

Butler County Stream Team

November News - 2012



Volunteer Stream Monitoring in Southwest Ohio
Next Sampling Day - November 9th - Tomorrow!

Please note: New bottle procedure - We are moving to the use of plastic sleeves for labels, instead of taped bottles with stick-on labels. We're hoping this will be easier and better - no more wet labels, peeling wet labels off the tape, or glue left on the bottles that requires "GooGone" to remove.

Plastic sleeves will be rubberbanded to each bottle. **If you do not have preprinted labels, be sure to grab a bottle with a label in the sleeve.** If you have preprinted labels, you will have to fold or cut those labels to fit the sleeves - sorry, next time we print we will use labels that fit!

Citizen Science: **We're all in this together**

Do you consider yourself a scientist? If not, you should! Tens of thousands of people around the world are joining in the effort to find out about a subject of interest to them by doing things similar to what you do for Stream Team. So kudos to all those folks, **especially you!**

Opportunities for doing citizen science are endless. Here are a few links to subjects I find interesting - just click on the highlighted words to check out these citizen science projects:

- classifying images of [solar storms](#) to help understand and predict their pattern;
- watching your winter bird feeder for [Project Feeder Watch](#), to measure distribution and abundances of feeder species over time;
- listening to killer and pilot [whale songs](#) to help identify particular whales => helping answer lots of interesting questions;
- analyzing photos of [cancer cells](#) to

Volunteer Spotlight **Penny Feltner**

Have you noticed ... we have a new lab manager in-training! If you haven't been to the lab, that may have escaped your notice, so come on up and say hi!

Penny is a native girl, growing up in Cincinnati and earning her Bachelor of Arts degree in Environmental Science at Thomas More College in northern Kentucky. She is currently a graduate student at Miami University seeking a Master's degree in Environmental Science.

As a member of the Thomas More College James Graham Brown Honors Program, Penny was afforded the opportunity to become a Thomas More Fellow for her research on permaculture as an alternative to conventional agriculture. She also has conducted independent research in nature trail development and aquatic systems assessment.

determine which samples need to be further examined;

- studying [ancient lives](#) and writing to find a consensus on interpretation;
- watching a water body over the winter and reporting when it [ices over](#) to help understand our changing climate;
- [Utah Water Watch](#) ... just like Stream Team!

So why are there so many choices? Why can't scientists do their own research?? One answer is that in this age of digital data collection (photos, sound images, etc.), someone can collect **lots** of data in a short amount of time. But finding the time to sift through that data - to determine what is "trash" and what is important or to match the image or recording to known entities, for example - allows further investigation to be done only on the most important pieces of data. That further investigation often is expensive and time-consuming, so getting a head start makes individuals invaluable to these projects.

Another answer is that interested individuals provide lots of extra "hands on the ground". There is so much world out there to be discovered that scientists alone cannot possibly explore it all! Having individuals record, say, if they are beginning to see ruby-throated hummingbirds at their feeders ([Journey North](#)) expands observation power by thousands! And by matching those citizen science efforts with a web site, **everyone**, not just professional scientists, can learn about the migration patterns of hummingbirds.

And that brings me to another really important aspect of citizen science - when people get involved in something, they **connect** with it ... they grow to love it and care about it. For Stream Team, interested in non-point source pollution of streams, it's important to get **everyone** to care. Everyone's individual actions contribute to pollution in run-off to our streams, so everyone needs to be involved in preventing it. And the more people care, along with the more they know, the more likely they are to change behaviors to contribute to pollution.

Within the last few decades, the US EPA decided volunteer monitoring groups could be a big help in

Her experiences tutoring elementary school students as an undergraduate and as an intern at Gorman Heritage Farm, an educational farm in Evendale, Ohio, have inspired Penny to seek a career in environmental education. Her liberal arts background has motivated her to teach others how everything is connected and to empower the public to create positive change.

Glad to have you on board, Penny!

How do aquatic "bugs" survive the winter?

By Amy Cameron

Shifting into fall, with winter right around the corner, the water temperature in streams is quickly dropping. Though this may make for uncomfortable sample collecting conditions, and stream life may slow down, macroinvertebrates can still be found under stones, vegetation and other debris. In fact, the cold winter months are a maturing time for some macros. For those volunteers who are interested in stream life, comparing the types, numbers and sizes of macros you find in each season would be a fun and interesting endeavor.

But how do they survive the frigid water temperatures of winter? Macros are ectotherms, or cold-blooded, meaning their bodies become the temperature of their environment. Therefore, they must either find a habitat that is not quite so cold or survive freezing. Adult insects may migrate – some green darner dragonflies (below, from [ODOW](#)) move



from their northern ranges to southern Florida in September, and we all know about the remarkable migration of monarch butterflies. Immature stages,

gathering data about streams and rivers. State EPAs are charged with monitoring to understand which of their rivers and streams are "impaired" (not living up to their natural possibilities) and must report that data to the US EPA every 2 years. To understand the effort that requires, let's consider Ohio. Ohio has ~85,000 miles of streams and rivers. About 25 years ago, Ohio EPA finalized their sampling protocols and established a goal to monitor every stream system in Ohio every 5 years - about 100 sites in a HUC 11 watershed, using biological, chemical and habitat monitoring methods. But personnel and money issues have forced them to decrease that goal to every 15 years or so. So how much has your stream changed in 15 years? Citizen science can help narrow that time gap.

In 1990, the US EPA had already begun to understand the value of volunteer monitoring. They began developing guidance manuals for citizen groups ([Volunteer Stream Monitoring: A Methods Manual](#)) and for state managers of programs ([Volunteer Water Monitoring: A Guide for State Managers](#)). The Ohio EPA has now established a database to which watershed groups can contribute, including Stream Team (with your contributions). Stream Team has achieved its Level 2 credibility status, meaning our data is fairly reliable so OEPA can trust what we report, and is now beginning to report our 2011 and 2012 data to the OEPA database. It is a fairly involved process, so wish Marion and Penny, our wonderful lab managers, and some folks who have volunteered to enter data, GOOD LUCK!

If you think you might want to get involved with more than just Stream Team, here are a few web sites that each have lots of projects, just to get you started looking!

[Scistarter](#)

[Scientific American Citizen Science](#)

[Citizen Science Alliance](#)

[Journey North](#)

So have fun exploring and remember, every hand helps! It's our world and we're all in it together!

Data Analysis

I'm going to skip a month in our data analysis.

Instead, I wanted to steer you toward an article about a possible revision of phosphorus

though, may be stuck in icy or frozen streams.

Dragonfly, caddisfly, mayfly and stonefly nymphs are stuck in icy streams. As the temperature drops, nymphs may avoid freezing by moving into deeper water or hunkering down under stones or debris to gain some insulation from the surrounding icy waters. These tough critters not only *survive* harsh winter waters, they remain *active* when temperatures drop and use the time to fatten up. Although they are not as active in winter as in warmer water, you can still find them feeding underneath the ice of a stream or pond in the winter. By avoiding freezing temperatures, these nymphs can continue to grow throughout the winter, perhaps to emerge in the spring as adults.

Another option, though, is just to go ahead and freeze, with hopes of revival when it warms up in the spring. Really??!! Yep, this is called *freeze tolerance*. Normally, if a body's cellular or intracellular fluids freeze, sharp edges of crystals usually cause tissue damage and death. Freeze tolerance is a physiological adaptation that allows the insect's body to freeze but minimizes the damage to tissues so the organism can survive once it warms up. Freeze tolerant insects, using a variety of mechanisms, start to freeze at fairly high temperatures and then control when, where and how much freezing occurs. What a fascinating adaptation!

As you feel winter weather quickly approaching on your sample route, remember how tough it would be to be a macroinvertebrate stuck in that stream! Brrr! But also remember - a change in seasons adds variation to any observations you have made. Now is a great time to record those changes in observations, especially if you have been noticing the macros in your sampling stream. Over the next few months, observe the change in stream life while collecting and feel free to compare your records with water quality data on our website!

Mark Your Calendars!

standards for Ohio - woo hoo! As you may have noted, of all the things Stream Team measures, phosphorus values are the ones most above the levels needed to keep our streams and rivers healthy.

An Ohio State University researcher is studying phosphorus run-off from farm field, trying to figure out how to help farmers take part in the reduction of phosphorus in run-off. This research is tied to the Grand Lake St. Mary's algal blooms, which to date have cost about \$60-80 million in tourist dollars to the surrounding communities. So check it out [here](#) and we'll keep you posted - in a few years - on what she finds out!

River Reflections

One of our consistent volunteers, Carol Jones, was able to take pictures of her sites a few months ago, so I thought I'd share a few of them with you. From the looks of these, you might think all her sites are out in the rural parts of the county, but you'd be surprised. Several of these sites are right in Middletown (site locations are above each picture). I guess that's important to me because it shows us how important every stream is; whether it is rural or urban it can offer important habitat, in both the water and the riparian area beside it.

We'd really love to see *your* sites here next time! Thanks for these, Carol!

16002 - Dicks Creek @ Cincinnati-Dayton Rd

Butler Soil and Water Conservation District's Annual Open House

Join the Conservation District to celebrate their 70th year at this year's free Open House. The District will have displays, free well water testing, and a free hog roast for attendees. Butler County residents can also vote in the Supervisors Elections. The open house ends with an awards ceremony at 7 pm where the District celebrates some of the great individuals, families, and organizations that they have the pleasure to work with.

- **Butler Soil and Water**

Conservation District's office at 1802 Princeton Rd, Hamilton

- **Thursday, November 15**

- **Between 3:30 and 7:00 pm**

(awards at 7:00)

Test Your Well Fair - Free for Butler County Residents

Bring a sample of your well water to:

- **Butler Soil and Water**

Conservation District's office at 1802 Princeton Rd, Hamilton

- **Thursday, November 15**

- **Between 3:30 and 6:30 pm**

This event is being held during the District's free Annual Open House, so there will be lots to do while your sample is being tested.

Your sample will be checked for nitrates and arsenic. The first 50 residents will also receive a coupon for free bacteria testing on a later date. The bacteria testing will not be conducted at the event due to the chance of contamination from the sampling container. All results will be confidential.

To collect your sample:

- Remove any screen or filter from your faucet and run the water for five minutes to clear the lines and bring in fresh water.

- Use any clean jar that seals tightly.

- After washing the jar, rinse several times with water to make sure that any soap residue is removed.

- Avoid touching the lip of the jar or the inside of the cap or jar.

- Collect the sample as close to the event time as possible - if more than 1-2



16012 - tributary to Dick's Creek by Briele Blvd @ Oxford St Rd



**16013 - Millers Creek @ Cincinnati-Dayton Rd
my favorite - check out the beaver dam!**

hours before the event, keep it chilled.

During the event students from Miami University's Institute of Environment and Sustainability and FFA students from Edgewood High School will test your samples. This event is made possible due funding from the Miami Conservancy District.

Questions?

- Contact Butler SWCD at 513-887-3720 or visit www.ButlerSWCD.org.

BC Storm Water - Webinar Series

If you are interested in learning more about how storm water affects streams, don't miss the 2012 webcast series produced by the Center for Watershed Protection, hosted by the Butler County Storm Water District. Each webcast will air from 12 - 2 pm at the Engineers Office, 1921 Fairgrove Ave., Hamilton. Cost to you is \$0! That's FREE! For more info on these titles, click [here](#).

Customizing Your Stormwater BMP Design for Specific Pollutants

Wed. Dec. 12th

If you have ideas of things you'd like to see the Stream Team do, please let Donna know

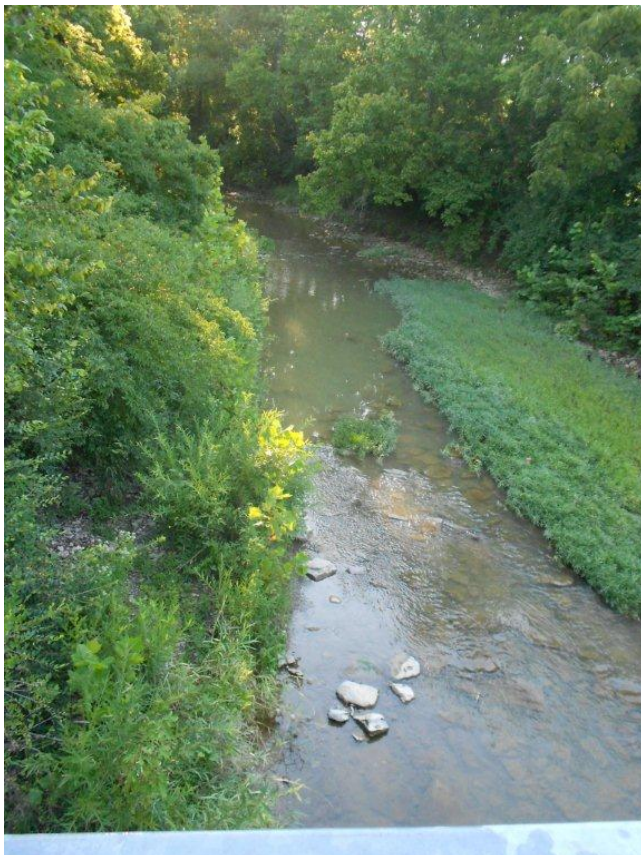
at mccollds@muohio.edu. For instance, if enough people are interested, we can open the lab up for macroinvertebrate identification again, or run another morning session to get people started knowing what bugs are in our streams.

Lending Library Titles

We all have lots of books that we would love to share with someone who has similar interests. So we thought this might be a way to share them with people we know like streams! If you have books, DVDs or other things - especially about water - that you would like to contribute, feel free to bring them along anytime. Or, if there are particular books you would like us to buy, let us know and once a year or so we can add



16004 - Gregory Creek @ Lesordsville-West Chester Rd.



11001- Cotton Run @ Taylor-School Rd.

a few to our collection.

Here's our list to date:

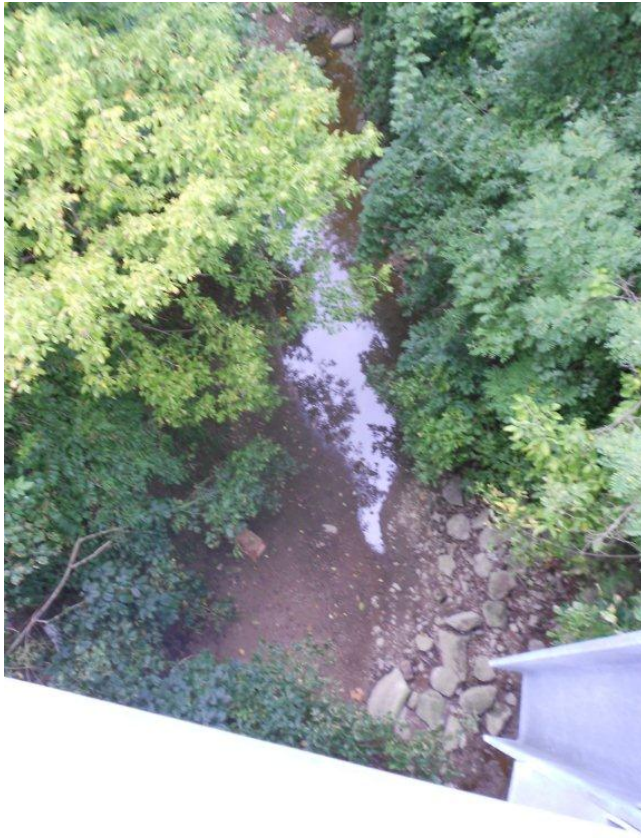
- *[A Guide to Common Freshwater Invertebrates of North America](#)
- *[A Guide to Ohio Streams](#)
- *[After the Storm](#) - DVD
- *[An Introduction to the World's Oceans](#)
- *[Bugs of the Underworld](#): a fly fisher's guide to the natural history of aquatic insects (DVD - available on request)
- *[Exploring the World Ocean](#)
- *[Fostering Sustainable Behavior](#): An introduction to community-based social marketing
- *[Guide to Aquatic Insects & Crustaceans](#)
- *[Gulf Hypoxia: Action plan 2008](#)
- *[Handbook for Developing Watershed Plans](#) to Restore and Protect Our Waters

- *[Introductory Oceanography](#)
- *[Life in the Soil](#): A guide for naturalists and gardeners
- *Marine Ecology
- *[Migratory Shore and Upland Game Bird Management](#) in North America
- *[Monitoring Guidance for Determining the Effectiveness of Nonpoint Source Controls](#)
- *Oceanography
- *[Ohio Vernal Pools: Diamonds in the Rough](#) (DVD - available on request)
- *[Our Waters, Our Health](#)
- *[Pond and Brook: A guide to nature in freshwater environments](#)
- *[River of Words](#)
- *[Stemming the Tide of Coastal Fish Habitat Loss](#)
- *[Swamp and Bog](#): Trees, shrubs, and wildflowers of eastern freshwater wetlands
- *[The Colorado](#): A river at risk
- *[The Evolution of North America](#)
- *The Face of the Deep
- *[The Mill Creek: An Unnatural History of an Urban Stream](#)
- *[Watersheds: A Practical Handbook for Healthy Water](#)

Crisis Spot

Crisis Spot emails can be sent to Donna McCollum at mccollids@muohio.edu.

If you have any comments, concerns, or suggestions, please



contact us at
mccollds@muohio.edu.

Butler County Stream Team Monthly Newsletter
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