



Notes from the FOREST

Fall 2015
Newsletter

LACAWAC SANCTUARY AND FIELD STATION

SUMMER INTERNS AT LACAWAC

New Interpretative Trail Project

by Craig Lukatch, President

This summer has been busy and beautiful with wildlife, flora and students! And our college interns have enjoyed enhancing our trails for future visitors, also. Four of our trails are lined with QR code learning points (Maurice Broun, Big Lake, Lake Lacawac and Ledges).

Our QR signage project along the trails hopefully encourages all ages of visitors to learn more about many aspects of environmental science such as the importance of Lake Lacawac, the types of birds and animals in our forest or the importance of the research conducted at the field station. The learning points cover topics such as flora, fauna, history, geology, conservation, science conducted at Lacawac.

What our QR Codes?

QR codes, shorthand for Quick Response codes, are square-shaped matrix barcodes. When scanned with a smartphone or tablet, QR codes link the user to an online source of information. QR codes enable people with mobile devices such as smart phones or tablets to capture the code and thereby be directed to a specific web page which could be text, pictures or even video. Simply download a preferred QR code reader to your

smart phone or tablet, and begin scanning! You'll discover the natural and historical features of Lacawac through text, video and sound clips. Get started at our Welcome Kiosk or Visitor's Center.

Unlike a traditional sign with limited data about one tree or plant species, the new QR codes allow for in-depth and interactive information to be accessed at the push of a button. Also unlike a standard text marker, the information can be saved and shared.

"The internet is an incredible, flexible resource and can be used to teach more than any sign mounted to a post," said Jenna Mauder, Lacawac Educator.

Visit Lacawac today and learn a little more about the flora, fauna, history and science!



A Summer of Learning

The summer of 2015 was host to six interns from various colleges and universities learning firsthand about ecology and the environment. Pictured above are (L-R): Amelia Fleitz (Miami University) and Bryce Williamson (Middlebury College)



(L-R): Kelsey Deneen, (Keystone College), Mike Lopez (Bloomsburg University) and Mikayla Pigeon (Bloomsburg University). Not pictured Evan Wilson (Drexel University).

Autumn Programs

The Young Geezers American Music Concert

Sun. September 27 - 3 - 5 pm

This charming and melodic folk, gospel and bluegrass trio has been filling the house at Lacawac for the past six years. Their programs of American music offer an intriguing mix of great vocal harmonies and fine acoustic instrumentation, plus anecdotes to amuse. They bring something new, something old, and something different each time they visit!

\$15 per person (Members \$10 per person). Registration is appreciated. Register by phone (570) 689-9494 or Email info@lacawac.org



2nd Annual Lake to Lake 8K Trail Run and Woods Walk

Sunday October 18 - 11 am

This outdoor course winds through 550 acres of wooded nature trails and access roads, all on the grounds of Lacawac Sanctuary. Be advised that sections of the course may be technical, rocky and steep. No dogs or strollers on 8K course, both are welcome on Woods Walk.

8K Runners \$25 / Run Group (4) \$75 / Woods Walk \$15.

For more information visit lacawac.org or register online at www.active.com/lake-ariel-pa/running/races/lake-to-lake-8k-trail-run-and-woods-walk-2015 or at <http://bit.ly/1Eo8uhC>

Free Book Swap

Sat. November 21 - 10 am - 2 pm

In its fourth year, this America Recycles Day event has reused about 15,000 books! Local organizations and libraries, schools and families have benefited from this event. This small idea has also made a global imprint with donations to Better World Books, an organization that supports literacy efforts worldwide. Bring your beloved and dusty to the Wayne Conservation District on Park Street in Honesdale to drop and swap for "new" books. There are no limits to how many you bring or take and you don't have to bring a book to take books. Left-over books are distributed to the Wayne County Christmas Bureau, Wayne County Prison and Better World Books. Severely tattered books are recycled at the Wayne County Recycling Center. Questions can be emailed to educator@lacawac.org.

Holiday Tea & Tour at the Historic Lodge

Sat. November 21 or

Sun. November 22 - 1 - 3 pm

Lacawac's historic 1903 Watres Lodge will be dressed in a 1930's era holiday theme. Enjoy a variety of homemade baked goods and finger foods with seasonal teas followed by a guided tour of our historic Watres Lodge. \$15 per person

Registration is appreciated. Register by phone (570) 689-9494 or Email info@lacawac.org



Autumn Wellness in Nature

Autumn will soon arrive, temperatures will begin to cool, and daylight hours will start to decrease as summer slips through our fingers.

Hiking is a fantastic autumn activity. The beauty of the fall brings refreshing, crisp air and stunning colors on trees and leaves. Hiking is a form of physical fitness that has many health benefits.

- The benefits of hiking include improved mood and sleep, weight control, and a lower risk of type 2 diabetes and heart disease.
- Hiking improves bone density and strengthens your core, quadriceps, hamstrings and your hip and lower leg muscles.
- Hiking is also a great opportunity to bond with your partner. A hike on a beautiful autumn day can be incredibly romantic. The fresh air and beautiful surroundings will lift your mood and allow you to clear your mind and re-connect with each other in a serene environment.
- Do you have children? Bring them! A family fall hike will allow your kids to release their energy and stay fit and healthy in the process. Hiking allows children to focus on peaceful surroundings and teaches them to appreciate nature.
- The family hike is a wonderful option for bonding with your children in a relaxed setting, without the many distractions of modern-day life

Global Lake Temperature Project

by Bryce Williamson and Evan Wilson, Summer Interns

Lake ecosystems are very vulnerable to climate change, and as a result scientists have been interested in studying what climate change has done to lakes in recent years. For a quarter of a century, scientists have been collecting water-temperature data in lakes from all over the world. However, these data have been scattered among individual scientists so that no one person has access to all of it. In 2005 though, a multi-national team of researchers called The Global Lake Temperature Collaboration (GLTC) started working to put surface temperature data from 1985 to 2009 into one place. They were then able to look at global trends in lakes to see what factors affect surface temperature.

The GLTC compiled temperature data from satellite data and from research conducted by various scientists on the ground. The huge number of sources made collecting the data difficult, and it was also hard to tell whether the methods for collecting the data were similar enough for all of it to be comparable. To address this issue, the team did some complex statistical analysis to show that the data from different lakes were, in fact, comparable. For a total of 291 lakes, they obtained data on surface temperature and also factors that could influence temperature. These factors included climatic information, such as data on sunlight and air temperature, as well as physical information, such as lake size and depth.

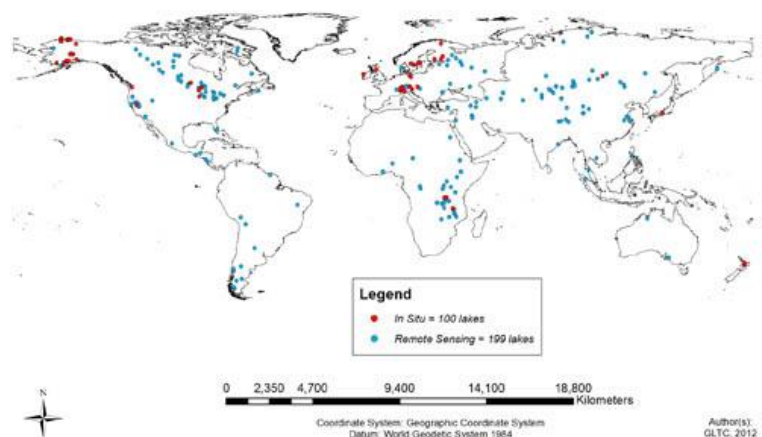
With all of the data in one place, the GLTC could see a number of trends. Most clearly, lake temperatures have increased worldwide and correlate well with air temperatures. However, in some parts of North America and Europe lake temperatures are rising faster than air temperatures. Sunlight was another particularly important factor: surface temperatures were clearly higher for lakes with more sunlight.

Additionally, the researchers could see that the weather around a lake generally influences water temperature more than the physical characteristics of the lake. But although the climatic factors like air temperature and sunlight were more important, it was also clear that on a more local scale physical properties of lakes have a large influence on surface temperature. For example, shallower lakes tend to be warmer than deeper lakes in the same area.

Some trends in the data were less clear, such as the relationship between cloud cover and water temperature. During the day, clouds block sunlight, decreasing the water temperature. At night though, they trap heat close to the Earth, keeping water temperature higher. Two-sided patterns like this require more thought and research to be well understood.

The overall trends of heating observed by the GLTC could have devastating ecological effects for certain species that live in or rely on lakes. Understanding what factors affect lake temperature helps scientists to understand how lakes may change in the future with climate change. This may in turn help them to better conserve lake ecosystems.

Lakes Represented by The Global Lake Temperature Collaboration (GLTC):
In-situ and Remote Sensing-based Measurements



Local Book Swap with Global Impact

Sustaining literature in our communities

by Jenna Mauder, Naturalist

November 15, 2012 was my first America Recycles Day event. A free community book swap was offered and the community responded! More than 400 books were dropped off, swapped, reused or recycled at the PPL Wallenpaupack Environmental Learning Center. Four years, fifteen thousand books, thirty organizations, countless boxes and volunteers later, I'm proud to continue offering this event in my new position at Lacawac Sanctuary.

With a focus on sustainability, this swap was born out of one goal: reuse books. The purpose of the book swap has grown to be multifaceted. Our book swap meets an economic need, and just one month before Christmas. Together we get quality reading material into the hands of children and adults for no cost. Children's books, curriculum materials, adult and young adult novels, cookbooks, bibles, textbooks and magazines are just some of the past topics donated. Donations are dropped off, sorted and browsed by others to take what they can use. The environmental focus of the event is to get books into usable situations, or to recycle tattered and damaged books.

Consider the social impact of this event! By providing people with a place to bring their dusty, beloved books, they restore order in their homes and positively impact the lives of others in their community. We invite anyone, any group, any organization with a need or desire for books to come and take what is dropped off. Enjoy sharing stories and tales with your neighbors. Unwanted books are donated to the Wayne County Christmas Bureau (to support our local neighbor) and

Better World Books (to support global literacy efforts).

The 2015 event is being held at Wayne County's Park Street Complex cafeteria, located at 648 Park Street in Honesdale, PA on Saturday, Nov. 21 from 9 a.m. to 2 p.m. All drop offs need to be counted, as we report our collection totals to America Recycles Day online. Mark each box quantity on the lid. We'll also have volunteers at the door to assist with counting books coming in and going out. Drop offs are preferred on Friday, Nov. 20 and Saturday, Nov. 21. For earlier appointments, to volunteer or ask other questions, please call (570) 689-9494.

There have been many antiqued, cloth-bound or otherwise collector type books dropped off. Teacher resources, self-help and other various topics are often represented. Libraries, non-profits, artists, home school groups, daycare centers and any other group in need or desire of books are encouraged to come and take what they can use. Special thanks to the Wayne County commissioners, Agency on Aging and Conservation District for supporting this event!

New Laboratory Dedicated

The Dr. Susan S. Kilham Environmental Laboratory Named for Lacawac Trustee and Supporter

Opening students' eyes to the natural world, enhancing the opportunity for global scientific cooperation and inspiring the general public to care about ecology are all within the scope of Lacawac Sanctuary. Lacawac's mission has been further enhanced with the launching of a new laboratory, The Dr. Susan S. Kilham Environmental Laboratory, for both research and environmental education, dedicated on June 6.

A \$329,094 grant for the lab was secured from the National Science Foundation and funneled through Miami University of Oxford, Ohio, one of the several universities that partner with Lacawac. The new lab is located in a 20 by 30 foot addition to the Sanctuary's offices and visitor center.

Students from more than 30 institutions of higher learning come to Lacawac to further their environmental studies. With this laboratory, students are given more opportunity to learn techniques to do science and understand the importance of maintaining good water quality and how the balance of nature is threatened on a worldwide scale.

Dr. Craig Williamson of Miami University in Ohio, said that the new state-of-the-art lab is a dream come true. He recalled his introduction to Lacawac in the 1980's when Lacawac's founder Arthur Watres showed him around. Arthur pointed out the old trailer that was serving as their lab, and commented one day they would have a "real lab."

Dr. Susan Kilham came to Drexel University in January 1991.

Dr. Kilham does research and teaching in many areas of ecology and the environment. She has extensive international experience in aquatic ecosystems and is the author of over 75 scientific publications. In the past decade, she has researched areas related to the impacts of climate change on ecosystems, including studies on diatom species in the large lakes of the Greater Yellowstone Ecosystem and the ecosystem consequences of the extinction of frogs in Panama. She has trained 17 PhD students, 14 MS students and has had over 50 undergraduates work in her laboratory. Dr. Kilham currently serves as a trustee of Lacawac and has been bringing her classes to the field station for over 24 years.



Top photo: Dr. Susan Kilham, center with Dr. Lesley Knoll, Dr. Craig Williamson and Craig Lukatch
Bottom photo: Exterior of new lab at Coulter Visitor Center.

Timber Harvest at Lacawac

Lacawac's Forest Management Plan

by Mike Lopez, intern

Lacawac conducted a forest stewardship plan in 2006, and several forest health threats were noted during the forester's fieldwork. These threats need to be addressed by a management plan.

The main forest type on the property is a mixed oak/conifer forest consisting of red oak, chestnut oak, hemlock and pine. These species have been affected by a variety of forest pests and stresses over the years.

There was a regional outbreak of gypsy moths which arrived at the property and caused significant oak defoliation in 2006. Forest tent caterpillars have also been building in this region, and defoliate red oaks. Beech bark disease, the emerald ash borer, and hemlock woolly adelgid have also had some influence on the forest health. The understory is becoming dominated by hayscented fern. Other native plant species that should be present are being outcompeted by the ferns, and have become sparse or missing over large areas.

The upcoming harvest will take place throughout the property, mainly along the Maurice Braun trail, which has been plagued by outbreaks of gypsy moths periodically over the past 30 years. The understory is in desperate need of regeneration. That is why this area is being targeted for an understory recovery effort through an active and ongoing management plan, which also serves as an educational demonstration of key issues in forest management.

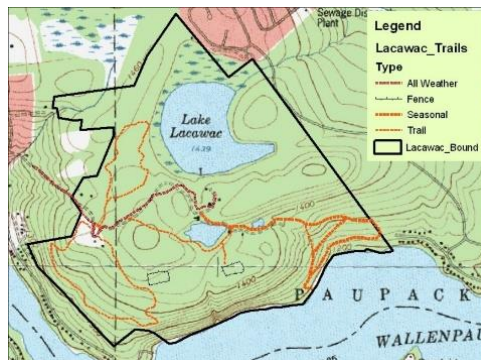
The harvest is essential to the overall health of the ecosystem. The oak trees produce a significant acorn crop which provides seasonal food for a wide range of wildlife species from small rodents to turkeys, grouse, deer and bear. The high canopy and mixed species with scattered conifers provides habitat for songbirds, but the lack of low structure and groundcover limits the habitat for ground nesting birds and small mammals requiring food and cover in this zone.

On the brightside, the upcoming harvest will help sunlight reach the forest floor and begin the next generation of growth.

Visitors hiking the Maurice Braun and part of the Big Lake trails will notice markers on certain trees. The marked trees are the ones

designated for harvest. A dot indicates pulpwood trees, and slashes indicate saw timber trees.

If you have any questions about the harvest at Lacawac Sanctuary, please contact us at (570) 689-9494 or info@lacawac.org.



Severe "browse" line and lack of any groundcover under a hemlock/oak stand

Board of Trustees

Officers

Peter Paul Olszewski, Esq. - *Chair*
Cliff David, *Vice Chair*
Anthony Santiago, *Vice Chair*
William Leishear - *Treasurer/Secretary*
Steve Lawrence - *Past Chair*

Directors

Charlie Anderson * Bryon Clark
Robert Eckstein * Janet Fischer, PhD
George Gephart * Dale Holen, PhD
Bruce Hargreaves, PhD * Jack Spall, Esq.
Susan Kilham, PhD * Chad Reed-Watres
Dan Summa * Mary Beth Wood

President/Executive Director

Craig Lukatch

Director of Research and Education

Lesley Knoll, PhD

Notes from the Forest is published by Lacawac for its members, supporters and collaborating partners. If you would like to receive this publication electronically please contact us at info@lacawac.org.



Talen Energy Donates to Lacawac

For several years, tree mortality at Talen Energy's Shuman Point Natural Area increased due to gypsy moth defoliations, deer browsing and other environmental stresses. Earlier this year, a timber harvest was completed, which resulted in a healthier, more diverse forest. As a result of the harvest, Talen Energy donated the profits totaling \$3,460 to Lacawac Sanctuary to help fund their Watershed Education and Awareness Program.



Rotary Grant Supports Education

A grant of \$2,200 from The Rotary Foundation and the Hawley Rotary was presented to Lacawac Sanctuary at its recent 11th Annual Reserve Raffle. Present for the check presentation is District Grant Chair Mary Ellen Bentler, Hawley Rotary President Jim Pierce, Lacawac naturalist and educator Jenna Mauder, Lacawac bookkeeper Sean Mauder, and District Foundation Chair Paul Muczynski.



Boy Scout Troop 322 Volunteers

Boy Scout Troop 322 completed a conservation project at Lacawac. Over three days, the scouts cleared brush and downed trees from around the Watres Lodge. Storms from previous seasons left a lot of work to be done. The work took about 16 hours. Boy Scout troop 322 is sponsored by the Dickson City Community Ambulance Association.



Lacawac Sanctuay
94 Sanctuary Road
Lake Ariel PA 18436

Address Service Requested

Non-Profit
Org.
US Postage

PAID

Hawley PA
Permit No.30

2015 Annual Fund Drive

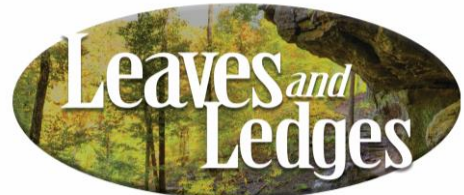
When you support Lacawac, you are contributing to 50 years of research in environmental science. We share our knowledge and our findings with our members, friends and visitors through education outreach programs. We rely on the support of individuals like you to continue our work of exploring our natural world and connecting our community to the most important environmental issues of our time.

**Make a difference today with your gift to
Lacawac's Annual Fund.**

**Support the Annual Fund on line! Visit
www.lacawac.org/annual-fund.html
or make check payable to:
Lacawac Sanctuary
94 Sanctuary Road
Lake Ariel, PA 18436**

Lacawac Sanctuary is a nonprofit 501(c)(3) organization. Your contribution is tax deductible to the fullest extent permitted by law. A copy of the official registration and financial information may be obtained from the PA Department of State. Call (800) 732-0999. Registration does not imply endorsement.

Join us for an evening of cocktails and community on the rock ledges at the Paupack High Falls. All proceeds benefit Lacawac Sanctuary and Field Station.



**Thurs. September 24th
6-8 pm
Ledges Hotel, Hawley PA**

\$25 per person

Cash bar and heavy hors devours

Music Provided by The Crackers

For more information contact Lacawac at 570-689-9494
or info@lacawac.org.

Purchase tickets online at: <http://lacawacledges.bpt.me>



RODGERS - OLVER - POLLEY, Inc.
Insurance Agents & Brokers Since 1948