Watershed Observer

Newsletter of the American Chestnut Land Trust - Volume 26 No. 3, Summer 2012

Contents

Coming Up on the Calendar

August 2012

18 **Guided Canoe Trip** (3:00 p.m. – 6:00 p.m.) (*Sunday Rain Date*)

25 **Walk Along the Bay Membership Event** (10:00 a.m. – 12:00 p.m.)

September 2012

15 **Holly Arboretum Work Day at Warrior's Rest** (9:00 a.m. – 12:00 p.m.)

15 **Guided Canoe Trip** (3:30 p.m. – 6:30 p.m.) (*Sunday Rain Date*)

29 **Vine Vindicator Work Day/ Training** (9:00 a.m. - 2:00p.m.)

See more of the 2012 calendar on page 10 or on the Web.

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Land Manager's Corner

The American Chestnut: the Recovery of a Lost Giant

This newsletter article is the second installment in a three-part series that began with last season's article about the American chestnut. It was my original intention to write two informative articles about the values associated with our native chestnut, the introduction of the chestnut blight, and what science is doing to restore this species. However, I thought it might be helpful to provide a bit more depth into both scientific approaches concerning restoration efforts for the American chestnut. This article will provide a brief explanation behind one avenue of research that is being conducted to reestablish this valuable species. The fall newsletter article will discuss the biological control of chestnut blight and how this agent may be dispersed to help this species recover.

As discussed in the spring newsletter, the American chestnut was a dominant tree species in Eastern forests until the introduction of the chestnut blight fungus in the early 1900s. The chestnut blight (a pathogen native to Asia) was able to spread rapidly throughout the range of the chestnut at an estimated speed of 45 miles per year, killing approximately 3.5 to 4 billion trees (American Chestnut Foundation, 2001). The blight was able to cause such rapid devastation because the American chestnut had no evolved defense against the foreign pathogen. Land managers could do little to slow the spread of the disease, and as a result enormous ecologic and economic damages were incurred. In a span of about 40 years (roughly 1910 -1950), the American chestnut tree was essentially wiped out, leaving the only living trees functioning either as sprouts from root stocks throughout the native range, or sizable survivors scattered at natural range edges. The loss of the American chestnut has been felt on several fronts, from anthropocentric values to wildlife sustenance, to numerous other ecological relationships of which we are still not fully aware.

So, what is being done to restore the American chestnut? There are two main entities that are diligently working on the development of blight-resistant seedlings. These organizations are The American Chestnut Foundation (TACF) and the American Chestnut Cooperators Foundation (ACCF). Both organizations are non-profits, focusing efforts on producing a chestnut tree that is resistant to the mortality imposed by the blight fungus. The primary difference between the two is that TACF is breeding blight resistance into American chestnut seedlings by crossing and back-crossing the blight-resistant Chinese chestnut with resistant parent American chestnut trees; while the ACCF is striving to establish resistant varieties of chestnuts by using only 100% American chestnut stock. The ACCF is also pursuing economical biological control measures against chestnut blight in the forest environment, which will be discussed in the fall newsletter.

(Continued on page 6)

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Published quarterly by the American Chestnut Land Trust. The ACLT is dedicated to the preservation of Calvert County, Maryland's Natural and Historical Resources. Since it was established in 1986, ACLT has preserved over 3,000 acres. We own 922 acres, manage 1,780 acres owned by the State of Maryland, and hold conservation easements on 374 privately -owned acres.

Editors: Ellen and David Farr

Mark your calendar! ACLT's Annual Dinner & Auction is coming!

Saturday, November 3, 2012

The 2012 American Chestnut Land Trust Annual Dinner & Auction Committee invites you and your guests to our annual fall fundraising event on Saturday, November 3rd at St. John Vianney Family Life Center in Prince Frederick, MD.

Managing and protecting over 3,000 preserved acres in Calvert County is an arduous task. Volunteers, working hundreds of hours, help keep the 15 miles of publicly accessible hiking trails open. The ACLT staff works tirelessly to make sure that future generations may enjoy the natural area we call Parkers Creek Preserve. Protecting and preserving this area would not be possible without the support of our members and friends at the annual Fall Dinner and Auction, which has come to be known as the premier fundraising event of the American Chestnut Land Trust.

As in years past, we are gratefully accepting unique and high value items to be bid on at the auction. In an effort to keep our ticket price at the low, low price of $40 per person which compares very favorably with other area fundraising events, we are also on the lookout for "Auction Angels" – members who make monetary donations that help us offset the cost of the event. Please consider becoming an Auction Angel or contributing a high value auction item in support of this year's event! We have included a donation form on the reverse side of our "Save the Date" flyer which is enclosed in this newsletter.

This year the committee has raised the bar! Gone are the 'sliders' and 'bites' and in their place will be a full dinner buffet with savory fare more appropriate for the fall – Beef Stroganoff and Vegetarian Chili and their appropriate accompaniments. Hors d'oeuvres with a Southern Maryland twist and hot apple cobbler with ice cream will also be served! Can there be a better fall dinner?

Let's not forget the silent (and live) auction. While last year's auction was a great success, this year will be grander. Look for trips and vacations to wonderful places, pieces of original art, dinners at local fine restaurants, special services, dinner parties and so much more. Once again our well-known auctioneer will entice, embarrass and inspire you to "bid high, bid often" during the live auction. Live music will also be performed throughout the evening. Look for items and their descriptions to be posted on the ACLT website so you can be prepared.

We look forward to seeing you on November 3rd—mark your calendar. More information regarding purchasing tickets and how you may donate an auction item or become an event "Angel" will be posted online at: http://acltweb.org/Events/Auction/index.cfm.

Steve Kullen
2012 Dinner / Auction Chair

Around ACLT

Experiences at ACLT

There are some things that you think you'll never do in life; even among the endless possibilities you feel a degree of assurance that certain things simply will not occur. A year and a half ago I can confidently say that driving around with a truck load of horse manure would have fallen within this category of things. However, I would have been wrong.

I could say the same about a variety of things that I've done during my time at ACLT. When I first began working here as a farm intern, admittedly, I didn't know much about farming. What little knowledge I did have was basically limited to helping out from time to time in my family's small garden. However, over the course of my time at ACLT I have learned more than I could have imagined. I learned how to use a rototiller, how to lay down irrigation lines, and most importantly about how rewarding it is to challenge myself.

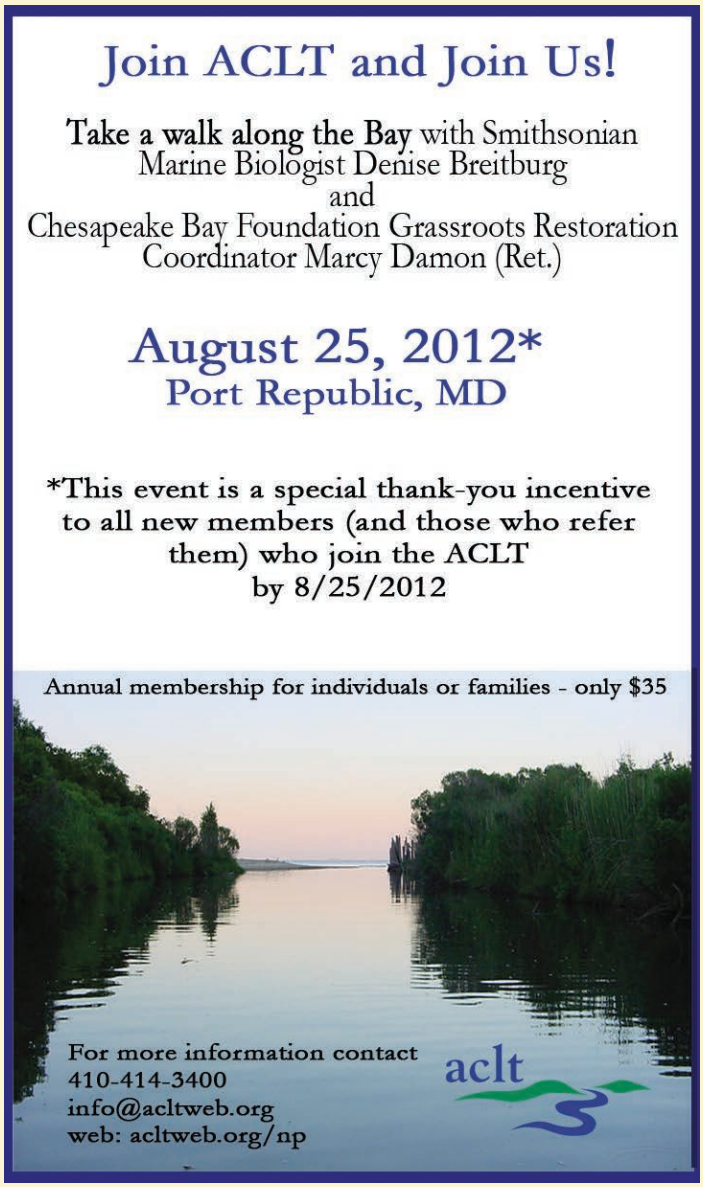
Over the course of my time at ACLT I have assisted with all aspects of running the farm, from planting and harvesting, to corresponding with shareholders. As an addition to our Annual Farm Harvest Dinner I worked to coordinate beekeeping and composting workshops to educate and engage the local community.

As a Chesapeake Conservation Corps volunteer I have also been involved in a variety of other ACLT projects. Perhaps most notably, I assisted with the creation of a native plant restoration area along the South Side trails. This past spring I worked to organize a volunteer planting as part of ACLT's Earth Day activities. Over 50 native trees and shrubs have been planted in the area thus far. Over the past couple of months I have been working to create interpretive signage for the area. In May I received a $1,250 grant from the Chesapeake Bay Trust to assist with the costs for the signage. The signage will serve the purpose of educating visitors to the site about the important role that native plants play and explaining the detrimental impacts that non-native, invasive species can have in ecosystems.

My time at ACLT has certainly solidified my belief in the importance of community. In the fall I will be starting Portland State University's Master of Urban and Regional Planning program with a focus on community development, particularly in regard to the potentialities for the use of urban gardening as an empowerment tool in communities. As my time at ACLT nears an end I would like to express my gratitude for having been given the opportunity to be a part of this organization because despite intense summer heat,

ticks, and the persistence of biting flies there are few things better than doing what you believe in and meeting the best people along the way.

Taren Evans
Chesapeake Conservation Corps Volunteer



Parkers Creek Preserve Expands

The Parkers Creek Preserve is an example of the maxim that the whole is greater than the sum of the parts. The Parkers Creek Preserve could be described by listing the 11 distinct properties under the ownership of the American Chestnut Land Trust and the 8 properties owned by the Maryland Department of Natural Resources (DNR) that are managed by ACLT. The sum of these parts totals approximately 2,700 acres that ACLT owns or manages throughout both the Parkers Creek and Governors Run watersheds. (ACLT also holds conservation easements on 374 acres not considered part of the Preserve.) However, the name the Parkers Creek Preserve signifies that these various properties have been knitted together to form a unified whole that is greater than the total number of acres protected.

The assembled Preserve is significant for several reasons. It contains some of the largest, contiguous unbroken woodlands left in Calvert County. Such a large forested area provides summer nesting sites for neotropical species of birds that require forest interior habitat. For this reason, the Parkers Creek watershed was named an Important Bird Area (IBA) by the Maryland-DC Chapter of the Audubon Society in 2006. The forests of Parkers Creek Preserve have also been described as containing "rich woods" habitat that supports several rare, threatened or endangered plants. The large preserved forested area surrounds and protects wetlands of special state concern located in the main stem of Parkers Creek that help to filter runoff and improve water quality in the Chesapeake Bay. Finally, some of the finest Miocene fossil deposits in the eastern United States are located in the Calvert Cliffs and the Parkers Creek Preserve protects a several thousand foot stretch of these cliffs and provides habitat for the federally endangered Puritan Tiger Beetle and the Northeastern Beach Tiger Beetle.

The Preserve recently expanded with the purchase of a little 18-acre gem of a property that we call the "St. John Vianney" property. It is located just east of the town of Prince Frederick and adjoins an approximately 150-acre property owned by Calvert County and protected under the Maryland Rural Legacy program.The Calvert County property, in turn, connects to DNR -owned lands through which there were no public access hiking trails. With acquisition of the St. John Vianney property, there is now a permanently preserved swath of land all the way from Prince Frederick to the Chesapeake Bay on the north side of Parkers Creek!

The purchase puts ACLT a little bit closer to beginning on-the-ground construction of the new Prince Frederick to the Bay Overlook Trail. Permission has been granted by the Board of Calvert County Commissioners to cross the county's Rural Legacy property and by Baltimore Gas & Electric to cross its utility corridor. The only thing still remaining to be accomplished before trail construction can begin is approval from the Maryland Department of the Environment to allow construction of the trail and pedestrian bridges to cross wetlands and streams along the way. Hikers will soon be able to park at St. John Vianney Catholic Church on Main Street in Prince Frederick and hike 7.5 miles to ACLT's new Bay Overlook Platform.

We are grateful to Father Peter Daly for providing the leadership to recommend that St. John Vianney enter into a partnership with ACLT for the new trail by agreeing to convey to ACLT a trail easement over the existing church property for hiker access and to Joe Allman who helped coordinate the acquisition on behalf of St. John Vianney. We are indebted to ACLT Charter member Art Cochran for providing countless hours of donated surveying assistance for the trail. Finally, we would like to thank the Maryland Heritage Areas Authority for its grant that provided financial assistance for the land acquisition.

Magic happens when the whole is greater than the sum of the parts. While out scouting the route of the new trail at St. John Vianney, Art Cochran and I flushed an American woodcock from a wooded wetland area. What a thrill it was to see this seldom seen bird in the wild for the first time!

Karen H. Edgecombe
Executive Director

Alert American woodcock. Photograph copyright by Timothy C. Flanigan. http://www.NatureExposure.com

"The **American woodcock (***Scolopax minor***)**, also called the **timberdoodle,** lives in young forest and shrubby areas often near streams, rivers, and wetlands. Woodcock eat worms, which they catch by probing in the soil with their long bills. They breed across eastern North America from Atlantic Canada to the Great Lakes, and spend the winter in lowlands mainly in the southern and Gulf Coast states." http://www.timberdoodle.org.

Volunteer Spotlight: Paul Elliott

If you have ever wondered where to find the best trails and hikes within an hour's drive of the Washington, D.C., metropolitan region, Paul Elliott would be your man to consult. An avid hiker for the past two decades, Paul can point you in the direction of a trail or hike that has just the right combination of hills, wildlife and wildflower scenery, and access to spectacular views of the region's bays, rivers, streams, and creeks. He has used his wealth of knowledge to introduce many environmentally minded groups, including the Sierra Club and the Appalachian Mountain Club, to ACLT's North and South Side trails.

In addition to providing exposure to ACLT's preserved land, Paul has often led these groups in clean-up and maintenance activities in a "leave it better than you found it" type of attitude. Some past projects have included arboretum work days on the Warrior's Rest property and participation in our annual hiking trail maintenance days.

In the following paragraphs, Paul tells us in his own words how he discovered the ACLT and what keeps him coming back.

Kady Everson
Community Relations Coordinator

"I stumbled across ACLT by serendipitous accident while trolling on the Web in search of the American chestnut (*Castanea dendata*). I had long been mildly obsessed with that species, ever since learning of its former dominance in the eastern forests and its being almost wiped out by an unwittingly imported blight. Seeing 'American Chestnut Land Trust' pop up on my computer screen got my attention, and exploring the information-rich website that same day made me 'curiouser and curiouser' (to quote Alice of Wonderland fame).

"Reading about ACLT's champion state chestnut tree, rich cultural history, alluring trail network, and proximity to the D.C. area, I took a strong interest in learning more about this wholly-unknown-to-me place. It sounded like a great new venue for leading group day hikes, as I had been doing already for several years for both the Sierra Club and Appalachian Mountain Club.

"Then an invitation to a wedding in Calvert County put me within striking range of ACLT. So I struck. That was in 2004, when I first started exploring ACLT by first exploring its trails. That opened my eyes, ears, nose and mind to both the natural and human history of the area. Eventually, one thing led to another—and another—and another.


Paul getting ready to lead a hike.

"One early and transformative thing was my coming across an upturned guest canoe next to Parkers Creek that had a kind of 'Paddle Me' invitation on it (in retrospect, another magical Alice moment). A hiking friend and I were soon out on the creek, marveling at being immersed in nature with no sight or sound of obvious human enterprise—no buildings, no roads, no power lines, no powerboats—and half a dozen bald eagles circling overhead (we waved vigorously so we wouldn't be mistaken for carrion).

"That led to my taking my first guided canoe trip on Parkers Creek with then-land manager Liz Stoffel. And that led, in 2006, to Liz's allowing me to use the ACLT canoe fleet to expand my group hiking excursions to become both educational and entertaining hiking-and-paddling outings.

"Tutored by Liz, armed with ACLT literature, inspired by the website, and usually favored by the weather gods, I was able to—and continue to—introduce a lot of D.C.-area people to both ACLT and what I believe to be the demonstrated value of local community-based conservation, preservation, and education. I was particularly motivated early on in learning how local people had banded together in the mid-1980s to create the land trust to resist developmental encroachment.

"Over the past six years I have become more deeply involved with ACLT and what is now the Parkers Creek Preserve—as a member, as an outings leader, as a participant in other activities, as a reader of the *Watershed Observer*, as a recipient of encouraging email messages from Seaona, Joy, Liz, and now Kady and Steven, and also as a writer. I have included the preserve in the locales covered in the second edition of my book *60 Hikes within 60 Miles: Washington, D.C.* (Menasha Ridge Press, 2007). I also have covered it in another book, *Easy Hikes Close to Home: Washington, D.C.—including Suburban and Outlying Areas of Maryland and Virginia* (MRP, 2009).

"Another thing: I use my hiking activities and connections to also lure D.C.-area people into participating in ACLT's service trips on the North Side and South Side and at the Warrior's Rest Sanctuary. I like to tell of the Scientists Cliffs community, Dr. Jett's pioneering role (I finally discovered why 'Jett Stream' is on ACLT maps), and ACLT's involvement in ongoing scientific research and the protection of certain endangered species.

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(CONTINUED FROM PAGE 1)

The chestnut blight is native to Asia where it developed a host-pathogen relationship with the Chinese chestnut. Having evolved with the fungus, the blight only slightly affects the Chinese chestnut, mostly infecting dying branches and resulting in little more than cosmetic injury (Milgroom, 1995). In other words, the Chinese chestnut has a genetic resistance to this particular fungus, unlike our American chestnut. Science has progressed far enough to allow for relatively easy crossing of traits within a given genus, allowing an American-Chinese cross to be a reasonable solution to the blight susceptibility of our native species. The only problem is that the Chinese chestnut lacks several desirable characteristics. The Chinese chestnut is somewhat low growing and has a spreading branching pattern, while the American chestnut grows tall and straight, often attaining a height of 100 feet or more. Therefore, "the goal of TACF's breeding program is twofold: to introduce into the American chestnut the genetic material responsible for the blight resistance of the Chinese tree, and at the same time, preserve in every other way the genetic heritage of the American species" (TACF, 2001).

TACF uses genetic backcrossing techniques to achieve desirable characteristics in seedlings. Genetic backcrossing is a technique in which a hybrid of two species is crossed with one of its parents (or an individual that is genetically similar to the parent) in order to achieve offspring that has a genetic make-up similar to that of the parent. In this case, TACF wants the growth and shape characteristics of the American chestnut, while maintaining the genetic resistance of the Chinese chestnut. All of the backcross progeny are inoculated with a strain of the blight fungus to screen for resistance. Inoculations occur when the trees are 2.5 to 5 cm. in diameter (approximately 4–5 years old). Only the most resistant trees will advance to be used in the next backcrossing (TACF, 2006).

Phase one of the program is to find specimens of American chestnuts that show superior resistance to the blight and cross pollinate them with Chinese specimens. The hybrid product of this cross is referred to as an F1, which is 50% American and 50% Chinese (Hebard, 2005) (see Figure 3). The second phase is to backcross the F1 specimens that show superior resistance with the resistant American parent (marking the first backcross), resulting in a BC1 product, one that has 3/4 American genes and 1/4 Chinese. The BC1 products are again screened for superior resistance, with the most resistant specimens selected for further crossing with resistant Americans, resulting in the second backcross referred to as BC2 (7/8 American genes, 1/8 Chinese). The third backcross phase is pollen from BC2 trees crossed with an American chestnut, resulting in a BC3 product (15/16 American, 1/16 Chinese). This time-consuming process of producing seeds and testing those seeds for blight resistance now requires about six years for each backcross generation (TACF, 2006).

Intercrossing pollination is the next phase of TACF's breeding program. Intercrossing is defined as the breeding of strains that share a common ancestor. Pollen from selected BC3 trees are used to pollinate other selected BC3 trees (intercross pollination) to produce BC3F2 trees. For those of you keeping track of the fractions here, you will notice that the trait split remains at 15/16 American, the same as the BC3. Blight resistance in the seedling is still increased, but the 15/16 split maintains the resistant trait of the Chinese that will be passed on to the next generation of trees. Intercross progeny are screened for resistance at approximately two years of age (1 cm in diameter), with only the most resistant individuals advancing to the second round of intercrossing. The product of the second intercross is referred to as BC3F3, which is the offspring of selected BC3F2 trees crossed with other selected BC3F2 trees. The BC3F3 crosses are 15/16 American chestnut hybrid trees that should breed true resistance to the blight. On average, it takes five years of testing for each intercross generation (TACF, 2006). It is this final product—the BC3F3 trees—that are currently being planted in "real forest environments".

So, where does all this leave the chestnut in this phase of recovery? Restoration plantings of BC3F3 trees were initiated in 2009. Currently there are 8,000-12,000 of these super seedlings in the ground on National Forest land. Furthermore, there are currently 350 chestnut breeding orchards in 15 states, containing approximately 150,000 trees under observation associated with this program (F. Hebard, 2012). The next major feat will be the establishment of orchards in every state within the natural range of the chestnut, with orchard occupants derived from parent trees within each state. This will allow offspring to maintain regional adaptations. Over all, this is real scientific progress – breeding real results. All of the scientists and technicians that I have spoken with are genuinely confident in the BC3F3 trees and the recovery of the (slightly altered) American chestnut. The literature I have encountered also supports this. Currently all of the seed and nuts that are being produced by test trees are not available for public use. However, as the breeding projects continue and orchards expand, it is only a matter of years before testing proves the seed to be worthy of out-planting

Steven Gaines
Land Manager

Left: Figure 1: Female flower of the American chestnut. Right: Figure 2: Male flower of the American chestnut Photos courtesy of the American Chestnut Foundation.

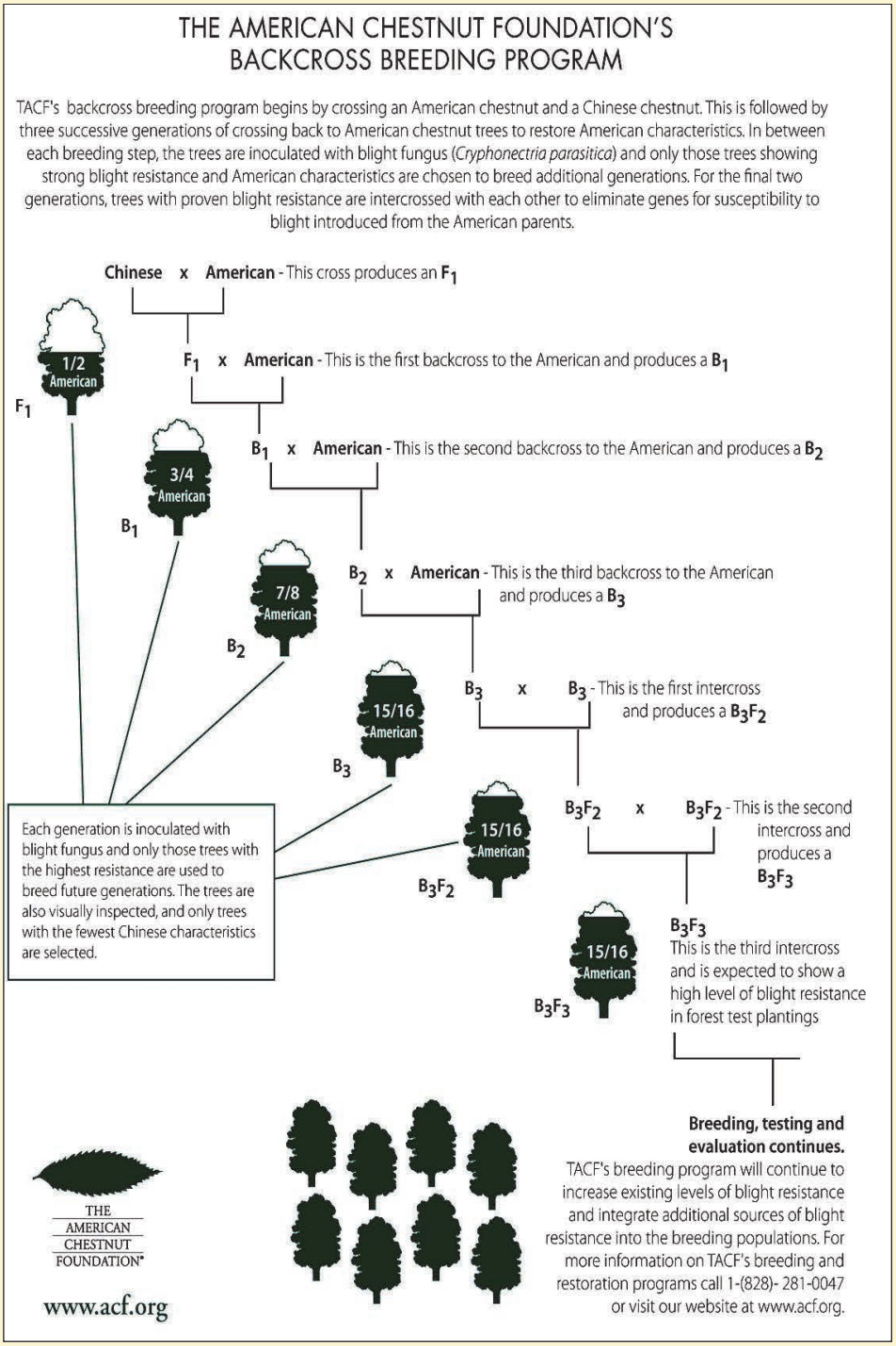

Figure 3: Diagram illustrating the Backcross Breeding Program currently used by The American Chestnut Foundation to produce blight-resistant American chestnut seedlings.

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Science in the Watershed

Common reed (*Phragmites australis*) in Parkers Creek

Dennis F. Whigham[1], Melissa K. McCormick[1], Karin M. Kettenring[2], Eric Hazelton[1,2] and Thomas J. Mozdzer[1,3]
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Invasions of non-native species into aquatic and terrestrial ecosystems are having major economic and ecological impacts on ecosystems around the world, including the Chesapeake Bay. A European lineage of *Phragmites australis* (Common reed) has become established in North America (Saltonstall *et al*. 2004) and recent studies show that it is spreading rapidly along the east coast (Chambers *et al*. 1999), including Chesapeake Bay wetlands (McCormick *et al*. 2010a, 2010b). The non-native form of Common reed is widely recognized as an invasive species that has significant detrimental effects on native plant communities and animal habitat. A native and less vigorous form of Common reed also occurs in Chesapeake Bay wetlands (Mozdzer & Zieman 2010), which is largely non-invasive and supports a more diverse plant and animal community. One potential consequence of continued invasion and expansion of the non-native form will be the displacement of the native type.

Our research group has found that the non-native form is most abundant in Chesapeake Bay wetlands that are surrounded by suburban and industrial development (King *et al*. 2007). A similar pattern was shown for brackish wetlands in New England (Silliman and Bertness 2004). Our more recent research has found evidence that the speed with which the non-native form spreads is primarily due to two interacting factors: eutrophication and genetic diversity of patches. Eutrophication of the Chesapeake Bay has resulted in elevated levels of nitrogen that benefit the invasive form of Common reed. With nutrient pollution, more of the shoots (technically called ramets) in patches of Common reed produce inflorescences (flowers), and the inflorescences are larger and produce more seeds. We have also found that almost all of the patches of Common reed contain more than one genetic type (multiple clones) which results in more effective fertilization of flowers and increases the production of viable seed (McCormick et al. 2010b, Kettenring et al. 2011). Disturbance is another key factor in the establishment and spread of the non-native form of Common reed. Disturbances, both within wetlands and on upland habitats near wetlands (Minchinton 2002), result in increased success of seedling establishment and ultimately the formation of large patches as a result of clonal growth (an underground form of spreading that is common in many plants). Our current view is that the combination of increased nutrients and increased seed production have resulted in a situation where so many seeds are being produced that disturbance is no longer a major factor in the spread of Common reed. The production and dispersal (by water and wind) of millions of viable seeds increases the chances that seeds will end up in a site that is suitable for seedling establishment. If this hypothesis is correct (we still need to do further testing), the future seems bleak as the non-native form of Common reed will potentially colonize and dominate all of the brackish wetlands in the Chesapeake Bay.

What, if anything, can be done to slow the spread of Common reed? In our view, it will not be possible to reverse the trend in many areas of the Chesapeake Bay, especially wetlands where the invasive form of Common reed is already the dominant species. There are,

Dennis Whigham, Senior Research Plant Ecologist, Smithsonian Environmental Research Center, dwarfed by a stand of non-native phragmites in Parkers Creek. Photograph by Thomas Mozdzer.

Photograph of a stand of the native form of Common reed in Parkers Creek.

however, some subestuaries or watersheds – Parkers Creek is one example—where the invasion has not progressed to the point where eradication and control are impossible. Wetlands that potentially can be saved from the invasion typically are associated with subestuaries that are surrounded by forests and the invasion has not progressed very far. Examples other than Parkers Creek that our group has sampled include the St. Leonard and Battle Creek subestuaries on the Patuxent River and wetlands in subestuaries of the Potomac River such as the Nanjemoy.

Control of the non-native form of Common reed in Parkers Creek is made more compelling because we have identified (using molecular methods) a single remnant stand of the native form of Common reed. This is the only native stand that we have found this far south on Western shore subestuaries of the Chesapeake Bay in Maryland and there are still relatively few patches of the non-native form in Parkers Creek. The native form is also present in the Patuxent, Rappahannock, and Choptank Rivers suggesting that native *Phragmites* may have been more widespread than it is today. We have not done a complete genetic survey of Common reed in Parkers Creek but hope to sample all of the patches this summer to determine if there are other patches of the native form. In addition to Common reed patches in Parkers Creek wetlands, there are also patches established under the transmission lines from Calvert Cliffs. Once all of the non-native patches of Common reed have been identified, they should be sprayed with an appropriate herbicide, with follow up applications if necessary, until all of the non-native patches have been eliminated. Replanting of native plants will also speed the recovery of the wetland and prevent future Common reed invasions. Subsequent to the elimination of the non-native patches, future control efforts would be minimal and would only require periodic (every 2-3 years) surveys of the wetlands and the removal (pulling or hand-application of herbicide) of new infestations.

What are the consequences of not removing the non-native form of Common reed from Parkers Creek? The 1970 DNR maps of tidal wetlands in Chesapeake Bay show that there was only one patch of Common reed in Parkers Creek and it was not in the same location as the patch of the native form. We don't know if the native patch was present at the time of the DNR study but was missed, or if it colonized after the DNR study was completed. The increase in the number of patches since 1970 has not been spectacular, but given the relative isolation of Parkers Creek from other subestuaries of Chesapeake Bay, and the relatively intact nature of the surrounding upland watersheds (it is almost completely forested), we would not expect a rapid colonization of Parkers Creek wetlands. While we don't know the sources of the seeds or rhizomes that resulted in the current distribution of Common reed patches in Parkers Creek, there are two likely sources. First are the Common reed patches that became established under the Calvert Cliffs power line. The disturbances associated with the construction of the power line may have been a source of the large patches of Common reed that became established in the wetlands located closest to the power line. A second source of seeds and/or rhizomes for colonization of Parkers Creek wetlands would be wetlands in other parts of Chesapeake Bay (i.e., seeds and rhizomes could have entered Parkers Creek from the Bay). Our group has the technical ability to determine the parentage of all of the patches of Common reed in Parkers Creek. We sought funding from Constellation Energy to test the hypothesis that the Common reed in the upper (upstream) parts of Parkers Creek originated from patches under the power lines, and that patches closest to Chesapeake Bay became established from seeds that had originated in other Chesapeake Bay wetlands. Unfortunately, our study was not funded, but we are very interested in testing our hypothesis if given the opportunity.

Two central questions to land managers in the Chesapeake Bay are how can Common reed be removed and what are the potential consequences? We indicated earlier that without any control, the non-native form of Common reed is likely to expand in Parkers Creek, even if it occurs slowly. We previously sampled Common reed patches in Parkers Creek and found that they are genetically diverse – a condition that increases the production of viable seeds. As such, we predict that Common reed expansion will accelerate through seedling establishment in Parkers Creek. As described above, the most effective method for removal of Common reed is the application of an herbicide at the appropriate time by helicopter, or ground based spraying units. Our research group is not directly involved in management of Common reed, but as part of an ongoing project funded by the National Oceanographic and Atmospheric Administration (NOAA) that has been guided by DNR staff, we had herbicide applied to the non-native form of Common reed at nine sites around the Chesapeake Bay by a helicopter in the autumn of 2011. We are currently evaluating the effectiveness of the herbicide applications and, when necessary, will follow up with additional spraying to kill plants that were not killed by the initial application. As part of the research project we will also follow recolonization of the sprayed sites over the next 2-3 years to determine which native wetland species will colonize the sites. Preliminary results of a seed bank study have shown that the soils in the study areas have a diverse seed bank that includes native wetland species.

What are the consequences of not removing the non-native patches of Common reed from Parkers Creek? The long-term effects of the continued spread

are not known, but our ongoing research shows that few native plants can survive in patches of the non-native form of Common reed. There will also be a concomitant decline in the use of the wetlands by native animals in the areas colonized by the non-native form of Common reed. The Parkers Creek wetlands may be approaching a tipping point, but at the present time we believe we still have a chance at reversing the non-native Common reed invasion in this isolated subestuary of the Chesapeake Bay. However, if too much time passes without action, Parkers Creek will likely become dominated by Common reed, as are many other wetlands on the Chesapeake Bay and the Atlantic Coast.

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(CONTINUED FROM PAGE 5)

"One more thing: Whenever I give illustrated talks at bookstores, libraries, hiking-club events, and outfitter stores about hiking and environmental matters, I find that the ACLT story and my photos get a lot of attention. That happens, I surmise, because the preserve is unlike any other locale that I frequent or discuss, and also because I emphasize the broad-based community support that helps sustain the preserve and contributes so much volunteer labor. I do like to see the vegan eyebrows in the audience shoot up when I tell of how both hunters and non-hunters support the trust and collaborate in guarding against poachers. And naturally I also explain that, although the champion chestnut tree has passed on, the presence of younger chestnut trees indicates that its symbolism lives on.

"These are among the reasons I value and relish being an ACLT volunteer and a member of the ACLT community, even though I live a bit too far away and am a bit too busy professionally to take advantage of the Double Oak Farm's annual garden bonanza."

Paul Elliott

The ACLT is very grateful to have such a dedicated and talented asset on our side. Thank you, Paul, for being such a wonderful advocate and supporter of ACLT!

ACLT Calendar of Events

August

18 **Guided Canoe Trip** (3:00 p.m. – 6:00 p.m.) *(Sunday Rain Date)*

25 **Walk Along the Bay Membership Event** (10:00 a.m. – 12:00 p.m.)

September

15 **Holly Arboretum Work Day at Warrior's Rest** (9:00 a.m. – 12:00 p.m.)

15 **Guided Canoe Trip** (3:30 p.m. – 6:30 p.m.) *(Sunday Rain Date)*

29 **Vine Vindicator Work Day/Training** (9:00 a.m. - 2:00p.m.)

October

6-7 **Patuxent River Appreciation Days** (10: 00 a.m. – 5:00 p.m.)

13 **Guided Canoe Trip** – (12:00 p.m. – 3:00 p.m.) *(Sunday Rain Date)*

27 **Guided Canoe Trip** (12:30 p.m. – 3:30 p.m.) *(Sunday Rain Date)*

20 **Vine Vindicator Work Day** (9:00 a.m. – 12:00 p.m.)

28 **Fall Foliage Hike at Double Oak** (1:00 p.m. – 3:00 p.m.)

November

3 **Silent Auction & Dinner** (6:30 p.m. –10:30 p.m.)

December

9 **Arboretum Work Day at Warrior's Rest** (1:00 p.m. – 4:00 p.m.)

15 **Greens Sale & Beach Hayride** (11:00 a.m. – 2:00 p.m.)

Thank you for your support ...

New Members

ACLT would like to welcome the following new members since the Spring 2012 newsletter:
Ms. Cathryn Bauer
Ms. Alynne Bayard
Mr. Ryan Durham
Mr. Chad Ellington
Mr. Russell Hillsley
Ms. Vickie J. Huss
Mr. & Mrs. Tim Nolte
Mr. John H. Smith & Ms. Alicia Block

Sustaining Membership

Congratulation to the following members who have reached the level of Sustaining Membership:
Mrs. Magda Freeman
Mr. & Mrs. Kenneth Romney

In Honor of Contributions

In Honor of **Ms. Denise Breitburg & Mr. Mark Smith,** who are dedicated volunteers and supporters, Denise is presently on the Board of Directors. In appreciation for their pottery workshop:
Ms. Roberta Safer &
Mr. Klaus Zwilsky
Dr. & Mrs. Milton Nichaman

In Memory of Contributions

Thank you to the following persons who made a memorial contribution since our last newsletter:
In memory of **Mrs. Elaine Cochran Dunkle,** who was a Charter Member and longtime supporter:
Ms. JoAnne Longhill & Mr. James Borell

In memory of **Mr. Ralph H. Dwan, Jr.** who was a Charter Member and one of the founders of the ACLT. Ralph served as ACLT's first President, and over the years served on the board as Secretary, Treasurer, and again as President, along with serving on numerous committees throughout the years:
Drs. Judith & Donald Dahmann
Mr. Joseph Horning
Mr. & Mrs. John Lucas

In memory of **Chris Klapper**, beloved son of Jeff Klapper:
Dr. & Mrs. Glenn Edgecombe
Ms. Taren Evans
Mr. & Mrs. Gerrit Everson
Mr. & Mrs. Patrick Griffin
Mr. Ed Kobrinski
Mr. & Mrs. Steven Kullen
Mr. & Mrs. John Little
Capt. & Mrs. Patrick Murphy, USN (Ret.)
Ms. Joy Woppert

In memory of **Mr. William Johnston** who was a Sustaining Member and longtime supporter:
Dr. & Mrs. Glenn Edgecombe

In memory of **Mrs. Rita Kinkead**, who was a neighbor and friend of many in the Scientists Cliffs community:
Ms. Annie Moore
Mr. & Mrs. Daniel Head

In memory of **Mrs. Virginia O'Neill**, who was a Charter Member and longtime supporter:
Mr. & Mrs. Roger Anderson
Mr. & Mrs. William Dickinson
Mr. & Mrs. Robert Douglas
Mrs. Lucille Fuson
Mr. & Mrs. Kurt Gilbert
Mrs. Shirley Gribben
Mr. & Mrs. Daniel Head
Mr. & Mrs. Matthew Locraft
Mr. & Mrs. Michael Manning
Ms. Annie Moore

Spring Appeal

The Staff and Board of Directors wish to thank the following for their contributions to the 2012 Spring Appeal:
Ms. Christina Van Pelt &
Mr. Donn Ahearn
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Mrs. Anne C. Zehner
Ms. R. Safer & Mr. Klaus Zwilsky

General Contributions and Designated Gifts

Thank you to the following for your generous gifts and support:
Mr. & Mrs. Conrad L. Hoska – Land Acquisition Fund
Ms. Anji Parreco

Matching Gifts:

Thank you to the following members who have made matching contributions:
Mr. Thomas Kirby/Wiley Rein &
Fielding
Mr. Kevin Murphy/Bank of America
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