



UP THE CREEK

THE MONDAY CREEK NEWSLETTER

Monday Creek Restoration Project Volume 11 • Number 2 • Winter 2005-2006

Lost Run: Not lost anymore!

*by Mitch Farley, Project Field Officer,
Ohio Department of Natural Resources*

The partners in the Monday Creek Restoration Project (MCRP) are undertaking a large reclamation and water quality improvement project in Lost Run, a tributary that enters Monday Creek on State Route 595 between New Straitsville and Carbon Hill. The multiple project sites are located in Coal Township, Perry County and Ward Township, Hocking County. The drainage area encompasses 1919 acres and has a stream length of approximately eight miles.

There are 5 mapped, and perhaps many more unmapped underground coal mines in the watershed. The last mine closed in 1925. The underground mines generate and discharge strongly polluted acid mine drainage. Subsequently, the remaining coal reserves were stripmined by multiple mining companies. This strip mining interrupted natural drainage patterns and has diverted fresh water into the underground mines, where it then becomes polluted mine drainage.

A study by MCRP in 2002 showed that Lost Run discharges up to 3000 pounds of acid per day into Monday Creek. This is about 9% of the total acid problem in the watershed. High levels of heavy metals, including iron, aluminum and manganese are also



Water impounded by a beaver dam at Lost Run. A concrete dam will be constructed to increase the size of the pond, and a steel slag leach bed installed to neutralize acid mine drainage. Photo by Douglas Leed, ODNR

present. Investigators in Lost Run found over twenty acid seeps and more than thirty locations where surface water is thought to enter the underground mines.

The Jobs Hollow lime-dosing machine installed by the MCRP partners in 2004 is presently treating the seven miles of Monday Creek above Lost Run. Selection of Lost Run as a project is logical, as it is the next large acid source downstream of Jobs Hollow. In 2004, partners applied for a Section 319(h) Nonpoint Source Pollution grant from the Ohio Environmental Protection Agency. The Ohio Division of Mineral Resources Management (ODMRM) provided match monies for the grant. Construction of twenty-

eight separate features to address mine drainage pollution are estimated to cost \$786,000.00 in construction monies. The Wayne National Forest, the principal landowner in Lost Run, is currently planning other work in the watershed.

The ODMRM has completed design of the first of two phases of construction to be built. The work will consist of constructing limestone leach beds and channels at five locations. These structures will neutralize acid from mine seeps. The Wayne National Forest is completing the required environmental assessment of the area and work will be bid out in February 2006. A second phase of construction is in design at this time. It will include alkaline leach beds, rock dams, channels and removing mine spoil that is blocking a small stream.

Lost Run has been now been found and completion of the planned projects will go a long way insuring improved water quality in Monday Creek.

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From the Coordinator's Desk

by Mike Steinmaus,
Monday Creek Watershed Coordinator



During the past year, Monday Creek Restoration Project has experienced successes that will affect the watershed for many years. Among the accomplishments were:

- Approval by the U.S. Army Corps of Engineers Civil Works Review Board of the Monday Creek Watershed Feasibility Report and Environmental Assessment
- Completion of the Draft Monday Creek Watershed Management Plan
- Completion of our third edition of an Acid Mine Drainage Abatement and Treatment (AMDAT) Plan
- Approval by the USEPA of the Monday Creek Total Maximum Daily Load Report
- Holding our first three-day Summer Day Camp for area youth
- Continuously treating 6.5 miles of the upper reaches of Monday Creek with alkalinity from a doser

The staff partners of Monday Creek continue to pursue the dream of a clean stream that will add recreational value to the area and stimulate the local economy. As always, we need your financial assistance through memberships and donations. We also like to see you join us for activities such as tree plantings the litter cleanups. We welcome you to visit us in our office.

I look forward to our meeting goals together in 2006.

Mike



Jobs Hollow Doser

by Dan Imhoff,
Non-Point Source Pollution Specialist,
Ohio EPA

In the past, coal was mined in the Monday Creek watershed. Cities were built and fortunes were made. Waste coal was left in heaps, killing the land, and deep mines were left to collect water and poison our streams for generations to come. Today we are taking actions to reduce the poisonous effects of coal mining.

Jobs Hollow, at the headwaters of Monday Creek, is contaminated from both deep mine discharges and spoil piles on the surface. These are the primary sources of the acid killing about eight miles of Monday Creek. It was speculated that if enough alkalinity (which neutralizes the acid water) could be added in Jobs Hollow, those eight miles of stream could once again have some fish, frogs, turtles and crayfish. Perhaps people would once again fish and play in the stream.

MCRP determined that a device to add alkaline material directly to the stream might be the best approach. MCRP found that dosers were operating successfully throughout the world but one had never been installed and operated in Ohio for abandoned mine treatment.

Grants were applied for, studies completed, and finally the doser was



installed on Wayne National Forest land in Jobs Hollow. From the outside, the doser looks like a upright green cylinder about 10 feet round by 60 feet high sitting next to the stream, with a pipe coming out of the side of the bank depositing white slurry into the stream. The bulk of the cylinder contains tons

Doser discharging its alkaline slurry of water and quicklime (calcium oxide). The doser has a capacity of 75 tons, and uses around a ton of quicklime each day.

of alkaline material. The bottom portion contains the feeding mechanism. A small dam was built upstream with a collection pipe running to the doser. The flow of water causes a tipping bucket to go back and forth feeding the alkaline material into the flow of water. No electricity needed. This slurry flows directly to the stream where it neutralizes the acid.

Rebecca Black of MCRP worked for about six months getting the doser to work correctly. She can now happily report that the acidity is mostly neutralized for those eight miles.... As long as the doser is operating.

Monday Creek project updates

On September 22, 2005, the Monday Creek Feasibility Report was unanimously approved by the U.S. Army Corps of Engineers Civil Works Review Board in Washington, D.C. On the same day, the United States Environmental Protection Agency (USEPA) approved the same study as a Total Maximum Daily Load (TMDL) report pursuant to the Clean Water Act.

With the board's approval, the Monday Creek Project is eligible for inclusion in the Chief of Engineers' Report and the next Water Resources Development Act. could ultimately lead to approximately 20 million dollars in state

and federal funding for the Monday Creek project.

Courtesy of Mark Kessinger, a Project Manager for the Corps of Engineers in Huntington, West Virginia. Contact him at 866-502-2570 (ext. 5083) or at mark.d.kessinger@usace.army.mil.

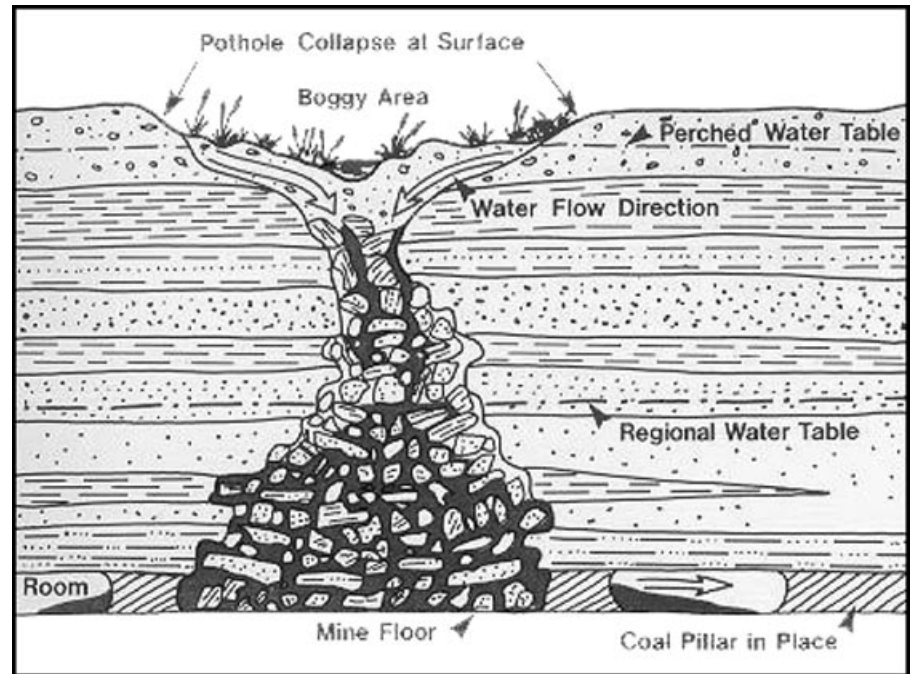
A second doser is under construction at site of the Essex Mine, located on Route 216 approximately 2 miles east of New Straitsville. The new doser is expected to begin operation in April 2006, and will treat acid mine drainage on snow fork south to Murray City.

Preventing Acid Mine Drainage at its source in the Monday Creek Watershed

By Max Luehrs,
Natural Resource Specialist
Office of Surface Mining

Over the last fifteen years, many abandoned mine land (AML) projects have been constructed in the Monday Creek Watershed. Many of these projects involved abating acid mine drainage (AMD) using a variety of techniques ranging from active treatment, passive treatment including wetlands, limestone channels and drains, and surface reclamation. While all these methods have resulted in improved water quality in varying degrees, there are drawbacks to their use. Active systems require frequent monitoring and the periodic replenishment of the neutralizing chemicals being used. Passive systems also must be monitored and maintained by removing or flushing out accumulated metal precipitates, periodically replacing depleted slag or limestone beds, and replenishing organic composts or other materials. Muskrats, beavers, storm flows, and vandalism can also damage the flow paths of these systems.

Preventing AMD formation through source control is the most effective solution. By reducing or eliminating the contact of air and water with toxic-forming coals and minerals associated with coal, the formation of AMD is prevented. One of the easiest and most effective ways to accomplish this is by keeping stream flows from entering underground mines. In many places, streambeds over mine voids have subsided, allowing the streams to either seep into mines through the cracked strata, or to flow directly into the mines through subsidence holes. Stream flows may also enter mines where spoil, road fills, or some other obstruction causes water to impound above the mine. This causes the water pressure to increase and thereby increases infiltration of water into the mine. When the



*A cross section of subsurface features associated with a coalmine subsidence event. As the figure shows, a gaping hole may not be visible at the surface. Image courtesy of Colorado Geological Survey, taken from *Subsidence Above Inactive Coal Mines: Information for the Homeowner*, by J.E. Turney. All Rights Reserved*

mines are very deep below the surface with nowhere to drain, the mines can totally flood, which can also prevent the formation of AMD by cutting off the air supply. However, this is not the case in Monday Creek where most of the underground mines are free draining into streams. All the water entering these mines quickly becomes acidified. To reduce the production of AMD, subsidence holes in streambeds can be sealed shut, stream flows can be routed around areas where flow is being lost into cracked strata, and blockages of stream flow can be removed.

To date, the Ohio Department of Natural Resources, Division of Mineral Resources Management (DMRM), and the US Forest Service (USFS), in cooperation with the Monday Creek Restoration Project (MCRP), have sealed off 21 stream subsidences that

have prevented over 1,200 acres of drainage from entering mines in Monday Creek. One of the earliest projects was the Majestic Subsidence Project, located near the mouth of Monday Creek. The project, which sealed off a stream subsidence capturing about 120 acres of drainage, was completed in 1999. The AMD discharge from the adjacent mine entry continued to flow in spite of 1999 being a drought year. However, observation in the fall of 2005 showed that the discharge has ceased, and, as of January 2006, was still not flowing. It may be possible that the project is the reason for this phenomenon.

The recently completed US Army Corps of Engineers' (ACOE) Monday Creek Ecosystem Restoration Project Feasibility Report has identified an additional 26 stream subsidences, 35

Snake Hollow restoration

by Gary Willison, Watershed Program Manager,
USDA-Forest Service, Wayne National Forest



Top:
Majestic Mine
entrance, all
dried up in
January 2006.
On the ground
in front of the
bat gate is a
thick crust of
iron oxide and
other AMD
deposits. Photo
by Mike
Steinmaus.



Above: Mine subsidence hole being filled.
Photo courtesy of Mitch Farley.

areas of blocked stream flow, and 11 areas where stream flow is seeping into mines that have yet to be completed. The completion of these projects will prevent over 13 square miles (8,385 acres) of drainage from entering underground mines. This will in turn reduce the amount of AMD needing treatment with active and passive systems, and increase the amount of good water in Monday Creek available for dilution. The USFS has also completed an inventory of AML features on its property where 300 drainage-capturing subsidences were identified. They plan to seal off 42 this year alone.

Based on average rates of run off, approximately 270,000 gallons of AMD will be prevented for every acre of drainage kept out of the mines. And, all of this can be done with little to no monitoring and maintenance. It is easy to see why this important work should be continued until completion. Hopefully, the necessary funding will be secured so this can happen.



Partners in the Snake Hollow Reclamation Project, left to right: Rebecca Black, MCRP; Gary Willison, Mike Nicklow, Bob Kerber and Pam Stachler, all of Wayne National Forest; Mitch Farley, ODNR; Katrina Schultes, Wayne National Forest; Mike Steinmaus, MCRP

Snake Hollow is a reasonably small (approximately 1,200 acre) sub-watershed located in the lower third of the larger Monday Creek Watershed. These watersheds have been heavily impacted from coal mining dating back to the late 1800's and early 1900's. The mining resulted in topography changes and the creation of abandoned mine land features such as highwalls, altered drainage patterns, gob piles, ponded areas, and subsidences. In addition to the changes in topography, the underground mines produce large quantities of acid mine drainage which degrades the water quality in the streams and main stem. The pH in most streams degraded by acid mine drainage ranges from about 3.0 – 5.0, with 7.0 being neutral. The pH in Snake Hollow was approximately 3.0 prior to this reclamation project.

Due to the conditions of this area, the Wayne National Forest and the

Ohio Department of Natural Resources, Division of Mineral Resources Management, partnered in a reclamation project designed to substantially improve the ecosystem and water quality in Snake Hollow. A series of low head dams, open limestone channels, and steel slag beds were installed to neutralize the acidity. In addition to these treatments of acid mine drainage, ten stream capturing subsidences were closed and several blocked drainages were opened in an effort to keep large volumes of fresh water from entering the mines and becoming acidic. Post monitoring results revealed that the pH had been raised to about 4.0, a slightly lower pH than hoped for. The results can be somewhat explained by the fact that the water samples were collected at low flows when concentration

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Tim Braun, a VISTA with ideas, and Matt Miller, the new guy in town

by Mike Steinmaus and Matt Miller

During most of 2005, Tim Braun assisted the Monday Creek staff as an AmeriCorps*VISTA volunteer. With an emphasis on outreach and education, Tim organized and participated in many of the community-wide activities that have been part of our programs over the years – litter cleanups, meeting facilitation and stream monitoring.

Tim also collaborated with Rural Action's Environmental Learning Program to conduct a three-day Summer Day Camp for area youth. Tim was steadfast in his efforts to enroll enough youth to make the program worthwhile. This was the first program of its type sponsored by Monday Creek and it was a great success. Over the three days, the 10 boys and girls learned about their environment and had fun.

Tim completed his year as a VISTA in November. He has taken a position as a Junior Engineer for Conestoga-Rovers & Associates in their St. Paul, Minnesota office. He recently wrote, "I just wanted to thank you and the rest



*New AmeriCorps*VISTA Matt Miller on the bank of Monday Creek. Photo by Mike Steinmaus, 2006.*

of the Rural Action people for a great year I know my experience in Ohio really helped me get this job and I can't wait for the chance to show what I learned down there."

In December of 2005, Matt Miller began a year of service as the new VISTA volunteer for Monday Creek. Matt is originally from Portland, Oregon, and is a 2004 graduate of Earlham College in Richmond, IN where he studied biology. Before coming on board with Monday Creek, he worked in southeast Alaska as a hiking guide, and at a wildlife refuge in the Florida Keys doing exotic plant control.

Matt's decision to join Monday Creek is rooted in his belief that a clean and healthy environment goes hand in hand with strong communities. "I like that Monday Creek doesn't force environmentalism down people's throats, but works cooperatively with landowners and government agencies on projects that improve the quality of life for everyone in the watershed. I want to help this process by getting more community members involved and interested in the work Monday Creek is doing."

SNAKE HOLLOW

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of metals are the highest. Additionally, we did not expect to correct all the problems with one project of this size because reclamation of abandoned mine lands is an iterative process.

What we mean by an iterative process is that we apply a fix to what appears to be the major problems in the project area and then we monitor and evaluate the results. If the desired condition is not achieved a modification is designed. During a routine site visit, monitoring indicated that a steel slag bed was not working properly and that 3 subsidence closures were still leaking. Therefore, some modifications are being designed and construction is scheduled to be implemented this year.

2006 Upcoming Watershed Events

Monday Creek Partners' Meetings are held on the second Thursdays of alternate months, beginning February 9. Details TBA; meeting minutes are posted at www.mondaycreek.org

Friends of Monday Creek Meetings are held at MCRP office, 115 W. Main Street New Straitsville, unless otherwise announced. Potluck begins around 6:30. Guest speakers and other specifics TBA.

Thursday meeting dates are:
March 16, May 18, and July 20.

Event updates will be posted on the MCRP homepage at www.mondaycreek.org Check the site for new information about tours, volunteer days, and other activities.

Call MCRP at 740-394-2047
Contact Matt Miller at vista@mondaycreek.org

LOOKING BACK

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skating on our shoes.

The creek ran through Murray City where I attended school. I remember a foot bridge over the water. We had open lunch time and would “hang out” on the foot bridge. Two other bridges in town for automobiles also crossed the creek. These were always referred to as the iron bridge and cement bridge.

I remember my father-in-law telling me he was baptized in the creek during a revival in Murray City. The creek or as it is known in this area the “Sulfur Crick” has always been an important part of the community. People and businesses who live near the creek have endured flooding and sometimes when the water is up you cannot get in or out of the village. But, in spite of this, most residents wouldn’t live anywhere else. It’s a part of us!

I’m 71 years old and have seen this area as a thriving coal mine area. Riding the school bus, we would see coal trucks lined



up in the area called “New Town” all the way to Route 216. Company houses also lined the road. Due to coal mining, our beloved Snow Fork became polluted, no more swimming, but the memories linger on.

Above: Murray City Mine No. 5 at New Town, north of Murray City on Route 216. Photos courtesy Jack Shuttleworth.

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, Potlucks, Volunteer Opportunities and, best of all, helping make your watershed beautiful again.

YOUR MEMBERSHIP HELPS US

Monday Creek Restoration Project depends on your financial support to continue our educational programs, outreach and community organizing, and the development of new projects and community assets.

- \$15 Basic Grassroots \$100 Supporting \$60 Nonprofit
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Yes, I want to become a member of MCRP!

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Looking Back

Snow Fork— “The Earlier Years”

by Mildred Shuttleworth

I was born in Hocking County in an area known as “Lost Hollow” near Greendale, Ohio in 1934. This area was named correctly, as anyone who came up the lane was either “lost” or “kin.”

In 1941 my family moved to Coalgate which was on Route 216 between New Straitsville and Murray City. We felt like “city folk” as now we lived on a paved road.

This was my first encounter with Snow Fork. This rambling stream ran near 216. We had deep spots in the creek in which we could swim, could jump off the rocks into the water. Of course, I was never permitted to wear a “bathing suit,” only cut-off pants. This was not unusual in that day. I can also remember Snow Fork freezing over and bonfires along the bank and ice skating. We were too poor to own ice skates but had just as much fun

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Right, top: Mildred’s childhood home in Coalgate, which her family moved into in 1941.

Right: WPA workers and bosses stand beside a retaining wall they built in the mid 1930’s. Snow Fork runs in the channel below this wall, and underneath one of the bridges on Route 216.



Monday Creek Restoration Project

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