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# Butler County Stream Team

## July News - 2015



### Next Sampling Day - July 11

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#### Parking at Lab

Yes, Miami has changed their parking rules once again. There are no free visitors passes anymore, but we have you covered. When you arrive in Oxford, call Teresa at 513-706-8991 or Tera at 513-461-5660 and they will come outside and give you your parking pass.

#### Lab Time

Due to the changes in parking, it may be best to wait until 11 am to arrive at the lab this month.

#### Can't Sample?

If you can't sample on Saturday, please let us know in order to have someone else grab your samples.

- Lynn White - [513-615-2538](tel:513-615-2538)
- Teresa Barnes - [513-706-8991](tel:513-706-8991)

#### Samples

Just a few reminders: Keep your sample cold and remember to sign your sample into the cooler.

#### Practice Biological Sampling AKA Critter Checkin'

**Date:** Thursday, July 16 at 6:30 pm

**Location:** Dudley Woods Metropark (Hankins Rd in Liberty Twp)

#### Stream Team Sampling Dates

July 11

August 8

#### Free Canoe / Kayak Trip - 3 boats still available

**July 18**

#### Franklin to Middletown

In June, the river was too high and therefore dangerous for the canoe outing. We have rescheduled for July 18. *There are 3 spaces open so please contact Lynn ASAP to book your boat.*

**Time:** **If you are bringing your own boat(s):** Meet at 9:20 at the Middletown bike path parking lot at Rt 4 and Carmoody Blvd (next to Jimco Driver thru). We will transport you and your boat upriver so you can load up and drive off when we are done.

**If you are using our boats:** Meet at 9:45 at W Jackson and S. River St in Franklin. When we are done we will take you back to your vehicle.

**Sign Up:** If you are interested in joining us, please [email Lynn](mailto:lynna@butlercountystreamteam.org)

#### Newsletter Articles

Hey fellow Stream Team volunteers! Do you remember way back in February at the volunteer brunch when I asked what you'd like to read about in the newsletter? Well, I'm guessing the food and socializing was just THAT good that you forgot all about jotting down your ideas. So I thought I'd give you another opportunity to let us know what you like to know about. So when you're

Join Lynn and Mary to sample macroinvertebrates and compare this years results with last years. All the equipment will be supplied, just be prepared to get wet. [Contact Lynn](#) for more details and to let her know if you may be joining them.

## Turtles in Butler County

**By Karen Gotter**

As you may well know, Ohio streams contain a delightful array of plants, insects, amphibians and fish, but more rare, and perhaps more thrilling to spot, are some of the area's reptile species. The next time you're out sampling, or enjoying a local stream or river this summer, maybe you'll be lucky enough to stumble across one of Butler County's five species of turtles. There are 11 species of turtles in Ohio, and several of these had historic ranges in Butler County, but are currently not found here.



One of the most abundant turtles in Ohio, the Midland Painted turtle, also tends to be the most conspicuous. These are the turtles frequently seen basking on logs or rocks in streams on warm days. These are a highly aquatic turtle,

and their diet of aquatic vegetation, crustaceans and macros keep them near quiet streams, ponds and wetlands. The painted turtles have the northern-most ranges of turtles in the U.S. and are very cold-hardy. To hibernate, they spend winters buried in the muddy bottom of a body of water, and emerge in the spring in time to mate. In more northern states, it can take 7 to 16 years for a painted turtle to reach sexual maturity, depending on their size, location and sex. Painted turtles have a tolerance for polluted waters, which has helped keep their numbers up, despite the loss of wetlands and land-use change. Painted turtle populations are not considered threatened in most of North America.

For more information on Ohio wildlife species:

<http://wildlife.ohiodnr.gov/species-and-habitats/species-guide-index>

## Organic Chemicals used for

out and about getting your samples this Saturday, or any Saturday you happen to be thinking about it, really, just let us know by emailing [marycullum@hotmail.com](mailto:marycullum@hotmail.com) or text 513-490-0533

Thanks, Mary Cullum

## Great Miami River Cleanup - Northern sections

July 17 - 18 on various river segments from Indian Lake to just south of Dayton. See

[www.greatmiamirivercleanup.org](http://www.greatmiamirivercleanup.org)

From Franklin to the Ohio river will take place on October 24.

## Creeking in the Parks programs for families.

If you would like to bring family members feel free. If you would like to help [Lynn email her](#).

Indian Creek, July 15, 10 am

Gov Bebb Park, July 22, 10 am

## Crazy Cardboard Boat Regatta

Admission to is free. Parking fee may apply.

- When: July 18, 2015 from 10am – 3pm
- Location: Voice of America Park at 7850 VOA Park Drive in West Chester, Ohio
- Web Site: [www.yourmetroparks.net](http://www.yourmetroparks.net)

The Crazy Cardboard Boat Regatta in West Chester, features handcrafted boats made entirely out of cardboard. Winners of each category are awarded plaques to commemorate their cardboard victory. Come out to the Crazy Cardboard Regatta and enjoy the fun!

## Hydraulic Fracturing are Degraded by Lake and Soil Microbes

By Dr. Paula Mouser, PhD, Daniel Kekacs, and Katie Heyob at Ohio State University

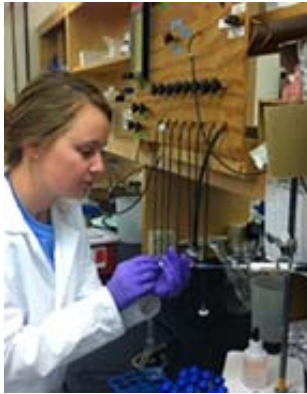
Horizontal hydraulic fracturing is a technique used to extract hydrocarbons, such as oil and natural gas, from deep within the earth. The oil and gas industry is currently using these methods to recover energy resources in Ohio formations known as the Marcellus and Utica shale. In order to make the extraction of these energy resources economically feasible from tight shale in Ohio, water and chemicals are mixed together and injected deep underground at high pressures, creating new fracture pathways for natural gas formerly trapped within the rock to move to the surface for collection and human use. The mixture of water and organic chemicals used to fracture a well is termed hydraulic fracturing fluid. Chemicals are added to protect the well from corrosion and clogging, and to enhance the gas migration process. Once the fracturing process is completed, the injected fluid returns to the surface as "flowback" and requires management. Flowback fluids contain certain organic and inorganic compounds that require it to be treated, recycled, or disposed of in deep injection wells. The widespread use of these techniques have caused people to wonder: What kinds of chemicals are used in hydraulic fracturing fluids? What happens to chemicals within the fracturing or flowback fluid if they accidentally spill or leak at the surface? How might rivers, lakes, and drinking water supplies be affected?



New research led by Dr. Paula Mouser, an Environmental Engineering Professor and two graduate students, Daniel Kekacs and Katie Heyob at Ohio State University, shows that microscopic bacteria naturally present in surface water and agriculture soils can use the carbon found in

hydraulic fracturing fluid as a source of food and energy. In this process, carbon additives are converted by microorganisms into cell biomass or respired as CO<sub>2</sub>, rendering them benign to the environment. However, microbial activity can be slowed by environmental conditions such as lack of oxygen, low temperature,

low microbial biomass, or high salt conditions. Furthermore, if the fluids are released at high concentrations or in certain mixtures, they may be too complex for microorganisms to fully break down. The team's recent findings show that in the presence of oxygen, soil and lake water microorganisms can degrade the organic chemicals in fracturing fluid up to 90% within 40 days, while the absence of oxygen, the extent of biodegradation by the same microbial community reaches only 82% in this same time frame. When the microorganisms are limited by oxygen, are low numbers, deep formation brines, or lack certain critical nutrients, the biodegradation of these organic chemicals can take significantly longer, on the order of months to years. These findings were recently published in the journal *Biodegradation* in a paper led by Kekacs (MS in CECE-2014). Future experiments in the Mouser Environmental Biotechnology Lab are focused on identifying the organic compounds that do not degrade during incubation studies. In addition, the specific microorganisms and enzymes that are responsible for the biological breakdown of complex compounds, such as surfactants, are being investigated. This research was funded by grants from the Ohio Water Development Authority and the National Science Foundation.



Butler County Stream Team Monthly Newsletter

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