

THE
Journal
OF THE AMERICAN CHESTNUT FOUNDATION

September 2010 | Issue 2 Vol.24

27th Annual Meeting October 15-17
Registration Information Inside

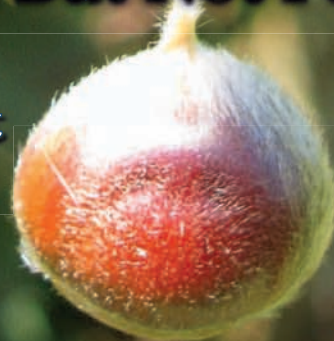


Chestnuts in Appalachian Culture Part II



A Perfect Wildlife Food Lost in Time, But Not Forgotten

- Simple Strategies for Controlling a Common Pest
- Meadowview Dedication a Success!



27th ANNUAL MEETING

THE AMERICAN CHESTNUT FOUNDATION

REGISTER ONLINE AT WWW.ACF.ORG
OR CALL (828) 281-0047 TO REGISTER BY PHONE

Option 1: Full Registration

TACF Member \$75
Non-Member \$115 (includes a one-year membership)

**Full Registration for one person
(does not include lodging)**

Includes:

- Friday Night Welcome Reception
- Saturday Night Dinner & Awards Program
- Access to all Workshops
- All Meals

**Option 2: Day Passes for Workshops Only
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or meals)**

SATURDAY

- Regular Members \$40
- Student Members \$40
- Regular Non-Member \$80 (includes a one-year membership)
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- Regular Members \$25
- Student Members \$25
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PAYMENT

Name of Attendee(s) _____
Address _____
City _____
State _____
Zip Code _____ Phone number _____
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Check (payable to TACF) Credit Card

Total amount due \$ _____

Credit Card Billing Information

Credit Card (circle one): Visa Mastercard
Card Number _____
Expiration Date _____
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Address _____
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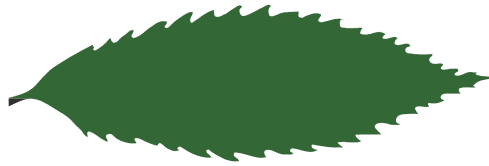
To reserve a room, call NCTC direct at (877) 706-6282.

- Participants attending the Annual Meeting that choose to share a room may do so. The cost is \$86.50 per night for each participant. All meals are included.
- Guests not attending the Annual Meeting may stay with you in room at no additional charge but must register with the front desk. They can purchase the meal plan or pay for their meals a-la-carte. Cost: Full service meal plan: \$46 per day. Individual meals – breakfast \$8, lunch \$12, and dinner \$26.

Lodging Offsite: For offsite lodging information visit www.shepherdstownvisitorscenter.com

THE NATIONAL CONSERVATION TRAINING CENTER

is one of the world's premier conservation training facilities, created by the U.S. Fish and Wildlife Service. Buildings designed to resemble the 19th-century farm landscape blend into the rural grounds, providing a unique and idyllic retreat setting to foster learning. NCTC's museum chronicles the rich heritage of wildlife conservation. Included are contraband items made from endangered species, elaborate carvings and mounted birds and animals and treasures that include the original set of duck stamps issued by the U.S. Postal Service. Walk some of NCTC's 5 miles of paved footpaths throughout the campus—an outstanding environment for bird-watching, jogging, and nature photography. NCTC's rugged hiking trails take you through eastern hardwood forests and Potomac River meadows. An active eagle's nest is visible from many locations around the NCTC campus.



THE
AMERICAN
CHESTNUT
FOUNDATION®

The Mission of The American Chestnut Foundation

The mission of THE AMERICAN CHESTNUT FOUNDATION is to restore the American chestnut tree to its native range within the woodlands of the eastern United States, using a scientific research and breeding program developed by its founders. The American Chestnut Foundation is restoring a species - and in the process, creating a template for restoration of other tree and plant species.

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 & volunteers, research, sustained funding and most important, a sense of the past and a hope for the future.

About Our Cover Photo:



September always means harvest time at TACF's Meadowview Research Farms. Last year, more than 50,000 American chestnuts were handpicked from the thousands of trees populating Meadowview and it's always a race to harvest them before the local wildlife finds the nuts. Photo by Meghan Jordan, TACF.

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Journal

OF THE AMERICAN CHESTNUT FOUNDATION

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Part II

The Influence of
The American Chestnut
in Appalachian History and Culture

Cooperative Conservation

Bryan Burhans, CEO

While flying from Massachusetts to Asheville, N.C., this winter, I was treated to clear, crisp skies as I passed over New York and then south through Pennsylvania, Virginia and eventually North Carolina. This eagle's-eye view of our extensive eastern forests reminded me of the long road ahead for The American Chestnut Foundation's (TACF) restoration efforts. Not too far in the future, we hope to begin planting large numbers of potentially blight-resistant American chestnuts. But how is a 6,000-member organization going to accomplish this monumental feat?

An estimated four billion American chestnuts succumbed to the blight during the early 1900s. If you had cut them all down and laid them end-to-end, you would have encircled the Earth more than 27,000 times! Those types of numbers can make your head spin, and only add to our recognition of what we have lost, and what we have yet to accomplish.

Fortunately, we are not alone in our efforts to fulfill our mission of restoring the American chestnut to its historic range. The key to our future success boils down to "Cooperative Conservation." TACF has many friends that are willing to help us, and by cooperatively working with our partners, we will fulfill our mission.

TACF already has several key partners. For example, the United States Forest Service (USFS), along with the USFS Southern Research Station and the University of Tennessee, Knoxville, are long-time partners of TACF that continue to help us. Two years ago, these partners pitched in to help plant our latest line of potentially blight-resistant chestnuts (our Restoration Chestnut) for testing and evaluation in forested areas. Thanks to their expert staff of forest scientists, they are monitoring plantings on three national forests, with more plantings coming online soon. The information they collect will help TACF in the future when we start reforesting using chestnuts from our state

chapter seed orchards as they come online.

We also have many new partners. TACF just entered into an agreement with the Natural Resources Conservation Service (NRCS) to help us in restoring the American chestnut on private lands. The future restoration of the American chestnut will depend on our ability to work with the NRCS and private landowners to help restore the chestnut as most of the lands within the historic and ecological range of the American chestnut are privately owned.

Another tremendous opportunity for chestnut restoration is on reclaimed mine lands. Found within the coal region of the U.S., an historic stronghold of the chestnut, reclaimed mine areas offer an opportunity to improve the diversity and value of these lands by including the American chestnut as part of future reforestation projects. Fortunately, TACF has many great partnerships with, such as the Appalachian Regional Reforestation Initiative that are helping us in this effort now and in the future.

Obviously, our ability to forge strong, effective and lasting partnerships will help TACF in accomplishing our mission. Today, many of our partners are deeply involved in helping our chapters with the breeding program. And soon, our partners will help TACF effectively return the mighty giant, the great American chestnut, to our eastern forests. The scale of our mission may be monumental, but, by working with our partners, we will use Cooperative Conservation to fulfill our important mission.



TACF President and CEO
Bryan Burhans

Using Science to Chart Our Course

by TACF Chairman Glen Rea



TACF Chairman
Glen Rea

Friday, April 16, 2010 represents an historic milestone for TACF. On this day, Mary Belle Price helped us dedicate the new Glenn C. Price Research Laboratory located on our Meadowview, Virginia campus. This laboratory provides TACF with the opportunity to significantly advance our science program in support of our mission.

Although TACF and our chapters have made tremendous progress in our breeding program, there are still many questions yet to be answered. To properly answer these questions we must continue to invest in and expand our science program.

Our early results support our hypothesis that our first Restoration Chestnuts, all derived from the Clapper source of resistance, are more resistant to the blight than are pure American chestnut trees. However, we do not know whether they have enough resistance to allow them to survive long term, and whether they possess all the American chestnut growth characteristics necessary to compete with native hardwoods of the eastern United States. We also do not know if other sources of resistance, such as Mahogany/Graves and Nanking, will have even higher levels of resistance or perhaps different genes for resistance that could be combined with those of the Clapper source to produce a more resistant tree.

Another significant threat to the future restoration of the chestnut is *Phytophthora cinnamomi*, the organism that causes root rot or "Ink Disease" and completely kills American chestnut trees where it is present. Commonly thought of as a disease of the South, Ink Disease is a real danger to future chestnut restoration as far north as Pennsylvania, and it may advance northward if average temperatures rise. This is an issue which TACF and our partners must

continue to investigate using the best available science. If we do not address it, we cannot fulfill our mission of restoring the American chestnut to its pre-blight range.

As new advancements in technology occur, TACF must take advantage of these tools to advance our breeding program. Over the last several years, TACF and several of our university partners have worked to map out the genome of the *Fagaceae* family, the family that includes oak and chestnuts. This work so far clearly supports the organization's focus at the state chapter level to develop locally adapted, blight-resistant trees. In addition, our New York chapter has worked over the last ten years to use biotechnology to develop a blight-resistant chestnut. As new technology comes online, TACF must continue to stay ahead of the curve and use it to advance our breeding program.

As we begin testing our advanced lines with a goal of actually restoring the chestnut, we have many unanswered questions about how to reestablish this tree in a natural forest setting. Prior to the blight, the eastern United States did not have the high deer populations that we see today, and periodic fires likely created favorable growing conditions for chestnut. Evaluating methods to out-plant chestnuts will require significant investments in our science program to develop effective strategies to successfully restore the species.

Science is the tool our organization uses every day to help advance our programs and fulfill our mission. And although TACF has accomplished significant milestones, the work ahead of us is long. We need to continue investing in our science to resolve these issues so that we can successfully restore the American chestnut to its rightful place in our eastern forests.

News From the American Chestnut Foundation

Promotions, Departures and Arrivals

Longtime TACF employee and Vice President of Operations Daphne Van Schaick resigned in April to pursue new professional opportunities. In her 10 years with the Foundation, she became an essential part of the organization. TACF Membership Services Director Betsy Gamber has been promoted to fill the position. TACF's Research Technician William White was named the Southern Appalachian Regional Science Coordinator in April. William has been an integral part of TACF's Meadowview Research Farms for the last three years and will be working with chapters in North Carolina, South Carolina, Kentucky, Tennessee, Georgia and Alabama. Judy Antaramian was hired in May as TACF's administrative assistant to replace Sheri Peck. Judy brings a wealth of experience to the position and has previously worked for organizations with an environmental focus. And, with the closing of the Bennington, Vermont, office, Staff Accountant Dennis Kimball is now located in the Asheville, N.C., office.

A Busy Day for the Massachusetts Chapter

Members of TACF's Massachusetts chapter ended up with a full plate of events Saturday, May 1, 2010. The state's first Restoration Branch party and a high-profile planting at historic Old Sturbridge Village made for a busy afternoon for chapter president Jamie Donalds, who travelled back and forth to attend both events. The Princeton Restoration Branch hosted an afternoon tea for local residents and added 12 new TACF members. With homemade chestnut treats, the event was intimate and friendly and such a fun time that all 12 attendees volunteered to head a committee to plan next year's event!

West Virginia Chapter Honors 29 Fallen Coal Miners

The West Virginia Chapter of The American Chestnut Foundation planted one of its potentially blight-resistant Restoration Chestnut trees on the front lawn of the West Virginia State Capitol April 22, 2010. The ceremonial planting honored the 29 coal miners who per-

ished at Upper Big Branch mine April 5, 2010. "The (American) chestnut has long been a symbol of strength and perseverance, and we are honored to be able to dedicate the new beginning of this tree to the memory of those who perished at the Upper Big Branch mine. With this planting we are cultivating both a sense of the past and hope for the future," said West Virginia Chapter president Thomas Cook.

TACF Now in All 50 States

TACF's reach now spans 3,000 miles and all 50 states. Thanks to all our members who continue to tell our story and bring new members into the TACF family.

Jamestown, New York, Audubon Society Honors Longtime Chestnut Friends

TACF recently planted two potentially blight-resistant American chestnut trees at the Grisez Arboretum located at the Jamestown Audubon Society. The planting of these trees honors Ted Grisez, after whom the Arboretum is named, and Don Dorn, who came up with the idea to recognize Ted. The men are lifelong friends, and both Ted and Don had highly successful careers in the US Forest Service. Ted Grisez was a scientist at the Northern Research Station in Pennsylvania. Dorn was a geneticist in the National Forest system, with many years at the Allegheny National Forest in Warren, Pa. After retirement, each man gave generously of himself to any natural, science-related community organization, including the local outdoor club, the Jamestown Audubon Society and TACF. Both were also wonderful mentors to young professionals in the natural resources field.



Members of the Massachusetts chapter of TACF planted trees at historic Old Sturbridge Village in May.

Photo by Jamie Donalds



The Henry Chestnut, or, the Chinese Chinquapin

Castanea henryi (Skan) Rehder & E. H. Wilson in C. S. Sargent, *Pl. Wilson.* 3: 196 (1916). SW & SC China. 36 CHC Chs. Phan.

By William Lord

The introductory reference text above is a perfect example of a complicated attribution which, being fair to every author involved, shows the integrity of plant nomenclature to an expert and presents a challenge to students or amateur sleuths. As is often the case, I attempted to ferret out the story behind the names with my computer and the Hunt Institute for Botanical Documentation as investigative partners. The above description from the *World Checklist and Bibliography of Fagales* tells us two interesting things. One, that the species was first named by Skan [although he incorrectly placed it in the genus *Castanopsis* rather than *Castanea*]; and two, that the two

authors of *Castanea henryi* are Rehder and E. H. Wilson, described on page 196 in the book, *Plantae Wilsonianae*, which was edited by C. S. Sargent and published in 1916.

Sidney Alfred Skan (1870-1939), a British botanist, published the first description of the Henry chestnut in the *Journal of the Linnaeus Botanical Society*, 1890, as *Castanopsis henryi*. He did so shortly before becoming a long-time staff member of London's Kew Gardens, from 1892-1933. At Kew, he began as a gardener, advanced to Herbarium assistant and served finally as the Kew librarian from 1899-1933. Apparently, Skan was not a plant explorer, but studied and described dry, imported specimens.

That may explain why he placed the Henry chestnut in the genus *Castanopsis*, rather than *Castanea*. Both genera are in the sub family *Castanoidea*, but have prominent differences. In particular, *Castanopsis* has evergreen foliage, and its nut requires two years to mature compared to the deciduous, annually nut-bearing *Castanea*. Skan may not have had this information.

Skan's *Castanopsis henri* is given as a synonym in the *World Checklist*, showing that he published a description of the species on page 523 in the *Journal of the Linnaeus Botanical Society, Volume 25*, in 1890. By applying the epithet "henryi," Skan was honoring Augustine Henry (1857-1930). Henry was a Scot, educated as a physician in Ireland, who came to China in 1881 at the invitation of the Imperial Customs Service, an office that favored Europeans. As an Assistant Medical Officer, Henry was assigned in 1882 to the ancient and remote city of I-ch'ang [Yichang], Hupeh province, on the Yangtze River in south-central China. The city lies at the western entrance to the magnificent gorges of the To-po mountains, whose rugged terrain permitted many plant species to persist in spite of wasteful land use. In pursuit of his assignment to find medicinal plants, he developed a love and expertise for botany. With great care, he collected and recorded hundreds of species, by which means European botanists obtained new knowledge.

Although it is doubtful that the two men ever met, it can be assumed that a specimen of the Henry chestnut, prepared and recorded by Henry, came to the attention of Skan.

Wilson thought of becoming a botany teacher, but sharp eyes at the prosperous nursery firm of James Veitch & Sons hired him to join their staff of more than a dozen plant hunters. Wilson was assigned to China. Leaving in 1899, he traveled by way of America, which included a five-day visit with Charles S. Sargent (1841-1927), the first director of Harvard University's Arnold Arboretum. The first American arboretum (1872), the Arnold Arboretum did not become functional until after Sargent persuaded Frederick Law Olmstead (1822-1903), to join in the promotion and planning. By 1882, it had become a 265-acre "jewel" on the "Emerald Necklace" of Boston's city parks. A primary objective of the Arboretum is to display every tree, worldwide, of the North Temperate Zone.



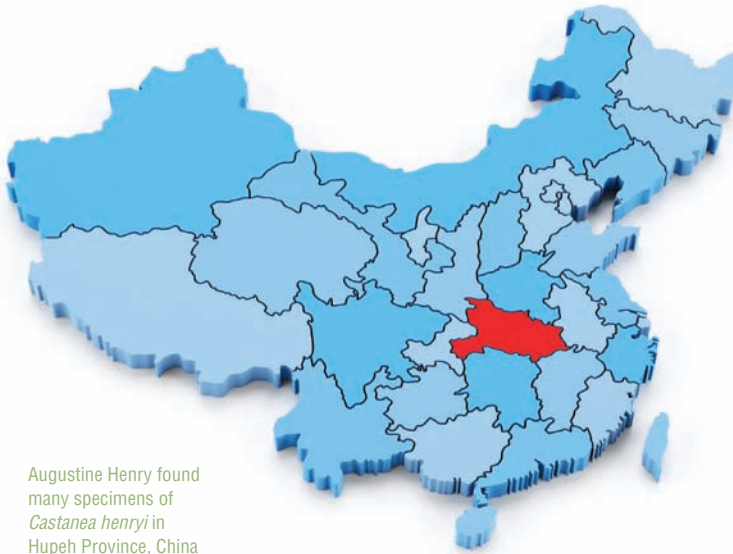
The Chinese chinquapin bur contains only a single nut.

Wilson carried a letter of introduction to Sargent requesting that he be given training in techniques for shipping plants and seeds with minimum damage. This initiated a lifelong friendship between the exacting Sargent and the avid Wilson, for Wilson was a perfect student.

Wilson well rewarded Veitch & Sons, returning to England in 1902 with the seeds of 305 species, cases of bulbs and tubers, and 906 dried herbarium plant species.

In 1903, Wilson returned to China on behalf of Veitch & Sons and then joined Sargent as a plant explorer for the Arnold Arboretum with expeditions to China in 1907, 1908 and 1910, earning the soubrette (nickname) of "Chinese Wilson."

He continued plant exploration and collecting for the Arnold Arboretum with a trip to Japan from 1911-16 and then to Korea and Formosa from 1917-18. Upon his return, he became the associate director in 1919; followed by a two-year expedition through Australia, New Zealand, India, Central and South America, and East Africa, from 1922-24. He became director of the Arboretum following the death of Sargent, his great friend and associate, in 1927.



Augustine Henry found many specimens of *Castanea henryi* in Hupeh Province, China (highlighted in red)



Alfred Rehder, a German newspaper writer who came to American and was hired as a laborer at the Arnold Arboretum, co-authored *Plantae Wilsonianae* with Wilson, in which *Castanea henryi* is first described, in 1916. Fortuitously, Rehder demonstrated a great talent for taxonomy and became a co-editor of the *Journal of the Arnold Arboretum* with Sargent at its inception in 1919.

Bill Lord, a retired veterinarian, is a naturalist and author who spends much of his time in libraries, researching material with a focus on chestnuts.

Prior to the publication of *Plantae Wilsonianae* and the approval of the International Botanical Congress of *C. henryi* as the scientific name for the Henry chestnut, it was known by a variety of synonyms. Wilson collected specimens of this species, primarily in western Hupeh province in south-central China in 1900 and again in 1907. He compared them to a specimen sent to Skan by Augustus Henry [Number 2878] and found them to be the same plant.


The following is from Sargent's Wilson Expedition to China, *Plantae Wilsonianae*, page 197.

"This very distinct species is distributed from the neighborhood of Ningpo [a city near the East China Sea coast, latitude 30] through the valley of the Yangtze River as far west as Mt. Omei [In Szechuan province, approximately 700 miles due

west]. On the mountains of western Hupeh [province] and of eastern Szech'uan it is common in woods. This Chestnut grows to a larger size than any other Chinese species and trees from 20 to 25 m tall with trunks from 1-3 m are common. Occasionally trees 30 m tall and 5 m. in girth are met with. The leaves are green on both surfaces and entirely glabrous [smooth, especially not pubescent or hairy] except for a few appressed hairs on the under side of the primary and secondary veins. The leaves are without lepidote [provided with small, scurfy scales] glands except on the upper surface of the very young leaves, from which they disappear very early. Although variable in size the leaves are very characteristic; they are always caudate-accuminate [having a slender tail-like appendage; tapering at the end to a gradual point] and broadest below or at the middle, and the secondary veins are projected in long aristae [awned, provided with stiffish bristle-shaped appendages] points. The shoots are dark-colored and quite glabrous and the winter buds brownish, short, broadly ovoid, obtuse or subacute and are glabrous or nearly so. The styles vary in number from 6 to 9, and the fruit may be solitary or two or three on a short spike. The spines of the ripe involucre [bur] are sparsely villose [Bearing long and soft hairs] All the fruits [bur with nut] we have seen contain a solitary nut, but it is probable that occasionally two occur, as they do in the American *C. pumila* Miller [American chinquapin].

"How distinct this species is, is well shown by the fact that Skan describes it as a *Castanopsis*. Certainly it suggests this genus more than that of *Castanea*, but the leaves are deciduous. The specimens with male flowers Skan referred to *C. sativa* Mill. [European chestnut.]

"A picture of this tree will be found under No. 0126 of the collection of Wilson's photographs. In Hupeh [province] this Chestnut is known as Ch'in Pan-li."

Both the *Checklist* and the *Plantae Wilsonianae* list a synonym for the Henry chestnut: *Castanea vilmoriniana*, Dode, Bull. Soc. Dendrol, France, 1908, 156 1908. 

Protect Your Investment

Secure Your Timberland by Choosing the Right Liability Policy

by Tim Lowrimore

One of the most challenging and rewarding aspects of timberland ownership is keeping your timberland maintained. We typically think of maintenance as the hands-on, physical labor put into the property. However, maintenance also includes selecting the right liability coverage and ensuring the coverage keeps up with the changes to your timberland. When choosing a timberland liability policy, be sure to keep the following factors in mind.

Insure for the Right Amount

Timberland liability insurance is a vital component in protecting the health of your timberland. The amount of liability insurance you need is dynamic and dependant on many variables. The value of your total assets, your current financial and business status, lifestyle and any existing coverage are all relevant. Today, liability judgments can easily exceed your net worth, resulting in a significant negative impact to future earnings and generations. Regularly assess your current circumstances along with your current liability coverage to determine if you have adequate limits in place.

Consider Buildings and Other External Structures

If there are buildings on your property such as a camp house, barn, garage or shed, consider having them insured. Timberland liability policies are designed to insure your liability associated with the timberland ownership. If coverage for the property is desired, you will likely need to seek additional property and general liability coverage designed for rural property.

Know the Business Operations Exclusion

Generally, business operations on your property – timber harvesting or other “for hire” contracted services – are not covered by timberland liability insurance. As a timberland owner, request proof from any contractor working on your timberland that he or she has named you as an additional insured to their general liability and workers compensation policies. By being named as an additional in-

sured, you will be certain that coverage is in place and that you will be notified in the event the policy is cancelled.

Consider Your Carrier

The financial crisis that erupted in the fall of 2008 has created significant uncertainty in the insurance industry. Look for a carrier with a strong balance sheet, a low-risk investment strategy and excellent underwriting. Seek an admitted carrier for greater assurance they will be there when you need them the most. Admitted carriers are filed with and subject to the laws and regulations in the states where they are admitted. In most business sectors, admitted carriers, when available, are strongly preferred over non-admitted. Investigate the benefits provided by an admitted carrier when purchasing timberland liability coverage.

Revisit Your Policy

A proper periodic review of your insurance coverage will guarantee the policy keeps up with the changes in your timberland. Review your coverage at least once every three years or after any significant event that might affect the policy, such as acquiring new timberland tract or a significant change in your financial situation.

Tim Lowrimore is an account executive at the Davis-Garvin Insurance Agency in Columbia, South Carolina.



Photo courtesy of TACF

The Influence of The American Chestnut in Appalachian History and Culture

Editor's Note: This paper, by Scott Osbourne, is the second article in a two-part series, is being reprinted with the author's permission. It was originally submitted for an independent study completed under Hank Shugart at the University of Virginia Graduate School during the spring semester of 2009. If you missed Part One, it may be found in the July, 2010, issue of The Journal of the American Chestnut Foundation.



The timber cut from a single American chestnut could fill an entire railroad car.

Photo courtesy of GSMNP Archives.

The Peopling of Appalachia
The first true migration of Scots-Irish people to America began in 1718. By 1790, they made up about 15 percent of the U.S. population. The majority of these immigrants were Presbyterian and came from settlements in Northern Ireland and along the English-Scottish border. They were a tough and hardworking group dedicated “passionately to a principle of personal freedom.” Many made their way down the East Coast in search of a land they could call home. Lands in the piedmont region between the coast and the mountains were favored. However, they were often already occupied, and intolerance of the Scots-Irish was

growing. “Colonial governments quickly ushered them out of established settlements into the westward wilds because of their rowdy and bawdy behavior.”

Fortunately, this tough and rowdy attitude worked to their advantage while settling and taming the expansive, unpredictable Appalachian frontier. Early squatters encountered the difficult task of adjusting to life in the mountains, as well as dealing with Native American pressure. In fact, these hardy immigrant settlers conveniently provided a buffer to the colonies against Indians occupying the mountains and quickly adapted to fit the “American backwoods system.” [9]

Subsistence practices were generally centered around clearing forests and planting corn, wheat, barley, rye and oats. Early forms of dealing with the forest were adopted from Native Americans. Before the advent of saws in Appalachia, trees were “girdled,” (a ring of bark was removed from the lower tree trunk) which cut off the flow of water and nutrients through the outer cambium tissue, or bark. These trees were often burned and replaced by fields of crops. Trees provided timber for fuel, building supplies and numerous other uses. Appalachian settlers developed a system focused on using wood as the dominant source of raw materials.

The Tree that Built an Economy

Additionally, mast-producing trees provided a bounty of nuts, which were collected and used as forage for livestock. The lowland Ulster Scots were adept at raising cattle and sheep; however, the primary animal raised in Appalachia was the pig. Hogs were allowed to forage freely in the woods, feeding off the abundant acorns, walnuts, hickory nuts and chestnuts produced by the towering trees. These animals were fattened, then driven to eastern markets where they were sold. Profits from sales of hogs, timber and other mountain resources provided a small, but important, income for mountain families to purchase coffee, salt, cloth, shoes, needles and ammunition.[10] “By the mid 1800s, 150,000 hogs per year traveled the Buncombe Trail from farms in Tennessee and Kentucky along the French Broad River, through Asheville, N.C. to the lowland plantations of South Carolina and Georgia.”[11]

A Perfect Match to its Habitat

The American chestnut provided many necessities for mountain subsistence. First, its straight and thick trunk was easily cut for firewood, boards and other building materials, and its wood was revered for its rot resistance, making it perfect for log cabins and fences. The coarse-grained nature of its numerous obscure

medullary rays (wood grain) created a beautiful wood used frequently in cabinet and furniture making.[12] Second, its sweet nut was used for livestock fodder, served as a diet staple and was collected and sold for supplemental income. Chestnuts are perennial trees that produce mast almost every year, providing a predictable harvest in a largely unpredictable landscape. Chestnut groves were “treated as a community resource,” tying people together through collective use and care. They were seldom cultivated, but chestnut groves were frequently tended, and other trees removed, to make way for chestnut growth. Third, the tannic acid that makes chestnut wood resistant to rot was extracted and used in tanning hides. The market for tanned skins and leather grew large, providing another source of income for mountain families. In 1912, there were seven tannery extract factories open in Tennessee – all using chestnut and some chestnut oak. An estimated 50,000 cords were cut annually to supply these tannery extraction operations in Tennessee alone. [13] By 1915, “over two-thirds of the tannic acid produced in the United States came from chestnut wood and bark. The use of every component of the American chestnut constituted a complete and efficient utilization of the tree. The mountain settlers were blessed with a species that provided a grand bounty of products. “If ever a place was defined by a tree, it was Appalachia.”[14]

One particular quality of chestnut is it is not very finicky about its growing habitat. W.W. Ashe states that “chestnut does not require a sweet or fertile soil” and that it is one of “the least exacting hardwoods.” It tends to grow on deep, well-drained loams, which helps establish a strong root system. It also often occupies soils not favorable for agriculture, and was often left standing in areas of acidic or less fertile soil. Moderately cool sites on shady slopes or coves at elevations between 1,000 - 4,000 feet are the best locations for growth. The American chestnut has a fast rate of reproduction, and com-

monly sprouts from stumps left after logging. In total, these characteristics made the American chestnut a catalyst in developing domestic and commercial prosperity throughout Appalachia.

The use of the entire tree, along with the bounty of forest products, made the Appalachian people rich in natural wealth. The French botanist, F.A Michaux comments on the abundance of Appalachia in his travels to west of the Alleghany Mountains: "In the western country (Appalachia) the riches of the inhabitants consist in specie; for I am persuaded that not one in ten of them are in possession of a single dollar; still each enjoys himself at home with the products of his estate." [15] For more than 100 years, Appalachia was relatively inaccessible to transportation and commercial exploitation. It was a sort of Eden for those that adapted and settled in the rich hills. Explorers such as Michaux and Ashe steadily exposed the products of the frontier to outsiders who eventually took an interest in the bounty of resources. Technological changes throughout the 19th century made the extraction of resources possible, marking a turning point in the welfare of the land and people of Appalachia.

Foreign Invaders

If the years prior to the Civil War in Appalachia were marked by adaptation and enjoyment of the frontier, then the years following were indelibly scarred by extraction, exploitation and loss. Advances in railroad technology led to the penetration of mountainous passes in search of resources.

The early stages of industrial-scale logging were typified by relatively selective logging practices. Many companies bought the rights to cut specifically selected trees in secluded areas. Trees were felled and most commonly floated to market or mill on the numerous rivers winding throughout Appalachia. This was a practical method that focused on sustainably selecting

and transporting only the best logs. By the turn of the century, however, regulations on logging were relaxed allowing for clear-cutting and the harvest of smaller trees. The first chief of the United States Forest Service, Gifford Pinchot, documented the rise in commercial logging. In 1906 he wrote, "the cut of chestnut is increasing; that in 1906 was nearly double the product in 1899. The value in 1906 was 158 times greater than in the former year." Additionally, "three fifths of the lumber produced from poplar in 1906 was furnished by Kentucky, West Virginia, and Tennessee." [16] These two woods are exemplary models for the high rates of timber extraction in the Appalachians. In 1909, the peak logging year, "hardwood lumber cut from mountain forests from Maryland to Georgia totaled four billion board feet." [17]

End of an Era

With the growing timber industry, many Appalachian settlers abandoned their farms to work as loggers. When the unsustainable logging boom and supporting industry collapsed around 1930, they were left with nothing. The harmonious system of mountain living that once flourished was now gone. People had placed their faith in making a quick buck through logging and, consequently, lost not only their land but also their living history. Today, virgin timber stands of old growth are a rare occurrence throughout Appalachia as most of the dense old-growth stands were extracted in the lumbering era. Some remnants remain in the Great Smoky Mountains National Park and other designated wilderness areas. Unfortunately, the grandeur of the original primeval forest will never be fully realized, and we can only attempt to protect what is left.


The devastation of the American chestnut by logging alone was extreme. Additionally, in the early 20th century a new microscopic threat decimated the remaining 200 million acres of native chestnut from Mississippi to Maine. Asian

chestnut trees imported to the United States in the late 1800s brought with them a parasite that quickly spread throughout the range of the American chestnut. The now infamous invasive parasite, *Cryphonectria parasitica*, is a fungus that infiltrates wounds in the bark and quickly spreads, killing cambium tissue from the roots to the branches. The blight is transmitted between trees by latching onto animals or through wind transport. The disease spread extremely fast throughout Appalachia. Clear cutting of chestnuts and burning of blight-laden trees did nothing to stop the spread of the disease. By 1950, American chestnut trees were no longer factors in the ecological systems of the forests due to their advancing extinction.

Attempts to control the blight were met with mixed results. In 1972 an imported “hypovirulent” strain of the blight fungus from Italy lacked the ability to kill chestnut trees, and that inoculation of these strains into existing (lethal) cankers resulted in canker remission.” This established biological control of the blight, but it was only successful in isolated orchard situations due to the close proximity to chestnut trees. [18]

The Future

The American Chestnut Foundation has developed crossbreeding strategies in search of a blight resistant tree. Numerous breeding programs throughout the chestnut’s native range have crossed blight-resistant Asian chestnuts with their American counterparts. These programs are still seeking a method to allow resistant genes to be transmitted naturally. Further advances in gene manipulation and the control of forest pathologies will hopefully produce a tree that can be reinstated into the forest ecosystems of Appalachia. Even if American chestnut trees are reintroduced throughout Appalachia, they will never be as dominant of a tree species as they once were.

Where there was once virgin old growth hardwoods there are now farms of pine. Where frontier families once lived there are now strip mines. The people of Appalachia have been steadily building an environmental movement over the past 30 years in an attempt to preserve the cultural and natural history of these ancient mountains. Hopefully, by preserving this grand history through literature and the conservation of Appalachian ecosystems, we can continue to carry on this rich historical legacy into the 21st century. 

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Troubles with Weevils?

Simple Strategies for Controlling a Common Pest

by Sara Fitzsimmons

Weevils are pests. Nobody I know denies that fact. However, weevils are mostly harmless and you really only need to treat for weevils if: 1) they gross you out, or, 2) you're at risk of eating them. Otherwise, weevils typically don't do any damage unless you have an incredibly severe infestation.

The worms in chestnuts are larvae of the chestnut weevil. There are two species, the lesser and greater. Some pesticides are labeled for use on chestnut weevils, but good control with chemicals still can be tricky as the timing must be perfect. The best way to control their proliferation is through proper sanitary practices. Every fall, be certain to collect all burs, nuts, and leaf matter from under chestnut trees and burn them. When harvesting, try to collect nuts within one or two days of the nuts falling from the bur (if not before). The sooner the better.

Along those lines, here are a few additional tips for dealing with weevil infestations related to chestnut trees and chestnut nuts you plan on eating.

Give the Chestnuts You'll Eat a Good, Hot Bath

As soon as possible after harvest, treat nuts by putting them in 120°F water for 20 minutes. This process kills the weevil egg and small larvae but does not affect the viability of the seed. If the water temperature is too low (less than 117° F), the weevil will not be killed. If it's too hot, then you kill the embryo and thus, the seed. The longevity of the seed in storage will then be compromised.

Store Chestnuts like the Perishable Food Source They Are

Chestnuts can be stored in a grocery bag for up to two months. Sweeten fresh chestnuts by leaving them at room temperature for two days (the starches will convert to sugar).



For long-term storage, put them in the freezer in an air-tight container or bag and use them immediately after thawing (else they will become mushy).

Weevils, although annoying, typically don't do much damage unless an infestation is severe.

Control Weevils for the Long-Term

The key to good weevil control is proper sanitation. Collect all of the nuts under your chestnut trees as soon as you can. Then, treat the ones you want to eat, store the ones you want to plant (without the hot bath treatment, which will reduce their potential for germination) and destroy the rest of the nuts you don't want to eat or plant. Don't just leave them lying about under the trees. You can burn them, or maybe even drown them. The idea is to collect and dispose of them relatively quickly. A lot of people keep chickens or guinea fowl under their trees to eat the larvae as they emerge from the nuts. That's an option as well, in case you don't feel like destroying all the nuts, which can be a good deal of work.

Photos by
Jerry A. Payne,
USDA Agricultural
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Bugwood.org.

Sara Fitzsimmons is TACF's Regional Science Coordinator Supervisor.

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Meadowview Dedication a Success!

200 attendees celebrate new Glenn C. Price Lab



This past April was a busy time in the Meadowview, Va., area. On April 17, TACF officially dedicated our Glenn C. Price Research Laboratory with the help of our dear friend and donor, Mary Belle Price. To emphasize the importance of this milestone, the lab dedication occurred during the newly established Southwestern Virginia Restoration Branch event.

More than 200 participants packed the event to help celebrate the return of the American chestnut, witness the lab dedication, meet new friends and support TACF. Several special guests addressed the crowd including famed novelist Barbara Kingsolver, Chairman of the Board Glen Rea, Virginia state chapter president Cathy Mayes and TACF chief scientist Dr. Fred Hebard.

The event was a big boost to TACF. Thanks to the generous support of Alpha Natural Resources of Abington, Va., and Big M Farm Supply in Meadowview, Va., the Branch was able to underwrite the event costs and raise additional funds to help with breeding and other chestnut work in the southwest Virginia region.

"I never thought the event would turn into such a large event," said Branch committee member Mila Wilmoth. "So many people that attended were previously unaware of the work TACF is doing to return the American chestnut. The crowd was so pumped up and energized. We can't wait until next year's event!"

Branch events are a great way to raise funds and awareness for the TACF mission. If you are interested in hosting a Restoration Branch event in your area, contact TACF headquarters at 828-281-0047.

Branch events are a great way to raise funds and awareness for the TACF mission.

The American Chestnut

A Perfect Wildlife Food Lost in Time, But Not Forgotten

by Lisa Densmore

It is said that a hundred years ago American chestnut trees were so plentiful in the eastern United States that a squirrel in Georgia could jump tree to tree all the way to Maine without touching the ground. Talk about a tenacious, traveling rodent! This squirrel-version of through-hiking the Appalachian Trail would have been a diverse tour, too, over mountain ridges, along hillsides, across chestnut groves 100-acres wide and through mixed forests of not only chestnut, but also ash, birch, hickory, maple, poplar and oak, depending on the soil and elevation. Yet the point is not so much the hypothetical epic journey of a squirrel, but rather the widespread nature of the American chestnut and its dominance and importance in the forest ecosystems between the Appalachian Mountains and the Atlantic Ocean.

Sometimes called the “Redwoods of the East,” mature, healthy American chestnut trees once towered 100 feet above the forest floor and could produce 10 bushels or more of nuts per year, per tree, making them the primary source of each autumn’s mast crop. Many types of wildlife, certainly squirrels, but also black bears, white-tailed deer, wild turkeys and other birds, Eastern woods bison and Eastern elk, depended on the American chestnut for food and shelter for untold centuries before European settlers began using this once widespread and dominant hardwood tree for food and shelter.



Photo by Lisa Densmore

In 1854, Henry David Thoreau wrote the following about the chestnut trees near his Walden, Massachusetts, home:

"[American chestnut trees] grew behind my house, and one large tree, which almost overshadowed it, was, when in flower, a bouquet which scented the whole neighborhood, but the squirrels and the jays got most of its fruit, the last coming in flocks early in the morning and picking the nuts out of the burrs before they fell. I relinquished these trees to them and visited the more distant woods composed wholly of chestnut." -Henry David Thoreau

Thoreau's mention of squirrels likely refers to the Eastern gray squirrel, a common resident of most forested areas east of the Mississippi. Though often considered a pest by people, it likely played an important role in the dispersal of American chestnut trees over the millennia prior to the blight, *Cryphonectria parasitica*, which nearly wiped out the American chestnut during the first half of the 20th century. Post-blight, squirrels also can take credit for helping spread oak throughout eastern ecosystems. In the future, they may become an important partner in recreating a widespread presence of healthy chestnut trees, thanks to their need for nuts.

Squirrels do not hibernate. During the fall, they eat large numbers of naturally-occurring seeds and nuts to increase their body fat and thicken their fur in preparation for the harsh winters in the eastern U.S. Squirrels also cache nuts in tree cavities and on the forest floor with the intention of eating them throughout the winter; however, they only recover about 75 percent of what they hide. What's more, their stashes tend to be small and widespread. Many of the uneaten nuts germinate, eventually growing into new trees. Some scientists credit the hoarding habits of squirrels for inadvertently "planting" the post-ice age forest mix we know today.

While squirrels may store nuts in hidden spots on the ground, they don't eat them there, typically preferring to dine on a low branch to avoid predators, including black bears. However, a hungry bear would much rather nab the squirrel's nut stash than the squirrel itself. Black bears are omnivorous opportunists who prefer to bulk up for their winter snooze by gorging on food that doesn't run or fight back, particularly fruits and



SQUIRREL SENSE

Squirrels begin harvesting chestnuts about two weeks before humans do, particularly if the acorn crop is weak. They break off the burrs, and then eat through them to get the nut meat inside. If squirrels are nabbing your chestnuts, try leaving several pounds of alternative chestnuts, such as Japanese chestnuts that ripen earlier than their American cousins. You might have to replenish your offering a couple times per week until your nuts are harvested.



WILDLIFE AMONG THE CHESTNUTS

When the American chestnut was the dominant tree of the east, many animals and birds depended on it for food and shelter, particularly the following species:

- | | | |
|---------------------|------------------|-------------------|
| Black bear | Squirrel | Chipmunks |
| Rabbits | Boar | Raccoons |
| Eastern woods bison | Eastern elk | White-tailed deer |
| Mice | Wood rats | Voles |
| Gray jay | Passenger pigeon | Grouse |
| Crows | | |



WHITE-TAILED DEER & THE AMERICAN CHESTNUT

Fewer things aggravate a chestnut grower more than watching the young leaves and shoots being eaten by white-tailed deer. As the seedlings start to leaf out and flower, deer wander by to enjoy a tasty meal.

Research clearly supports that unmanaged white-tailed deer populations can have significant negative impacts on plant species, and that future restoration of the American chestnut is facilitated when deer populations are managed in a scientific and balanced relationship with habitat. A new partnership between TACF and the Quality Deer Management Association (QDMA) will prove mutually beneficial as both organizations work to not only improve forest health but also provide wildlife habitat for a variety of species.

QDMA is a non-profit conservation organization dedicated to ensuring the future of white-tailed deer, wildlife habitat, and our hunting heritage. TACF and QDMA will work together to develop on-the-ground projects at the local level to include chestnut restoration and landowner workshops.

QDMA offers a variety of technical information on their website at www.qdma.org to help landowners better manage their deer herds. Even if you are not a hunter, you can work with individuals whom you do allow to hunt your property to follow quality deer management principles with the goal of improving the plant diversity of your forests. With this new partnership in place, the white-tailed deer and the American chestnut tree may find a way to co-exist peacefully in the forest.


nuts. Black bears used to be as ubiquitous as the American chestnut, but as tree numbers declined, so did *Ursus americanus*. Some of that decline was due to humans who hunted bears for their meat and to protect livestock, property and population centers. Additionally, the disappearance of chestnuts combined with an overall loss of habitat to human settlement greatly reduced the ability of the bear to return to its historic range. Today, bear numbers have increased in many areas due to relocation programs, and as acorns and beechnuts have replaced chestnuts on the forest floor. Even so, bears linger below their historic numbers in many parts of the Appalachians where mast crop volumes remain lower than during the period when American chestnuts made up approximately 25 percent of the eastern forest mix.

Wild turkeys are another species whose suc-

cess story overlaps with that of the American chestnut. According to the National Wild Turkey Federation, wild turkeys had declined drastically to only 30,000 in the early 1900s, due mainly to habitat loss. Today, it is estimated there are more than 7 million wild turkeys. These native birds, once on the brink of extinction, also depended on chestnuts for food. It's interesting, and perhaps not a mere coincidence, that their low point as a species came during the height of the chestnut blight.

Wild turkeys rebounded, in some part, by eating a broader assortment of mast; however, another bird, the Passenger pigeon, was not as lucky. Once the most common bird in North America, it is estimated Passenger pigeons numbered in the billions. Enormous flocks depended on nut crops, which American chestnut trees produced in abundance every fall. Initially, the demise of the Passenger pigeon was blamed solely on commercial hunting; however, scientists now believe habitat loss was also a contributing factor.

Did the decline of the American chestnut tree, which provided a staple of the Passenger pigeon's diet, contribute to their extinction? It is likely, to some degree. Deforestation in general was certainly a big factor. Passenger pigeons were communal birds that found safety in numbers. They traveled and nested in large flocks. As a result, predators could eat their fill yet not cause a substantial impact. As habitat decreased, fewer birds could congregate in a particular woodland area, dispersing them and making them more susceptible to predation. In addition, many birds contracted Newcastle disease, further diminishing their numbers. Attempts to bring back the Passenger pigeon by captive breeding ultimately failed because ecologists could not recreate the large numbers of birds needed for successful breeding.

On a more positive note, the plight and ultimate extinction of the Passenger pigeon sparked public interest in conserving our natural environment, which ultimately led to the formation of various conservation organizations such as The American Chestnut Foundation. Through the efforts of The American Chestnut Foundation, its members, other conservation-minded people, and, yes, perhaps even the squirrels, the American chestnut has a much better chance of making a significant comeback than the Passenger pigeon ever did. 

Lisa Densmore is a freelance writer and photographer from Hanover, NH.

Chestnut Fennel Soup

from *Gourmet Magazine*, November 2000

Chestnut Fennel Soup



Ingredients:

- 2 cups roasted, shelled, skinned chestnuts (1 pound in shell or 14 oz. bottled whole; divided)
- 1 shallot, chopped
- 2 leeks (white and pale green only), chopped
- ¾ stick unsalted butter (6 tablespoons; divided)
- 2 tablespoons dry, white wine
- ½ fennel bulb (sometimes called anise), stalks and core discarded and bulb coarsely chopped
- 1 cup chicken broth
- 2½ cups water
- ¼ cup half-and-half
- Salt and pepper

Cooking Directions:

Coarsely chop chestnuts, reserving 1/3 cup for garnish. In a 5-quart heavy pot over moderate heat, cook shallot and leeks in 2 tablespoons butter until softened. Add wine and simmer until almost all liquid is evaporated, about 1 minute. Stir in fennel, broth, 2/3 cups chestnuts (save 1/3 cups for garnish) and water, then simmer, covered, for 20 minutes. Stir in half-and-half and cool mixture slightly.

Puree mixture in batches in a blender until smooth (use caution when blending hot liquids); transferring to a bowl. Return soup to pot and bring to a simmer, thinning with water, if desired. Season with salt and pepper.

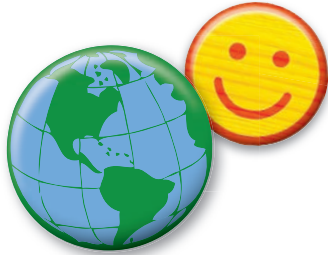
While soup is reheating, heat remaining 4 tablespoons butter in a heavy skillet over medium high heat until foam subsides, then sauté reserved chestnuts with salt and pepper to taste, stirring constantly, until crisp and butter is browned, about 4 minutes.

Serve soup with remaining 1/3 cup of chopped chestnuts and browned butter drizzled on the surface.

Note: To boil chestnuts, cut an "X" in each chestnut. Place the nuts in boiling water for 15 to 25 minutes or until tender. Chestnuts are done when the shell starts to peel back and the thin brown seed coat between the shell and the meat rubs off easily. If the seed coat sticks, cook the nuts a little longer and try again.

Nutrition Facts		Serving Size: 1 bowl of Chestnut Fennel Soup
Calories	192	(5% protein, 46% carbohydrates, 48% fat)
Total Fat	10.5g	(Saturated fat 6.3g)
Protein	2.4g	
Cholesterol	27mg	
Sodium	21mg	
Total Carb.	22.3g	
Dietary Fiber	0.9g	

Ingredients: chestnuts, shallot, leeks, butter, white wine, fennel bulb, cup chicken broth, water, half-and-half, salt, pepper



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