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The Hemlock

Volume 3, Issue 1 (October 2009)

"Those who dwell, as scientists or laymen, among the beauties and mysteries of the earth are never alone or weary of life." --Rachel Carson



We're Back!

Welcome to the third year of *The Hemlock*, Lock Haven University's online journal devoted to outdoor recreation, environmentalism, and the culture of central Pennsylvania. We had hoped to have a September issue, but the beginning of the semester was a bit more hectic than any of us expected. In any case, we hope you enjoy this issue, which features our normal variety of articles. *The Hemlock* is a publication of the [Environmental Focus Group](#), but it is made possible by the faculty, staff, and students who submit articles. If you'd like to contribute something to *The Hemlock*, please email [Bob Myers](#). If you're new to *The Hemlock*, you might want to check out our [Past Issues](#), or our [Past Hikes of the Month](#).

Why the Leaves Change Color

--Katie Bastian (LHU SecEd Science Major). Photographs by Rose Ann Neff (LHU Recreation Management Professor)



Every year the leaves of deciduous trees transform from the lush green hues of spring and summer to a multitude of vibrant reds, oranges, yellows and browns that typify fall foliage. While viewing the colorful landscapes thus created, you may wonder what makes leaves change color, and what happens to them when they fall from the tree.

The primary function of a leaf is to capture the energy of sunlight and to transform that energy into a form of sugar called glucose; this process is known as photosynthesis. The stored energy in glucose is used to drive plant metabolism, but the glucose molecule also serves as a

building block for plant growth. Much of this sugar is converted into cellulose, a major component of wood and of the leaves themselves.

In one of nature's most remarkable processes, plant leaves are able to harness the sun's energy with a number of light-sensitive pigments; chlorophyll is the most abundant of these photosynthetic pigments. Leaves appear green to our eyes because chlorophyll *absorbs* light in the red and blue regions of the electromagnetic spectrum and *reflects* green. In addition to chlorophyll, a group of compounds known as the carotenoids are also found in leaves. These pigments are not normally visible because chlorophyll masks their yellow, orange, and red colors.

Fall brings shorter days and longer, cooler, nights. As sunlight decreases, chlorophyll production declines and the existing chlorophyll breaks down. This decline in retained chlorophyll reveals the carotenoids which break down at a slower rate. At the same time, other pigments begin to accumulate; for example, vibrant reds and deep purples observed in some maples, dogwoods, and sumacs are caused by a group of pigments known as anthocyanins. Brown shades commonly found in oaks and beech trees derive their color from pigments called tannins.

People travel long distances to see Pennsylvania's fall foliage and to participate in *Foliage Tours*. These activities can contribute substantially to our local economies. For example, in 2003, tourist spending reached \$23.5 billion in the State, making Pennsylvania the fifth leading vacation destination in the country. In an effort to promote *Foliage Tourism* numerous websites have been created. One includes popular destinations, recreational activities, and a place for tourists to share photos (<http://www.fallinpa.com/fallinpa/fallFoliage.jsp>). Local festivals and fairs also help boost Pennsylvania's *Foliage Tourism*. Lock Haven University is fortunate to be located in the heart of Pennsylvania.

Annual foliage celebrations in close proximity to the university include *The Pennsylvania State Flaming Foliage Festival* which is held the second week of October in Renovo, and *The Down Town Lock Haven Fall Festival* which occurs at the end of October in Lock Haven. October is the perfect time for these events because the fall *color* generally peaks in the middle of the month. At the same



time, travelers can enjoy Clinton County's many State Forests and State Parks which are all nestled within a beautifully-wooded landscape.

All good things must come to an end, however, and Pennsylvania's deciduous trees lose their leaves seasonally in response to a variety of environmental influences including declines in both day length and temperature. Under these conditions chlorophyll production stops and trees withdraw the remaining nutrients from their leaves and store them in their branches and in roots. When this process is complete the leaves fall to the ground. Given the fact that a mature Oak can produce in the neighborhood of 700,000 leaves each year, one must ask what happens to these leaves after they fall to the ground? Decomposers, such as bacteria and fungi, are essential components of all ecosystems; in the forests they break down leaves and convert them to inorganic nutrients. These nutrients are held in the soil until they may be absorbed by growing trees again in spring and in summer.

So, come Fall, when you're in your backyard, driving down the road, or on the weekend getaway you arranged with your family, you no longer have to question what is responsible for the remarkable changes you observe as *fall color*. You now know that these changes represent a strategy of energy conservation on the part of the tree. You know that these changes contribute to the overall health of local forest ecosystems through nutrient recycling. And you know that these changes contribute to our own, local economies as well.

The next time you have the opportunity, *Hug A Tree*, as your way of thanking them for all that they do to improve our lives as well as the environment which we all share.

Green Energy Fair

State Representative Mike Hanna and state Senator John Wozniak will be sponsoring the second annual Green Energy Fair on Sunday, October 25th, from noon to 4 p.m., at the Central Mountain Middle School in Mill Hall. Rep. Hanna said that the goal of the Fair "is to help people learn all they can to help them

make choices in their lives that can improve their energy costs, reduce waste, and in general, make their home more environmentally friendly."



Old Farm

--Zach Fishel (LHU English Major)

Once a year my family gathers at the old farm. I count the days down like a child waiting for Santa. The farm has been

everything to me. We were raised up like the corn stalks on the very same soil, most of which is still deep in the fingers of our souls. The dirt road up to the farm from the highway is nothing more than an old forgotten path, but we like it that way. I can smell that last covering of manure on the fields mixing with the dying leaves as I get to where I need to be. I think time stops when I shut off the engine. I look at my memories come to life: the pole I ran into playing tag in the dark, the old porch swing where I kissed my first girlfriend, and the apple trees. I love those trees.

Eventually everyone in my family makes it up the path. Family is a funny thing: no matter how much time passes or where we travel, we always come back to where we left off. My god son is getting big, walking now and we joke about how our kids will grow up together and do the same things we did. I hope that this tradition will continue with my kids.

The apple trees on the farm produce the greatest apple cider that has ever graced the planet. For as long as I can remember, I have been part of cider making. The magic lies beneath my feet though, and I have to pay homage. The soil is black and strong, just like the coffee we all down the morning we begin picking the apples. I love that burnt smell as it percolates on the rusty stove top. Dirt is the most underappreciated thing in the world. It has been crucial in my survival as a child. Poison ivy, bee stings, cuts; all have been cured over with a good coating of mud. I have probably eaten half my body weight in its crunchy grandeur due to backyard superbowl and miles of kicked up four wheeler dust. It has settled into my lungs often enough to keep my nose plugged through baseball games and picnics, but it just makes me stronger. The soil here brings life, and that is why we have been able to keep the farm for so long. We haven't ever had a season that didn't clear us financially for the year. It raises the crops faithfully and we till it and turn it without ceasing. Our bodies work in a similar fashion, constantly moving and producing results. All of this just to survive.

I can't help but wonder why I feel so connected when I come back to this place. I know it lies deeper than family and memories. Something in the spirit of this old farm pulls me in, and I can't escape it. I know that when I am called home I want to be brought back and put in this soil. The daisies will look pretty blooming by my stone, a reminder that life will continue long after I'm gone. This assurance is what brings me to the farm. I guess God knew what he was doing when he made us from the dust and clay.

My Trip to Vesuvius

--Nathan Fought (LHU Art Major)

This summer, I took an art class abroad with Professor Jason Bronner. In addition to seeing Rome, Naples, Venice, Florence, and Sperlonga, we had the

chance to visit the Roman city of Pompeii. While there I saw Mount Vesuvius, an active volcano that is awaiting another explosion like the one that occurred in 79 AD, which left Pompeii covered in ash. Mount Vesuvius is the only volcano in Europe to have erupted in the past 100 years.



As we hiked up the steep path to get to the top of the volcano, we were up so high that we can see the clouds below us. Once we got to the top, we walked around the edges of the volcano's crater, and saw steam escaping through some of the cracks of the crater.

After the hike, we got to go see the ruins of Pompeii. Pompeii wasn't actually hit with lava from the eruption of 79AD, but instead the people's lungs were filled with ash and debris, and they were suffocated as they were trying to escape. The few human remains that have been excavated were found near the walls of the city.

Seeing Vesuvius and Pompeii was a once in a lifetime experience, and I encourage you to take this classes. If you're interested, contact [Professor Bronner](#).

Say "No" to Closing State Parks

--Danielle Tolton (LHU
Biology Major)

This past May the Pennsylvania Senate proposed to close 35 to 50 of Pennsylvania's State Parks. Some of the parks on the list included Linn Run, Greene County; Poe Valley and Poe Paddy in Centre County; and Ole Bull in Potter County. Although the legislation was



not passed, parks like these are still threatened with closure in the future due to budget cuts.

State and local parks provide many useful resources to the community and citizens. It is a place where you can view native species, plants and animals alike. This is extremely important as scientists and biologists begin to discover medicinal properties of various plant and animal species. It is very important to keep natural ecosystems functioning to minimize the possibility of species extinction.

In addition, parks provide an invaluable tourist and economic resource. Why go to Wyoming and not see Yellowstone? PA state parks provide a glimpse into the beautiful surroundings and landscape of the Keystone State. Furthermore, and most relevant to a student, is the recreational uses of parks. From water sports, to camping, hiking, and fishing, parks provide a cheap or even free opportunity to get outdoors, get some fresh air, and have some fun. I doubt anyone wants to lose those opportunities on a state-wide level.

Since this past summer, it is important to realize the fragile hold we have on one of our state's more valuable resources, state parks. It is unknown if the existence of these parks will be threatened in the near future. But hopefully, with a flood of letters to state representatives and the states voices heard, we can all take part in stopping parks closing in the future.

The Durrwachter Alumni Conference Center is "Green"

--Paula Kistler (Director of Business Services, LHU Foundation)



Lock Haven University's Durrwachter Conference Alumni Center (DACC) is the first building in the Pennsylvania State System of Higher Education to achieve official certification as a "green" building.

The university received notification in June that DACC achieved its certification for Leadership in Energy and Environmental Design (LEED) from the U.S. Green Building Council.

According to the U.S. Green Building Council website, "The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. LEED certification provides independent, third-party verification that a building project is environmentally responsible, profitable and a healthy place to live and work."

One of the high points was that more than 98% of DACC construction waste was diverted from the landfill. Wayne Township Landfill and Recycling Center was an integral partner in this achievement. More than 32% of the construction materials were harvested and manufactured locally, also earning the facility a high rating.

While there is a designated parking spot at the facility for fuel efficient vehicles, DACC also hosts a bike rack and shower/changing room, encouraging staff and students to bike to work.

The Lock Haven University Alumni Association is one year into a "Going Green" initiative. This achievement is one more way for Lock Haven University to declare its respect of the environment and the need to operate efficiently.

LHU's Environmental Interest Club

A group of students is in the process of applying for club status from the SCC for an Environmental Club. Potential activities include hikes and field trips, clean-ups, and discussions of environmental issues. If you are interested in being part of this group, contact [Danielle Tolton](#).

Marcellus Shale Update

--Bob Myers (LHU English Professor)

You might recall that we devoted the [March 2009 issue](#) of *The Hemlock* to the issue of natural gas drilling in the Marcellus Shale. That has proved to be our most popular issue (over 2700 hits) and has been widely circulated. The Environmental Focus Group feels that this issue remains one of the most important environmental issues facing Pennsylvanians, so we would like to continue to provide information and updates.

Over the summer, the focus became how the potential revenues of the Marcellus Shale can be used to help solve Pennsylvania's budget crisis. Early in the process, Democrats called for a severance tax (Rep. Camille George, "[Severance Tax](#)"), whereas Republicans supported leasing an additional 390,000 acres of the state forest to the gas companies (PA House Republican Caucus "[Energize PA](#)"). The Pennsylvania Department of Conservation and Natural Resources (DCNR) has objected that the Republican plan would destroy the agency's ability "to maintain ecologically sound forest



management, jeopardizing the future health of our forests" (DCNR "[Numbers in House Republican Proposal](#)"). On September 1st, Governor Rendell declared that the severance tax was off the table (WTF, "[Rendell Backs Off](#)"). The September 18th budget deal calls for no severance tax; the leasing of thousands of acres of state forest land; and the elimination of the 1955 Oil and Gas Fund, which legislated that money raised from leasing of state lands would go to DCNR (PA Budget & Policy Center "[Budget Deal](#)"). Accordingly, the deal has been criticized by some legislators, as well as environmental, hunting, and fishing groups (PA Enviro Video "[Levdansky Opposes](#)"; PA Environmental Digest "[Majority Chairs](#)"). As of publication, the deal is still being debated--phone calls or emails to your legislators might help.

Recently, there have been several serious environmental incidents in Pennsylvania associated with hydro-fracturing in the Marcellus Shale. In May, the Pennsylvania DEP ordered Range Resources and Chief Oil & Gas to suspend operations at two sites in Lycoming County for violating PA's Clean Stream Law. The companies were withdrawing water from Hoagland Run and First Fork Larry's Creek without having obtained the required permits (PA DEP "[Partial Shutdown](#)"). In June a leaking waste water pipe from a Range Resources gas well polluted a tributary of Cross Creek Lake in Washington County, PA. The spill killed fish, salamanders, crayfish, and aquatic insects (*Pittsburgh Post Gazette* "[Waste from Marcellus](#)"). In July The Pennsylvania DEP began investigating complaints of water contamination in Roaring Branch, Lycoming County. Four homes were provided with drinking water, 18 were tested, and one home was evacuated after residents complained that two nearby creeks were bubbling with methane gas. Officials suspect a failed well casing on a natural gas well drilled by East Resources (*Wayne Independent*, "[Methane Contamination](#)"; *ProPublica*, "[More Gas Contamination](#)"). On September 16, 2009 Cabot Oil & Gas spilled up to 8,400 gallons of fracking lubricant into Stevens Creek and a nearby wetland near Dimock, PA. Cabot representatives were unable to identify the chemical composition of the liquid. This is Cabot's third chemical spill in the Dimock area since the spring of 2008 (DEP, "[Violation](#)"); on September 25th, the PA DEP ordered Cabot to cease their hydro-fracturing operations in northeastern PA until the company completes a series of engineering and safety tasks (*Evening Sun*, "[PA Halts](#)").

Locally, Anadarko Petroleum is in the process of drilling two wells in Clinton County (*LH Express*, "[Drilling Company](#)"). In June, Rex Energy announced that it would be locating a drilling wastewater treatment plant at facilities owned by the Wayne Township Landfill in McElhattan; this plant has been opposed by a local citizens' group, Wayne Township Residents Against Pollution (*LH Express*, "[Drilling Wastewater](#)"). In September, Lock Haven University was the site of a presentation by the [Marcellus Committee](#), a part of the natural gas industry's public relations effort (*LH Express*, "[Gas Exploration](#)").

For more information on hydro-fracturing, see my website "[Environmental Dangers](#)."

Climate Change and the Political Climate of our World

--Md. Khalequzzman (LHU Geology Professor)

Recently, I went to NY to attend a rally to protest against the impacts that climate change is having and will have on Bangladesh--my native country ([Rally](#)). This rally was organized by Bangladesh Environment Network (of which I am an active member for over 10 years). In addition to the rally, a group of BEN members (about 10 of us) went to the UN office to handover a memorandum to the UN Secretary General ([Memorandum](#)). On behalf of BEN, I made a brief presentation to Mr. Tareq Banuri, Director of Sustainable Development Division of the UN and his aides. He promised to deliver the memorandum to the Secretary General ([Bangladesh Environmental Network](#)).



I am sharing this with you hoping that you will see an example of a classical story that is happening around the world, i.e. the representatives of developing countries are pressing the UN and governments of developed countries to do something about the climate change. As a developed nation, we in the US are not doing our part (especially the government) and the other countries are not liking it. I hope that our government takes this issue of climate change seriously before it is too late to stop destabilization of the climate and the political climate of the world.

Hike of the Month: Get to Know Your State Forest

--Bob Myers

Since the state forest system is at the center of the budget debate, I thought it might be a good idea to focus on it for this month's drive/hike, which will take you on a drive through some of Pennsylvania's most beautiful fall foliage to a hike in the state forest. The total trip will take from 3-4 hours. You should probably wear hiking shoes, and make sure you have a full tank of gas before you leave.

Beginning at campus, go north on Route 120. After about 7 miles you will enter the [Bucktail Natural Area](#), a 75-mile scenic drive that closely follows the West Branch of the Susquehanna River through [Sprout State Forest](#). At mile 16 you'll enter the Pennsylvania Elk Range, where it's possible to see the [elk herd](#). At

mile 20, you'll pass Hyner Run Road, which leads to [Hyner Run](#) and [Hyner View](#) State Parks (a 13 mile side trip, but well worth it if you have the time). At mile 23 you'll pass the [Red Hill Fossil Site](#), a nationally-known site. Continue for 1/3 mile and take the next right onto the Jack Paulhamus Parkway, towards Gleasonston. Follow the Parkway to the second stop sign, and then turn right onto Young Woman's Creek Road. Stay on the road for 7 miles until you see two monuments by a cabin on the left and a parking area to the right (a bridge over Young Woman's Creek is just ahead). Park your car and get out to look at the monuments.

The closest monument commemorates the first purchase of state forest land in 1898. By that time, almost all of the old-growth forest that had covered Pennsylvania had been clear-cut by the logging industry. As a result, the mountains were eroding, and wildfires from the leftover slash swept through what remained of the forests. Joseph T. Rothrock, Pennsylvania's first State Forest Commissioner, described the area as "the Pennsylvania desert." Under Rothrock's leadership, however, that began to change as the state bought land that had been abandoned by the timber companies. From the beginning, the goals of the state forest were to protect the watersheds, to provide a continuous supply of timber, and to furnish opportunities for healthful outdoor recreation. Today, the state forest comprises 2.1 million acres, or 12% of the forested land in Pennsylvania. It is administered by the Pennsylvania [Department of Conservation and Natural Resources](#), but it belongs to you. Article 1, section 27 of the Pennsylvania constitution reads, "Pennsylvania's public natural resources are the common property of all the people, including generations to come."



You're standing on part of the [Donut Hole Trail](#) (orange blazes), which runs about 80 miles from Jericho, PA to near Farrandsville. The second monument is to Robert E. Long, a forest ranger. You might also walk over to the bridge and look at the trout underneath. Return to your car, cross the bridge, and turn right onto the gravel 7

Mile Road. Follow the road for 3 miles to the intersection with Dry Run

Road. Turn left and go 3.5 miles to a trail marker on the right for the Rock Run Trail, which is blazed yellow. Park along the road and follow the yellow blazes as the trail wanders south across the plateau through a forest of mountain laurel (PA's state flower). At about 2 miles, you will reach Cougar Run Hollow--descend via the switchbacks to the run. Note the old stone bridge that crosses the stream, and then take the trail to the right (northwest) and climb out of the hollow. After a gradual climb of about a mile, you will reach Dry Run Road--turn right and follow it back to your car. Total hike: 5 miles (about 1.5 hours).

Once you reach your car, continue northeast on Dry Run Road until it joins Benson Road, and then Route 44 (1.5 miles from the trailhead). Turn right on Rt. 44 and follow it back to Lock Haven, enjoying the fall foliage.

This trip has been almost entirely in the state forest. All of this forest sits on top of the Marcellus Shale, and thus, it's likely to be leased to the natural gas companies. Thanks to John Reid for the pictures and for his help scouting this trail.

Environmental Focus Group

Bob Myers (chair), Md. Khalequzzaman, Lenny Long, Jeff Walsh, Danielle Tolton, John Crossen, Sandra Barney, David White, Tom Ormond, Ralph Harnishfeger, and Barrie Overton. The committee is charged with promoting and supporting activities, experiences, and structures that encourage students, faculty, and staff to develop a stronger sense of place for Lock Haven University and central Pennsylvania. Such a sense of place involves a stewardship of natural resources (environmentalism), meaningful outdoor experiences, and appreciation for the heritage of the region.