

Watershed Observer



NEWSLETTER OF THE AMERICAN CHESTNUT LAND TRUST - VOLUME 28 NO. 2, SPRING 2014

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COMING UP ON THE CALENDAR

MAY

- 24 **GUIDED CANOE TRIP** 11:00 A.M. – 2:00 P.M.) (SUNDAY RAIN DATE)

JUNE

- 7 **GUIDED CANOE TRIP** (9:00 A.M. – 12:00 P.M.) (SUNDAY RAIN DATE)
- 21 **GUIDED CANOE TRIP** (9:00 A.M. – 12:00 P.M.) (SUNDAY RAIN DATE)

SEE MORE OF THE 2014 CALENDAR ON PAGE 10 OR ON THE WEB.

Hance Farm to be Preserved

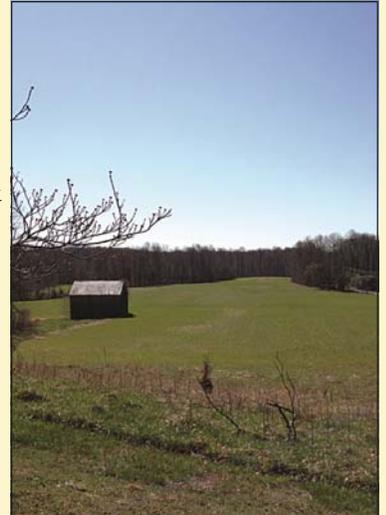
At ACLT's Annual Meeting on March 8, it was announced with great fanfare that the State of Maryland's Board of Public Works (BPW) had just approved the acquisition of the Hance Farm located on Route 765 just south of Prince Frederick. Emily Wilson, Director of Land Acquisition & Planning with the Department of Natural Resources explained to the BPW that this 139-acre property was proposed to be acquired by DNR and managed by ACLT as an addition "to our Parkers Creek watershed that we manage in cooperation with the American Chestnut Land Trust."

As you begin the ascent into Prince Frederick after turning onto Route 765 from the south, the George W. Hance farm is on your right. At the point where the road crosses the main stem of Parkers Creek, the property straddles both the north and south sides of the creek, protected by forested wetlands. The view then opens up into actively farmed fields with an old tobacco barn in the center of the field. At the top of the hill sits a typical, turn of the 20th century Calvert County farmhouse that has historic significance. DNR will not be purchasing the 7-acre portion that surrounds the house; however, we are hopeful that someone else will preserve it. The property forms a natural, and now forever rural, buffer just prior to entering Prince Frederick.

Maryland's BPW approved the use of Stateside Program Open Space (POS) funds to purchase the Hance Farm. These funds are used to acquire parkland, forests, wildlife habitat, natural, scenic and cultural resources for public use. DNR objectively screens and ranks properties throughout the state for possible POS purchase. The Hance Farm ranked very high on DNR's Ecological Ranking Protocol, scoring 108 out of a possible 100. Important considerations included the fact that the property is part of the Parkers Creek Targeted Ecological Area, which earned it a bonus score of 20 points. Also, a factor was that it is surrounded by almost 500 acres of protected lands within a one mile radius, earning it another 21 points. Another factor of importance was that it contained almost 120 acres of forested land that is important for water quality protection.

Regardless of how well a property scores, however, the ranking system only authorizes proceeding to acquisition if there is a plan for parcel management. Without a "known or reliable committed process for managing the parcel," DNR's ranking system reads "STOP," don't acquire. Thus, it is only due to ACLT's willingness to accept the property under our management, at no cost to the citizens of Maryland, that this property will be preserved. The property will be managed by ACLT through an amendment to our long-standing agreement with DNR that dates back to 2000.

Now that the BPW has approved the acquisition, and the landowners have signed a contract of sale, all that remains before the property is preserved is settlement, which is expected before June 30. Ms. Wilson pointed out in her



(CONTINUED ON PAGE 10)

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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 958 acres, manage 1,780 acres owned by the State of Maryland, and hold conservation easements on 374 privately-owned acres.

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From the President's Desk

Long Term Sustainability: A Critical Challenge

In the last ACLT newsletter, I wrote about the Board's focus on the long term sustainability of ACLT's work and accomplishments. I also mentioned that the Board devoted a great deal of attention to this issue in our recent strategic planning exercise. The major concern remains that our hard work and tangible accomplishments could be threatened and eroded over time if we don't work diligently to expand our membership and generally broaden support for land preservation.

To that end, as you may recall, the Board authorized two initiatives to address this challenge. The first focuses on very specific ways to expand our membership numbers with a particular emphasis on younger families and individuals throughout the county. This initiative is well underway, being guided by Board member Guy Tomassoni. He is working hand in hand with the folks on the membership and outreach committee, ably staffed by Tricia Realbuto. I will update you on its good work and progress in our next newsletter.

Today, I wanted to fill you in on the latest developments of our second initiative. It was designed to reach out to prominent and like-minded organizations throughout the county to explore ways of broadening the support for land preservation. The Board sought to shape this effort starting first by reaching out to organizations that explicitly share a commitment to the land. However, we felt it was necessary to also quickly include other organizations whose primary agenda may focus elsewhere but that nevertheless share our concerns about protecting the natural resources of the County, recognizing the positive impact doing so has on all of our lives.

This effort is being driven by board member Greg Bowen, working closely with ACLT's executive director, Karen Edgecombe. They have had two very successful meetings with a third already planned for June. Eighteen organizations have attended these meetings, including Calvert Farmland Trust, Calvert County Young Farmers, Southern Maryland Oyster Culture Society, Calvert County Waterman's Association, League of Woman Voters, Battle Creek Nature Education Society, Calvert County Historical Society, Calvert Farm Bureau, and the list goes on.

The initial conversations have attempted to lay down a conceptual foundation for working together that is built on the intersection of three pillars of sustainability that a healthy community must work to integrate—the environment, the local economy and societal needs. Our early discussions recognized the typical silo-like focus that individual organizations often fall into, but encouraged the exploration of the intersecting nexus of benefits and concerns we all share in protecting the natural resources where we work and live.

We are also working to clarify and build a consensus for a vision statement of this group, along with an official name and operational structure. As we work through these matters, it is already apparent there is a healthy hunger for a community that is willing to share information, offer inter-organizational support and cooperation and explore potential future opportunities for collaboration. The final contours of this effort will reveal itself over time. Other than ACLT's commitment to initiate this exercise and provide the broadest direction, the network participants will hammer out its actual blueprint over time.

If you have any interest in learning more about what we are doing or have an organization that might be interested in joining us, please let us know. In the meantime, we will continue to keep you posted on this and other membership development activities. Thank you.

Patrick J. Griffin, President

Around ACLT

Recent Happenings

From Tricia Realbuto
Community Relations Coordinator

Hiking Trail Maintenance Day

On Saturday, March 22nd, crews of volunteers worked throughout the morning on various projects including repairing the bridge on the Horse Swamp Trail and building boardwalks on the Parkers Creek and PF₂Bay Trails. Volunteers also helped haul a lot of lumber back and forth to build these structures! Special thanks to Ken Romney and his team of volunteers who went back out to work after lunch.

Lunch was our traditional backyard BBQ, with Curt Drumm manning the grill, and Elise Schryver helping with set up and cleanup. Elise was essential in making sure everything came together for a lunch that “Martha Stewart would be proud of.”

A very sincere Thank You to all of our volunteers for accomplishing so much in such a short amount of time; we are so thankful for your continued efforts in helping at events such as Hiking Trail Maintenance Day. With the hard work of our volunteers, our trails are now ready for the 2014 hiking season!

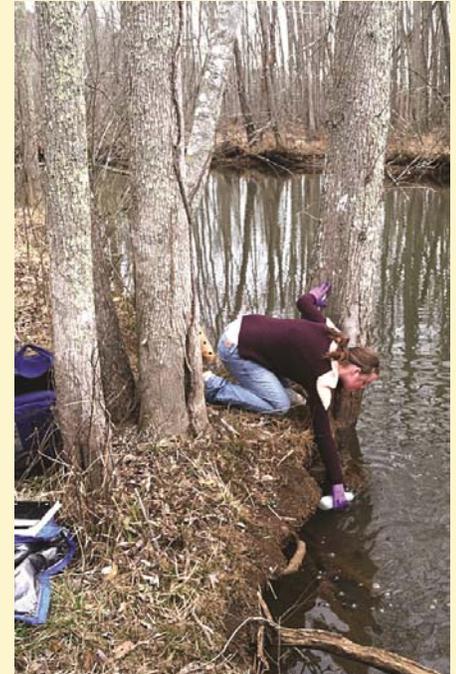
Water Quality Monitoring Training

This year’s Water Quality Monitoring training was held on a chilly Sunday, March 23rd. ACLT trained 10 volunteers on collecting samples and preparing them to be brought to Chesapeake Biological Lab (CBL) for testing. The training this year was led by Lora Harris and Melissa Day from CBL as well as Matt Taylor, a CBL and ACLT volunteer. The three gave us an inside look into watershed ecology as well as hands on experience.

For over a decade, ACLT volunteers have been collecting data once a month from various spots along Parkers Creek. We rely on our “citizen scientists” to collect the samples throughout the year. Analyzing nutrient and sediment loads provides a barometer of overall watershed health and enables ACLT to effectively manage and protect the natural resources of Parkers Creek. In the near future, ACLT hopes to have reports from the data we have been collecting available on our website.



Left: Volunteers Ryan Connell and Ron Bailey work on the new boardwalks on the Parkers Creek Trail. Photo by Peter Seabrook.



Right: Water Quality Monitoring Volunteer Ashleigh Piccoli collects a water sample at the Bridge Spur. Photo by Tricia Realbuto.

You Shop. Amazon Gives

American Chestnut Land Trust is now a charitable organization involved with AmazonSmile through online sales website Amazon. AmazonSmile is a program where Amazon donates 0.5% of the purchase price of eligible products to charitable organizations selected by the customer. AmazonSmile is basically the same as Amazon, with the same products and services. In order to donate to ACLT through AmazonSmile, visit <http://smile.amazon.com>. From there, you will sign in with your Amazon account, or you will need to create one. Once signed in, you will be able to search for American Chestnut Land Trust. Click “Select” next to our name, and you are signed up! It is that simple. To get in the habit of shopping through AmazonSmile and not Amazon, we suggest saving the AmazonSmile website to your favorites. You must be shopping on the AmazonSmile page in order for the donation to go through. If you have any questions about this program, you can visit <https://org.amazon.com/> or contact Tricia Realbuto at volunteer@acltweb.org.



The “Namesake” Tree at the American Chestnut Land Trust

The Maryland champion American chestnut tree succumbed in 2006, not to the blight but to a winter thunderstorm. It fell shortly after I measured its diameter at 84 centimeters at breast height and estimated its overall height at 25 meters in 2006. The tree was called the “Namesake” tree, the “Gravatt” tree, and the “Scientists Cliffs” tree (Figure 1). It was the last of three large stems, the other two having fallen years earlier. Therefore, I and others suspect it was a stump sprout from a previously logged chestnut tree. It was over 110 years old, judging from a section of the log where 93 annual rings are visible, with an estimated 20 rings in the missing center (extrapolated from the growth rate just outside the decayed area). The original tree was, therefore, likely harvested well before “blightmageddon” passed through Maryland.

The Maryland Chapter of the American Chestnut Foundation (MDTACF) was presented with a “cookie” of this tree in 2009 (Figure 2) by ACLT, but TACF’s partnership with ACLT began much earlier. Between 1989 and 1991, the land trust planted two orchards of about 100 trees each from seeds provided by TACF. By 2007, I observed that the orchards were overtaken by forest, with fewer than about 20 percent of the trees alive—barely—and the majority of them were Chinese.

The land trust’s relationship with the American chestnut began even earlier. Beginning in 1935, G. Flippo Gravatt and his wife Annie, both forest pathologists at the U.S. Department of Agriculture, purchased several farms covering almost 800 acres of land and established a community they named “Scientists Cliffs.” Gravatt erected the first building in the Scientists Cliffs community, called “Chestnut Cabin,” which was built entirely of American chestnut logs and served as the Gravatt’s home. It is now a community museum. Gravatt’s research centered on forest tree diseases, including chestnut blight. He was involved in USDA efforts in the 1940s to create a blight-resistant chestnut tree by hybridizing American and Chinese chestnuts. He planted many hybrid trees on his property, mainly around the old farmsteads.

After Annie Gravatt died in 1986 (Flippo predeceased her in 1969), a non-profit organization purchased the land outside the Scientist Cliffs community. That organization became the American Chestnut Land Trust. Today, ACLT protects,

either by ownership or partnership, over 3000 acres of wetlands and forest. Several native American chestnut trees survive in the upland forested areas of the properties protected by the land trust.

ACLT still proudly honors its American chestnut heritage. It is planning to offer wood from the Namesake tree to woodcarvers and wood turners. Unfortunately, the wood from this tree suffers from “ring shakes,” a defect common in chestnut trees, especially European chestnuts. Ring shake, the separation of the annual rings visible in Figure 3, is most common in ring-porous woods.

I took a particularly pretty slab from the tree (I hesitate calling it a “board” because it is not solid and I needed to support it in the back to hold it together) and made the wall hanging (Figure 4) that I recently presented to ACLT. The piece is now hanging outside the office of the director and admired by visitors at ACLT headquarters.



Submitted by Gary Carver,
Maryland Chapter of the
American Chestnut Foundation



Facing page left: Figure 1. Tom Scrivener (MDTACF) stands next to the Namesake tree in 2006.

Above bottom: Figure 2. Namesake Tree Ring 1. From the left, Gary Carver (MDTACF), Namesake tree cookie, Peter Vogt (ACLT), Robb Newman (MDTACF), Karen Edgecombe (ACLT executive director), Montana (the dog), and Ron Kuipers (MDTACF).

Facing page right: Figure 3. The cookie from the trunk of the Namesake tree donated to MDTACF by ACLT. Photograph taken from about ten feet up. For scale, the floor tiles are one foot square. Notice the ring shakes.

Above top: Figure 4. Namesake Tree Hanging. The nuthatch wall hanging presented to ACLT by the author. The board is a slab from the Namesake tree. The stylized nut hatches are also American chestnut, but from different trees. The height of the hanging is approximately 20 inches.

Suriname?

A number of us had to reveal our ignorance when Steven Gaines, ACLT's Land Manager, told us that he would be leaving his position at ACLT in mid-June and moving to Suriname. Where exactly is that? We had to ask. He admitted that he also had to look it up on a map when he and his wife, Angie, a State Department employee, selected it as her new post.

Steven has been a tremendous asset for ACLT on a wide variety of natural resource topics. Not only is his knowledge of forestry impressive, but he also brought a wealth of knowledge about invasive plant control. He was invaluable in assisting with ACLT's accreditation application by preparing individual property land management plans and an invasive plant management plan. His innate curiosity about a wide variety of natural resource topics always made for interesting reading in the articles he submitted for the *Watershed Observer*. It was also Steven's recommendation that ACLT consider instituting a Maryland Master Naturalist training program, which has been a huge success. We will miss him and wish Steven and Angie well in their new adventure.

ACLT has hired Autumn Phillips as our new Land Manager. Autumn will start work on May 12. She comes to us straight from her graduate work at Frostburg State University where she just completed her Masters in Applied Ecology and Conservation Biology. We will introduce Autumn in the Summer issue of the newsletter.

Membership-Increasing Initiatives

At the 2013 Annual Meeting, board member Guy Tomasoni presented 12 membership-increasing activities that ACLT is already working on or will be starting in the near future. Below are some of those initiatives. We are looking for ACLT members and volunteers to help on these activities. If you would like to help on a particular initiative, please contact Tricia Realbuto at volunteer@acltweb.org and you will be put in touch with the appropriate leaders. ACLT would like to thank members of the board as well as the outreach and membership committee who have stepped up to serve as leaders on these projects.

- ACLT Elevator Speech
- Guide Encouraging Visits to Network Members
- ACLT Library Display
- Discounts for New Members
- Discounts/Incentives/Marketing for Student Members
- Scouting Involvement
- ACLT Book Club
- Mobile App Version of ACLT Web Page
- Partner with Cross-country Running Groups
- Public Advertising



Science in the Watershed

Microbes in Streams: Little Things Make a Big Difference

We value streams because of the multitude of benefits we receive from these outwardly modest bodies of water. Through history, streams have provided basic necessities like food and water and still do today for many people. Even if you don't catch your food directly out of a stream, you probably eat at least one fish, such as trout or salmon, which relies on streams.

From a broader perspective, streams also provide benefits for downstream water quality. For starters, streams retain and process excess nutrients that are washed from the landscape into our river networks. If you're a Marylander you likely know that this is an important job. Many large water bodies, including the Chesapeake Bay, suffer from eutrophication—which results in dead zones generated as a direct result of excessive levels of nutrients. Last but not least, streams are just pleasant to be around; they're aesthetically pleasing and provide a soundtrack to walks in the woods.

What you might not know, unless you read my last article in the *Watershed Observer* (<http://actweb.org/newsletters/pdfFiles/summer2013.pdf>), is that microbes are behind all of these important services. Single-celled organisms, particularly bacteria and fungi, live in stream beds and absorb nutrients from the water column.

Microbes also sit at the bottom of the food web. These tiny organisms provide a food source for insects and other invertebrates living in streams, which in turn become food for birds and fish. Of course, microbes have to eat as well. Many stream microbes are decomposers, relying on sources of food from the land that end up in streams by gravity, often with a little help from rainwater.

Considering that microbes are so important to stream ecosystems one would probably assume that scientists know a lot about these creatures. The truth, however, is somewhat different. Microbes live in stream beds as communities that are composed of many different species. As a whole, we can measure how these microbial communities impact the stream environment. Determining what kinds of microbes occupy these communities is more difficult to ascertain. New advances in

genetic sequencing are promising to help us answer these questions, allowing us to identify microbes more affordably, faster, and with greater precision.

As a stream ecologist, I have spent the last several years conducting research on the microbial ecology of the Parkers Creek watershed. I am studying headwater streams, the smallest water bodies that form the beginning of river networks. Headwaters are so widespread across the landscape that these small streams serve as an interface between land and water. My research aims to understand how changes on the land impact communities of microbes in the water. Using cutting-edge genetic techniques I am studying what factors influence where different groups of microbes live. This is useful information: once we know what microbes are living in streams we can begin to better understand how these microbes change the



Left: A headwater stream at the American Chestnut Land Trust. That dark brown stuff covering the streambed may not seem appetizing to us but it's a major energy source powering stream food webs.

Right: A pipette samples stream water from the main stem of Parkers Creek. Here a microbial enzyme analysis is being conducted to determine what food sources microbes are using. Photo credit: Catherine Febria.



ecology of streams. To meet this goal, we have to start with a very basic question.

Who's there?

This is a question that ecologists ask a lot. We want to know who is occupying an environment and how they got there. After we know its identity, we can learn what a plant, animal, or bacterium is doing to shape its environment. We know a lot more about the ecology of plants and animals because observing and studying them is so much

easier. Certainly we've been able to look at microorganisms under microscopes for centuries. Unfortunately, this is not a feasible technique for studying even small communities of microbes, which can have millions of individuals. A much faster technique is to look for the DNA of the microbes we are studying using genetic sequencing. This sequencing technology has existed for decades, but the genetic sequencers have always been too slow to collect enough data to properly measure the sheer number and diversity of microbes in the environment in a reasonable amount of time. Now, the incredible increase in the power of computers is allowing scientists to process the many gigabytes of data that can be produced by state-of-the-art sequencing machines in an afternoon.

This torrent of new data is about to change the way that we think about microbes. Researchers have already learned from this new research that we know less about microbes than we previously thought. As it turns out, microbial communities in soil, water, and even the air, are more diverse than many had guessed. Understanding the ecology of all the microbes on the planet is too big for any one research team, so groups like the Earth Microbiome Project (<http://www.earthmicrobiome.org>) are providing scientists with the tools to share our data and work together. My research will ultimately be added to the Earth Microbiome Project's database, allowing other scientists to compare the microbes living in Parkers Creek to other streams around the world.

While I am still working to process the avalanche of information I've collected, I have made some initial observations. First, the diversity of microbes within Parkers Creek streams is so great that we are still not capturing it all. In each sample I have collected, thousands of microbial groups have been identified and yet my analysis shows that there are many more that are being missed because they aren't common enough to be detected. New technology will improve this situation, allowing scientists to collect even more data, but in the meantime there is still plenty we can learn from our existing work.

One of my objectives is to find out the answer to the question that I posed earlier, "who's there and why?" Currently, there are two major theories about how microbes end up where they do. One hypothesis is that the surrounding environmental conditions—like temperature, food sources, sunlight exposure, and water chemistry—determine where a microbe can live. This is the theory of ecological niches that you may remember if you took an ecology class. The other hypothesis, known as the neutral theory, states that getting there first is the key to surviving. The microbial world in streams is always changing. During a rain storm streambeds are scoured of sediments, leaving new habitats to be colonized. The neutral theory says that the microbial species that colonize this new ground, or patch, will be whoever happens to show up first. While this

may seem somewhat counterintuitive, you can probably imagine some reasons that getting to a spot first would have its advantages. Think about trying to move into a house. It's much easier to move into a house that isn't already occupied. If you tried to move into a house that already had another family living in it you would be much more likely to encounter resistance. This other family has the keys to the doors and you don't. They might have installed a security system. Finally, they will probably put up some resistance if you just start moving in anyway.

Both of these theories likely have merit, but figuring out when they apply and how they fit together is important. If the niche hypothesis is most appropriate it would mean that we can more easily predict what species of bacteria are going to be where. If the neutral theory is correct this would add a degree of randomness that may add complications to our efforts to map the earth's microbes.

What are they doing?

The reason that there is so much interest in mapping the world's microbes is that this is the first step to understanding how these organisms shape our planet. Microbes in streams remove and process nutrients, like nitrogen and phosphorus, that would otherwise eventually cause problems in larger water bodies such as the Chesapeake Bay. Just as different animal species have different roles, individual microbes in streams perform very different functions. This means that to perform all the functions that are needed for a healthy stream, a diverse microbial community is required.

As with any living organism, one thing that microbes do a lot is eat. Like you and me, microbes rely on organic matter to live. While the term organic matter may have you thinking unpleasantly back to chemistry class, these compounds are familiar to you. Organic matter includes the carbohydrates, sugars, proteins, and other compounds that we rely on for food. The same is true for microbes in streams, except that the organic matter that bacteria in streams consume wouldn't be too appetizing to us. Much of the organic matter that feeds microbes in small streams comes from the land. This includes leaves and other plant materials that enter streams and are transformed into the dark, mucky stuff on the bottom of the stream that we call detritus. The tea color that we often see in streams, rivers, and lakes is also organic matter that has dissolved in water. Whether the organic matter is in its solid form or dissolved, it is an important food source for microbes in streams.

The types of organic matter that enter streams depend upon the nature of the watershed that delivers water to the stream. Natural watersheds with forests and wetlands produce complex organic matter including humic substances which are responsible for the characteristic dark brown color of rich topsoils. Just like the complex carbohydrates

that we're always trying to eat, microbes process complex organic compounds slowly. By contrast, research I've conducted in the Parkers Creek watershed indicates that as landscapes become more altered by humans, complex organic compounds are lost and replaced by simpler compounds like proteins. This less-complex food source is more readily used by microbes and is quickly processed by microbes in our laboratory experiments.

We don't yet know what this change means for streams but we can make some guesses based on existing research. As I mentioned before, microbes are at the bottom of the stream food web and are an important food source, either directly or indirectly, for many stream organisms. This means that if new sources of food change microbial communities, this could impact the animals that rely on microbes for food. This could have substantial impacts on stream food webs with beneficial effects for some organisms and negative effects for others.

Help from Land Conservation

There is much about the microscopic world of stream microbiology that remains a mystery. Fortunately, with new technology we're now able to start answering some of those questions right here at the American Chestnut Land Trust. Thanks to ACLT's preservation efforts, the Parkers Creek watershed has many small streams that are minimally impacted by human activity. These natural ecosystems not only benefit the environment, they also provide scientists with a baseline measurement against which to measure the impacts of human disturbance. Without access to ACLT, our research would be incomplete and we might have missed intriguing discoveries. Fortunately, we have ACLT and other protected lands available to both research and enjoy. I'm excited to keep learning more about the microbes of Parkers Creek: they still have a lot of secrets to tell.

Jake Hosen is a PhD candidate at the University of Maryland in the laboratory of Dr. Margaret Palmer. To find out more about research that Jake and the rest of the Palmer Lab is doing visit <http://www.palmerlab.umd.edu>.

Land Manager's Corner

Thoughts on Sustainability

The sustainable use and management of natural resources has been a hot topic for quite some time. Perspectives change, research findings vary, and personal and political objectives may shift considerably over time, but most folks are of the opinion that today's management practices have to evolve in order to coincide with the interest and needs for future generations. There are countless definitions for the word "sustainability" and any number of meanings can apply to just about any situation where resources are finite. In the simplest sense, sustainability as it refers to natural resources can be thought of as the wise use and management of today's forests in a manner that will allow for perpetual use and enjoyment by future generations. What things boil down to is that there has to be some sort of balance between society's supply and demand that will compensate for future need.

From the very start forest management has been rooted in human catastrophe. History has shown us that sound forest management only becomes something that we strive towards when resources appear to be limited or otherwise declining. So to start with it might be useful to discuss what may be termed unsustainable management. Timber management systems are not sustainable when the volume or biomass of wood removed exceeds growth over large land areas and time frames (Shifley, 2006). Furthermore, the harvesting of trees that are of the highest quality while leaving the poorer quality individuals to regenerate an area (or site) may also be considered unsustainable. As a science, forestry has developed methods to monitor forests by age, species composition, growth rate, site quality, as well as projecting growth potentials and projections for a given species on a given site. What we do not have is a way to determine what range of outcomes might indicate sustainable land use (wildlife habitat, water quality, quality timber resources, recreation/aesthetics, etc). This is the great dilemma, what is thought of as a good technique for meeting a given land management objective may sacrifice the interests of another piece of the ecological system.

Perhaps the greatest source of the problem is that the harvesting of timber is often observed as a destructive occurrence. For the most part, people find timber operations ugly and unnatural. They don't want to see it performed in their back yard, in their neighborhood, or in their county because it is unpopular. The problem is that this exports environmental impacts (both negative and positive) to other regions of the country and globe. It further complicates matters of where to harvest, how much to harvest, and when to harvest according to social and scientific paradigms (Shifley, 2006). Positive feedbacks from timber harvesting can include advantages for a variety of wildlife, increased forest products and local economic stimulation, enhancements to forest health, and aesthetics/recreation. Negative feedbacks might include erosion and increased sedimentation to streams, soil compaction, and potential infestations of invasive vegetation. Point being, these impacts are felt elsewhere and often clustered in more remote regions. The bottom line is that there is a limited amount of forestland and demand for forest products is likely to

increase. As a matter of fact, harvest levels are expected to increase an estimated 40% in the next 45 years to keep pace with the current projected surge in population (Haynes 2003). If you think about it, that is many more subdivisions and a lot less forestland to fuel future demand.

The ever increasing demand for wood shows no signs of slowing. To compensate, managers have to increase wood production on fewer hectares of forest land on a much shorter rotation (harvest age). To some degree forestry has always been a form of agriculture, but given today's demand for forest products and shrinking time scale it is more like a huge garden to weed as opposed to an art form. For example, the pulpwood industry comprises an enormous part of the US economy. Huge tracts of land are managed as tree farms to produce pulpwood. Pulpwood is harvested to produce paper and fiber products and is often raised in pine monocultures (pine plantations) throughout the southern states. Pine plantations are often referred to as even-aged stands because all of the trees in the stand are the same species and roughly the same age. In many cases, a form of linear programming is employed to arrive at the best possible outcome given a variety of variables and constraints when managing these plantations. Linear programming can be thought of as a mathematical optimization technique highly utilized in economic scenarios to maximize profits at the lowest possible cost. This concept is also useful in on ground situations in forestry and agriculture. Outside of economics, these techniques were used extensively in World War II to position resources around Europe. Similar to war situations where considerations of troops, tanks, artillery, and other supplies were strategically put into place, natural resource managers will factor in number of hectares to plant in tree seedlings, spacing between trees, timing of silvicultural thinnings, labor costs, and rotation age.

To continue our example, say we have a 50 hectare parcel of land that has been cleared. The bare tract will be planted at year X with 1,000 seedlings planted per hectare, all planted on a grid in rows. At year X + 10 the trees will be pruned and thinned (individual trees being systematically cut down—maybe every other tree or every other row). At year X + 20 the trees will be pruned and thinned again. At year X + 30 the entire 50 hectares will be clear-cut. After the harvest is completed the slash is burned and the process starts over again. The ordeal sounds crude, but it is effective and quick—as the saying goes “forestry is the crack of timber and the smell of sawdust”. From an economic point of view of meeting society's demands, this is largely how the system works; but is it sustainable? There are of course exceptions to this management practice and even-aged stands do not always have this end result. In fact monocultures do occur naturally. Be it natural occurrence or artificial plantings, monocultures are important forest

types that support all kinds of habitats and provide several ecological and anthropocentric services.

Hardwood timber stands (deciduous trees) can offer similar harvest regimes to softwood stands (conifers). However, often techniques will revolve around un-even aged management where the trees in a given area are of a variety of species and ages. The primary advantage here is the element of diversity. In many cases, diversity is the absolute best defense against pathogens and injurious insects. Commonly, insects and pathogens will be specialized for the invasion of a primary host. For example, the Southern Pine Bark Beetle prefers to feed on loblolly or shortleaf pine. If there is an available plantation of this species that is roughly the same size and age, the beetle might have an easier time getting established than if there is a mixture of species. The same might hold true for fire blight as the bacteria invades fruit tree orchards. The most common misuse of management in uneven aged timber stands is the act of high-grading. High grading refers to the harvest of only the highest quality timber, a practice that can devastate a forest. If you think about it, high grading goes against every principle of evolution—it is the weak trees, the sick trees, the genetically/economically inferior individuals that live to regenerate the site.

In most cases, harvesting is done well and provides several benefits for the landscape while adequately meeting landowner objectives. The important point to be made here is that there must be a management plan. A management plan must clearly define the objectives of the land tract. Further, it must clearly outline how these objectives are to be met and have a reasonable timeline of progress. The plan must also suggest how to mitigate impacts by following Best Management Practices (BMPs) as suggested by the state that the harvest is occurring in, in addition to a quality map of the area, past land use history, and property description.

As far as sustainable practices go, we have come a long way. We have created a variety of techniques to meet an array of forest objectives and have even put into place assays and indicators to measure our efficiency. In addition, we have engineered means to mitigate the negative feedbacks of our actions and, hopefully in most situations, have learned from our mistakes. In the United States timber volume has been increasing steadily over the past 50 years from roughly 600 to 900 billion cu ft (Smith et al. 2003). On average, about 1 million hectares of land are planted with trees annually (US FIA, 2000). In most management situations a tract of land is divided into several separate stands of timber. These stands may be characterized by species, age, or management technique or prescription.

There is no rule that says every inch of a property has to be treated the same, on the contrary—a common approach is to adapt to each encountered scenario and simply do whatever maintenance needs to be done to “improve” the

woods. This approach is referred to as timber stand improvement (TSI) and can include treating an area for invasive vegetation, cutting out undesirable tree species (commercially or non-commercially), cutting out diseased or otherwise infested individuals, etc. Other technical approaches would include selection harvesting, or even more specialized individual single-tree selection harvest where every individual tree or group of trees encountered during the harvest is judged on its own merits. In these harvests it is often the weak and diseased/infested trees that are removed to allow future crop trees room to grow and reproduce. This type of system encourages the growth of quality timber and forest health while maintaining the integrity and structure of the woods.

There all kinds of useful advice on timber management. First and foremost, always have a plan. If you plan to harvest timber, do your homework. Ask yourself what you want from your property and figure out the best, most conscientious way to meet the goals. Contact a forester to help, most states will have money to contribute to landowners that want forest plans. If you plan to harvest timber do some research on local loggers, ask other landowners who cut their timber and if the job was done right – or better yet, go check out the job site. Do additional research on local markets and find out how to sell your lumber locally, research specialty products for character wood or non-timber products as well. These are simple things that can be done on the individual level; we have a long way to go on the regional, national, or especially the global level. In order to act as a model of sustainable forest management we must adhere to a strong commitment to BMPs. In order to spread out the impacts of timber harvesting (both negative and positive) we should seek a more uniform geographic distribution of harvests so as to avoid clustering the practice to certain realms of a county or state (Shifley, 2006). If we believe that harvesting is beneficial then we should embrace it. If we feel it is negative we should do our best to mitigate it locally. If we find it is a mixture of the two, we should decide what works well and reinforce it.

Steven Gaines
 ACLT Land Manager

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(CONTINUED FROM PAGE 1)

presentation to the Board of Public Works that it had been a “long and difficult negotiation.” Indeed! In fact, this property almost missed out on being preserved numerous times along its path to the BPW. Initially, the Calvert Farmland Trust considered purchasing the property, but determined that the agricultural soils did not meet their project selection criteria. Once the Farmland Trust withdrew its interest in 2008, ACLT requested that DNR consider acquiring the property. The project was scheduled to go to the BPW in February 2010, but the contract was not ratified by the heirs. A second appraisal process was started, but the time ran out on the appraisals before agreement was reached. A third set of appraisals was done and a contract signed by all 38 heirs was finally secured for Board of Public Works approval in 2014.

ACLT is pleased to add this important property that includes the main stem of Parkers Creek and two first order tributary streams, 19 acres of forested wetlands and approximately 119 acres of forest to the Parkers Creek Preserve. Governor O’Malley, Chair of the three-member Board of Public Works, remarked at the hearing that he had paddled Parkers Creek and that it was “a very cool place.” We couldn’t agree more!

Karen Edgecombe,
 Executive Director

American Chestnut Land Trust Calendar of Events May–August 2014

May

24 **Guided Canoe Trip** 11:00 a.m. – 2:00 p.m.) (*Sunday Rain Date*)

June

7 **Guided Canoe Trip** (9:00 a.m. – 12:00 p.m.) (*Sunday Rain Date*)

21 **Guided Canoe Trip** (9:00 a.m. – 12:00 p.m.) (*Sunday Rain Date*)

July

26 **Guided Canoe Trip** (2:00 p.m. – 5:00 p.m.) (*Sunday Rain Date*)

August

9 **Guided Canoe Trip** (1:00 a.m. – 4:00 p.m.) (*Sunday Rain Date*)

16 **Walk Along the Bay Membership Event**

Thank you for your support ...

New Members

ACLT would like to welcome the following new members since the Winter 2014 newsletter:

Mr. Bill Barnes
Mr. & Mrs. Walter Beaudwin
Mr. & Mrs. William Cooper
Mr. Kevin Donahue
Mr. Robert Holden
Mr. & Mrs. Richard Hu
Mr. Thomas Johnson
Ms. Liz Laher
Mr. Daniel Law
Ms. Sally Ludwig
Ms. Brooke Murdock
Mr. Michael Ring
Ms. Denise Weller
Ms. Alison Worth

Sustaining Membership

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

Senator & Mrs. Bernie Fowler
Dr. John Kane

Memorial Contributions

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

In memory of **Dr. Christine Boesz** who was a Charter Member, a longtime supporter and dedicated volunteer:

Mr. & Mrs. Stankley Benning
Mrs. Mary Dwan
Mr. & Mrs. Greg Locraft
Ms. Raemalee Loen
Mr. & Mrs. Gary Loew
Mr. & Mrs. Joseph Mihalcik
Mr. Donald Post
Sondra Nelson Pace Foundation
Mr. & Mrs. Joseph Steller
Dr. & Mrs. Peter Vogt

In memory of **Mr. Paul Berry**, who was a Sustaining Member and dedicated volunteer, and served many years on the ACLT Board as Treasurer and on numerous committees:

Mr. & Mrs. Stanley Benning

In memory of **Dr. Andrea Clarke** who served on the ACLT Board of Directors and was a longtime supporter and dedicated volunteer:

Ms. Karen Randall
Dr. & Mrs. Peter Vogt

In memory of **Mrs. Molly Ellsworth**, sister of Ralph Dwan, who was a Charter Member and dedicated supporter:
Ms. Shehla Tauscher

In memory of **Mr. Philip Turner** who was a Sustaining Member and dedicated supporter:
Mr. & Mrs. Richard Kay
Ms. Marcy Troy

Gift Memberships

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

Dr. & Mrs. Glenn Edgecombe
Mr. Donald Post
Col. Caroline VanMason, USA (Ret.)

General Contributions and Designated Gifts

Thank you to the following for your generous gifts and support:

Anonymous
Ms. Marsha Berry
Mr. & Mrs. Paul Blayney
Mr. & Mrs. Thomas Brown
Ms. Paula Johnson and
Mr. Carl Fleischhauer
Mr. & Mrs. Steven Kullen
Capt. & Mrs. Patrick Murphy, USN (Ret.)
Mr. Daniel Sampson

Through the IBM 2013 Employee Charitable Contribution Campaign:

Ms. Margaret Hammerstrom
Ms. Lisa Manning

Through the Maryland Charity Campaign:

Mr. Matthew T. Abbott
Mr. Joseph A. Friend
Ms. Laura Lee Lapham
Mr. Robert H. McGowan
Mr. John H. Sadler
Ms. Elizabeth K. Vanden-Heuvel
Ms. Laurie A. Wagner

Through America's Charities:

Mrs. Dorothy Howe
Mr. Noah Stone
Mr. Jason Vogt
Ms. Allison Welles

Through IBM Work Place Giving:

Anonymous

Land Preservation

Dr. & Mrs. Peter Vogt

Fall Appeal

The Staff and Board of Directors wish to thank the following for their contributions to the 2013 Fall Appeal:

Mr. Vernon Brumbaugh
Mrs. Sally Douglass
Mr. and Mrs. Jonathan Warner

Harrod Property Donations

The Staff and Board of Directors wish to thank the following for their 2014 donation to the Harrod Property acquisition:

Mrs. Doris Berry
Mr. & Mrs. Gary Loew
Dr. and Mrs. Raymon Noble
Mr. and Mrs. Jonathan Warner

Earth Day 5k Trail Run Sponsors

ACLT would like to thank the following organizations for their donations and sponsorship of our inaugural trail run:

Panera Bread of Prince Frederick
Tidewater School
World Gym of Prince Frederick

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

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





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Regular Membership

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| <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.