



LACAWAC SANCTUARY AND FIELD STATION



2014-2015 ANNUAL REPORT

Thank you friends!

Lacawac Sanctuary is not the newest, shiniest car on the block. Yet, we are not unproven. Over 49 years, we have proven how one organization can become a hub for ecological research not only in the region, but throughout the state of Pennsylvania and in the nation.

We've proven that we can teach and educate hundreds of thousands of adults and youth. We've proven that an organization can expand its reach and impact by training the next generation of scientists. We've proven how one organization can transform countless lives through time in our natural world.

As we look to 2016, we will mark our 50th anniversary from when our founder L. Arthur Watres preserved our property for RESEARCH, EDUCATION AND PRESERVATION.

This coming year we will celebrate a milestone by remembering our roots, honoring our achievements and setting the stage to accomplish audacious goals in the future.

None of this—our past, our present and certainly our future—would be possible without YOU! In fact, it has not been us who have accomplished this; it has been YOU!

Your generosity, your commitment, and your involvement at Lacawac has transformed lives. You have provided the resources—that first stone cast into the pond—which has provided the ripples which are now making a difference in this world. Thank you.



Lacawac President Craig Lukatch with Mary Ellen Bentler, NBT Bank

We are proud of the results of this past year, and we think you will be too. Thank you for your loyal support and commitment to Lacawac. As we look back on 2014 and 2015 and prepare for the future, I am truly thankful for the outpouring of community support that we received.

Thank you for supporting our vision to inspire care and exploration of the living Earth by connecting people with nature, plants and habitats. Together let us make a difference.

Sincerely,

Craig Lukatch, President



Lacawac Board of Trustees-May 2015

We are grateful for all those who support our work. If we failed to acknowledge your contribution in our fiscal year 2014 please contact us at 570-689-9494 or info@lacawac.org

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as of 12/31/2015

Craig Lukatch, President

Lukatch is a Hazleton native who has extensive experience in nonprofit administration and fundraising most recently working at the Greater Pittston YMCA and Wyoming Valley Children's Association, Forty Fort. He is a graduate of the University of Scranton with a degree in Philosophy. "I have two passions, fundraising and helping others," stated Lukatch. "Finding a position at a place where I can combine my love of the outdoors and conservation with a passion for fundraising is thrilling. I look forward to being a part of the Lacawac team."

Lesley Knoll, PhD, Director of Research and Education

Dr. Knoll graduated from Miami University with a degree in Botany, did her MS at Michigan State University in Fisheries and Wildlife and earned her PhD at Miami University in Ecology, Evolution and Environmental Biology. She has taught at Miami University and received a fellowship from the EPA working on studies of precipitation patterns and carbon/nutrient input into watersheds and reservoirs. In addition she has contributed to work on major scientific papers targeting invasive aquatic species, harmful algal blooms, and on the effects of agriculture on lake water quality.

Jenna Mauder, Educator and Outreach Coordinator

Jenna's love for educating and all things natural started at a very young age along Lake Wallenpaupack's shoreline and neighboring forests. After graduating from East Stroudsburg University, she worked at a daycare, after-school program and substituted in Western Wayne's schools with her bachelor's for elementary education. Desiring more, Jenna started her environmental career at Lackawanna College's Environmental Institute as a summer camp counselor and ecological educator on the Moffat Estate. For the last 3 years, Jenna has been the education and public outreach coordinator at the Wallenpaupack Environmental Learning Center.

Jamie Reeger, Educator and Professional Development Coordinator

Jamie Reeger joins the Lacawac team with more than 20 years of Environmental Education experience. Environmental education has never been a job for Jamie but a true passion in which to share her knowledge and wonder of being part of incredibly perfect planet. She is excited to help build the programs at Lacawac and can see amazing potential with a wonderful team of dedicated professionals. Beyond environmental education Jamie enjoys spending time with her husband Larry, and two children, Leah (5) and Caden (3). Jamie is an avid gardener and tries to grow much of the family's food for the year. Eating local whole foods is another way she believes she can affect positive change for Earth and her family. She also enjoys biking, skiing, camping, canoing and anything outdoors.

Charlene Wildes, Educator and Watershed Education Coordinator

Charlene began her education in the Art field but quickly took to Environmental courses. She began her own art business but would close her studio during the summer and volunteer at the local nature center. After many years it led to a position that made Charlene happy and passionate about what she was doing. She became the Environmental Education Director for Bear Creek Camp and years later the Water Education Specialist with Pennsylvania Resources Council. Charlene found what she enjoy most is providing innovative, interactive, hands on programming to children as well as adults. "It is not just about my love of nature, but also to share that love and knowledge in hopes that others will become curious and passionate also."



Research 2014

- Jennie Brentrup, Miami University (PhD student). ARTHUR: A high-frequency analysis of vertical dynamics in Lake Lacawac.
- Jake Burkhart, Wayne Highlands High School (PJAS competition). Effects of Woolly Aldelgid on hemlock trees.
- Dr. David Byman, Penn State University. The effects of deer exclosures and forest management on cover dependent small mammals.
- Adam Darwiche, Miami University (undergraduate student). An analysis of terrestrial dissolved organic carbon surrounding Lake Lacawac.
- Sarah DeVaul, Temple University (PhD student). Temperature-driven changes in the community of bacterivorous protists in a freshwater lake.
- Dr. James Dearworth, Lafayette College. The red-eared slider turtle: a model for neurodegenerative diseases and conservation biology.
- Taylor Leach, Miami University (PhD student). Characterizing zooplankton habitat use in freshwater lakes.
- Elizabeth McHone, Drexel University (graduate student). North American Apocynum populations' distribution and hybridization.
- Dr. Joan Ramage, Lehigh University. A novel approach to snow wetness monitoring: validation of water content reflectometers in a snowpack and determining snowmelt runoff input into Lake Lacawac's water budget.
- Dr. Kristin Strock, Dickinson College. Phytoplankton response to changes in water clarity community.

- Dr. Craig Williamson, Miami University. Long-term sampling of Pocono lakes.
- Katie Winkler, University of Minnesota Duluth (project manager). Project Baseline: a seedbank to study plant evolution (project also includes scientists from Fordham University, University of California Santa Barbara, and University of Minnesota Twin Cities).
- Tabea Zimmerman, Dickinson College (undergraduate student). Reconstructing the effects of multiple stressors on algal communities in lakes with differing concentrations of dissolved organic carbon.

Research 2015

- Jennie Brentrup, Miami University (PhD student). A comparison of the fate of terrestrial dissolved organic matter in temperate vs sub-tropical lakes.
- Dr. David Byman, Penn State University. The effects of deer exclosures and forest management on cover dependent small mammals.
- Tiffany Chin, Dickinson College (undergraduate student). Seasonal changes in the algal community of Lake Lacawac.
- Dr. James Dearworth, Lafayette College. The red-eared slider turtle: a model for neurodegenerative diseases and conservation biology.
- Dr. Christopher Dempsey, Gannon University. The role of photochemical reactions and microbial degradation in the oxidation of dissolved organic carbon in three temperate lakes.
- Dr. Duane Diefenbach, USGS/Pennsylvania Cooperative Fish and Wildlife Research Unit/Penn State University. Quantifying deer browse indicator species by using statewide deer exclosures.

- Amelia Fleitz, Miami University (undergraduate student). Diel vertical migration of zooplankton monitored in cone traps.
- Dr. Dale Holen, Penn State. The impact of mixotrophic grazing at the oxic/anoxic boundary.
- Dr. Richard Horwitz, Drexel University. Fish survey of Lake Lacawac.
- Taylor Leach, Miami University (PhD student)* Living in a multidimensional world: exploring the mechanisms that link vertical and horizontal habitat selection of zooplankton using acoustic techniques.
- Dr. Fred Olday, College of the Atlantic. Preliminary checklist of the Bryophytes of Lacawac Sanctuary.
- Kevin Purce, Drexel University (PhD student). Manipulation of collective host behavior by dulotic social parasites (Formicidae: Myrmicinae)
- Dr. Joan Ramage, Lehigh University. A novel approach to snow wetness monitoring: validation of water content reflectometers in a snowpack and determining snowmelt runoff input into Lake Lacawac's water budget.
- Dr. Robyn Smyth, Bard College*. Understanding changes in lake thermal structure: preliminary physical analysis of Lakes Lacawac and Giles. * Robert Estabrook Moeller Memorial Fund Research Fellow Award recipient
- Dr. Craig Williamson, Miami University. Long-term sampling of Pocono lakes.
- Katie Winkler, University of Minnesota Duluth (project manager). Project Baseline: a seedbank to study plant evolution (project also includes scientists from Fordham University, University of California Santa Barbara, and University of Minnesota Twin Cities).

Higher Education Courses

2014

- Drexel University
- Dickinson College
- Lehigh University (2 courses)
- University of Pennsylvania
- West Chester University

2015

- Drexel University (3 courses, 1 K-12 group)
- Dickinson College (2 courses)
- Franklin and Marshall (1 course, 1 POSSE group)
- University of Pennsylvania
- University of the Sciences in Philadelphia

Workshops/Conferences

Lacawac Ecology Conference (LEC)

The conference is designed to bring together regional scientists. LEC gives scientists at all levels from undergraduate to PhD-level an opportunity to discuss research ideas in an informal setting and to build new collaborations. LEC 2014 – 32 attended from 18 institutions. Keynote speaker was Dr. Shannon LaDeau of Cary Institute of Ecosystem Studies. LEC 2015 – 18 attended from 9 institutions. Keynote speaker was Dr. Olaf Jensen of Rutgers University

Writing Retreat for Faculty (2015): 9 attendees from 6 different institutions

R Workshop: First Steps (2015): R is an open source statistical and graphing program. We held two R workshops which were generously led by Dr. Jeff Stratford of Wilkes University (April) and Rachel Pilla of Miami University (July). Together, we had 43 attend from 27 institutions including many out of state attendees.

Environmental Education

Environmental Programs

These programs create a unique learning experience for diverse groups. This category includes our public science and art education programs, as well as our one-hour program requests from scouts, schools and other users.

Field Trips

Our conservation partners and part time educators were able to successfully deliver field trips to large groups with Lacawac's limited facilities. Our living laboratory was explored by grade pre-K through 10th on field trips. We expect to see 3 times the number of field trips in 2016.

YES Afterschool Program

Youth and Environmental Science is an afterschool program that teaches about the environment and ecology through the change of the seasons. Field trips in 2015 include attendance for four field trips secured through the YES afterschool program.

Watershed Curriculum

The Watershed curriculum aims to prepare students for standardized testing on watershed competency. Students review the water cycle, define that water is a finite resource, identify human impacts on watersheds and explore the importance of wetlands.



Outreach Opportunities

The following organizations have assisted Lacawac by invitations to meet the public or educational groups to inform and educate about Lacawac's mission and opportunities: The Intermediate Unit 19 (invitation), Wayne County Conservation District (program support and cross-promotion), NEPA Audubon Society (program and outreach support), Delaware Highlands Conservancy (program support), Pike/Wayne Conservation Partnership (program support), Wallenpaupack School District (outreach), Wayne Memorial Hospital (outreach), North Branch Land Trust (program support), SEEDS (program, outreach and improvements, Bold Gold Media Group (promotion and advertising) and Tri-State Geocachers (outreach and cross-promotion). Volunteers have been particularly impactful to our operations in improving the aesthetic value of Lacawac's property and facilities.

Year	Program	Number Served
2014	Environmental programs	465 (32 programs)
2015	Environmental programs	901 (38 programs)
2014	Field trips	1 class
2015	Field trips	18 classes
2014	YES Afterschool	1644
2015	YES Afterschool	2618
2014	Watershed curriculum	6 classes (2 programs each and 1 field trip)
2015	Watershed curriculum	44 classes (2 programs each and 5 field trips)
2014	Outreach and support	154 (3 events)
2015	Outreach and support	959 (7 events)

Photos: Top-Dr. Lesley Knoll teaching kids about Lake Ecology at Nature Fest 2015. Bottom Left- Nathaniel Whitmore (The Mushroom Man) giving a guided hike on plants at Lacawac. Bottom Center- 4th grade students from St. Jude's Mountain Top completing the Watershed Curriculum. Bottom Right- Summer Campers from the Wayne County YMCA on a field trip at Lacawac.



Supporter Honor Roll 2014

Adopt-a-Tree

Gloria Cheslock - Jack Ruse - Janet Fischer - Robert Eckstein, Picturedown, Inc (Bob Echstein). - Robert M. Fritz - Thomas C. Finnerty

Friends of Lodge

Chris Wood - Donald Kay - Joan Russo - Dennis Peterson - Priscilla Goldsmith - Craig McKeown - David Jones - Nancy K Giles - Uta Dreher - The Hideout Adult Social - Group - Dave Adler

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\$1000+

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The Wayne County Community Foundation
People's Security Charitable Foundation
Wayne County Tourism

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The M&T Charitable Foundation
Peoples Security Charitable Foundation
Overlook Estate Foundation
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PNC Foundation
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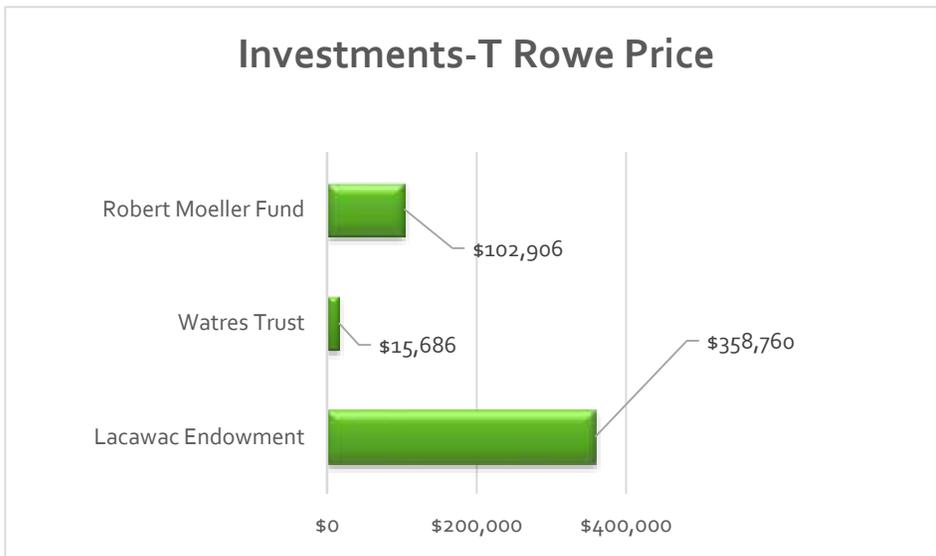
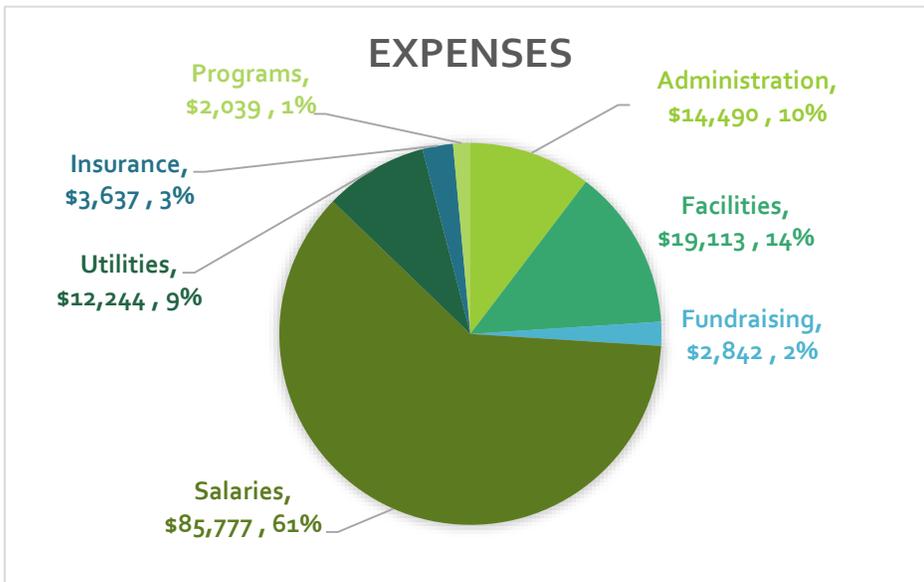
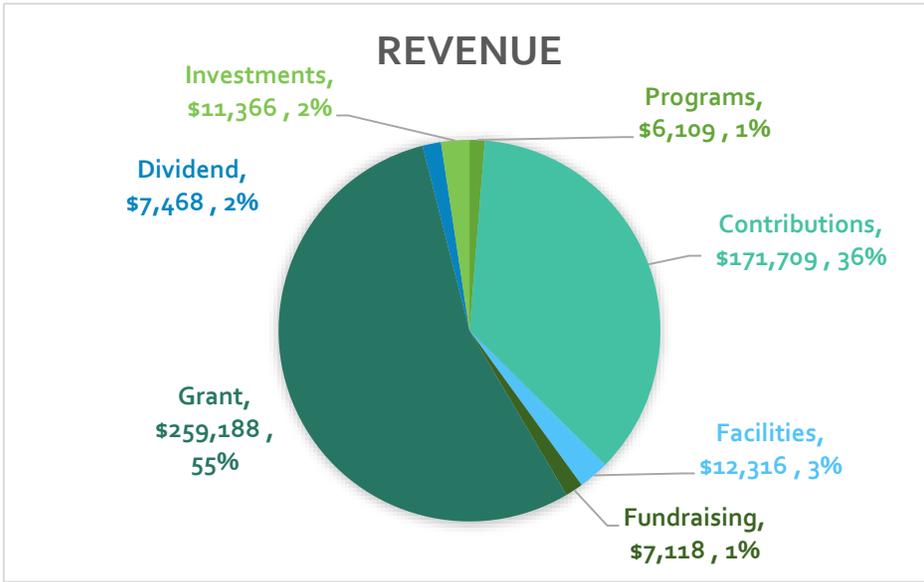
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Fiscal Year 2014 Financials



Lacawac Environmental Research And Education Consortium

Lacawac Sanctuary, Miami University (Oxford Ohio), the Academy of Natural Sciences of Drexel University and Drexel University announced in the Fall 2013 an agreement to form an environmental research and education consortium at Lacawac Sanctuary. The consortium will build on existing partnerships with leading universities and will focus on cutting-edge global climate-change and water-quality research.



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Lacawac Sanctuay

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50th Anniversary Brick Campaign

Pave It Forward and Leave Your Legacy at Lacawac

You're invited to leave your mark at Lacawac Sanctuary and help commemorate its 50th year with an engraved brick that will be placed at the entrance of the Coulter Visitor Center and Dr. Susan S. Kilham Environmental Laboratory. More important, your gift will support K-12 and collegiate students and educational programs in ways that will be even longer lasting.

Commemorative bricks are a wonderful opportunity to celebrate family milestones and honor or memorialize loved ones. They are a great way to recognize a special person in your life, honor a casual effort, or commemorate a special occasion. Buy a brick at Lacawac's Visitor Center and Environmental Laboratory and help support our mission of research, education and preservation.

To participate in the 50th Anniversary Brick Campaign, visit

<http://www.lacawac-outreach.org/brick-campaign.html>

Or contact Lacawac Sanctuary to have a Brick Campaign brochure and reservation form mailed to your home or business at 570-689-9494 or info@lacawac.org.

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.