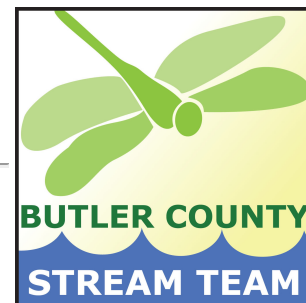


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Butler County Stream Team

September 2014



Volunteer Stream Monitoring in Southwest Ohio
Next Sampling Day - Sept 13

Please RSVP for Upcoming Events

The pontoon ride at Acton Lake and the water treatment plant tours both need registration. They are free, we just need a head count before hand. See column on the right for more details about each.

Butler County Children's Waterfest

**Friday, October 10, at Miami's Hamilton
Campus**

Volunteers and presenters are needed. Just over 1,000 elementary students from around the county attend this fun educational event with their teachers to learn about anything and everything to do with water including safety, conservation, wildlife, pollution, and more. To run the event, we have about 100 volunteers and 40 presenters. If this sounds like something that you would be interested in helping with, then **Email Lynn for more information.** Its a lot of fun, but if you are not convinced, volunteers and presenters receive a t-shirt, lunch, and great donuts :)

It's the Season for River Cleanups

In October (yes, I do realize its only Sept), there are numerous river cleanups held around the region impacting our three main watersheds.

Great Miami River Cleanup

The grand daddy of them all is the Great Miami River Cleanup on October 25 from 9 am - 12 noon. This huge cleanup takes place in multiple locations along the river from Middletown to the Ohio River. The cleanup for the upper stretches was held in July. You can find out more about locations and signup on the

August Activity

Samples Collected: 93 (includes lab duplicates and standards)
Dry sites: 12
Sampling Volunteers: 28
Lab volunteers: 11

Mark Your Calendars!

Sept Sampling Day - Saturday,
Sept 13

**Pontoon Boat on Acton
Lake & Potluck** - Sept 20. Find
out more and sign up at
<http://doodle.com/gpw39h8nhr65dfan>.

Water Treatment Plant

Tours In Fairfield (both drinking and wastewater) Thursday, October 30.
Tour starts at the Drinking Water Plant located on Groh Lane in Fairfield, next to Waterworks Park. The plan is to meet at 12:15 at Waterworks Park.
12:30 -1:30 tour drinking water, then
1:45-2:45 at wastewater which is just a little further along Groh Lane. [Signup online.](#)

Mill Creek Cleanup - Saturday,
October 4th. Contact [Annie Rahall](#) with the Mill Creek Watershed Council for details

Great Miami River Cleanup

- Saturday, October 25th. Visit the web for more details
www.greatmiamirivercleanup.org

Volunteer Spotlight -

[river cleanup website](#). There are t-shirts for volunteers and patches for girl and boy scouts.

Mill Creek Cleanup

The second annual Mill Creek Cleanup will take place on October 4, from 9 am - 1 pm. The event kicks off at Beckett Park and from there volunteers scatter to various locations including Hopewell Elementary, Keehner Park, and Gilmore Ponds. The event wraps up back at Beckett Park with hot dogs and other refreshments. Find out more at <http://millcreekwatershed.org/upper-mill-creek-cleanup/>.

Whitewater Cleanup

The Whitewater Watershed Project has announced their first ever cleanup to be held on October 11 in Brookille Indiana. Contact Heather for details (812) 926-2406 ext 3.

Do You Know What Stream Bank Restoration is?

By Mary Cullum

We all care about our Butler County streams. That's why we volunteer! Lucky for us, most of the county has not experienced the intense historic urbanization as the counties north and south of us have, so most of our streams have fared pretty well. The urbanization in the Dayton and Cincinnati areas of the past centuries have either caused waterway alterations that severely degraded rivers and streams or completely destroyed them and the wildlife they used to support. This turned out to be bad for us humans as well. But urbanization has caught up with Butler County too, thanks to urban sprawl. Fortunately, lucky for us again, State, Federal, and local regulations and the science community have come a long way in developing ways to reduce the impact of stream impairment that development, as well as intense farming, can cause.

As we urbanize, we pave over soil that is nature's sponge, making large impervious surface areas. We cut down the trees along the rivers, streams and creeks, replacing them with grass and other shallow-rooted plants. We introduce fertilizers, pesticides, and industrial chemicals into these waterways. All of

Tera Ratliff

I started my relationship with Miami way back in 2000 when I began my undergraduate career as a geography major. My original intention was to gain skills in geographic analysis, so that I could then attend a graduate school in meteorology. I remember that, even as a small child, I had a huge fascination with thunderstorms. I was raised by a father that thought a severe warning meant go outside and see what is going on, and he passed his love of weather on to me. That is what I remember sparked my interest in nature as a child. The thought that it could be such a powerful, destructive force at one moment and so calm and tranquil the next was a wonder to me, but obviously I am not a meteorologist. What happened?



Around my junior year of

undergraduate, I was approached by a professor in the geography department about doing an honors thesis prior to graduation. She wanted me to work with her over the summer mapping and removing honeysuckle plants from the university's natural areas. I agreed, but she could tell my heart wasn't really in it. So, she passed my name along to a professor that was looking for an undergraduate to do lake and stream sampling for the summer. This still wasn't my first love, but it was much closer. At least I got to be near water! So, I started my summer in that lab, fell in love with nutrient cycling, and never looked back!

Upon graduating from Miami (still as a geography major) in 2004, I went to work in an aquatics lab at Yale University. There I got the chance to work in some truly beautiful natural

these changes we make remove the land's ability to moderate the speed and volume of rainfall entering the waterways. We make it harder for plants and creatures to do to their job of keeping the water clean. The same amount of rain falls, but now there are fewer opportunities for all of that water to be absorbed and slowed down. Since the laws of physics never change, the result is that there is now more water flowing faster and reaching the waterways sooner. All of this water runoff cuts waterways wider and deeper. Those shallow-rooted plants can't hold the soil in place. And as we Stream Team volunteers know, more soil in the water means more particles in the water that increase the total dissolved and suspended solids, increasing water temperatures and decreasing dissolved oxygen. The creatures that live in these waters find it difficult to survive under these conditions. Eventually, the waterways empty of any organisms that can't live in degraded conditions, leaving only a small number of creatures that can eek out a living in now marginal habitats. These waterways lose their bio-diversity and we lose the ecosystem services that provided us clean water and healthy places to live.

Unlike past centuries, more people recognize the value of our rivers, streams and creeks and the ecosystem services they provide for us. In other words, more people care about clean water and about the plants and animals that live in them and are dependent on them. And lucky for us, scientists have developed bio-engineering solutions to undue some of the damage caused by man's activities. These stream bank restoration solutions not only restore aquatic functions and ecosystem goods and services of degraded waterways back to a more natural state, but improve the stream banks' stability, thus resisting future damage.

A local example of a bio-engineered stream bank restoration is at Dudley Woods on Gregory Creek that occurred earlier this year. You may be familiar with this project or may have just heard about it. It was a mitigation project connected to the Liberty Center development and performed by Cardno JFNew. A mitigation project means that the developer agreed to make improvements somewhere else in exchange for the impact of their development. I briefly spoke with Joel Thrash, Operations Manager with Carno JFNew, who explained that an approximately 3500-foot stretch of bank was chosen as the mitigation

lakes (as opposed to the mostly hypereutrophic impoundments we have here) doing fish and zooplankton ecology. After leaving Connecticut, I moved to Iowa where I worked with a researcher at Iowa State University developing IBI's (Indices of Biotic Integrity) using zooplankton and macroinvertebrate data from impoundments in the state. Finally, in 2008, I moved back home to Ohio. About a month after moving back, I returned to Miami as a researcher in the zoology department. I spent 5 ½ years in a soil ecology lab studying nitrogen and phosphorus cycling in the Hubbard Brook Experimental Forest in New Hampshire. While in this lab, I finished my Masters degree, in July 2012, on nitrogen and phosphorus coupling in forest soils in the northeastern US.



In

March of this year, I was hired as the new Research Associate in the Center for Aquatic and Watershed Sciences (CAWS) in the Institute for Environment and Sustainability (IES) here at Miami. As part of my new position, I am the new university representative for Butler County Stream Team. I am really excited to get the opportunity to work with Butler County Storm water District and the Soil and Water Conservation District as well as all of the volunteers to ensure the continued success of Stream Team in understanding the impacts we have as individuals and in monitoring the health of our water here in Butler County.

Crisis Spot

You are our eyes in the field, the first line of defense for streams in Butler County when there is a problem. As you are out sampling or just out for a walk along the waterways and see something wrong, email us. Once the problems have been reported to us, we

site. You can see from the photo how badly the stream bank has been gouged out.



(photos courtesy of Joel Thrash)

The invasive honeysuckle was removed, the bank was re-graded and rock riprap installed.



A combination of bio-engineering techniques were used to achieve bank stabilization. In the photo below, you can see the red twig dogwood and willow brush layering, and plywood retaining berm being shaped and installed.



Here you can see that the ground has been graded into tiers and the erosion control fabric is being laid down over the plywood berm.

can pass it along to the appropriate agencies. We always want to hear from our volunteers and especially if there is a problem that can be corrected. Thanks again for all you do for Butler County Stream Team!

Crisis Spot emails can be sent to Teresa Barnes at barnest@bceo.org

Lending Library

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 some books with people we know like streams! The books are in the Stream Team lab, ready to be borrowed by anyone who would like to do so.

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 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



Once the bank stabilization work is complete, the area is seeded with native vegetation.



Only several months later, the bank stabilization site has lush growth!



(photo courtesy of Lynn White)

Lastly, native trees that develop deep roots will be planted to complete the bank stabilization work. The roots will hold the soil in place while the rest of the trees provide food, shelter, cover, and shade for water-dependent organisms. It probably won't take long for the habitat to recover along this stretch of Gregory Creek. Additionally, Cardno JFNew will monitor the area and conduct macro-invertebrate sampling for 5 years. It will be interesting to see what the future monitoring assessments show.

the Effectiveness of Nonpoint Source Controls

*Oceanography

*Ohio's Lake Erie Public Access Guidebook,

*Ohio's Lake Erie Public Access Guidebook: Rivers Edition

*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

* Rainbows of Rock, Tables of Stone: The natural arches and pillars of Ohio,

*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

If you have any comments, concerns, or suggestions, please contact us at

whitelr@butlercountyohio.org.

One thing that is unclear is whether these types of projects have a positive impact on water chemistry, since water quality is not the focus of the improvement. We do have a sampling site where Gregory Creek enters (#8009) and where it leaves (#8007) Dudley Woods. Whether or not there is any appreciable change in the water chemistry, only our data will tell us that. Regardless, this is an intriguing bank stabilization project and worth checking back in with Joel at some future point to see what his assessments reveal.

Butler County Stream Team Monthly Newsletter

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Our mailing address is: 102 Boyd Hall, Institute of Environmental Sciences, Miami University, Oxford, OH 45056

Phone: 513-529-5811

Fax: 513-529-5814

E-mail: jes@muohio.edu / Website: www.butlercountystreamteam.org

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