Streamlines

Spring 2025

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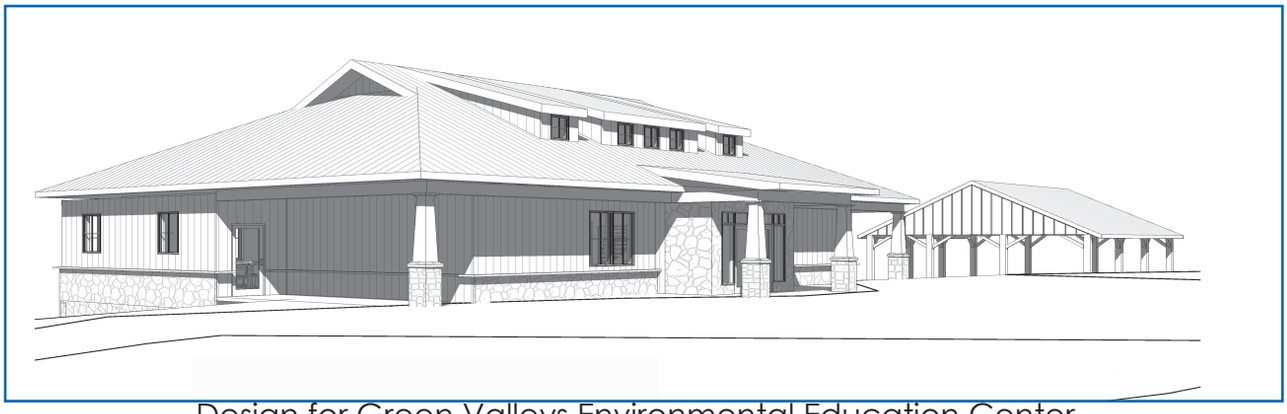
Environmental Education Campus--Gearing Up

As we put everything into place for the 27th year of summer camp, we are also tackling the centerpiece of the Welkinweir Master Plan--our new environmental education facility!



Design for Green Valleys Environmental Education Center

When Green Valleys took ownership of Welkinweir in 1997, we looked forward to fielding a wide variety of programs to make use of the property, with the emphasis on environmental education. In those early years, as we worked to transition Welkinweir from a private residence to a public nature preserve, we realized a master plan was absolutely necessary to ensure the work we did came together as a whole. We sought funding and then hired landscape architect and University of Pennsylvania assistant professor Cora Olgay and got to work, completing the plan in 2000.

Working from the Master Plan, we have replaced the tiny (and eroding) grass parking with porous paving parking, and we replaced a borrowed surplus army tent with the Ralph D Heister Pavilion. We have made countless lesser improvements to steps, railings, and pathways for safety and aesthetic reasons. And now, after many revision cycles and unrelated delays, we have reached an optimum design for the new Environmental Education Center, which replaces the barn space! We are moving ahead now with construction drawings and pricing.

We are working with Alter Eco, based in Paoli, whose focus is to maximize performance, minimize impact, and reduce costs. What this means for us is a watershed-friendly building, made of durable materials, that provides long service with lower operating costs, conserves our funds, and meets our program needs, all while blending into the existing landscape.

The building will be located adjacent to the Ralph Heister pavilion, with a simple and straightforward design: entering from the north side, there is a modest reception area, with bathrooms, locker rooms, and kitchenette to the east, two classrooms to the south with windows overlooking the valley, and a gear room to the west that connects our outdoor classroom pavilion to the new building, providing a place to clean nets, aquariums, boots – all the gear needed for getting in the creeks!

Many many thanks to the cornerstone contributions from Larry & Harriet Stone, Carl & Sylvia Landis, Art & Marge Miller, as well as many other GVWA members. Your support of this and past programs has enabled GVWA to reach students of all ages over the past 27 years, and set the stage for a new era in GVWA's education programs as we reach even more students in the decades ahead.

ECO CAMP 2025

Getting cabin fever? Tired of the ice, cold and snow? In spite of the wintry weather, think about what's ahead in just a few short months: SUMMER ECO CAMP! Join us this summer for all things nature and get your adventure on! You'll get wet and dirty while having a blast catching critters, creating works of art from nature, and exploring the ponds, streams, and woods of our Welkinweir property.

Traditionally we offer themed weeks in the areas of FANTASTIC FLORA & FAUNA, WATER WOW'S, ECO ADVENTURES, and FAR OUT ARTS for our BULLFROG campers (ages 6-7); TURTLE campers (ages 8-9) and HERON campers (ages 10-12).

NEW THIS SUMMER:

ALL CAMP FIELD TRIPS: During WATER WOW's (weeks 2 & 6), join the fun of water-filled activities at Marsh Creek State Park.

WACKY WEEKS (Water, Arts, Creatures, Kooky stuff & You) August 11-15 & 18-22 for those who want to extend the summer fun!

LIT (LEADER-IN-TRAINING) Training, June 16-20 for 13-year-olds. Learn team building and leadership skills in preparation for becoming a CIT.

CIT (COUNSELOR-IN-TRAINING) Training, June 16-20 & June 23-27 for 14 & 15-year-olds. Alongside LIT's, learn team building and leadership skills during week 1 and then focus on more advanced skills needed specifically at camp like orienteering and canoeing during week 2.

Don't miss out. Register early to guarantee a fabulous, fun, and field- and forest- filled summer of adventures! Need assistance - we offer one-week scholarships, made possible by an anonymous donor and camp parents.

PANDORA'S GARDEN

Registration Now Open for Spring

Pandora's Garden is a nature-based play class for toddlers and their parents or carer. Children develop a love and early bond with nature and an appreciation of the natural world. Explore a different nature theme each week with songs, stories, crafts, and sensory activities. Classes begin April 2. Held Wednesday & Friday, 9:30 to 11 a.m. for ten weeks. https://pandorasgardenblog.com/register/

Upcoming Events

ADOPT-A-HIGHWAY Sunday, March 23, 7:30 a.m.

Join the Litter Lifters to cleanup Green Valleys adopt-a-highway section on Rt 100 from Prizer Road to Rt 23. Great for volunteer hours for students. Email litterliftersofwestvincent@gmail.com to register

Early Birding at Welkinweir with Valley Forge Audubon Society, Saturday, March 29 7:30 a.m. While year-round and winter resident birds should be plentiful, we may also find an early migrant such as a tree swallow, or perhaps we'll spot an interesting duck or two. Some birds will already be singing in anticipation of spring, giving us a chance to learn their songs in a quiet setting.

Green Valleys Watershed Association mission is to protect, preserve, and restore the natural waterways of northern Chester County. We inspire, educate, and involve our community to make a difference for this generation and for generations to come.

Our headquarters is located in the French Creek watershed in East Nantmeal Township at Welkinweir, the former home of founding members Everett & Grace Rodebaugh. It is from here that the organization fulfils its purpose of watershed protection, environmental education, and land stewardship.

Open for visiting Monday to Friday 9 a.m. to 4:30 p.m.

1368 Prizer Road
Pottstown, PA 19465
Phone (610) 469-4900
Email gva@greenvalleys.org
Web www.greenvalleys.org

Cover Image:
Merlin at Welkinweir
Rachel Mackay

Exploring Welkinweir ...by Microscope --John Lisowski

We share our natural world with many living organisms that are too small to observe with the naked eye! Yet, despite their microscopic size, these microorganisms play a paramount role in sustaining ecosystems, supporting biodiversity, and enabling fundamental biological processes.

Green Valleys has been awarded two grants for microscopes. The first grant from the Pearl Foundation (received January) funded a digital microscope for viewing microorganisms, macroinvertebrates, insects and plant components--early testing shows great results! The second grant (February) from the American Association of University Women's Hariett Jarosh Environmental Education Fund is being used to purchase a compound microscope and digital microscope.

Family Volvocaceae at Welkinweir

Working with this new equipment, ECO Campers and environmental educational program students will delve into the incredibly active and diverse biology of the microscopic life in Welkinweir's ponds and streams.

Both of these microscopy set-ups have the capability of capturing still photos (photomicrographs) and videos. And, they can easily be connected to a large screen smart TV or to a computer to enable group viewing in live or virtual educational sessions. Many of us can remember the thrill of peering through a microscope at tiny life for the first time--imagine the impact of those same scenes on the big screen in the classroom.

Microorganisms, including bacteria, algae, fungi and protozoa, and somewhat larger organisms like oligochaete worms, nematodes, micro-crustaceans and insect larvae, are the unseen architects of the natural world. Microorganisms ensure the continuous recycling of matter and the stability of ecosystems through countless roles. They may be invisible to us, but they are essential to maintaining life on Earth. Sharing this knowledge and providing students with a window into this fascinating world is truly valuable for them, and a perfect fit for Welkinweir.

One of our goals is to have students capture observations of the microscopic life at Welkinweir and then upload them for our wildlife inventory in iNaturalist. Some microscopic observations have already been made at Welkinweir and added to iNaturalist. You can see them at this link below[1]. Some observations have links to videos in the "Notes" section of the observation!

What is iNaturalist? It's an online platform and mobile app designed for recording, sharing, and identifying biodiversity observations. It is a citizen science project that connects nature enthusiasts, scientists, and conservationists worldwide. Users can upload photos or sounds of organisms they encounter, and the community helps identify them. GVWA has an established iNaturalist project called "Wildlife of Green Valleys Watershed Association"[2].

Microscopy offers a unique glimpse into the lives of our world's smallest inhabitants. Watch for more information throughout the year as we assemble and deploy our new microscopy equipment and begin to use it in our educational programs!

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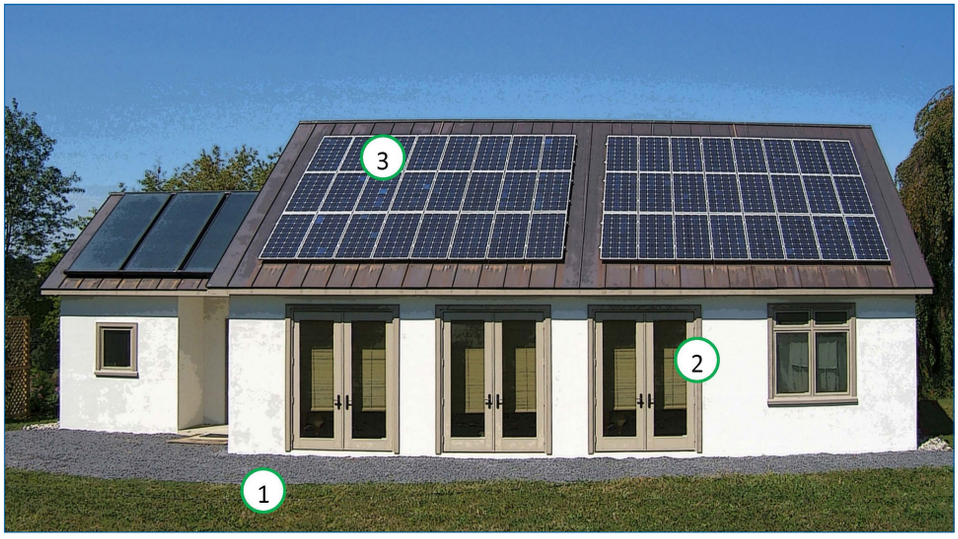
1 https://www.inaturalist.org/observations?project_id=wildlife-of-green-valleys-watershed-association&verifiable=any&field:microscopy%20performed=yes

2 https://www.inaturalist.org/projects/wildlife-of-green-valleys-watershed-association

Building for Healthy Watersheds

In keeping with our focus on healthy watersheds, Green Valleys will be using watershed-friendly strategies in the construction of our new education center at Welkinweir. One strategy is to infiltrate runoff at its source, the other is to replace fossil fuels with energy efficiency and solar energy. Pictured is a local example to illustrate these strategies--it is as easy as 1, 2, 3!

In local watersheds, stormwater is the driver for most of our water quality issues. Therefore, halting stormwater is critical and the best option is direct infiltration of stormwater at its source, with a goal of 100% capture of most storms.



Net-Zero Energy Cottage in Chester Springs

(1) In this example, precipitation running off the impervious roof falls directly into a perimeter drain, and from there flows immediately to a large infiltration trench south of the building. The trench is just under the gravel terrace and is filled with 4" rock having a void space of 40%. Water from the roof enters the trench and immediately begins infiltrating through the sides and bottom of trench. In very heavy rain, the trench also stores water that has not infiltrated. The terrace is not just an outdoor space, it is also a watershed-friendly infiltration system. This is the same design used at the Ralph D Heister Pavilion at Welkinweir--where it has performed well for over 20 years.

Carbon emissions and global warming are major threats to our watersheds going forward, particularly for our cold water habitat trout streams, both through rising water temperatures and worsening stormwater flows. Building are responsible for 40% of carbon emissions globally, and therefore, eliminating building emissions is a watershed protective strategy.

(2) This residence reduces energy use through good insulation, air infiltration control and an energy efficient heat pump. Continuous exterior insulation over masonry walls provides good thermal performance as well as excellent sound proofing. Air infiltration control is essential in well-insulated buildings as it makes up a relatively large source of winter heat loss.

(3) This residence operates as a net-zero energy building over the course of a year and with no net carbon emissions. Three technologies work to harvest solar energy. Photovoltaic panels generate electricity, solar thermal panels make hot water, and a passive solar design provides some heating in winter--plus a welcome dose of sunlight. This residence also participates in net-metering, where excess electricity is sent out onto the public utility electric grid for use nearby, and imported from the grid at other times. This works out well for grid operators in that solar electricity is mostly delivered to the grid when it is most needed. Net-zero energy buildings costs less to operate, and up front costs have dropped dramatically in recent years, making net-zero energy buildings cost competitive in every way. And good for watersheds!

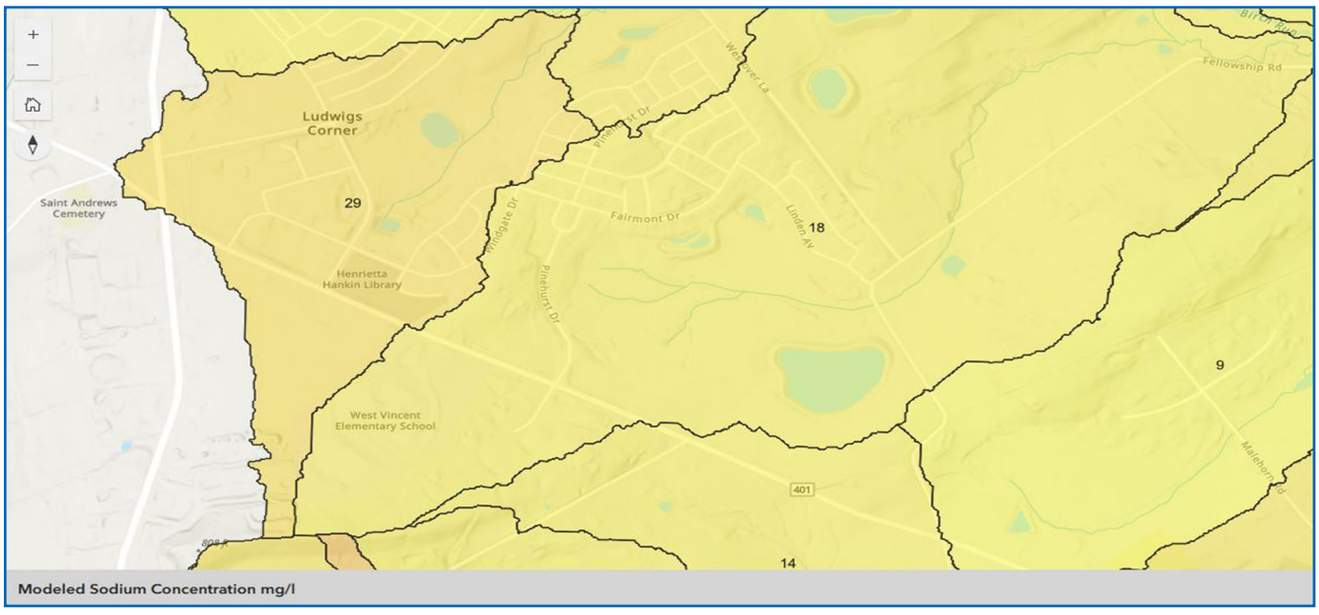
Road Testing GVWA's New Watershed Data Model

The rock salt problem is a perennial topic, but what can we do about it? One option is to map the most impacted streams, and then prioritize the reduction of salt use above and along those streams. While not a permanent solution, this mapping can direct efforts to reduce salt use to the areas that need it most, through maximizing mechanical removal and minimizing chemical application.

Rock Salt Storage and Storm Drain

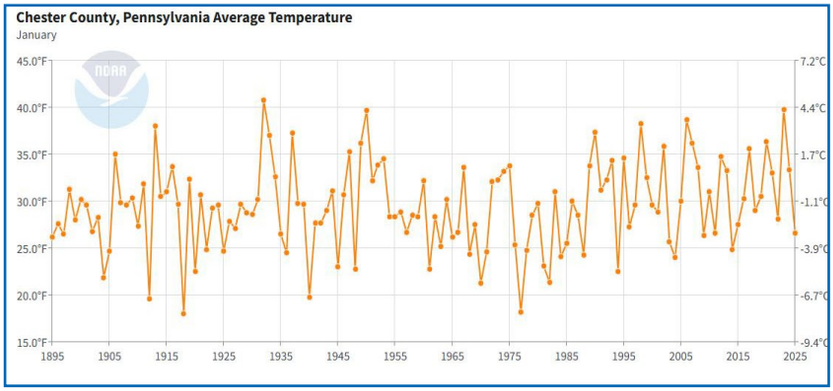
Sorting through all of the stream reaches (there are almost five hundred in French Creek alone) to map the most impacted streams requires a model, because rock salt ion data (sodium or chloride ions) for most of those streams does not exist. Developing the model is a two-step process. First, for streams where there is rock salt ion data, identify the relationship between rock salt concentrations to the paved surfaces above and along those streams. Second, extrapolate this relationship to streams without data. In practice, the streams with data are split into two groups, one of which is used to calibrate the model, and the other is used to validate the model. Further, five classes of paved surfaces were identified and the area of each of those classes mapped for over a thousand stream segments. Volunteers carried out the sampling for much of this data--many thanks to our volunteers! This model is both a map of rock salt impacts, and a guide to the paved surfaces that need better rock salt management.

The rock salt model described above was developed using GVWA's watershed data model which has been in development for over ten years. GVWA developed this data model because it is needed for efficiently analyzing water quality data in context with other types of data. To view this rock salt model model, and learn more about GVWA's new data model, visit it online at https://arcg.is/ofCnzO



Rock Salt Model Detail--Modeled Sodium in Headwaters of Birchrun

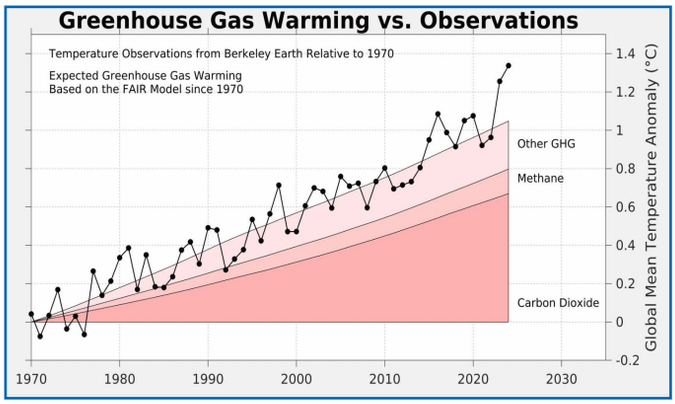
Global Warming Accelerates



Local January Temperature Near Historic Normals

Although it *felt* like January was unusually cold, January 2025 temperatures in our region were actually near historic normals. Not so for the most of the planet.

Despite our local experience, globally January 2025 was the hottest January on record at +1.75 degrees Celsius above preindustrial norms. This record months follows on the year 2024's global record heat, which itself followed on 2023's global record. These records have surprised and alarmed many climate scientists.



2023-2024 Global Temp, Berkeley Earth [3]

What is going on, and have we missed the goal of keeping global warming below 1.5 degrees Celsius?

One explanation, put forward by Dr. James Hansen et al[1] (one of the world's pre-eminent research groups on global warming) is that reduced sulfur emissions have resulted in less cloud cover. Up until recently, sulfur emissions from transoceanic shipping fuels has been driving cloud formation over northern hemisphere oceans. And these clouds were providing a strong cooling effect, but in 2020 new international regulations came into effect, drastically reducing sulfur emissions from shipping, and aerosol clouds as well.

A similar explanation is based on satellite observations of cloud cover. Based on observations over the past two decades, the world's reflective cloud cover has shrunk, allowing more sunlight in and accelerating global warming[2].

With the planet warming faster than predicted, and the 1.5 degree celsius goal very doubtful, there is more urgency than ever to continue the replacement of fossil fuels with clean energy.

Not too long ago, we had the political will to tackle this paramount issue. In 1989, the U.S. Global Change Research Program was established by President Bush and in 1990 Congress established the Global Change Research Act to develop and coordinate "a comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change." In 1992, President Bush and 154 other world leaders signed the United Nations Framework on Climate Change. These actions, and myriad others, enabled strong progress in preserving our planet's climate over the past 30+ years, but to date they have not been strong enough, and the 1.5 degrees Celsius goal is slipping by. Today, we have strong climate assessments, mature greenhouse gas reduction technologies, and global consensus, but we need to finish the work begun over 30 years ago.

1 https://www.tandfonline.com/doi/full/10.1080/00139157.2025.2434494
2 https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1730632
3 https://berkeleyearth.org/global-temperature-report-for-2024/

The health of our watersheds has been our focus for over 50 years.

Green Valleys Watershed Association is located in northern Chester County, Pennsylvania, where our scenic watersheds are comprised primarily of Exceptional Value (EV) and High Quality (HQ) waters. These streams are in the top tier in Pennsylvania. They are a precious resource.

JOIN US!

MEMBERSHIP includes newsletter subscription, notice of special events and programs, and reduced rate to special programs, workshops, and Summer Nature Day Camp.

Membership levels:

- ☐Individual.....$45
- ☐Family.....$60
- ☐Naturalist.....$100
- ☐Environmentalist.....$250
- ☐Protector.....$500
- ☐Preservationist.....$750
- ☐Steward.....$1,000

I am a: ☐ New Member ☐ Renewing Member

☐ I am interested in including GVWA in my legacy planning.

☐ Please notify me of GVWA volunteer opportunities

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Credit Card #_____

Exp___/____CID_____Phone*_____

Email address*_____

*Phone & email needed to process credit card payments. We do not share your information with any other organizations.

Detach this form and mail with payment to:

Green Valleys Watershed Association
1368 Prizer Road, Pottstown, PA 19465

Online membership also available at
www.greenvalleys.org/support

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