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UP THE CREEK

THE MONDAY CREEK NEWSLETTER

Monday Creek Restoration Project

Volume 15 • Number 1 • Spring 2010

Shawnee Steel Slag Leach Bed Retrofit

by Michael McAvoy, Project Field Officer
Ohio Department of Natural Resources (ODNR)

Shawnee Steel Slag Leach Bed in operation. MCRP File Photo



Construction of the Shawnee steel slag leach bed was completed on October 10th, 2008 and water was immediately diverted from the wastewater treatment plant's normal outfall to the leach bed. As water from the treatment plant filled the steel slag, very high alkaline water discharged from the leach bed into Monday Creek, treating the acid and metal load in the stream. However, within four weeks of the start of operation, water flow through the Shawnee steel slag leach bed dropped from 15 gallons per minute to less than 2 gallons per minute, even though flows from the wastewater treatment plant had not decreased.

An investigation was launched into the cause of the reduced treatment capability of the leach bed. It is believed that the fine gradation of steel slag trapped suspended solids from

the wastewater treatment plant. Furthermore, the nutrient loading of the wastewater promoted a rapid growth of algae in the shallow water pool covering the steel slag. It appears that the combination of suspended solids and algae rapidly clogged the surface of the steel slag leach bed, quickly rendering it ineffective.

The solution called for installing a settling tank between the wastewater treatment plant and the leach bed to capture and settle larger suspended solids as well as installing a sand filter just upstream of the leach bed. To address algae growth, the Division of Mineral Resources Management installed ultra-sonic equipment specifically designed to kill algae. The ultra-sonic emitters use a specific range of sound frequencies to resonate the cell walls of algae, literally tearing the algae apart and preventing new growth.

If the slow sand filter and ultra-sonic emitters prove to be satisfactory solutions to the water quality issues at the Shawnee Steel Slag Leach Bed, it will make the opportunity of using other rural wastewater treatment outflows more realistic. Construction of the retrofit for the leach bed was completed October 2009. For more information regarding the project, please contact either Barbara Flowers or Michael McAvoy of the Athens office of the Division of Mineral Resources Management at (740) 592-3748.

MCRP Partners

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The Monday Creek Restoration Project is a collaborative venture dedicated to reclaiming the Monday Creek watershed.
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From the Coordinator's Desk

by Mike Steinmaus, Monday Creek Watershed Coordinator

Monday Creek Restoration Project has made great strides in improving water quality in the mainstem of Monday Creek during the past 15 years. Through the efforts of the Monday Creek partnership of agency and organizational personnel, residents are seeing fish in stream reaches where fish haven't been seen in decades. Our partnership has been instrumental in meeting our mission of improving watershed health and water quality for the benefit of the community.



MCRP File Photo

The community is central to our mission. We work to benefit the community and in return we need community support. Over the years, we have had a number of faithful "friends" who understand our need for volunteers and funding. They have been with us on stream cleanups, canoe floats, and watershed tours. They have helped edit and publish our newsletters. They have worked side-by-side with us collecting water samples along the stream. They have cooked delicious potluck dishes to share with others during our Friends of Monday Creek meetings.

I would like to see a growth in this community support. I would like landowners to contact us regarding issues such as streambank erosion and planting trees adjacent to the streams. I would like parents to encourage their children to attend summer day camps and volunteers for adult supervision. I would like to hear stories about mining and village life in past years. And, I would like those who are able to financially help in our efforts.

I pledge that the Monday Creek team (Nathan, Sarah, Matt and myself) will work diligently in the coming year to involve more residents and "friends" in our restoration efforts. Together, we can build a strong and positive membership that will benefit us all.

Mike

New Straitsville Rain Garden

by Chelsie Arrowood Monday Creek Summer Intern



Monday Creek staff hard at work on the rain garden. MCRP File Photo

The new Straitsville rain garden was my pet project this summer. I loved planning, gathering supplies, collaborating with people, and creating it! Every part of the process was enjoyable – from research, to raising money, to talking with all the wonderful people involved. As a brief member of the New Straitsville community, I hope I have left something beautiful that the residents and passersby can enjoy for many years.

The rain garden is designed to catch all run-off from the new town storage building. It was designed with a berm to help keep water in the garden and off the streets. The flowers in the rain garden are all native Ohio perennials that can handle heavy rainfall. Once the roots are established in the garden it needs no extra care, except for occasional waterings during the growing season.

The planning process could not have gone any smoother and it is all thanks to the New Straitsville community members who helped out. Joe Maroon, and our own Mike Steinmaus helped get the word out for needed funds and residents responded! We raised \$400 in a span of two weeks. I was so happy for the fast response since I only had one summer to complete the project.

Once we had the money, we bought the plants from Companion Plants in Athens, Ohio who gave us a nice discount. The township trustees came out with their backhoe and dump truck to dig the earth out of the designated space for the garden, and Joe Maroon arranged for topsoil to be put in the garden. Many young boys from the New Straitsville community came and volunteered a few hours shoveling topsoil into the garden. With their help, a few days of work turned into a few hours. Mike Steinmaus, Nate Schlater, Tim Ferrell, and myself planted all of the perennials soon after.

My summer at Monday Creek was fantastic and I am so glad I got to finish such a wonderful project in my short time.



Happy workers nearly finished with the New Straitsville Rain Garden! MCRP File Photo

Farewell to Our Incredible 2009 Summer Volunteers and Interns...

By MCRP Staff

Like the wildflowers of summer our seasonal interns and VISTA volunteers (Brian Blair, Chelsie Arrowood, and Tim Ferrell) have come and gone. But their fingerprint on the community and environment will not be soon forgotten throughout the Monday Creek, Sunday Creek, and Raccoon Creek watersheds. With the sacrifice of personal time and an inexorable motivation and dedication, these up and coming professionals have been challenged with a variety of tasks including project maintenance, chemical and biological water quality sampling, community projects, public relations, outreach and education, office maintenance, and scientific research.



Brian Blair and Chelsie Arrowood are the last in a long line of Rural Action sponsored Ameri-

Corps VISTA volunteers to spend their time and energy serving the communities of Appalachian Ohio. Brian finished up a year-long term of service in mid July where he worked simultaneously with Monday Creek Restoration Project (MCRP) and Sunday Creek Watershed Group (SCWG). When asked of his experiences within the watersheds, Brian elatedly replied, "I loved it and I'd do it again." Brian is now beginning his second year serving Appalachian Ohio as an AmeriCorps member at the SCWG. His work will focus on community involvement, education, and public relations.

This past summer, Chelsie Arrowood served with the Monday Creek Restoration Project for eight weeks through the Summer Associate Program. While at MCRP, Chelsie helped coordinate the construction of a rain garden along Main Street in New Straitsville and taught the importance of a healthy watershed to children at the Monday Creek Summer Day Camp. Chelsie is currently continuing her love of teaching and outreach as she pursues a graduate degree in education.

Tim Ferrell, a summer intern sponsored by the Ohio Department of Natural Resources, spent twelve weeks with the MCRP working on a variety of projects to help restore the Monday Creek Watershed. Tim played a large role in helping Water Quality Specialist Nate Schlater coordinate a mass balance study, collecting macro-invertebrate samples, and with long-term water quality monitoring. Hard-working and dedicated, Tim will be missed as he continues working towards his bachelor's degree in Fish and Wildlife Conservation and Management from Rio Grande University.

Macro invertebrate sampling the summer of 2009. Featured in photo (left to right): Steve Ferante, Brian Blair, Chelsie Arrowood, Tim Ferrell, and Nate Schlater. MCRP File Photo

And Welcome to Our New AmeriCorps Volunteers!

By MCRP Staff

Matt Halfhill and Sarah Drerup are the new AmeriCorps volunteers for the Monday Creek Restoration Project! Starting on August 10th, 2009, both volunteers will serve 1700 hours or approximately a year to help restore the Monday Creek Watershed. Already at work, Matt and Sarah have participated in water quality monitoring, subsidence reconnaissance, creating a bacteria monitoring plan, macro invertebrate identification, and writing for the newsletter and other publications.

Matt Halfhill

Matt Halfhill is a recent graduate from Ohio University. He grew up and still lives in Whipple, Ohio, near Marietta in Washington County. After high school and a couple years in the local community college he worked in a variety of jobs while trying to determine what he wanted to do as a career. After being laid off from the metal fabrication shop he was working at, he decided to follow his passion for wildlife and the outdoors and enrolled at Hocking College. While there he received Associate Degrees in Wildlife Management and Fish Management and Aquaculture. He then went on to get a Bachelors Degree from Ohio University in Wildlife and Conservation Biology. Matt was in need of a job and heard about the AmeriCorps position from a friend. It seemed like a good fit for his skills so he applied and was hired. He likes having the opportunity to positively impact the quality of life of the residents of the Monday Creek Watershed while furthering his knowledge of the environmental degradation resulting from coal mining and acid mine drainage.



Matt Halfhill painting the railing at Robinsons Cave in New Straitsville. MCRP File Photo



Sarah Drerup painting the railing at Robinsons Cave in New Straitsville. MCRP File Photo

Sarah Drerup

Originally from London, Ohio, Sarah Drerup just received her Bachelors Degree in Human Ecology with a focus in Marine Biology from College of the Atlantic (COA) in Bar Harbor, Maine. During her time at COA, Sarah took a variety of classes concerning the marine environment and her senior project focused on soft-shell clam and sea cucumber research she had conducted during her undergraduate career. Sarah's past work experience includes teaching as an education intern at the Cincinnati Zoo and Botanical Garden, serving as a teaching assistant for Marine Biology, and working at the London Public Library, Mt. Sterling Library, and Thorndike Library. Excited about a change in ecology, Sarah hopes to learn more about freshwater systems affected by acid mine drainage and use that knowledge help to restore the Monday Creek Watershed through education, outreach, and field-work.

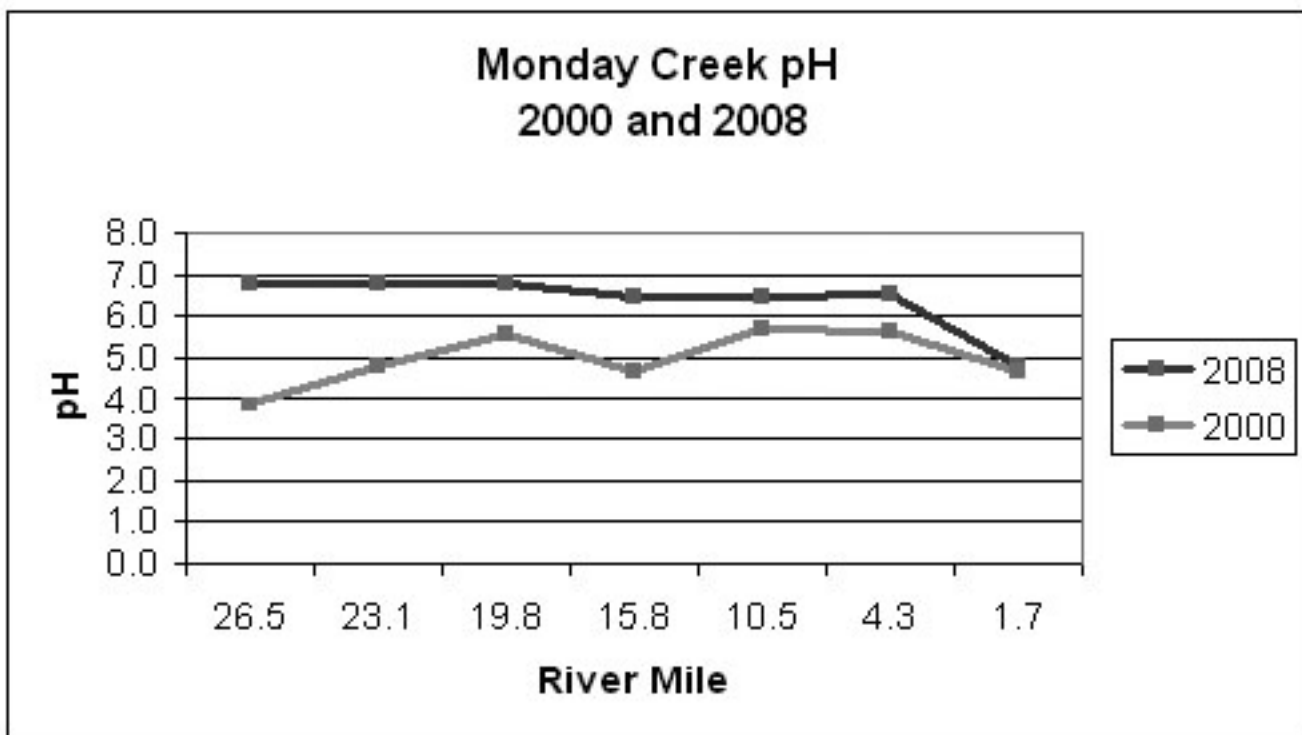
An Update on Water Quality

by Nathan Schlater

The water quality is gradually improving in Monday Creek as a result of a variety of acid mine drainage (AMD) treatment systems constructed in the watershed. The water quality in Monday Creek has been monitored since 1994, when the Monday Creek Restoration Project was started. The total number of water quality samples taken in Monday Creek is on the rise. In 2009, more than 550 water quality samples will be taken to determine the effectiveness of the increasing number of treatment systems in the Monday Creek Watershed.

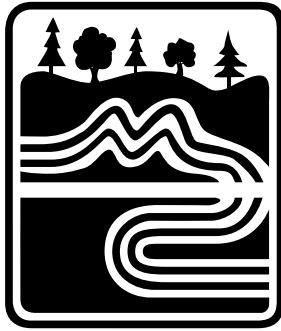
Acidic water is extremely harmful to the aquatic life in a stream. As the pH in a stream drops to 5.0, undesirable mosses and plankton may appear, and some sensitive fish species may disappear. If the pH drops below 4.5, the water will be practically devoid of fish. The average pH in Monday Creek was 5.0 in 2000, with some areas measuring as low as 3.8. In 2008, the average pH in Monday Creek was 6.4.

The improvement in water quality has allowed Monday Creek to be repopulated with many species of aquatic life. Monday Creek is now home to 15 species of fish including: creek chubs, spotted bass, rock bass, bluegill, grass pickerel, darters, and more. Aquatic macro invertebrates are important indicators of stream quality because they are sensitive to changes in the ecosystem, many live in aquatic systems for over 1 year, and they cannot easily escape changes in water quality. They help maintain the health of a stream by eating bacteria and dead, decaying plants and animals. Using a Macro invertebrate Aggregated Index for Streams (MAIS), Monday Creek has increased its average score from 4.1 (very poor) in 2001 to 8.3 (poor) in 2008.



WE NEED YOUR SUPPORT!

OUR MISSION:
The Monday Creek
Restoration Project
is a Partnership
committed to improving
the watershed health
for the benefit
of the community.



BENEFITS:

Newsletter, Watershed Tours, Float Trips, Volunteer Opportunities and, best of all, helping make the watershed beautiful again.

MEMBERSHIP:

MCRP'S coordinator provides support to the Monday Creek project as well as many other community endeavors, through community organizing, networking, and development efforts.

- | | | |
|--|--|--|
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Lost Run Acid Mine Drainage Project

by MCRP Staff

Wayne National Forest in cooperation with Hocking College has begun construction on the Lost Run Acid Mine Drainage (AMD) Project. Lost Run Road, located two miles south of New Straitsville on State Route 595, is the site of several mine reclamation projects. Currently, officials from Wayne National Forest are overseeing the addition of two more steel slag beds by faculty and students from Hocking College. The project will consist of building a dam to maintain a freshwater supply pond that will provide the water to both tandem steel slag beds. The beds, made of four feet of steel slag, will operate on a 24-hour filling and draining cycle. In each cycle, one pond fills as the other pond drains leaving a minimum of one foot of water covering the slag at all times to prevent contact with the air. The highly alkaline water will run into Lost Run at 65 gallons a minute and raise the pH of the normally acidic tributary.

In addition to steel slag beds, a two-acre coal refuse pile, west of the main construction site, will be capped with soil, contoured, graded, and seeded. Another small project will replace a current beaver dam with a small rock wall to enhance existing wetland habitat. Limestone channels will be laid from the mouth of two previously closed mine entrances in close proximity to the drainage area. A third mine entrance will also be closed before the project is completed.

Mike Grebeck, of the Wayne National Forest, is overseeing the construction of the project by students at Hocking College and feels privileged to be instructing the "future contractors of America." Hocking College students currently work six hours a day, four days a week at the site. Completion of the project is slated for the summer of 2011.

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Monday Creek Watershed Day Camp!

by MCRP Staff



Brian Blair educating campers. MCRP File Photo

This summer, 30 local youth were able to participate in the Monday Creek Watershed Camp! Campers spent five fun-filled days learning about water quality, biodiversity, recycling, geology, native and invasive species, acid mine drainage, and much more! The camp also featured a service learning component. Campers helped construct step stones for a community garden in Shawnee, Ohio. On the last day of the watershed camp, campers were taken to Lake Logan for some fun on the lake and in the sun!

Heather Fletcher, who helped organize the program, said “The camps increased the overall ecological literacy of area youth and fostered a sense of wonder, responsibility, and stewardship for ecological systems and our natural world, with special attention to the places they live.”

If you would like to learn more about the Monday Creek Watershed Camp, please call the MCRP office.