April. This was the first planting of American chestnuts at an Indiana public school.



## 2009

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



## 2010

*The Journal of The American Chestnut Foundation* is overhauled to a full-color magazine. The Glenn C. Price Laboratory at Meadowview is dedicated. West Virginia Chapter is established. Glen Rea becomes chairman of the Board.





## Mid-Atlantic Region

State Chapters: Maryland,  
West Virginia and Virginia

### Regional Stats

- Approximately 11,400 chestnuts harvested in 2012
- Approximately 6,000 chestnuts planted in 2013
- 18 new plantings established
- 31 outreach activities, serving 2,149 community members
- 190 new members enrolled

### Accomplishments

- The Maryland Chapter has been working on an ongoing outreach project recruiting citizens in Delaware to start an interest group. Earlier this year, four visitors from the Delaware Nature Society visited the chapter's Black Hill Regional Park and Sugarloaf Mountain orchards. In 2014, Maryland Chapter members plan to visit the Delaware Nature Society's Abbott's Mill Nature Center and pick a site for a demonstration planting, which will be accompanied by educational signage.
- The West Virginia Chapter was involved in numerous tree plantings this year and forged a partnership with the Boy Scouts of America.
- The Virginia Chapter celebrated great success with their Annual Chestnut Gala at Ayrshire Farm in Upperville, VA. Nearly 250 attendees generated net proceeds of \$26,670 to help expand the chapter's work in 2013.



## Southeast Region

State Chapters: Kentucky,  
Tennessee, Carolinas,  
Georgia and Alabama

### Regional Stats

- Approximately 7,000 chestnuts harvested in 2012
- Approximately 3,300 chestnuts planted in 2013
- 47 new plantings established
- 30 outreach activities, serving 3,726 individuals
- 197 new members enrolled

### Accomplishments

- The Georgia and Kentucky chapters strengthened their partnerships with the U.S. Army Corps of Engineers (USACE) by planting a progeny test and demonstration plantings on USACE land. These plantings build enthusiasm and support within the agency as well as with visitors.
- Our Kentucky, Tennessee and Alabama chapters all formed restoration branches to strengthen local outreach and restoration efforts. From searching the woods for surviving American chestnuts to educating the community to planting orchards, restoration branches unite members and volunteers in a grassroots style of local self-empowerment.
- This spring, the Carolinas Chapter focused on strengthening their work at Chestnut Returns Farms in Seneca, SC, where they are developing blight-resistant American chestnuts that are also resistant to root rot.



### 2012

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



### 2012

TACF's 16 chapters report over 450 plantings established in 20 states, including the first seed orchards in five states.



### 2013

TACF celebrates 30 years of restoring the American chestnut. Dr. Kim Steiner becomes chairman of the Board.

## Education and Outreach to the Public

Younger generations have heard stories about the chestnut tree from their parents and grandparents. Some even live on “Chestnut Street.” But if asked about the relevance of the American chestnut tree, many are unaware of the impact the loss of the tree had on our environment and society. The American Chestnut Foundation is committed to providing educational opportunities for our nation’s youth and strengthening the bond between communities and forests.



Nicole Rodriguez, co-author of the children’s book “The Legend of the American Chestnut Tree,” stands beside one of the first chestnuts she planted in the demonstration orchard in Poolesville, MD.

### Students Reintroduce American Chestnuts to Their Communities

In Poolesville, MD, the Elgin Park Chestnut Demonstration Orchard began as a collaboration among Alex Pike, a Poolesville High School senior; Tom Kettle, Alex’s project sponsor; TACF’s Maryland Chapter; and the Town of Poolesville. After Alex graduated, Poolesville students Kirby Carmack and Nicole Rodriguez took on the maintenance of the orchard for their 2013 senior project.

Inspired by their work in the orchard, Kirby and Nicole wrote a children’s book titled “The Legend of the American Chestnut Tree,” accompanied with illustrations by their classmate Michael Torres. They donated a hard copy of the book to Poolesville Elementary School where it will be introduced into the third grade curriculum as a part of their unit on “making a change.” Kirby and Nicole hope that the book will inform young readers on the importance of the environment, specifically the restoration of the American chestnut.



Attendees at the Meadowview teacher training examine wood blocks from different tree species for an activity in the American Chestnut Learning Box. Left to right: Donette Carter, Rosemary Jessee and Noah Carter

### The American Chestnut Learning Box

The American Chestnut Learning Box is an educational tool created by volunteers that brings the story of the American chestnut to classrooms, nature centers and civic groups in a tangible, thought-provoking way. It contains hands-on materials such as chestnut leaves, burs and wood samples, along with a series of photos, presentations and posters showcasing the American chestnut before, during and after the blight. As of June 2013, TACF had distributed more than 50 learning boxes to various schools, nature centers and conservation organizations all over the natural range of the American chestnut.

In addition to distributing learning boxes, TACF volunteers and staff organize teacher trainings to assist educators in the integration of the American Chestnut Learning Box into an engaging classroom or outdoor learning environment. This summer, the Southwest Virginia Branch of the Virginia Chapter held an in-service teacher training for teachers at Meadowview Research Farms.



Jon Taylor is a Carolinas Chapter volunteer who dedicates many weekends of his spring and summer to counting American chestnuts along the Appalachian Trail. Over the past two years, he has hiked a total of 436 miles, counted 15,342 American chestnuts and 53 "large trees" with a circumference of 13 inches or greater.

## Mega-Transect: Mapping Surviving American Chestnuts along the Appalachian Trail

The Appalachian Trail Mega-Transect Chestnut Project is a collaboration between TACF scientists and volunteers and the Potomac Appalachian Trail Club (PATC) to train volunteers to collect data on American chestnut trees growing along the Appalachian Trail. Information gathered will help scientists to better understand the preferred site requirements for American chestnut by evaluating where they still continue to grow.

## TACF's Restoration Branches

Restoration Branches are special regional groups affiliated with TACF state chapters. These hardworking volunteer groups focus on recruiting new members, hosting events, supporting chapter efforts and implementing TACF's vision and programs at the grassroots level.

One of a Restoration Branch's most exciting contributions is holding events that attract new members and update local communities on TACF's activities. In 2013, events were held in six states: Indiana (Indiana Branch), Kentucky (Louisville Branch), Alabama (Huntington Branch), Tennessee (Nashville Branch), Pennsylvania (Raystown and Lower Susquehanna Branches), and Virginia (Southwest Virginia and Roanoke Branches).



TACF's North Central Regional Science Coordinator Sara Fitzsimmons gave a presentation on chestnut ecology and restoration for the Lower Susquehanna Restoration Branch's event at the Drumore Estate in Pequea, PA.

**We must always keep in the front of our minds this truth: what we think is impossible today may actually become a reality tomorrow.**

## Forest Restoration of Mined Lands



TACF has joined forces with the Appalachian Regional Reforestation Initiative (ARRI) and Green Forests Work (GFW)

to combine the forestry reclamation of mine sites with restoration of the American chestnut tree to its former place within Appalachian forest ecosystems. In 2013, together with ARRI and GFW, we facilitated 35 planting events, and planted 350 acres of land with 230,000 trees with the help of 1,949 volunteers. Approximately 8,055 of these trees were chestnuts. The Norfolk Southern Foundation provided funding for the chestnuts used in these plantings and has been an ardent supporter of our efforts to reforest mined lands.



When TACF received a Conservation Innovation Grant in 2011 from the USDA Natural Resources Conservation Service, it greatly increased our capacity to restore mined lands. TACF is now entering the third year of this three-year grant to establish mixed chestnut/hardwood plantings on 12 reclaimed mine sites over three years in five states (Pennsylvania, Ohio, West Virginia, Virginia and Kentucky). In 2013, TACF planted 105,000 trees on 155 acres, including 6,211 chestnuts. These plantings took place in Dickenson and Wise counties in Virginia, Kanawha and Nicholas counties in West Virginia, and Elk County in Pennsylvania. ARRI and GFW are key partners for these plantings.

Other partners include: Headwaters Charitable Trust, Foundation for Pennsylvania Watersheds, Arbor Day Foundation, Richard King Mellon Foundation, Western Pennsylvania Conservancy, West Virginia Department of Environmental Protection, Virginia Department of Forestry and Virginia Department of Mines, Minerals and Energy.



Employees of U.S. Airways pose for a group picture before planting chestnut seedlings at the Flight 93 Memorial.

### Flight 93 National Memorial

TACF is proud to be part of the reforestation project on the Flight 93 National Memorial in southwest Pennsylvania. With funding from the Colcom Foundation and Foundation for Pennsylvania Watersheds, we planted 555 Restoration Chestnuts 1.0 on the site in 2012 and 2013, as part of a larger project initiated by the National Park Service to reforest the Memorial. The Flight 93 Memorial is on a site that was once a surface coal mine and will eventually be planted with 30,000 trees covering more than 200 acres. In 2014, with support from the Richard King Mellon Foundation, TACF will plant an additional 1,500 Restoration Chestnuts 1.0 on the site.

More than 600 community volunteers participated in the planting, including friends, family and co-workers of the victims of Flight 93. Each volunteer had the opportunity to plant a Restoration Chestnut 1.0 and hopefully heal in some small way through the experience. Those who visit the Flight 93 memorial will experience the symbolic gesture of hope and renewal these trees represent and enjoy benefits that come from forests such as clean air and water, wildlife and aesthetics.

TACF partnered with many organizations on this project: National Park Service, Appalachian Regional Forest Initiative, Arbor Day Foundation, Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Department of Environmental Protection, Friends of Flight 93 National Memorial, Department of the Interior Office of Surface Mining, Rosebud Mining Company and more.



We can do it! Volunteers help plant trees on a Conservation Innovation Grant site in north-central Pennsylvania. Pictured: Laura Phillips (left), Karin Slawinski (top center), Tracy Janiak (bottom center), and Fusun Sultzback (right). Photo courtesy of Zenon Slawinski.



### Why Plant American Chestnuts on Mined Lands?

American chestnuts formerly dominated ridge tops. Since many mining disturbances in this region are at higher elevations, they provide an opportunity for restoration. As demonstrated at TACF's research farms, chestnut seedlings grow best when exposed to full sunlight. Because many surface mines are currently planted in grasses, seedlings do not face the same competition for light and nutrients as they would if planted in a mature forest. Therefore previously mined lands are a conducive environment on which to plant chestnut seedlings and other tree species, and offer an opportunity to restore American chestnut trees to the Appalachian mountain region.

# Partnerships

Our work would be impossible without the cooperation of devoted partners. We collaborate with various corporate, educational, government and nonprofit partners across the country to achieve our mission to help bring American chestnut research to the forefront of the nation's conservation efforts on both public and private lands.

## Corporate Partners

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## Partner Profile: U.S. Army Corps of Engineers



Jo-Ellen Darcy, (center) assistant secretary of the Army for Civil Works, plants an American chestnut at Raystown Lake with assistance from Sara Fitzsimmons of TACF and Glenn Werner of Corps of Engineers.



**US Army Corps  
of Engineers**

The U.S. Army Corps of Engineers has proved an exciting and effective partner in helping TACF restore the chestnut. Since 1998, joint projects have sprung up in seven states within the range of the American chestnut: Massachusetts, Pennsylvania, West Virginia, Kentucky, Virginia, Georgia and Missouri. Overall, 12 different Army Corps lakes have engaged in chestnut breeding, restoration and educational activities, while providing critical long-term maintenance and care to orchards. As part of the national memorandum of understanding between TACF and the Corps, the Corps headquarters has provided \$71,000 in funding at Raystown Lake and Shenango Lake in Pennsylvania, Allatoona Lake

in Georgia, and Carr Creek Lake in Kentucky for American chestnut breeding and restoration activities. These funds were matched with local Corps and partner funding for a total of \$410,000 in chestnut-specific funding and illustrate the dedication and commitment the Corps has made to the mission of TACF. Recently, Assistant Secretary of the Army for Civil Works Jo-Ellen Darcy planted American chestnut trees at Raystown Lake. Jeff Krause, the Corps national program manager for environmental stewardship, describes the partnership as “one of the most exciting and rewarding projects for our staff and visitors.” With additional projects just getting started, TACF’s partnership with the Corps promises ongoing success on behalf of the American chestnut.

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We are grateful for the generosity of our many dedicated supporters. Our donors share the belief that through cooperation and ingenuity we can restore the American chestnut to our eastern forests.

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## Legacy Trees: “The Promise of a Hundred Future Forests”

Legacy Trees represent one of the most advanced stages of TACF’s breeding process, and at Meadowview Research Farms they form our core “seed orchard.” The Restoration Chestnut 1.0 seeds produced in this orchard contain the greatest level of American chestnut characteristics and the most blight resistance that we have achieved to date.

Many of the trees in the Legacy Tree Orchard have been sponsored by individuals, either in their own name, the name of a company or organization, or in honor of a friend or relative. These sponsors have made a significant donation that will help fund our scientific research and hands-on restoration efforts. In effect, each tree in this orchard is a living legacy to the work of TACF’s scientists and volunteers, and each Restoration Chestnut 1.0 seed that is harvested holds, as Ralph Waldo Emerson once said, “the promise of a hundred future forests.”



For more information on leaving your legacy, call 828-281-0047 or visit [www.acf.org](http://www.acf.org).

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 Robert W. Cramer in honor of Lewis L. Cramer

Michael and Linda Doochin & Family  
 Robert H. Dunlap Mennen Environmental Foundation dedicated to Gary & Lynn Anderson  
 John Evangelakos Family  
 Georgia Chapter of TACF  
 Peggy & Dwight Harley Sr. in honor of Harley & Ringer Families  
 In memory of Robert C. Hempel  
 Betty Johnson in honor of Marshal Case  
 Kentucky Chapter of TACF  
 The Knebel Family  
 Randolph and Grace Knight  
 The LaRoche Family: Ted, Gloria, Ashley & David, their spouses and children  
 Lewis & Kate Lobdell in honor of Kale Partners and The Chestnut Ridge, Pennsylvania Partners in Conservation  
 Maine Chapter of TACF  
 Mark Mayer in honor of Richard Will

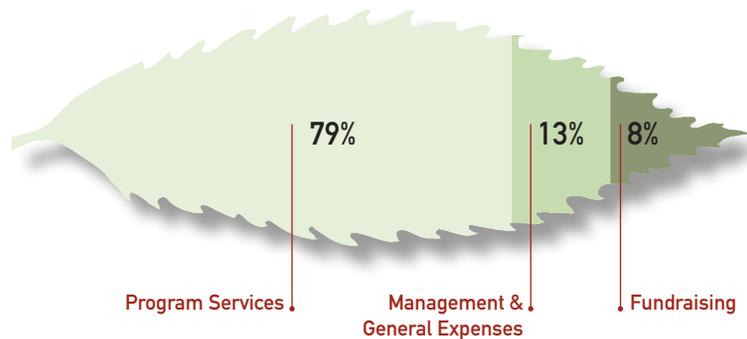
Paul McArthur in honor of Richard Will  
 MeadWestvaco Foundation  
 Peter Mennen  
 Janice Michelle Foundation  
 Northern Virginia Community Foundation in memory of Henry B.R. Brown  
 Robert I. Owens  
 Deborah Pearsall  
 Alan and Yvonne Palmer  
 Dr. Gary Roop Family  
 Emily Rutherford in honor of children and grandchildren of the Rutherford, Smykal and Cookerly families  
 William T. Smith in honor of the Myers and Smith families of Pennsylvania  
 Edwin Smoots  
 Brad and Shelli Stanback in honor of William D. Nelson and Fred J. Stanback Jr.  
 Donald and Mary Stout Foundation  
 The Sudbury Foundation in honor of John Taft

Timothy Sweeney  
 Ray and Doris Tobias  
 Rufin Van Bossuyt  
 Virginia Chapter of TACF  
 West Virginia Chapter of TACF in memory of Garold W. Thumm  
 WestWind Foundation  
 Richard Will Family  
 Richard Will in honor of:  
 TACF Volunteers  
 Dr. Norman Borlaug  
 Marshal Case  
 Dr. Al Ellingboe  
 Dr. Fred Hebard  
 Dr. William MacDonald  
 Rex Mann  
 Phil Rutter  
 Dr. Paul Sisco  
 Brad & Shelli Stanback  
 James Ulring  
 Daphne Van Schaick  
 Donald Willeke  
 Alan and Marilyn Youel  
 Stephen and Suzan Zoukis in honor of Cashiers Village

# Statement of Activities & Changes in Net Assets

(July 1, 2012 - June 30, 2013)

	Unrestricted	Permanently Restricted	Total
<b>Public Support and Revenue</b>			
Contributions and foundation grants	\$ 1,500,066	-	\$ 1,500,066
Federal grants	367,798	-	367,798
Membership dues	366,955	-	366,955
Investment income (loss)	353,957	(587)	353,370
Merchandise sales (net of cost of \$16,418)	15,087	-	15,087
Donated services	263,500	-	263,500
Other support and revenue	15,860	-	15,860
<b>Total Public Support and Revenue</b>	<b>2,883,223</b>	<b>(587)</b>	<b>2,882,636</b>
<b>Expenses</b>			
Program services	2,114,350	-	2,114,350
Management and general	353,721	-	353,721
Fundraising	203,292	-	203,292
<b>Total Expenses</b>	<b>2,671,363</b>	<b>-</b>	<b>2,671,363</b>
Change in Net Assets	211,860	(587)	211,273
Net Assets, beginning of year	3,544,115	24,213	3,568,328
<b>Net Assets, end of year</b>	<b>\$ 3,755,975</b>	<b>\$23,626</b>	<b>\$ 3,779,601</b>



As of June 30, 2013, according to Cusack & Co. Complete audited financials and TACF's 990 are available at [www.acf.org/annual.php](http://www.acf.org/annual.php) or by calling (828) 281-0047. Chart reflects expenditures for fiscal year ending June 30, 2013.

## Officers

Dr. Kim Steiner, **Chair**  
 Dr. Brian C. McCarthy,  
**Vice-Chair, Science Cabinet**  
 Michael D. Doochin,  
**Vice-Chair, Development Cabinet**  
 Catherine Mayes,  
**Secretary**  
 Steve Barilovits III,  
**Treasurer**  
 Donald C. Willeke, Esq.,  
**Legal Counsel**  
 Bryan Burhans, **President & CEO (non-voting)**

James O. Mills  
 David Morris  
 Tim Phelps  
 Glen Rea  
 Joe Schibig  
 Tom Scrivener  
 Dr. Paul Sisco  
 Bradford Stanback  
 Dr. Kim Steiner  
 Mark Stoakes  
 George Thompson  
 Rufin Van Bossuyt  
 Bruce Wakeland  
 Donald C. Willeke, Esq.

## Board of Directors

(as of June 2013)  
 Dr. John D. Agricola  
 John P. Anderson  
 Steve Barilovits III  
 Yurij Bihun  
 Dr. Gary Carver  
 Dr. J. Hill Craddock  
 Herb Darling  
 Michael D. Doochin  
 Timothy Eck  
 Dr. Albert H. Ellingboe  
 Yvonne Federowicz  
 Ben Finegan  
 Lynn Garrison  
 Doug Gillis  
 Hugh Irwin  
 Dr. Joseph B. James  
 Jimmy Jenkins  
 Dr. Carolyn Keiffer  
 John LaMonica  
 Dr. William Lord  
 Dr. William MacDonald  
 Rex Mann  
 Kathleen Marmet  
 Catherine Mayes  
 Dr. Brian C. McCarthy

## Honorary Directors

The Honorable James Earl Carter Jr.  
 Dr. Richard A. Jaynes  
 Mrs. Mary Belle Price  
 Dr. Peter H. Raven  
 Mr. Phillip A. Rutter  
 Richard Will,  
 Chairman Emeritus

## State Chapters

Alabama  
 Carolinas (North and South)  
 Connecticut  
 Georgia  
 Indiana  
 Kentucky  
 Maine  
 Maryland  
 Massachusetts/  
 Rhode Island  
 New York  
 Ohio  
 Pennsylvania/New Jersey  
 Tennessee  
 Vermont/New Hampshire  
 Virginia  
 West Virginia

## Office Locations

**TACF National Office**  
 50 North Merrimon Avenue  
 Suite 115  
 Asheville, NC 28804  
 (828) 281-0047

**Meadowview Research Farms**  
 29010 Hawthorne Drive  
 Meadowview, VA 24361  
 (276) 944-4631

**Mid-Atlantic Regional Office**  
 Virginia Department of  
 Forestry Central Office  
 900 Natural Resources Drive  
 Charlottesville, VA 22903  
 (434) 906-9312

**North Central Regional Office**  
 The Pennsylvania State  
 University  
 206 Forest Resources Lab  
 University Park, PA 16802  
 (814) 863-7192

**New England Regional Office**  
 Northern Research Station  
 Forest Service  
 705 Spear Street  
 South Burlington, VT 05403  
 (802) 999-8706

**Southeast Regional Office**  
 50 North Merrimon Avenue  
 Suite 115  
 Asheville, NC 28804  
 (828) 281-0047 x 311



Photo by Anshpreet Parmar



THE  
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CHESTNUT  
FOUNDATION®

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[www.twitter.com/chestnut1904](https://www.twitter.com/chestnut1904)

