



Conservation Matters



Autumn Leaves...

Back to school, raking leaves, chilly nights and football games!

Autumn has arrived. For NCCD, it's the time of year we start to reflect on the current year and plan for the next one. Please don't hesitate to contact me and let me know how we can better serve your conservation needs in Northumberland County in 2016. I'd love to hear from you.

Have a nice fall!

Sincerely,

Judy Becker

Linn Conservancy Assists Land Protection Efforts in County

by Geoff Goodenow, Coordinator, Merrill W. Linn Land & Waterways Conservancy

The Merrill Linn Land and Waterways Conservancy is a private, non-profit organization based in Lewisburg with a mission to protect and preserve the natural qualities of our environment. The Conservancy has been in existence for 27 years and has helped 15 landowners, (including 3 in Northumberland County), protect nearly 1,200 acres of farmland, open space, forests, meadows, stream and wetlands for the benefit of current and future generations. One mechanism for helping landowners protect their property beyond the time of ownership is to partner with the Conservancy to develop a conservation easement plan for their land. Such partnerships can assure property owners that their desires for their land will be respected and enforced into the future.

We encourage land owners in the northern "arm" of Northumberland County with an interest in protecting their land to visit our website where you can read the Q&A section, (in the drop down menu under Protecting Your Land), to learn more about some conservation options available to landowners. Alternatively, contact our office by phone or email for further information. We look forward to working with you to preserve the natural heritage and beauty that we enjoy here in central Pennsylvania.

For more information, contact Geoff Goodenow at linn@ptd.net, 570-524-8666, or visit their website at linnconservancy.org.

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Our Programs: Erosion and Sedimentation Control, National Pollution Discharge Elimination System (NPDES), Dam Safety and Waterway Management, Environmental Education, Nutrient Management, Chesapeake Bay Program, Dirt & Gravel Roads, Agricultural Land Preservation, Watershed Protection and Education

Visit www.nccdpa.org for more information. We are also on Facebook at www.facebook.com/nccdpa.

Winter Spreading Regulations

by Nathan Brophy, Agricultural Conservation Technician

With harvest time approaching and winter just a few months away many farmers will be planning on spreading their manure to clean their barns for the winter. Winter spreading is still an option for farmers in Pennsylvania with some restrictions, though it is recommended to avoid when possible. Winter spreading begins December 15th and runs through February 28th, as well as anytime the ground is snow covered or the ground is frozen 4 inches in depth. The setbacks and application rates for winter application are outlined in the Manure Management manual based on proximity to streams, lakes, ponds, wells, ditches, and other sensitive areas. The maximum slope that you may winter land apply manure is 15%. There is a 25% residue requirement. The best places to winter apply manure if you need to would be fields with cover crops planted to help reduce the chance of runoff. With the EPA pushing for more regulations on PA farmers, winter spreading should be the option of last resort. If you have questions about winter spreading, please contact Nathan Brophy at our office at 570-495-4665 extension 304. Below are Penn State recommendations, as well as regulations for winter applying manure:

- Select fields with cover crops or at least good residue.
 - Regulations require a cover crop or at least 25% residue for winter spreading.
- Stay as far away from water as practical.
 - Regulations require staying 100 ft. from water in the winter.
- Select the most level fields available and especially avoid significant slopes.
 - Regulations prohibit manure application on slopes greater than 15%.
- Avoid spreading high rates of manure in the winter.
 - Regulations limit winter manure applications to the following:
 - >No more than 5000 gal/A of liquid manure.
 - >No more than 20 ton/A of dry non-poultry manure.
 - >No more than 3 tons/A of poultry manure.
- Avoid areas in fields where concentrated water flow is likely.
- Avoid poorly drained fields.
- Don't spread on snow unless it is unavoidable.
- Try to avoid spreading when rain or melting conditions are expected.
- Stay away from roads and don't spread in road ditches.
- For daily spreading, mark where you stop spreading in case fresh snow covers up the previous application to avoid skips and overlaps.



You may contact us at any time by email or phone to be added to, or removed from, our mailing list. Simply call 570-495-4665 or email info@nccdpa.org. If you would rather "Go Green," email us with the words "electronic newsletter" in the subject line and we will send our newsletter to you electronically.

Twilight Meeting

Our 2015 Twilight Meeting was held on September 1st at the Kevin Brosious farm outside of Sunbury. Approximately 90 were in attendance. Attendees received 2 category and 2 core credits, as well as a delicious meal from Chestnut Street Deli.



Norm Conrad of the National Center for Appropriate Technology presented on Pesticide Labels and Safety, as well as Pesticide Container Recycling and Disposal.



John Bray of Penn State Extension gave a presentation titled "Herbicide Resistant Weeds and What's New in Herbicides."



Karen Hackman of RHP Law Group LLC presented on the Waters of the US Ruling and How it Relates to Agriculture.

Fall Bulb Sale



If you missed the deadline for our 1st Annual Fall Bulb Sale, don't despair! You can still order bulbs until **December 31, 2015** on our website, www.nccdpa.org. (We are no longer accepting orders at our office; ordering is available online only.) You will see the link to the order form on our website. Any orders placed online from now until the end of the year will be shipped directly to you from the company, Dutch Mill Bulbs. For those who already ordered, we thank you for your purchase and wish you much success with your bulbs!



Orange Water

by Jaci Harner, Watershed Specialist

One of the main responsibilities of this office is to improve water quality in our local waterways. Many times, we address water quality questions or problems that occur from agricultural impairment; excess nitrogen, phosphorus and sediment. Another major water quality problem flowing through Northumberland County is Acid Mine Drainage (AMD). Take a quick drive through our local coal region and you'll see exactly what I'm talking about.

AMD is a result from the coal mining industry that once flourished in our area. Many years ago, coal mining provided an abundance of jobs and a booming community in the southeast corner of the county. In the upper portion of the Shamokin Creek watershed area, deep mining historically consisted of opening large, interconnected, underground rooms known as the "room and pillar" method. Most underground coal is mined by the room and pillar method, whereby rooms are cut into the coal bed leaving a series of pillars, or columns of coal, to help support the mine roof and control the flow of air. As mining advances, a grid-like pattern of rooms and pillars is formed. The mines can be further classified by the types of entries. Drift mines use a horizontal opening to mine coal that occurs above stream level. Shaft mines use a vertical opening and Slope mines use an inclined opening to reach coal at great depth or below stream level.

Deep mining below the water table created extensive voids that were vulnerable to flooding. To prevent flooding of the active mines, water that entered the mines was pumped to the surface. By 1960, nearly all deep mines were abandoned, pumping was discontinued, and the mines filled with water. Mine water eventually makes its way back to the surface, exiting the mine through a mine opening or fault in the ground which then flows into a local stream. Water flowing through the mines becomes more acidic and leaches metals from the exposed coal and rock layers. As a result, mine water not only has a low pH, but often contains increased concentrations of aluminum, calcium, iron, magnesium, manganese and sulfate. Research has shown that the combination of low pH and increased aluminum concentrations can destroy all fish and most invertebrate populations. Also, precipitation of contaminants such as aluminum and iron can coat the stream bottom destroying most macroinvertebrate habitat and clog fish gills causing them to suffocate. It is the iron precipitate that gives the Shamokin creek its orange color.



So, what is being done to remedy the situation? The Surface Mining Control and Reclamation Act (SMCRA), passed in 1977, is sweeping federal legislation regulating coal mining in the U.S. Prior to its passage, the coal mining industry was largely unregulated, especially with regard to the environment. Over a century of environmentally insensitive mining practices took a huge toll on the land and water where mining occurred. But SMCRA changed the face of the coal mining industry into one that is vastly safer with a significantly smaller environmental impact.

Orange Water, *continued*

Fortunately, there are also efforts being implemented on the local level. The Shamokin Creek Restoration Alliance is a local, volunteer, non-profit organization with a goal to restore Shamokin creek so it can support normal aquatic life. The Shamokin creek watershed drains approximately 137 square miles of land and contains over 60 discharge points. All of the water from the headwaters of Shamokin Creek is acid mine drainage. The watershed group members have dedicated a great deal of time organizing cleanup efforts, providing AMD education, testing water samples and treating AMD water before it enters a local stream.

Currently, the group maintains 4 AMD passive treatment systems and there are plans to install additional water treatment structures on lands located within the Anthracite Outdoor Adventure Area. A lot of work and planning is involved when organizing the installation of a treatment system. The first step is to obtain landowner permission to access a discharge point if located on private property. Next, the watershed group members collect and analyze water from that discharge point for several years. It is important to know the volume of water, pH levels and types, and concentration of metals that exist at the site (water from different sites contain different types



and levels of pollutants). Afterwards, the collected information will be used to design a properly sized system that will treat the identified pollutants. Design work is completed by an environmental consulting firm. Lastly, a funding source must be secured. Many times, a grant application will be submitted to a federal or state source with hopes that the application will be awarded. Again, landowner permission is needed for a proposed project site and is required as part of the grant application. If and when the grant is awarded, the construction phase of the project can begin. In all, it can take several years from the conception of an idea to final water treatment.

Passive treatment systems require a limited amount of time to manage compared to an active system which requires daily oversight. Passive systems may use several different components, including:

- Limestone rock- raises pH levels
- Spent mushroom compost- contains bacteria to process metals and alters water chemistry to prevent coating of limestone rock
- Settling ponds- slows water flow and allows iron precipitate to settle out and collect on the bottom of the pond rather than coat the stream channel

Orange Water, *continued*

Is the Shamokin creek still orange? Yes. Is the water quality improving? Yes, slowly but surely. Improvement has been a joint effort; including local mine companies complying with established rules and regulations, the local watershed group installing passive treatment systems, and Mother Nature adding clean tributaries. In fact, many people living in the Snyder town area report seeing fish in Shamokin Creek while others enjoy a kayak trip from Sunbury to the river.

Restoring Shamokin Creek to a more natural state is no easy task, but improvements cannot happen if we allow the magnitude of the problem to paralyze us into doing nothing. Efforts for water improvement will continue, and we look forward to watching Shamokin Creek evolve into a useful resource.

Musings and Random Thoughts

by Mike Hubler, NCCD Associate Director

I know a fellow who characterizes the grass areas we call lawns as “green concrete”. His premise is that lawn areas do not allow water to infiltrate the soil to recharge shallow or deep ground water but rather forces the rainwater to run off, like concrete. I don’t agree with his premise or his characterization of lawn as “green concrete”, but I will concede that lawn areas are not as efficient infiltration areas as forests or meadows. This is a concern as it has been reported that there are more acres in this country devoted to lawns than corn or soybeans or wheat. If, very conservatively, we assume that lawn areas infiltrate 20% less rainwater than a forest area and we assume that an acre of forest is able to infiltrate 2” of rainfall over a 24 hour period than 0.4” of rainwater run off an acre of lawn during the same intensity storm. This works out to 10,861 gallons of water for each acre of lawn. Taken in the aggregate this is a huge amount of water conveyed to our streams, increasing the potential for flooding and streambank erosion. This is also 10,861 gallons of water not recharging groundwater.

So what to do? It is silly to advocate the replacement of all lawns with forest or meadow. I visited Mr. Green Concrete’s property and while attractive (lots of perennials, flowers, gravel pathways and shrubs) something was missing. No place to toss a ball with the children, no place for a quitois court, no place to walk barefoot; no lawn. This property’s landscape did not appeal to me as a viable option to increase infiltration of rainwater.

Most of us probably have more lawn area than we use or need. I propose that we begin to shrink the lawn a little each year until the lawn area fits our outdoor lifestyle rather than the size of our lot. I have been practicing this concept for several years and have not missed the “lost” lawn. Most “lost” lawn areas have been planted to native perennial species that require little maintenance, certainly less than the lawn they replaced. Our lawn area has been downsized by about 25%, and we are not finished. More areas will join the “lost” lawn.

The lawn care and maintenance season has ended for this year and it is time to begin planning for next year’s outdoor projects and activities. I would ask that you consider the “lost lawn” concept on your property to increase rainwater infiltration, reduce runoff and improve your stream. Oh yes, it will take less time to mow the lawn.

WHAT DO THESE SIGNS MEAN TO YOU?

by Michael McCleary, Erosion & Sediment/Dirt, Gravel and Low Volume Roads Technician

	<p><u>ROAD CLOSED TO THRU TRAFFIC:</u></p> <p>A.) This only applies to motorized vehicles, pedestrians and cyclists who can make their way through the work site.</p> <p>B.) I have a delivery to make at the other end of this road. I can drive through to my destination.</p> <p>C.) I can drive through to see why the road is closed.</p> <p>D.) I can turn around beyond this point if my destination is on the other side of the construction.</p>
<p><u>ROAD CLOSED:</u></p> <p>A.) Pedestrians and cyclists will be allowed through.</p> <p>B.) Come on through; sight seers are always welcome.</p> <p>C.) This is my last chance to take an alternate route without putting myself at risk.</p>	

Road Closed to Thru Traffic signs are placed at the last safe place for you to take an alternate route to your destination. If you don't know which side of the construction your destination is on, you should try to find out before passing the sign.

Road Closed signs are placed at the beginning of the construction zone and mean **NO TRAFFIC OF ANY KIND IS ALLOWED BEYOND THE SIGN EXCEPT FOR CONSTRUCTION VEHICLES.**

Construction vehicles and heavy equipment have a limited field of view, and the operators are busy doing their jobs. They can not be expected to be looking out for unauthorized pedestrians, cyclists or vehicular traffic. Please keep these things in mind while you are on the road this fall!

**Northumberland County
Conservation District**
441 Plum Creek Road
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Website: www.nccdpa.org



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Northumberland County Conservation District

The NCCD, formed in 1943 under the Conservation District Law, is a subdivision of state government and is one of 66 Conservation Districts throughout the state of Pennsylvania. The purpose of the Conservation District is to promote protection, maintenance, improvement, and wise use of the land, water, and other natural resources.

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Nathan Brophy: Agricultural Conservation Technician

NCCD Board of Directors Upcoming Meetings:
October 1st and November 5th at 7pm in the NCCD EE Center
December 3rd at 12:30pm in the NCCD EE Center