

Watershed Observer



NEWSLETTER OF THE AMERICAN CHESTNUT LAND TRUST - VOLUME 27 NO. 4, FALL 2013

CONTENTS

LAND MANAGER'S CORNER: AUTUMN LEAVES 1

PRESIDENT'S MESSAGE: ACLT, AN ASSET FOR THE WHOLE COMMUNITY 2

ACLT IS THE PROUD OWNER OF THE HARROD PROPERTY 3

VOLUNTEER SPOTLIGHT: ART AND PEGGY COCHRAN 4

REMEMBERING PAUL BERRY 5

VOLUNTEER APPRECIATION DINNER 5

CALENDAR OF EVENTS 5

WALK ALONG THE BAY 6

GREENS SALE AND HAYRIDE 6

RIBBON CUTTING CEREMONY—PF₂BAY TRAIL 7

EXOTIC INVASIVE COMMON REED SUCCESSFULLY TREATED IN PARKERS CREEK MARSH 10

CONTRIBUTIONS AND NEW MEMBERS 11

RULE PERMITTING DIRECT CHARITABLE DONATIONS FROM IRAS EXTENDED FOR 2013 11

COMING UP ON THE CALENDAR

DECEMBER 2013

- 1 ARBORETUM WORK DAY AT WARRIOR'S REST (1:00 P.M. – 4:00 P.M.)
- 6 GREENS SALE PREP & WREATH-MAKING WORKSHOP (10:00 A.M. – 3:00 P.M.)
- 7 GREENS SALE & BEACH HAYRIDE (11:00 A.M. – 2:00 P.M.)

SEE MORE OF THE 2013 CALENDAR ON PAGE 5 OR ON THE WEB.

Visit Us Online at
<http://acltweb.org/nl>

Land Manager's Corner

Autumn Leaves

Well, its fall again—that time of year where we all start digging out old winter clothes and thinking about Thanksgiving turkey. Indeed, fall is a glorious time of year, and in the season of things I thought it would be interesting to examine the age-old question of why leaves change color in autumn. Of course science doesn't have a complete explanation for this complex change, but we certainly have a solid understanding of the basics.

As it turns out, there are a series of natural triggers that occur within broad-leaved plants that set the stage for leaf change, or senescence. The main drive of the plants is to survive another year and to store enough energy to ensure a fleshy spring and maximized procreation. To do this, the plant must adhere to a strict budget that coincides with an even stricter clock—in this case photoperiod (hours of daylight) and temperature. Every living thing on the planet responds to some sort of budget, ours seems to be more of the financial persuasion, but nonetheless—everything is on a strict energy budget consisting of cost-benefit exertions of energy. Plants are evolutionarily issued internal calendars and day length sensors at the time of germination that track ideal growth periods throughout the year to minimize energy loss. Whatever resources are leftover at the end of the growing season are neatly packed away in the twigs, roots, and stem to be utilized in the following year's flush of green. In a nut shell, fall leaf change may appear to be a fine visual spectacle for us humans to enjoy, but in fact, it is a well-thought out and precisely timed period of rest specifically designed to avoid the hardships brought about by the long months of winter (Koder, 2012).

So, why do leaves change color? To answer this we will first have to answer why leaves are green in the first place, which may require remembering some key concepts from your high school biology classes. First off, leaves are green because of their chlorophyll content. Chlorophyll is a pigment that absorbs blue and red wavelengths of light and reflects green wavelengths—appearing to the human eye as green in color. Although chlorophyll is the dominant pigment that is in leaves, there are secondary pigments that are also present. Other pigments include carotenoids, anthocyanins, xanthophyll, and tannins, which we will discuss shortly. Chlorophyll is stored in layers of organelles, called chloroplasts, within the leaf to maximize absorption of the sun's rays. Actually, depending on the leaf position and size; a leaf can harness about 80% of the light photons that pass through the leaf (Nelson, 2004). As you might recall, chlorophyll is an essential part to photosynthesis. Photosynthesis is the process by which plants covert light



Parkers Creek Marsh. Photo by Ann Carson.

(CONTINUED ON PAGE 8)



**AMERICAN CHESTNUT
LAND TRUST, INC.**

P. O. Box 2363
Prince Frederick, MD 20678
Phone: 410-414-3400
Fax: 410-414-3402
info@acltweb.org
http://acltweb.org/nl

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 958 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

Board of Directors

Patrick J. Griffin, President
David F. Farr, Vice President
Gary A. Loew, Corporate Secretary
Peter N. Stathis, Treasurer Pro Tem
Greg Bowen
Denise Breitburg
Scott Galczynski
Elizabeth L. Johnston
Steve Kullen
John Little
Wilson Parran
Suzanne Shelden
Guy Tomassoni
Randi Vogt

Executive Director

Karen H. Edgecombe

**Community Relations
Coordinator**

Tricia Realbuto

Land Manager

Steven Gaines

Ann White, Contract Accountant

Volunteer Staff

Jeff Klapper, Farm Manager
Ginny Murphy,
Membership Coordinator

Printed on Recycled Paper

From the President's Desk

ACLT, an Asset for the Whole Community

The ACLT board recently undertook its latest strategic planning exercise at an all-day retreat in July. The hope of which was to hammer out ACLT's goals and objectives in light of the changes it is likely to confront over the next five years. This effort was informed by assessing how far we've come since we conducted our last effort and then mapping a course of action going forward.

While it was just the first step in preparing our strategic plan, we covered a lot of ground. It is hard to dispute the success ACLT has had to date in raising the funds and the volunteer labor to purchase and or manage approximately 3,000 acres of land. It is a remarkable accomplishment that will undoubtedly be built upon over the months and years ahead. We will give you a full report when the new Five Year final plan is completed after the first of the year.

In the meantime, I wanted to share with you a topic that took a great deal of the Board's time and interest then and has continued to do since. Basically, it is a concern about the strength and depth of the community support for ACLT's work throughout Calvert County—support, not only for preserving the land but also helping us ensure that the land that is currently preserved will be permanently protected for future generations.

As one might expect, metropolitan population centers are expected to increase, pressing cityscapes to expand their suburban boundaries into traditionally rural environs. This likelihood, along with an expanding economy, will generate competing demands on the use and value of available land. All of this is likely to result in more obstacles to preserving new land as well as to increase pressure to reverse the status of some land already protected.

The board believes that the strongest asset that we currently have in confronting this challenge is our existing volunteers and membership. They are the heart of this organization, both in supporting it financially and in the gifts of their efforts that they provide every day. There is no future without them. However, the Board also recognizes that ACLT will need help to maintain today's commitments and prepare for those of the future. While we have had a 600% increase in land preserved since 1986, our membership numbers have essentially remained flat over the last 10 years.

Our inability to increase those numbers raises concerns about the long term viability of the organization and its ability to ward off potential threats to preserving and protecting land in future. The Board recognizes that this is a complicated problem that will need consistent attention to the fundamentals of membership development, along with a fresh perspective and a broader approach to community-wide outreach.

The challenge of building broad-based support from the whole community for land preservation is not unique to ACLT. It is a concern to land trusts across America. Rand Wentworth, President of the Land trust Alliance and this year's speaker at our annual meeting, says that "the highest aspiration for a land trust is to help heal our whole culture and that we are in an extraordinary role in the nexus between what people care most about and the things we are losing fastest."

The Board took inspiration and guidance from Rand's comments and a compelling presentation by Board members Greg Bowen and Wilson Parran that urged us to think about ACLT's role as a land trust within the "whole community" of Calvert County and try to find common ground from a variety of interests. Consequently, it has decided to systematically reach out to organizations and community

(CONTINUED ON PAGE 9)

Around ACLT

ACLT is the Proud Owner of the Harrod Property!

ACLT went to settlement on the purchase of the Harrod property on August 22, 2013. We have enrolled the 36-acre forested property in the Calvert County Agricultural Preservation Program and developed a plan for the management of the property. The boundaries have been marked and, within the next year, we plan to remove the abandoned trailer and begin invasive plant control.

The short time allotted in the contract for financing arrangements did not permit the county to participate in the funding through its revolving loan fund for open space acquisition. ACLT appreciates the county's willingness to consider our loan application and we hope to have another opportunity to work with the county on a future project.

Fortunately, ACLT was in a position to purchase the property with funds provided from a variety of sources within ACLT. Most importantly, we had already received \$115,000 in donations for the purchase of the Harrod property from our members in just the five short months since the proposed acquisition was announced! In addition the ACLT Board of Directors had designated \$110,000 specifically for the purchase of this property, including funds designated from Ralph Dwan's bequest. The balance of the funds required to go to settlement were borrowed from ACLT's Land Acquisition Fund.

Pledges received over the coming four years will help us to replenish the Land Acquisition Fund to ensure that it is available for future purchases. We are still about \$25,000 short on pledges, so your contribution would still be greatly appreciated. If you would like to donate to this important acquisition, please download a copy of the pledge form at <http://www.acltweb.org/events/eventdocs/HarrodPledgeForm.pdf>.

The Board of Directors and staff of the American Chestnut Land Trust wish to acknowledge the following additional supporters for their generous five-year pledges that have been received since the summer newsletter was published:

American Chestnut Pledge Level (\$25,000 and above)
Mr. & Mrs. Stanley Benning

Bald Cypress Pledge Level (\$10,000 to \$24,999)
Mrs. Crawford Feagin Stone

White Oak Pledge Level (\$5,000 to \$9,999)
Mr. & Mrs. Philip Fleming

Mockernut Hickory Pledge Level (\$1,000 to \$4,999)
Mr. & Mrs. John Campbell

Ms. Kathy Daniel

Mr. and Mrs. Thomas Kirby

Ms. Mary Parish & Mr. Sherman Suter

Col. & Mrs. Harry C. Teich (in memory of Byron and Anne Hanke)

Wiley Rein, LLP (matching gift on behalf of Mr. & Mrs. Thomas Kirby)

Correction: Dr. & Mrs. D. Montgomery Wood were listed in the summer newsletter at the Flowering Dogwood level and should have been listed in the Mockernut Hickory level.

Flowering Dogwood Pledge Level (up to \$999)
Dr. Sylvia Batong

Dr. Marie & Mr. Randy Estabrook

Mrs. Magda Freeman

Dr. & Mrs. Edward Graham

Mr. & Mrs. Carlton Green

Mr. & Mrs. Daniel Head, Jr.

Capt. & Mrs. P. Murphy USN (Ret)

Mr. & Mrs. Harry Tollerton

Ms. Marcia Van Gemert & Mr. Tay Vaughan

Mark Your 2014 Calendar

Member Notice

The 2013 Annual Membership Meeting of the American Chestnut Land Trust will be held on
Saturday, March 8, 2013
from 9:30 a.m.–12:00 p.m. Noon
at St. John Vianney Catholic Church
in Prince Frederick, Maryland.

Volunteer Spotlight: Art and Peggy Cochran

I had the pleasure of interviewing Art and Peggy Cochran for my first volunteer spotlight article. Although this was my first time meeting them since I started working at ACLT in June, I had heard their names many times around the office. The amount of hours that they've both put into volunteering certainly deserves the spotlight!

Both Art and Peggy have lived in Calvert County for most of their lives. Art's family owned a cabin in Scientists Cliffs for his childhood, but he called many places home before Port Republic. His father worked for the Forest Service beginning in Colorado and brought his family to Milwaukee, as well as Taiwan and Ghana. He had always loved the land and area here and was happy to move here permanently after all of his travels. He thinks this area and his father's career is what brought about his long time work in land surveying. Peggy has lived in Port Republic all of her life, but she was born in Schenectady, New York. She has generations of family that have lived off of Broome's Island Road; in fact, there is a family farm that has been in her family for over 100 years! Peggy spent many years working for the State of Maryland. She retired in 2009 and has since become more involved in ACLT and has also volunteered with the Calvert Garden Club and their various projects.

The two of them met at Christ Church in Port Republic and were married in 1975. They became members of ACLT after Art's mother, Elaine Cochran Dunkle, encouraged them to get involved and donate. From there, Art and Peggy became involved in assisting with many of the land surveying projects on lands acquired by ACLT. Art worked for private industry and had his own side company doing land surveying work. Peggy is a self-proclaimed "gofer" and has helped Art with surveying many of our properties.

Art's first experience with ACLT was surveying the Gravatt property. He laughed as he told me the story of when they tried to mark the corners of the property. The Land Management Committee decided it was a smart idea to put heavy, recycled plastic 3" x 6' posts into the ground. Of course, they had a lot of trouble getting these posts in, so they added iron piping on the end of the plastic so they could drive it into the ground. With the other volunteers that day, they joked at how these pieces of pipe looked like rocket launchers. Although it was a lot of work, they could make light of a not quite easy situation.

Over the more than 25 years since then, Art and Peggy have provided invaluable work on countless surveying projects. More recently, their volunteer service on the new Prince Frederick to the Bay Overlook Trail included providing a survey of the trail easement on the St. John Vianney property, and surveying any areas along the trail where we were close to property boundaries. In addition, Art provided drainage area maps and flood plain cross section maps, along with storm water flow calculations for the Waterways & Wetlands permit the land trust was required to obtain in order to permit the trail to cross wetlands and construct bridges across waterways. At first, the Maryland Department of the Environment insisted that we provide computer-generated modeling of storm water flow for the bridges, but in the end they accepted Art's calculations, saving the land trust over \$10,000 in engineering fees!

The reason the two of them have continued to be involved with ACLT is because of their love of the land. Art enjoys surveying the land here, not only to see what we are preserving, but to do something different than surveying neighborhoods and developments. Art and Peggy are both outdoors lovers and believe in the mission and what ACLT stands for. Besides surveying, the couple has helped with restoration of barns and corn cribs as well as stabilizing the Lemeul Wallace house. Peggy has also been involved in planting and Earth Day projects throughout the years.

I asked Peggy and Art if they would have ever imagined ACLT growing into what it is today, and they both said "absolutely not!" They believe that the organization has continued to be successful because there are board members, staff and volunteers with different expertise but the same goals. ACLT needs volunteers like Peggy and Art, with different interests and strengths, to continue to be involved!

ACLT is thankful to both Peggy and Art Cochran for their years volunteering and contributing!



Art and Peggy Cochran. Photo by Tricia Realbuto.

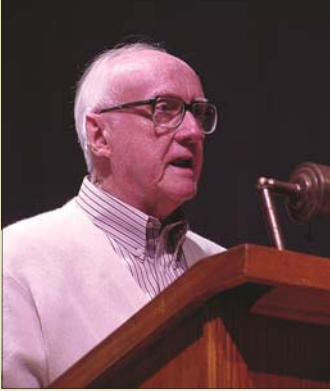
Tricia Realbuto
Community Relations Coordinator

Check us out on Facebook. Become a fan of the American Chestnut Land Trust today!

facebook

(<http://www.facebook.com/pages/American-Chestnut-Land-Trust/250928382473?ref=ts>)

Remembering Paul Berry



Paul Berry presenting the Treasurer's report at ACT's 2004 Annual Meeting.

ACLT is saddened by the loss of ACLT board member Paul L. Berry at the age of 92. Since his retirement from the Library of Congress in 1980, Paul has spent the past 33 years of his life volunteering his time and talent to several notable Calvert County institutions, including the Calvert Marine Museum, the American Chestnut Land Trust and the Calvert County Historic District Commission.

Shortly after moving to the county in 1981, he began volunteering at the Calvert Marine Museum library where he continued to volunteer until just a few weeks ago. He served on the Museum's Board of Governors from 1984-1990. From there he was recruited by fellow board member, Sam Hughes, to serve on the Board of Directors of the American Chestnut Land Trust.

In 1991, Paul joined the Board of Directors of the American Chestnut Land Trust where he served with the utmost integrity and dedication for over 20 years until his death. He is perhaps best known to ACLT's membership for his Treasurer's Reports to the membership at our annual meetings. There was never any doubt, with Paul managing the books, that ACLT's finances were sound!

Behind the scenes, he found many other ways to contribute to the organization. In addition to his past experience serving on the Calvert Marine Museum Board of Governors, he had also served on the Board of Trustees of American University. His knowledge of nonprofit board governance was invaluable to ACLT where he served as the unofficial historian of the land trust's bylaws.

He was also an excellent writer, as demonstrated by his long service as editor of the *Bugeye Times* for the Marine Museum. Paul was frequently pressed into service reviewing important ACLT documents before they were released and serving as Recording Secretary to capture the essence of protracted ACLT board meetings.

Most importantly, Paul was a gentle man in every sense of the words. He became a beloved volunteer member of the ACLT staff, spending hours in the office on a weekly basis overseeing the accurate recording of the trust's financial records.

At ACLT's 2004 Annual Membership Meeting, Paul was awarded the first American Chestnut Land Trust Presidents' Award for his outstanding efforts in pursuit of the conservation of the natural and cultural resources of Calvert County, Maryland.

The family has suggested memorial donations in Paul's name be made to the Calvert Marine Museum and the American Chestnut Land Trust.

Karen H. Edgecombe,
Executive Director

Volunteer Appreciation Dinner

ACLT hosted our annual Volunteer Appreciation Dinner on Friday, September 27th. Over 60 volunteers came to the Double Oak Office to enjoy a buffet dinner and conversation. The staff at ACLT truly appreciates the hard work of our volunteers and organizes this event to honor them! The meal began with dinner provided by Dream Weaver in Prince Frederick, MD follow by an array of desserts made by the ACLT staff. (Photo by Jeff Crespi.)



American Chestnut Land Trust Calendar of Events Through April 2014

November

- 2 Silent Auction & Dinner

December

- 1 Arboretum Work Day at Warrior's Rest (1:00 p.m. - 4:00 p.m.)
- 6 Greens Sale Prep & Wreath-making Workshop (10:00 a.m. - 3:00 p.m.)
- 7 Greens Sale & Beach Hayride (11:00 a.m. - 2:00 p.m.)

January

- 25 Vine Vindicator Work Day (9:00 a.m. - 12:00 p.m.)

February

- 22 Vine Vindicator Work Day (9:00 a.m. - 12:00 p.m.)
- 22 Winter Hike at Double Oak Farm (1:30 - 3:30 p.m.)

March

- 8 Annual Membership Meeting (9:30 a.m. - 12:00 p.m.)
- 22 Spring Hiking Trail Maintenance Day (9:00 a.m. - 12:00 p.m.)
- 23 Water Quality Monitoring Training (9:00 a.m. - 1:00 p.m.)

April

- 26 Earth Day (9:00 a.m. - 12:00 p.m.)
- 27 ACLT Trail Run (time to be determined)

Walk Along the Bay

On a beautiful Saturday in August, a dozen new members enjoyed learning more about Warrior's Rest at our annual "Walk Along the Bay" event. The event began as a thank you and welcome to new members who had joined ACLT in the previous year. The walk offers a rare opportunity to observe the confluence of pristine Parkers Creek and the Chesapeake Bay at Warrior's Rest. On the walk, our new members learned about the Chesapeake Bay's ecology and restoration from Smithsonian Biologist Denise Breitburg and Geologist Guy Tomassoni.

Our group met at Warrior's Rest around 10:00 a.m. and walked down to the beach; we could not have asked for better weather! Denise began her section by discussing the dynamics of the Chesapeake Bay. It quickly became a hands-on activity as many of us walked into the water to help Denise spread her sampling net to collect various species. While on the beach we had two collection spots, one right at the beginning of the property and one at the mouth of Parkers Creek. With the exception of a single blue crab and an abundance of jellyfish, the catch was



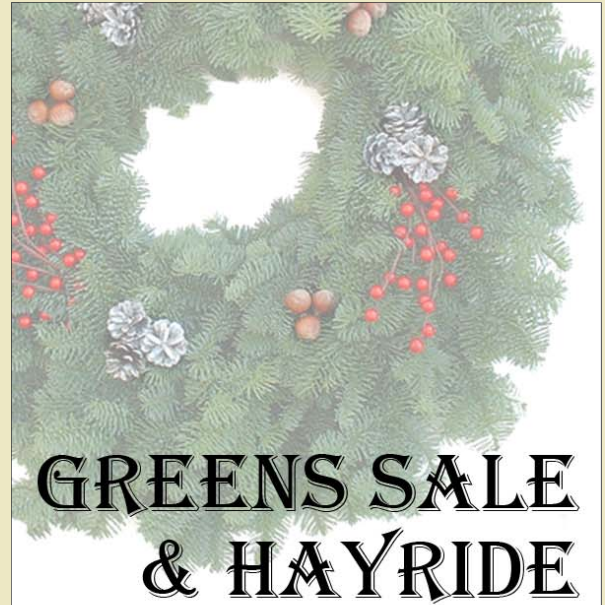
Photos by Tricia Realbuto.

composed of small fish from the lower regions of the food chain—which was an excellent food web teaching topic considering the variety of osprey and bald eagles overhead.

Guy Tomassoni began his geology presentation immediately after the nets were collected. Guy had an impressive collection of fossils on display that has been collected over the years in the Parkers Creek area, including palm-sized megalodon sharks teeth, crocodile jaws, and whale vertebrae to name a few. Conversation centered on the evolution of the Chesapeake Bay and how periodic environmental changes have sculpted the unique landscape of this region.

All in all, the weather cooperated beautifully and we could not have asked for a more perfect classroom setting. ACLT would like to thank Denise and Guy for leading the Walk and our new members for coming to the event.

Tricia Realbuto
Community Relations Coordinator



GREENS SALE & HAYRIDE

Saturday, December 7, 2013
11:00 a.m. - 2:00 p.m.

Purchase swags, wreaths, and garlands for holiday decorating to benefit Warrior's Rest Sanctuary.

ACLT logo merchandise also available for purchase to benefit the ACLT. Great gifts for friends, family, and co-workers!

Greens Sale & Hayride located at
Warrior's Rest Sanctuary
1920 Scientists Cliffs Road,
Port Republic, MD 20676

Ribbon Cutting Ceremony – PF₂BAY Trail – October 22, 2013

Excerpted from remarks by ACLT Executive Director Karen Edgecombe at the Ribbon Cutting Ceremony.

Thank you Commissioner Nutter, Commissioners Clark, Shaw, Slaughenhopt & Weems. I would also like to recognize Senator Mike Miller and former Delegate Sue Kullen.

There are many people to thank for the successful completion of the new Prince Frederick to the Bay Overlook Trail:

In 1994, County planning staff member and charter ACLT member Randi Vogt first conceived the vision of a greenway connecting the Parkers Creek and Battle Creek watersheds in the Calvert County Land Preservation & Recreation Plan. In the mid-to-late 1990's a number of properties on the north side of Parkers Creek were purchased by ACLT and Maryland Department of Natural Resources. Still, a significant gap remained between these preserved properties and Prince Frederick.

In 2004, the county purchased the Goldstein North property with funds provided by the Maryland Rural Legacy program. This large property acquisition brought the idea closer to reality. In 2007, ACLT began negotiations with St. John Vianney Catholic Church to acquire property that would connect with the Goldstein North property and the town center.

In 2009, ACLT applied for a grant from the Maryland Heritage Areas Authority, with letters of support by the County Commissioners, Senator Mike Miller and then Delegate Sue Kullen. Father Peter Daly of St. John Vianney Catholic Church agreed to sell 18 acres to ACLT and to provide an easement over the church's property on Main Street to serve as the trailhead.

Early in the planning of the trail itself, ACLT received funding support from Dominion Resources to construct the Bay Overlook Platform, which was completed in the spring of 2011 by volunteer members of the Parkers Creek Conservation Society, (ACLT's hunt club). The trail was planned to minimize the number of stream crossings required, but still there were five streams that needed to be crossed, which required a Wetlands & Waterways permit from the state. ACLT volunteer Art Cochran provided invaluable surveying and wetland delineation support for the permit and ACLT board member Scott Galczynski provided architectural drawings for both the overlook platform and the bridges.

The building of the five footbridges was the most amazing part of the story. Initially, one young high school student, Ian McClain, volunteered to construct one of the five bridges as his Eagle Scout project. We weren't sure where we would find four more scouts willing to take on a similar challenge, but Ian and his father Ron and brother Ray were so drawn to this project that they assured me they could make it happen. They met with the leadership of the Maryland Western Shore District of the Boy Scouts of America and presented the project. Ian's troop, #903, led by Scoutmaster Chip Zawislak, Venture Crew #903 led by advisor Bob Simmons, and troop #430 led by Scoutmaster Richard Thompson all agreed to help.

Somehow, over the course of six months, working almost every weekend, Ron, Ray, and Ian McClain with tactical help from ACLT volunteer and engineer Ken Romney led the team of Boy Scout volunteers. They purchased materials at a substantial discount from Sneade's Ace Hardware, and developed a three-phase plan for the construction of each bridge. Hundreds of pounds of concrete and lumber were delivered to remote sites by Ken Romney behind the wheel of ACLT's Kubota RTV. 895 volunteer hours of later, five beautiful and indestructible footbridges were done! We are so incredibly proud of the work that these young men accomplished.

The finishing touches were made by ACLT board member and artist Suzanne Shelden who volunteered her considerable artistic talents to design the trail guides, the trail sign, and trail markers.

All told, including construction of a new barn at Double Oak Farm, the project required 1,765 volunteer hours valued at almost \$40,000. This was truly a community service project built by the ACLT community of volunteers and we are very pleased to be able to provide it to the Calvert County community for their use and enjoyment.

Karen H. Edgecombe,
Executive Director



(CONTINUED FROM PAGE 1)

energy into chemical energy that is used to fuel plant activities. This process occurs when water absorbed in plant roots, air from gas exchange in the tree leaves, and sunlight harnessed by chlorophyll all merge to create starches and sugars to be used in plant development (Cook, 2005). So, the green color of a leaf our eyes observe is really a function of reflected green wavelengths of light energy and a healthy supply of chlorophyll pigments that absorb the light in order to process plant food.

Color change is initiated when plant leaves detect a decrease in the amount of available daylight. To some extent cooling temperatures and moisture are involved with the transition, however, the only consistent factor is a change in photoperiod. As days grow shorter the signal is given to slow chlorophyll production in the leaves. This is the tree's first step in closing down shop for the winter. Chlorophyll is a pigment that is constantly being used and replaced at rapid rates during the spring and summer growing seasons (Clatterbuck, 2012). Since chlorophyll is so abundant in leaves, the green pigment masks the other pigments that are also present within the leaf. Once chlorophyll production is slowed and eventually ceased, the pigments of the present carotenoids, anthocyanins, xanthophyll, and tannins are revealed. These assorted pigments are referred to as accessory pigments. After the order is given to shut down for winter the abscission layer (really a specially developed layer of cork cells) kicks into gear and starts sealing off the leaf. The abscission layer is located at the base of the leaf stem and is responsible for sealing the leaf off from the rest of the tree branch—in short disconnecting each individual leaf from its nutrient supply and leaving it to be shaken off by the wind. As cells in this layer work to disconnect the leaf from the tree, nutrients are being drawn back into the twig for storage of what will end up being next year's bud-break (Cook, 2005).

The mosaic of color that flourishes in the autumn months is a sight that should not be missed. Various shades of reds, yellows, oranges, and browns are all visible as a result of the unmasking of the accessory pigments that have, for the most part, been present within the leaf all along. Color intensity is somewhat impacted by temperature and moisture conditions of the days leading up to and during senescence. The intensity of color is also affected by plant species composition and site conditions. Individual color arrangements on leaves may further depend on the various concentrations of accessory pigments present in the leaves, the relative amounts of nutrients and water that were present in the leaf at the time it was sealed off from twigs, in addition to what parts of the tree were exposed to sunny conditions. The accessory pigments, although dwarfed during most of the year, play significant roles in catching different wavelengths of light and protecting the leaves from ultraviolet light, thereby protecting the tissues from an

overdose of high-light stress. The functions of these accessory pigments are not entirely understood. Science has discovered over 600 types of carotenoids, which are present in plant leaves as well as a variety of photosynthetic organisms such as algae and bacteria (Archetti, et al, 2011). In plants, carotenoids are present throughout the growing season and function to absorb blue light and protect chlorophyll. These pigments are responsible for the oranges, yellows, and golds displayed by maples, birches, and poplars (and also account for the orange hue of carrots). Contrary to chlorophyll and carotenoids, anthocyanins are present in leaves only after leaf senescence has been initiated. And it is the anthocyanins that allow for the brilliant reds and purples (very obvious on gum trees, dogwoods, and oaks) on display this time of year. Anthocyanins also occur in the stems, roots, and flowers of broad-leafed plants and have a multitude of functions. These pigments are involved with flower and fruit production, often accounting for the defining red shades of plums, red apples, and cherries. On plant leaves, this pigment resides in sap cells and may serve as a deterrent to leaf-eating herbivores (Archetti, et al, 2011), in addition to acting as a "sun screen" for plant tissues.

So, why don't leaves hold onto their leaves all year? Well, some tree species do hold onto their foliage all year round. Everything is on a budget, everything has a strategy, and nothing is done in nature to support a waste of energy. What it comes down to is that leaves are expensive. Expensive to produce, and expensive to maintain. On top of creating the food for plants, leaves are responsible for most of the gas exchange within the plant (referred to as transpiration). In the process of transpiration carbon dioxide is absorbed through the leaf to contribute to the photosynthesis process. In the course of receiving CO₂ from the air, water is lost in the form of vapor. This process accounts for the primary loss of water in plants, with water literally being wicked away from the leaf surface. And since water, in combination with sunlight and CO₂ are the ingredients in photosynthesis, water is precious. With this in mind, plants have to find the balance between the benefits of utilizing the sun's energy for food sources and losing gallons of water to gas exchange. To be brief, there comes a point when it is not physiologically worth it for the plant to keep its leaves intact for photosynthesis if it is receiving less and less light per day. To put this in perspective think about how much light we lose between the summer solstice (the longest day of the year) and the winter solstice (shortest day of the year). On the east coast summer days hold approximately 14 hours of daylight compared to approximately 9 ½ hours of daylight in winter (Koder, 2012). At a decreasing rate of about 2 minutes of sunlight per day it makes some sense that plants would decide to cut their losses and close up shop for a few months. A classic example of the toll of water loss through transpiration can be

exemplified by a mature oak tree that may lose approximately 40,000 gallons of water per year (Pearlman, 2013), depending on the site and environmental conditions such as wind.

Finally, it seems that the weather is the driving force for just about everything. Not only does it dominate conversation and govern outdoor activities, it has complete control on leaf color intensity. Scientists have concluded that optimum conditions for autumn leaf color involve ample moisture throughout the spring and summer that give way to a cool and sunny autumn. Prime fall temperatures tend to have highs in the mid 60's–mid 70's with lows in the mid 30's–50's (Clatterbuck, 2012). The key ingredient seems to be warmish sunny days with cool nights that are above freezing. While misting and overcast days tend to increase the intensity of fall colors, drought conditions can delay the spectacle, and a sudden cold snap or freeze will likely kill the leaves and force a drab fall. One interesting mystery of fall is how individual trees growing in a cluster can be so diverse in color. This is often the result of the amount of sugars still present in the leaf, genetic predisposition, or good luck. Generally speaking the more spectacular the color array, the more vigorously the tree was growing during the growth season. Believe it or not there are relatively few geographic areas that are known for fall color displays. We here in the Eastern United States can certainly count ourselves lucky in this regard.

Literature Cited:

- Archetti, Marco; Döring, Thomas F.; Hagen, Snorre B.; Hughes, Nicole M.; Leather, Simon R.; Lee, David W.; Lev-Yadun, Simcha; Manetas, Yiannis et al. (2011). “Unraveling the Evolution of Autumn Colors: an interdisciplinary approach”. *Trends in Ecology & Evolution* 24 (3):166-173.
- Clatterbuck, Wayne. 2012. “Changing Colors of Leaves”. University of Tennessee. Agricultural Extension Service. SP 529.
- Cook, Brent. 2005. “How a Tree Grows: Light, Leaves, and Autumn Colors”. Forsite. Forestry Outreach Site. Virginia Tech College of natural Resources and Environment. <http://dendro.cnre.vt.edu/forsite/LSListings.htm>
- Koder, Kim. 2012. “Autumn Leaf Color and Development”. Outreach Monograph WSFNR 12-26. Warnell School of Forestry and Natural Resources, University of Georgia.
- Nelson, N., and Ben-Shem, A. 2004. “The Complex Architecture of Oxygenic Photosynthesis”. *Nature Reviews Molecular Cell Biology* 5, 971–982 doi:10.1038/nrm152
- Pearlman, Howard. 2013. “The Water Cycle: Evapotranspiration”. US Geological Survey. The US Geological Water Science School. <http://ga.water.usgs.gov/edu/watercycleevapotranspiration.html>

Steven Gaines
ACLT Land Manager

(CONTINUED FROM PAGE 2)

groups that may broadly share our desire to protect land, preserve the environment, and maintain or improve our quality of life.

Greg and Wilson will spearhead the effort to initiate an outreach and education effort to traditional allies, along with folks that we expect may share the broader concern. It is likely to be a fascinating conversation that will explore the nexus of the land to diversity, culture, history, economics, equity, etc., with the hope of broadening support for preserving land and protecting the environment way into the future. It is a conversation that all are welcome to join.

Simultaneously, the Board is also committed to redoubling its efforts to target membership development. To that end, it welcomes the leadership of Guy Tomassoni, who has recently assumed the co-chair of the Membership and Outreach Committee. He and his committee will be developing a plan to increase our effectiveness in recruiting individual members from across the county, who fit our current profile as well as those who are more demographically diverse. The committee, building on its previous good work, along with some great new ideas—like encouraging young people and new residents to enjoy our vast resources—offers great promise in expanding membership recruitment.

The Board believes that these combined efforts of ‘whole community’ outreach and targeted membership development will increase our numbers and broaden community support. It will also strengthen our ability to manage the tasks of today, while being prepared for the challenges and goals of tomorrow.

We hope you be willing to lend a hand or an idea in either area. Feel free to discuss directly with me or our committee co-chairs as to how you might like to be involved.

Thank you,

Pat Griffin, President
(Pgriffin@griffinhome.com)

Science in the Watershed

Exotic Invasive Common Reed Successfully Treated in Parkers Creek Marsh

Kerrie Kyde, Invasive Plant Ecologist,
Maryland DNR Wildlife and Heritage Service

Common reed, *Phragmites australis*, is a wetland grass species that grows pan-globally. The species has been present in eastern United States salt marshes for millennia, as recorded in soil cores from New England. In the last decade, scientists determined that common reed populations from various parts of the world represent different genetic strains. They distinguished between two recognizable subspecies: *americanus*, our native subspecies, and an aggressive, invasive subspecies from Europe, *australis*. More recently, researchers from the Smithsonian Environmental Research Center (SERC) have identified both native and non-native subspecies of common reed in the marsh of Parkers Creek, with the non-native subspecies the dominant cover. First documented in the marsh in the 1970s, the non-native *Phragmites* infestation has grown to cover approximately seven acres at the west end of Parkers Creek, with additional smaller patches along the creek's banks between the marsh and its outflow into Chesapeake Bay.

The non-native form of common reed grows quickly and spreads vegetatively by rhizomes, which are horizontal underground stems. SERC scientists reported in an earlier issue of this newsletter their findings that increased nutrient levels in the water, disturbance and multiple genetic forms within a reed patch, lead to greater production of flowers and seeds and therefore, greater spread of the invasive non-native subspecies. Non-native *Phragmites* infestations can affect the health of a marsh by suppressing native vegetation (including the native subspecies), decreasing species diversity, modifying hydrologic flows, altering soil chemistry and changing the habitat suitability for marsh-dwelling wildlife.

Because of the plant's rapid spread by rhizomes, management and control of *Phragmites* is quite difficult. Rhizome fragments can



Yousuf Nejati scouts a route through 12-foot tall *Phragmites*.

develop quickly into new plants, so digging or pulling the grass stalks is effective only if no rhizomatous tissue is left behind. Entire infestations of *Phragmites* can be excavated and all the affected soil removed for disposal, but this is a radical option for a marsh as it removes the soil native seed bank and interrupts nutrient cycling. At this time, no biological control agents exist. Future development of a reliable biological control is unlikely; *Phragmites* is related to many economically important grasses, all of which would require testing to find a monophagous (eating one thing only) insect or disease that affects only the non-native

Phragmites subspecies. Most *Phragmites* control work is done by application of wetland approved herbicides.

This fall, with funding from the U.S. Forest Service and after consultation with both ACLT and SERC, the Department of Natural Resources (DNR) successfully treated seven acres of non-native *Phragmites* on state land in Parkers Creek marsh with a mix of herbicides that is safe for use in water. We partnered with the US Fish and Wildlife Service, who let us borrow an amphibious ATV, and veteran marsh driver Conor Bell. Yousuf Nejati, an experienced certified pesticide applicator from the environmental consulting company EQR, Inc. did the actual application. Spraying a mixture of glyphosate (the active ingredient in Roundup) and imazamox (Clearcast) from a hose gun and tank mounted on the ATV, we treated the largest patch of non-native *Phragmites* in the marsh. Constellation Energy allowed us to use their power line ROW as a staging area, where the chemicals were kept and mixed tank load by tank load. Although we had some difficulty with equipment to start, we were able to complete the job in a single day.



The ARGO, an amphibious ATV, is the vehicle of choice for applying aquatic approved herbicide in Parkers Creek marsh.

Once the *Phragmites* is completely dead, we plan to conduct a winter season prescribed burn on the site to remove all the standing dead foliage and open the marsh surface to light and native plant regeneration in the spring. Follow-up herbicide applications will likely be necessary, but they will be spot-treatments at low volume. We plan to treat the other *Phragmites* patches along Parkers Creek, while protecting the existing population of the native subspecies. Watch for renewed signs of native marsh life in 2014 as Parkers Creek marsh is restored to its full glory!

Thank you for your support ...

New Members

ACLT would like to welcome the following new members since the Summer 2013 newsletter:

Ms. Joan Adams
Ms. Karen Anderson
Mr. & Mrs. Paul Armington
Mr. & Mrs. Joseph Bell
Mr. & Mrs. Joseph Bugarski
Ms. Julia Burton
Mr. & Mrs. Jonathan DeLong
Mr. Todd Goings & Ms. Melissa VanMeter
Ms. Ruth Hardin
Mr. Steven Lonker
Mr. & Mrs. Vivian Marsh
Mr. & Mrs. Marvin Miller
Ms. Ingrid Reid
Ms. Traci Santangelo, Ms. Gwen Lacouture & Messrs. Sam & Evan Metz
Mr. & Mrs. Lars Skinner
Ms. Rebecca M. Turner
Mr. & Mrs. Richard VanInderstine

Sustaining Membership

Congratulations to the following members who have reached the level of Sustaining Membership:

Mr. & Mrs. Fred Ferris
Mr. D. Duncan Frazer
Mr. & Mrs. Thomas Insel

Memorial Contributions

Thank you to the following members who made a memorial contribution since our last newsletter:

In memory of **Mr. Paul Berry**, who as a Sustaining Member and dedicated volunteer, served many years on the ACLT Board as Treasurer, and was awarded the first American Chestnut Land Trust Presidents' Award for his outstanding efforts in pursuit of the conservation of the natural and cultural resources of Calvert County, Maryland:

Dr. & Mrs. Donald Dahmann
Mr. & Mrs. Paul Dennett
Mrs. Mary Dwan
Dr. & Mrs. Glenn Edgecombe
Capt. & Mrs. Patrick Murphy, USN (ret.)
Mr. & Mrs. Peter Stathis

In memory of **Mr. Robert Douglass** who was a Charter Member, a longtime supporter and a dedicated volunteer:
Dr. Christine & Col. Daniel Boesz
Col. Caroline Van Mason, USA (ret.)

In memory of **Mr. John Hollowell, Sr.**, father of Charter Member John Hollowell, Jr. and brother of Sustaining Member James Hollowell:
Dr. Christine & Col. Daniel Boesz

In memory of **Mr. & Mrs. Ronald Ross** who were longtime members and dedicated supporters:

Ms. Elizabeth Ross

In memory of **Capt. Walter P. Murphy, USN (ret.)**, father of Patrick Murphy, who was a longtime member and supporter:
Ms. Joy Woppert

In honor of **Ms. Veronica A. R. Cristo**, Rural Planner, Calvert County Department of Community Planning & Building:
Mr. Kent Messer, Director, Laboratory for Experimental & Applied Economics, University of Delaware & Mr. Will Allen, Conservation Fund

Gift Memberships

Thank you to the following who gave a gift membership since the last newsletter:

Ms. Joy Woppert
Ms. Elizabeth L. Johnston

Rule Permitting Direct Charitable Donations from IRAs extended for 2013

If you are age 70½ or over, you may be required to take a minimum distribution from your IRA this year whether you need the income in 2013 or not. If you do not need the income this year (and do not want to pay taxes on income that you do not need), **you may wish to consider allowing ACLT to help you tell your required minimum distribution to "Take a Hike!"**

How can we help? We are a qualified 501(c)(3) charitable organization. As an IRA owner, you may be eligible to transfer the distribution tax free to support ACLT's land preservation, land management and public outreach programs. Review the ten things you will need to know to make a donation in the easy to understand IRS Tax Tip 2009-23 found at <http://www.irs.gov/uac/Special-Charitable-Contributions-for-Certain-IRA-Owners>.

This option was extended by the American Taxpayer Relief Act of 2012 to apply through the end of 2013. With the way things are going in Washington, this may be the last year that this option is available, so act now! **Tell your IRA minimum required distribution to "Take a Hike" by making a 2013 donation to ACLT direct from your IRA account.** Contact Karen Edgecombe at (410)414-3400 or kedgecombe@acltweb.org for further details





American Chestnut Land Trust, Inc.
 Post Office Box 2363
 Prince Frederick, MD 20678

NONPROFIT
 STANDARD MAIL
 PERMIT NO.
 548
 PRINCE FREDERICK
 MD

Come Join Us!

Detach and Mail to: The American Chestnut Land Trust, Inc., P.O. Box 2363, Prince Frederick, MD 20678

Name _____ e-mail _____
 Address _____
 Phone _____ I (we) learned about ACLT from _____

Regular Membership

Corporate Membership

- | | | |
|----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> Land Saver—\$35.00 | <input type="checkbox"/> Habitat Protector—\$500.00 | <input type="checkbox"/> Land Saver Corporate—\$150.00 |
| <input type="checkbox"/> Land Protector—\$60.00 | <input type="checkbox"/> Trustee of Land—\$1000.00 | <input type="checkbox"/> Land Protector Corporate—\$250.00 |
| <input type="checkbox"/> Land Conservator—\$150.00 | <input type="checkbox"/> Sustaining—\$2500.00 | <input type="checkbox"/> Land Conservator Corporate—\$500.00 |

The American Chestnut Land Trust is a 501 (c) (3) charitable organization. A copy of the current ACLT financial statement is available on request. Requests should be directed to the American Chestnut Land Trust, Inc, P.O. Box 2363, Prince Frederick, MD 20678 or call (410) 414-3400. For the cost of copies and postage, documents and information submitted under the Business Regulation Article of the Annotated Code of Maryland are available from the Secretary of State.