



Streamlines

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Summer 2011

from Green Valleys Association at Welkinweir

Stormwater: making the land-water connection

When it rains

Study after study has shown that bacterial pollution in streams increases when it rains. Rain water washes pollutants from the land into the streams, including *Escherichia coli* (E. coli), a type of fecal coliform. These bacteria are not usually harmful, but they are a good indicator of whether other, more difficult to detect pathogens are likely to be present.

Bacteria levels also correlate directly with health risks for swimmers, so limits are placed at 200 coliforms/100 ml water during the summer. Lakes used for swimming are tested regularly; however levels are usually low. This is because these bacteria don't survive very long in the water – on average, less than a week – and water moves slowly through large water bodies, which helps limit any areas of contamination.

Streams are a different situation, regularly receiving new bacteria carried in by stormwater, with some of the bacteria getting caught up in sediments to be released sometime later. This is a long-standing problem, with bacterial testing of streams since the 1970s consistently showing elevated levels of coliforms.

Over the past several years, the Department of Environmental Protection (DEP) has taken steps to assess Pennsylvania's streams for "swimmability," technically known as "attaining recreational use." Out of 86,000 miles of streams and rivers in the state, only 1,397 have been assessed. Of those, just 701 miles are attaining.

Following is a description of how the DEP is proceeding, excerpted from their 2010 *Pennsylvania Integrated Water Quality Monitoring and Assessment Report*:

See "Rains," page 7

Fireflies: nature's nightlights

They magically light up our summer nights in intricate dances of yellow-green glows. Their young even glow while living on the forest floors. Commonly known as fireflies or lightning bugs, these insects are actually beetles. Because of their ability to produce "cold light," fireflies fascinate many people, including scientists who still do not completely understand the complexity of the light production in these creatures.

While there are about 136 species of fireflies in the United States, not all of them light up. If you lived west of Kansas, you would probably not find fireflies that glow. But the greatest diversity of firefly species are actually found in tropical Asia, and Central and South America. Some of these species are fully aquatic and live underwater, while others live strictly on land.



See "Nightlights," page 4



Save These Dates!

Member Picnic & BBQ—Sunday
September 18th and our **Annual
Dinner**—Wednesday October 12th.

Run for Green Valleys

Vounteers and runners needed

On Saturday, September 10, 2011 Green Valleys Association will host the 9th Annual Run for Green Valleys at 9:00 a.m. The certified 5K (3.1 miles) and 10K (6.2 miles) road courses will begin and end at Welkinweir, nestled in historic East Nantmeal Township.

The scenic route will lead you through the rolling hills of Northern Chester County where picturesque farmland abounds. View for yourself the unspoiled green valleys we strive to preserve. Registration is currently being taken by contacting Chris Wittlinger at 610-469-4900, via email to

christine@greenvalleys.org or online at <http://www.runreg.com/events/register.asp?EventID=2352>.

Pre-registration is recommended and will include a t-shirt, virtual souvenir bag, refreshments, and prizes for top finishers. Entries post-marked by Friday, September 2 will benefit from the \$20 (5K)/\$25 (10K) pre-registration rates. Race day registration, \$25 (5K)/ \$30 (10K), will begin at 8:00 a.m. and will include virtual souvenir bag and t-shirts while supplies last.

GREEN VALLEYS ASSOCIATION at WELKINWEIR

Green Valleys Association's mission is to protect and preserve the quality and quantity of water resources in northern Chester County through advocacy and education.

Welkinweir

Our Welkinweir headquarters in East Nantmeal Township, Chester County, is a spectacular property which showcases GVA's Mission. Originally home of GVA founding members Everett and Grace Rodebaugh, the 197-acre of permanently preserved land features a 55-acre arboretum, ecologically diverse wetlands, forested riparian buffers, meadows, and forest habitats. The property hosts our many environmental education programs and features an ever-growing collection of projects that demonstrate sustainable practices. See hours p. 7.

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Streamlines, our quarterly newsletter, highlights local and regional activities focusing on water resource conservation and preservation. Available through membership or online at our website.

Emerald Ash Borer

You may have noticed purple triangular boxes hanging in trees along local roads. These **purple panel prism traps** have been deployed across Pennsylvania to monitor the spread of Emerald Ash Borer (EAB), *Agrilus planipennis* Fairmaire, the most important pest of ash trees (*Fraxinus* spp.) in North America. EAB does not affect Mountain Ash (*Sorbus* spp.) or other tree species. A native of Asia, EAB was discovered in Southeastern Michigan and Windsor, Ontario, Canada in June 2002, introduced through wood crating, pallets or similar packing material shipped into Michigan from Asia as much as 10 years prior to the discovery of the insect. It was found in Pennsylvania in 2007.



Ash makes up 3.6% of the forests in Pennsylvania, with more than 300 million trees throughout the state. The ash component in urban areas could be significantly higher as it is one of the most favorite landscaping tree species in the state. The potential impact of emerald ash borer on forest biodiversity, wildlife habitats, quality of riparian areas, ash resources, and urban living will be profound if/when this pest becomes widely established.

A multi-agency task force, including USDA/APHIS, USDA Forest Service, the Pennsylvania Department of Agriculture (PDA), Pennsylvania State University Cooperative Extension, and the DCNR Bureau of Forestry, has been assembled to detect and manage this invasive threat to Pennsylvania ash trees.

Insect traps are the most efficient way to effectively monitor a large area. Purple panel prism traps are three-sided, three-foot high panel traps covered in sticky glue that captures and holds the target insects. The traps are equipped with a lure made of oils

See "Borer," page 3



Once again, volunteers from XL Specialty Insurance Company, in Exton, turned out to help our local watersheds. This spring, the volunteers divided their time between 24 different projects, including stream cleanup along a five-mile stretch of the Pickering Creek. The XL "Green Team" has helped maintain this section of the creek for the Green Valleys Association for about 8 years. Many thanks for their continuing and important efforts.



GVA office grows greener, explores Cloud

The typical office has many pieces of equipment plugged in, much of it older and energy wasting, and further obsolete equipment accumulating in storage. GVA's office was no exception and over the past 18 months we have overhauled our office systems and sent incandescent lighting, old network devices, CRT monitors, obsolete desktops, old phones, UPSs, printers, scanners, a huge copier, and boxes of miscellaneous computer accessories to recycling.

At the same time, we have been modernizing every aspect of office technology. All but one of GVA's ten computers are now very energy efficient, our new, faster network uses little power while providing better security, and we have dramatically reduced our printing and copying costs. With recent software and services donations from Microsoft, Adobe, Google, Intuit and Symantec, we have standardized all the computers to the latest versions. The new capabilities include better security and "Cloud"-based services. Cloud-based services reduce hardware costs and provide new ways for staff to work collaboratively.

Note: Before recycling a computer, it is best to remove the hard drive to protect private information.

Borer, from page 2

from the Manuka and Phoebe trees, which have been shown—in combination with the purple color of the traps—to be highly attractive to the EAB. These traps were installed in Chester County this year as part of the Emerald Ash Borer National Survey. Chester County is part of the "50-mile band on the periphery of a generally infested area." We do not yet have EAB, but it was found in Cumberland County, to the west of us, in September 2010.

Learn to recognize the EAB (photo at right), and help prevent its spread by not moving firewood from one area to another.

Information for this article was gathered from a number of excellent online resources, including:

- http://www.dcnr.state.pa.us/forestry/fpm_invasives_EAB.aspx
- <http://bit.ly/kHXr5S> (PA Ag. Dept.)
- <http://ento.psu.edu/extension/trees-shrubs/emerald-ash-borer>
- <http://www.emeraldashborer.info/>

Funding helps programs and the environment

Trees are critically important to our water quality. Tree-cover of 48% and higher is closely correlated with Exceptional Value waters, which is why restoring forests along our streams is one of our priorities.

With an initial investment on GVA's part, we have received funding for restoring a number of sites in our stewardship area. **Tree Vitalize**, through the Chester County Conservation District, **is providing trees and tree protection; The Pauline Morton Foundation**, one of the funds managed by the Delaware Community Foundation, **is providing \$5,000 for salaries for the Watershed Restoration Program; and an anonymous donor contributed \$13,398 for trees, tree protection and salaries; \$3,000 has been donated by GVA members.** We have also received **\$9,200** in funding from the **Schuylkill Highlands** for trail improvements at Welkinweir.



Beth Moosman, Horticultural Fellow, and Kelsey Stanton, natural lands intern, lead the Plantman's Private Country Gardens tour for the American Public Garden Association's 2011 Conference, which featured Welkinweir as one of the tour stops.

Our Master Plan as well as regional plans encourage people to connect with nature through hiking and other outdoor activities. We are looking forward to making improvements that will make the visitor experience more enjoyable and educational.

Many thanks to an **anonymous donor** from Chester Springs for a **\$5,000 gift** that will support intern programs at Welkinweir. These educational programs give job and resume-building experience to college students, bring fresh perspectives to our organization, and help create future environmental stewards and advocates.

Our thanks to **ESRI** for the **donation of ARC GIS Editor** that will enable mapping of stream areas where buffers are lacking, plant collections at Welkinweir, and many other GVA programs.

How Emerald Ash Borers kill trees



The Emerald Ash Borer may be tiny, but it is lethal to ash trees. Adult beetles feeding on the foliage cause little damage. It is the larvae that are the big culprits. By feeding on the phloem (the inner bark layer) they disrupt an ash tree's ability to transport water and nutrients. This results in death to healthy trees just a few years after being infested.

education

Get Ready for Summer Camp!

Spaces are still available in all 9 weeks of Nature Day Camp.

GVA's camps are designed to engage children in fun and educational outdoor activities in order to foster a better appreciation for the natural world. Weekly camp activities include nature walks, guest presentations, educational games, craft projects, and self-discovery through nature play and exploration of the 197 acres of forest, meadows, and waterways of Welkinweir. To receive a brochure, please visit our website, or contact Dawn via phone or email.



Our 2011 Camp staff.

Children in need can benefit from a week outdoors

Please Donate to the Summer Camp Scholarship Fund

We've almost reached our goal to provide at least 5 underprivileged children a week of GVA summer camp. You can help a less fortunate child in our community by contributing to GVA's **Summer Camp Scholarship Fund**. A donation of \$200 is needed to send one child to one week of camp, but any amount is appreciated and can be combined with other donations to provide a full scholarship.



Campers show off their artistic ability.

All donations are tax-deductible. Contributions can be mailed to: GVA's Summer Camp Scholarship Fund, 1368 Prizer Road, Pottstown, PA 19465. Every child deserves to experience nature in a fun, hands-on way. Please help.

Donations sought for Summer Camp Programming—New or gently used:

- 2 camping tents (1-2 person)
- 2 canopies (10'x10')
- Painting smocks (child or adult sizes)
- Crayons and washable markers
- Medium to large area rug for education building

"Nightlights," from p. 1

In PA, we find the *Photinus pyralis*, our state insect, in meadows and open woods in early to mid-summer. This firefly is 0.75 inches long and mostly black, with two red spots on the head. The wing covers and head are lined in yellow. The egg, larva and adults all produce the bioluminescence that gives them their name.

While there are concerns in various parts of the eastern U.S. of firefly populations decreasing, Pennsylvania's numbers vary from numerous and higher than normal in some areas, to a decrease of their presence in others. The wet spring may certainly have had a negative impact on their numbers, as the larvae live in the soil.

Pennsylvania's fireflies are not pests, and do not eat our garden plants or flowers. If you don't have as many fireflies in your yard as you'd like, you can help attract them to your property by reducing or eliminating chemicals from your lawn. You can reduce extra lighting on your property, as light interferes with the animal's light signals. Additionally, having low, overhanging trees and providing some tall grass will give adult fireflies shelter and cool places to rest.

So why *do* fireflies light up? What do they eat, and what eats them? You can get the answers to these and other questions by attending GVA's annual "**Fireflies!**" program on **July 8th, from 7:30-9:00 p.m.** Adults and children ages 5 and up are invited to attend this popular program highlighting more fascinating information about fireflies. It also includes a children's craft, game, and nature walk to collect and study "lightning bugs."

Fees are \$2 per adult and \$4 per child for GVA members; and for nonmembers, \$3 per adult and \$5 per child. Advance registration is required by Thursday, July 7th at 5:00 p.m. by contacting GVA. Refreshments will be provided and participants should bring jars with holes in the lids for the catch and release of fireflies.

Thank you to our friends at the Chester Springs Branch of **Penn Liberty Bank** who are sponsoring this year's program.

For all program information and registration, please contact Dawn at 610-469-8646, or dwhite@greenvalleys.org.



Last day of Club – a canoe trip down the Schuylkill River and Canal.



Students in West Vincent Elementary's Nature Club search the soil for bugs, slugs and other animals.



Phoenixville Area Middle School student members of GVA's Environmental Awareness Club hike at Valley Forge National Historical Park.



East Vincent Elementary Nature Club members display their certificates of achievement presented by GVA's Dawn White.

Environmental Clubs Inspire Students



Club members give a presentation for Phoenixville Area School District officials and funders of the program. (At right is Asst. Superintendent Dr. Regina Palubinsky).

More summer fun...

Nocturnal Animal Hike and Campfire

Thursday, July 14, 2011, 8:00–9:30 pm

View nature in a new way on a nocturnal hike on the Welkinweir grounds! Enjoy stories and s'mores at the campfire, then search for signs of nighttime animals, play sensory games, and learn more about nature in summertime. The program is appropriate for ages 6 and up, and will run in light rain. Guests should dress for the weather and bring flashlights, bug spray, and bottled water. S'mores and other refreshments will be provided.

Events to watch for

Coming in Fall - Birdwalks, Library Programs, and Family Programs

Owl Prowl - November

Watch our website,
www.greenvalleys.org for dates

Science-based environmental education at Welkinweir

Welkinweir's 197 acres provide an excellent setting to conduct science-based education programs that teach children of all ages about different environmental issues. Several of these programs took place this past spring, with students from Owen J. Roberts and Phoenixville participating. The students ranged from 2nd to 12th grade, and each program was designed to reach specific age-appropriate standards.

The Middle School and High school students participated in two main programs, a "stream study" and a "pond study," designed to expose students to the factors that contribute to the health of our local water resources. Students first collected macro invertebrates (macros) and learned about pollution-sensitive macros that serve as indicators of good stream health. Fortunately, the exceptional value of local streams, such as the stream at Welkinweir, provided an abundance of such organisms. Students also conducted chemical tests on the water: pH, temperature, conductivity, and the amounts of nitrite, phosphate, and chlorine present in the water. The students learned about the different types of pollutants that have an impact on the levels of such parameters, and how each chemical factor can impact a stream's health.

During the pond studies, students conducted similar research to that of the stream studies, but also learned about the different types of organisms that live in ponds as a way to illustrate the concept of biodiversity. Students learned about certain "key-stone" species, such as the beaver, that increase biodiversity. Welkinweir is the proud home to a beaver, whose work can be seen in the gnawed tree stumps along the edge of the ponds. In addition to water quality, pollution types, biodiversity, and keystone species, students were introduced to concepts such as ecological succession, the impact of invasive species, erosion, Best Management Practices (such as the porous paving parking area), and habitat destruction, among other things.

See "Science," p. 7

Fresh perspectives: updates from our interns and fellow

The first month

As I near the end of my fourth week as the Horticultural Fellow at Welkinweir, I have the privilege of working with Kelsey and John, the natural lands interns, and Brenna, our Welkinweir intern. Our first week of work it rained every day, and although I thought I might begin to quack, the rain did not dampen our spirits. Someone would have great difficulty finding a more enjoyable crew to work with. These four weeks seem to have flown by.



My time at Welkinweir is mainly spent in the different garden areas surrounding the estate house. We have been working to improve the collections on Azalea Lane, planting several new native azaleas and rhododendrons in that area, along with the ongoing vine removal and maintenance. I have also helped Kelsey and John with invasive removal in the woods of Welkinweir's natural areas. Autumn olive, bittersweet, honeysuckle, and barberry, beware!

Having recently come from Idaho where it was still below 60 degrees most days and occasionally snowing, I find it refreshing to be in a place so full of life. My position at Welkinweir gives me a front seat for nature's shows. The tree frogs had quite the symphony going during the week of rain. I have seen a snapping turtle, a box turtle, a beaver, and a garter snake swallowing a toad. Brenna and I encountered a brightly colored millipede while weeding one day. We even have a resident groundhog, as well as many very cute chipmunks. All of the interesting animals and the constant birdsong make working outdoors quite pleasant. There is no other way I would rather spend my time, and I am excited for many more weeks of this to come.

Beth Moosman

Summer Intern

Hi, my name is Brenna Sweetman. I'm going to be a junior at the University of Pittsburgh, majoring in Environmental Studies. I had the unique experience of growing up in Jenkins Arboretum in Devon where my dad works as the executive director. It was this incredible experience that instilled in me a tremendous appreciation and understanding for the importance of nature and preservation. But it wasn't until I went off to college and moved to the city of Pittsburgh that I began to truly appreciate the value of trees and wildlife. My passion for the environment, love of being outdoors and interest in gardening led me to Welkinweir, home of Green Valleys Association, whose mission of protecting and preserving natural areas and water resources is what I admire most. Since beginning my internship here in May, I've truly enjoyed the opportunity to work in such a tranquil and majestically beautiful place.



Brenna Sweetman

Back to the beginning

GVA as my career and internship inspiration

It amazes me how experiences early on in life can influence a person. When I first heard about the Green Valleys Association-sponsored Environmental Club as a seventh grader at Phoenixville Area Middle School, I had no idea that it would serve as the gateway to my current career path. I had always been curious about the natural world as a kid, and I wanted to see what this new club would offer. After-school outings such as stream walks and activities that taught me more about plant and animal habitats had me hooked. Soon I learned how fragile these habitats are, and just how often they became degraded through development or pollution. In high school, I decided to do something about it, and joined GVA's roadside cleanups to collect trash along streets in my area. Seeing bags and bags of cigarette butts, beer cans, and fast food wrappers still makes me cringe, but looking back at how much of a difference it made, I realized then that this began my search for an environmentally-focused career. Having an artistic soul, I decided to combine creativity and environmental sensitivity and applied for Temple University's landscape architecture program, which will result in a Bachelor's of Science in Landscape Architecture.

Landscape architecture is defined by the American Society of Landscape Architects as "the profession that encompasses the analysis, planning, design, management and stewardship of the natural and built environment." (www.asla.org/AboutJoin.aspx) Temple's program is very ecologically-minded; with every design project we are encouraged to explore both new and established, sustainable technologies, and many of our classes such as Landscape Restoration, Plant Ecology, and Planting Design educate us on topics such as native plants, plant communities, and restoration techniques for degraded landscapes. My ideal job would combine both creativity and

“Rains,” from p. 1

sustainability. Toward this end, my search for summer internships led to a position as an intern at Welkinweir, with a focus on natural lands management.

I never imagined coming to work at the home of Green Valleys Association, and it feels a bit like turning a full circle. My internship duties allow me to apply principles of land stewardship that Temple’s curriculum introduced me to, such as invasive plant removal in the property’s extensive woodland. I will also work on nearby properties planting trees to re-establish native woodland habitats and to stabilize stream corridors that are important to us on so many levels. I will not see the long-term effects of my work to restore native habitats to their original splendor, but it is nonetheless rewarding and will hopefully benefit future generations of visitors, human or not!

Kelsey Stanton



“Science,” from page 5

Grants funded the purchase of high quality scientific instruments including field spectrophotometers and electrode probes that accurately measure pH, conductivity and other parameters. Working with such sophisticated equipment exposes students to the type of technology currently available in the scientific world. By providing high quality, relevant science-based education programs, our staff hopes to spark student interest in environmental issues and give them the means to face future issues. GVA is pleased to be able to host these excellent programs, and hopes to add more to its repertoire in the near future.

Alex Swavely

“The Citizen Volunteer Monitoring Program and the Division of Water Quality Standards solicited volunteers across the state for bacteria sampling. Volunteers from Senior Environmental Corps (SEC), Watershed Associations, County Conservation Districts and Delaware River Basin Commission (DRBC) staff were trained by DEP in adherence to sampling protocol and quality/assurance plans to ensure data collected would be usable for recreational use assessments. Twenty-seven SECs and Watershed Associations, and six County Conservation Districts participated in the collection of fecal coliform samples at eighty-three sites on forty-nine streams. DRBC sampled an additional twenty sites on eleven streams. Data submitted from the various groups resulted in twenty-three stream attainments and thirty-nine stream impairments for recreation.”

GVA participated in this program in 2009, with volunteer Dane Hoekstra collecting samples from Birch Run, Stony Run, and the South Branch of French Creek over a period of several months. As a result of the 2009 testing, sections of those streams have been designated as non-attaining for recreation uses on the state 303(d) list. Bacterial levels for the streams tested were found **on average** to exceed safe limits for swimming, with the highest levels of bacteria correlating with heavy rainfall. Bacterial levels were lowest after periods of several days with no rain, often below the 200/100 ml limit.

It is important to recognize that across the state the majority of streams tested in 2009 had these same conditions, and also that bacteria testing is not part of the state’s stream designation process for High Quality and Exceptional Value streams. Even streams in pristine wilderness will have some levels of these bacteria from wild animals such as beavers, muskrats, and deer, although local sources of the bacteria are mostly domesticated animals.

The best approach to reducing non-point source pollution is through proven Best Management Practices and educating land owners. GVA is expanding its forested riparian buffer program and is beginning the process of mapping the worst stormwater issues. Bacterial testing capability will be added to our water testing program to better understand the sources, establish baselines, and measure long term reductions.

Lavender study garden installed

Our thanks to the **Philadelphia Unit of the Herb Society of America**, whose **volunteers planted a lavender study garden** this spring. Located east of the Children’s Garden (and our bee hive), the garden will demonstrate the varieties of lavenders as well as evaluate which ones do well in our climate. Lavenders flourish best in dry, well-drained, sandy or gravelly soils in full sun and need little to no fertilizer, making them well suited for a xeric (low water) garden. Our environmental education collections seek to demonstrate plants that perform well in a garden setting with minimal supplemental water.



A bee collects nectar from lavender flowers.

Welkinweir Summer Hours

Welkinweir’s arboretum and surrounding natural lands are open Monday through Friday, 8 a.m. to 5 p.m. and weekends for members only.

www.welkinweir.org

Please join us . . .

Join GVA or Renew Your Membership Today! *ONLINE MEMBERSHIP now available!

Name _____

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I would like to volunteer time to GVA.

Dues and contributions are tax-deductible. Green Valleys Association is a registered charitable organization. A copy of the registration and financial information is available by calling 1-800-732-0999. Registration does not imply endorsement.

Make checks payable to Green Valleys Association and mail with Membership Form to 1368 Prizer Road, Pottstown, PA 19465. Visa/MasterCard accepted—please call office.

BASIC MEMBERSHIPS Check if this is a gift membership

Basic Membership includes quarterly newsletter, notice of events and programs, access to Welkinweir grounds, reduced rate to special programs (including summer environmental camp) and fishing with a GVA permit.

- Supporter \$50.00
- Naturalist \$100.00
- Environmentalist \$250.00
- Protector \$500.00
- Preservationist \$750.00
- Steward \$1,000.00

SUPPORTING CONTRIBUTION

- Friend of Welkinweir \$25.00

FISHING PERMIT —With Supporter Level membership or higher

- Welkinweir Fishing Permit \$5.00

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Summer, 2011

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