



Conservation Matters



Fall into Autumn.

“Autumn... the year’s last, loveliest smile.” –William Cullen Bryant

I’ve lived in Pennsylvania for 28 years, yet I never tire of the blazing fall colors. We are truly fortunate to witness our nearby landscapes put on such an amazing display.

As the trees change, so does the activity in our office. Projects start to die down, and mosquito season is over. Now we turn our focus toward next year’s activities.

I hope you had the opportunity to travel this beautiful state during the fall months, and enjoyed the fall foliage. I also wish you a happy and safe upcoming holiday season as you prepare for the new year.

Sincerely,
Judy Becker

NCCD Takes Part in the “Biggest Little Fair in PA”

This year, the District took part in the **Northumberland County Fair** at Tall Cedars Grove in Sunbury. The fair was held from August 23rd until August 26th. NCCD put up a display board, informational pamphlets, and brochures for the duration of the fair. Each day had a designated theme, and there were a number of activities, including rides, games, great food, displays, animals, and live entertainment! The fair concluded Saturday night with a large fireworks display.



August 25th was “Kids Day” at the fair. Events included a pet parade, farmer’s triathlon, and a crowd favorite “Mutton Busting” event. Bryanna Kenno, Agricultural Conservation Technician had three interactive activities related to agriculture for kids: pig masks, thumbprint painted sheep, and cheerio corn on the cob. The activities were a hit for kids of all ages!

Inside this issue

A Bittersweet Farewell.....	2
REAP	3
New Ag Planning Reimbursement	3
Mosquito Program Update.....	4
New Service Foresters.....	5
The CSVT Bridges.....	7
AgrAbility.....	8
Dig A Little, Learn a Lot.....	9
Rain Gardens	10
PAG-02 Extension	12
Grazing Conference	13
Coal Mining History.....	14

Advertisers

Hoffman Brothers Lumber Inc.....	3
KW Enterprises LLC.....	5

“Conservation Matters” is a quarterly newsletter published by the Northumberland Conservation District.

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, Mosquito-borne Disease Control

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

A Bittersweet Farewell

By: Dave Crowl, NCCD Public Director



The strength of America depends upon passing the torch from one generation to the next. This principle has served our nation and communities well throughout history. As a youth I remember the rites of passage that move us into adulthood. Things like Little League, scouting, AAA Patrol Boy, hunting camp life, and working in a family business all pointed us toward that day when we'd be adults and ready to take over from our parent's generation. For me I was fortunate to have been raised by what's referred to as the "Greatest Generation." The values we learned were from the generation that built America into the world's most influential nation. One of those values we learned is giving back to our communities in service to our fellow Americans.

You will hear me say many times I've been very fortunate in many aspects of my life, one of them serving as public director at Northumberland County Conservation District for the past 12 years. I knew pretty much next to nothing about how the conservation district worked when I attended my first board meeting. One thing I tell folks; I ask a lot of questions and that I did. To my good fortune the district staff, fellow directors and partners were more than willing to help me understand the complexities of both government and private conservation practices.

During my board tenure, I've had the opportunity to meet some of the finest folks Northumberland County has to offer. Our staff has responded to the challenges of changing programs and budgets. They serve the county at an extremely high level and rank high on my list of overachievers. My fellow board members are among folks

for whom I have the highest regard and respect. Hard-working, dedicated and community-oriented, my fellow directors provided me with extensive mentoring and motivation. Northumberland County Commissioners have also been supportive throughout my terms. While the county has had different opinions of governance, conservation has always enjoyed full support of the county.

Over those 12 years the conservation district and watershed partners have been working hard to improve and protect Northumberland County's waters. Stream restoration, best management practices (BMPs) on farms and construction sites and acid mine discharge (AMD) are among the active programs in our county. New programs like mosquito-borne disease monitoring and control are among the evolving duties the conservation district performs.



It's time to pass the baton to the next generation. Conservation in Northumberland County is in good hands. Continuing the excellence in conservation in the county depends on good leadership, maintaining staff and continued support from Northumberland County. I've been most fortunate in being able to serve as a director and work with some of the county's hardest-working and most dedicated folks.

Best wishes, and thank you for your friendship and trust.

Dave Crowl served on the Northumberland County Conservation District Board of Directors as a Public Director from 2006 until the end of 2017. During that time, he served as Board Chairman from 2012 until 2016. He also served on the Personnel, Project Management, Policy, and Building committees. Dave also served on the PACD Executive Board from 2012 until 2016. He held the offices of secretary and treasurer during his time on the PACD Board. In addition, he served on the Northumberland County Agricultural Land Preservation Board from 2001 until 2017, where he served as Vice-Chairman from 2004 until 2007. Dave is retired from his family masonry business and lives in Elysburg with his wife, Jeanie.

“REAP” More Benefits During Harvest Season

By: Bryanna Kenno, Agricultural Conservation Technician



With the 2017 harvest season underway, things seem more promising than last year in Northumberland County thanks to an abundance of rainfall this summer. As you harvest your crops, plant cover crops, and prepare for winter, are you beginning to think of the upcoming year and everything that needs done? If you are planning to install or implement any Best Management Practices (BMPs) on your farm, REAP is one program you might want to consider helping cover the cost of these added expenses.

REAP, or the Resource Enhancement and Protection Program, was established through Act 55 of 2007 in Pennsylvania. REAP is a tax credit program administered by the State Conservation Commission (SCC) that allows farmers and businesses to earn Pennsylvania state tax credits in exchange for implementing BMPs on their operations. REAP can be used towards personal income tax among several other state taxes. Tax credits can be received at 50% or 75% of the project cost based on the BMP implemented. Each individual agricultural operation may receive up to \$150,000 in state tax credits for both proposed or completed practices. Tax credits must be used within the designated lifespan of the BMP or sold to a tax credit broker.

To be eligible for the program, the agricultural operation must have a Manure Management or Nutrient Management plan, a Conservation or Agricultural Erosion and Sedimentation plan, or include the development of a plan in the application. If your operation contains an Animal Concentration Area (ACA), all necessary BMPs must be implemented before tax credits will be awarded. Tax credits cannot be used towards publicly funded portions of projects but can be used towards out of pocket expenses. The SCC started accepting REAP applications for the upcoming fiscal year on August 7, 2017. Applications must be mailed or hand delivered to:

REAP Program
State Conservation Commission
2301 North Cameron Street
Harrisburg, PA 17110

For a list of eligible BMPs, or assistance with an application, please contact Bryanna Kenno, Agricultural Conservation Technician at (570) 495-4665 x304.

New Agricultural Planning Reimbursement Program for Farmers Available in PA

The Department of Environmental Protection (DEP) Chesapeake Bay Office has recently announced a new Agricultural Planning Reimbursement Program available to farmers in the Chesapeake Bay Watershed. The program allows farmers to be reimbursed for fees they have paid to consultants for the creation of manure management plans, nutrient management plans (including required plans for Act 38 operations), and agricultural erosion and sedimentation plans. Farmers can also be reimbursed for the development of any conservation plans by a consultant if the plans meet PA Chapter 102 requirements.

Plans developed through NRCS funding or REAP tax credits are not eligible. Farmers can also be reimbursed for more than one plan.



Reimbursement funds are distributed based on impact on the Chesapeake Bay and are available on a first come, first serve basis. A short registration form must be completed and submitted by April 1, 2018. The submission deadline for plans is May 30, 2018. Please be advised any information obtained for the reimbursement may be subject to Pennsylvania's Right to Know Law.

In order to qualify, interested individuals must contact the Northeast/Northcentral coordinator (which includes Northumberland County), Sara Bolton of Larson Design Group, Inc. Sara can be reached at sbolton@larsondesigngroup.com or (570) 374-5700.

Got Trees

Buyers of Standing Timber
10 acres or more
Call for free appraisal
717-694-3340

Hoffman Brothers Lumber Inc
118 Sand Valley Rd-Richfield, PA
Firewood
Pick-up, Tri-axle or palletized loads

MOSQUITO-BORNE DISEASE CONTROL PROGRAM UPDATE

by: Corey Bower and Chantel Shambach, Mosquito-borne Disease Control Technicians

The end of Summer also marks the end of mosquito season and, subsequently, the Mosquito-borne Disease Control Program (Program). Fortunately, like the changing seasons that do return, so will our Program beginning April 1, 2018!

Background

The Program for Northumberland, Columbia, Union, Snyder, and Montour counties was once funded by state dollars to do work at the county level from 2000-2009 after the first detection of the West Nile Virus (WNV) in New York City in 1999. The Northumberland County Conservation District (NCCD) took on responsibility for Northumberland County surveillance in 2004, which came to a halt in 2009 when state funding was cut. From 2010-2016, surveillance was done on a very limited basis by the Department of Environmental Protection (DEP) biologists, which is depicted by the low gravid trap totals in figure 3 on page 6. During the 2000-2009 period in Northumberland county, the WNV was detected twice. This past season alone our team has detected a total of 29 distinct samples of the WNV (refer to Northumberland County Records) and, with great misfortune, has had the county's first human positive in ten years. The data collected in the past 17 years since the program started has some unique trends, all of which indicate an increase in WNV prevalence in adult mosquitoes in the Northcentral Coalition region.



Figure 1. Northcentral Coalition 5-county area.

In the Numbers

Our team of three set a total of 962 traps in the Northcentral Coalition Region along with collecting 247 larval samples. Our surveillance collection numbers, WNV positives, and complaint calls are broken down by county in Table 1.

County	*Gravid Traps	**BG Traps	Larval Collections	WNV Positives	Complaints
Columbia	188	19	47	16	2
Montour	82	7	15	12	0
Northumberland	277	56	121	29	9
Snyder	102	22	25	14	1
Union	192	11	39	39	2
Total	841	115	247	110	14

*Traps set to collect pregnant females post-bloodmeal.

**Traps set to collect host-seeking mosquitoes.

Our team responded to and followed up with a total of 14 complaint sites of whom were either residents, neighbors, or Township employees that contacted us to assess and remedy mosquito nuisances. After assessing the data post-surveillance, we made informed decisions based on habitat, species present, abundance, and WNV detection to properly treat each site. Our team treated a total of 103 sites in the Northcentral Coalition

Region and is further broken down by county in Table 2.

Although this season served as our baseline as rookies, we are fortunate to have a database that portrays the past 17 years of reported data for reference. We have taken the time to break down the records by county from those years (refer to Figure 3 on page 6) that displays the total number of gravid traps set (traps that collect female mosquitoes after a bloodmeal), the total number of WNV detected samples (WNV Positives), Human, Avian, and Veterinary Positives, and Frequency ((WNV Positives/Gravid Totals)*100).

After reviewing the data in Figure 3 on page 6, there are noticeable variations in the number of gravid traps set per year, which differs greatly from county to county. One significant period is from 2010-2016, a period where State funding was cut and the workload was left for DEP biologists, where total trap collections are significantly less in comparison to county funded years (2001-2009). Another comparison to be made are the gravid trap numbers from 2002-2009 to 2017. During former years, each county had at least two technicians, whereas in 2017, there were three technicians for five counties which is nearly a threefold decrease in manpower. However, even with the decrease in the number of traps set in previous years, there is a significant rise in the prevalence of the virus per gravid trap set, indicated by the frequency in Figure 3 on page 6. To better visualize this trend, we've created a graph with the frequency of the virus caught per gravid trap over the function of time (refer to figure 2 on the next page). The green dotted line represents a linear trend line, which indicates an overall progression of the WNV frequency over the years.

County	Larval	Adult
Columbia	16	2
Montour	13	2
Northumberland	22	8
Snyder	3	1
Union	7	2
Total	88	15

MOSQUITO PROGRAM UPDATE, *continued*

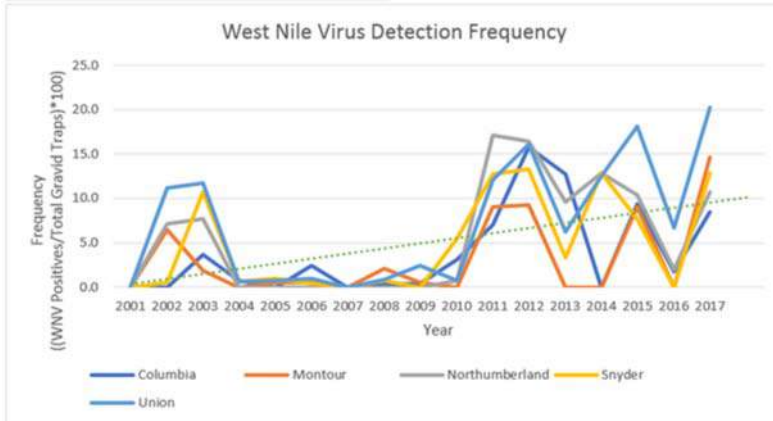


Figure 2. Line graph of the frequency of WNV detection over the 17-year period of the program.

Improvements

Next season we aim to incorporate more into our schedules. To further curtail mosquito and virus amplification we aim to reduce the number of their most prized breeding sites; old tires. The NCCD and PA DEP are teaming up with the Keep Pennsylvania Beautiful program by hosting a tire collection event in the Northcentral Coalition region. Further details will be discussed at a later date. Tires are one of the primary breeding sites of the Asian tiger

mosquito, an invasive, highly aggressive day-time feeder, and one of the leading vectors of the Zika Virus. These are also a breeding site for *Culex pipiens* and *Culex restuans* species, the primary vectors of the West Nile Virus. Tires are generally recycled into rubber bands, vehicle parts, used as an asphalt ingredient, fillers for athletic fields, playgrounds and much more.

In addition, we also want to recognize the importance of our youth. Young students will someday serve as future leaders, and their knowledge is very important to us. We plan on hosting educational events on the Program at as many school events as time allows us next year.

Final Thoughts

Our 2017 season has been a hectic one to say the least. As the mosquito surveillance season typically begins in April, our newly formed team did not begin until May when we hit the ground running. We had two weeks, starting our first day, to obtain all the necessary equipment, certifications, and knowledge to perform our duties. It was like hopping on a bike for the first time with training wheels at the top of a very steep hill and having the training wheels fall off with the first pedal. We had only the options to hold on for the ride or crash. With grit, we held on and gripped the handles tight. However, with the 2018 season in sight, our team at the NCCD is excited, seasoned, more knowledgeable and better prepared to take more preventative measures and informed actions to protect and preserve public health. (*turn to the next page for Figure 3, mentioned earlier in this article*)

New Service Foresters

Hello, my name is Troy Withers and I am the Service Forester for northern Northumberland County. I work out of the Bear Gap Fire Control Station in Elysburg, PA. I perform double duties

as both a Fire Forester and Service Forester for Columbia, Montour, and Northumberland Counties. I have been working with DCNR since July 2007. Both myself and Andy Brought will be trying to fill the shoes of Marty Martynowych, which will not be an easy task. I look forward to working and meeting with you all in the near future. I am just a phone call away if you have any questions, so please don't hesitate to call or email me and introduce yourselves. Thank you. You can reach Troy Withers at 570-672-2454.



pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

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.

KW
ENTERPRISES LLC
Erosion Control

Certified Installer Of:
filtrex
LAND IMPROVEMENT SYSTEMS
let nature do it.

201 Weaver Lane
Milton, PA 17847

Keith Weaver
(570) 523-9000
Fax - 570-521-6640
kweaver@afo.net

MOSQUITO PROGRAM UPDATE, *continued*

Annual Records by County

COLUMBIA COUNTY RECORDS						
Year	Gravid Total	WNV Positives	Human Positives	Avian Positives	Veterinary Positives	Frequency (%)
2001	12	0	0	0	0	0
2002	98	0	0	14	0	0
2003	135	5	0	3	2	3.7
2004	146	1	0	0	0	0.7
2005	198	0	0	0	0	0
2006	252	6	0	0	0	2.4
2007	350	0	0	0	0	0
2008	334	1	0	0	0	0.3
2009	265	1	0	0	0	0.4
2010	64	2	0	0	0	3.1
2011	85	6	0	0	0	7.1
2012	57	9	0	0	0	15.8
2013	55	7	0	0	0	12.7
2014	20	0	0	0	0	0
2015	32	3	0	0	0	9.4
2016	56	1	0	0	0	1.8
2017	188	16	0	0	0	8.5

MONTOUR COUNTY RECORDS						
Year	Gravid Total	WNV Positives	Human Positives	Avian Positives	Veterinary Positives	Frequency (%)
2001	0	0	0	0	0	N/A
2002	155	10	0	5	0	6.5
2003	105	2	0	3	1	1.9
2004	100	0	0	0	0	0
2005	187	1	0	0	0	0.5
2006	197	1	0	0	0	0.5
2007	222	0	0	0	0	0
2008	197	4	0	1	0	2.0
2009	177	1	0	0	0	0.6
2010	64	0	0	0	0	0
2011	100	9	0	0	0	9
2012	54	5	0	1	3	9.3
2013	15	0	0	0	0	0
2014	8	0	0	0	0	0
2015	11	1	0	0	0	9.1
2016	0	0	0	0	0	N/A
2017	82	12	0	0	0	14.63

NORTHUMBERLAND COUNTY RECORDS						
Year	Gravid Total	WNV Positives	Human Positives	Avian Positives	Veterinary Positives	Frequency (%)
2001	4	0	0	0	0	0
2002	14	1	0	24	1	7.1
2003	13	1	4	7	7	7.7
2004	48	0	0	2	0	0
2005	225	0	0	0	0	0
2006	219	0	0	0	0	0
2007	347	0	1	0	0	0
2008	253	0	0	0	0	0
2009	227	0	0	0	0	0
2010	140	1	0	0	0	0.7
2011	146	25	0	0	1	17.1
2012	152	25	0	0	0	16.4
2013	115	11	0	0	0	9.6
2014	78	10	0	0	0	12.8
2015	145	15	0	0	0	10.3
2016	52	1	0	0	0	1.9
2017	271	29	1	0	0	10.7

SNYDER COUNTY RECORDS						
Year	Gravid Total	WNV Positives	Human Positives	Avian Positives	Veterinary Positives	Frequency (%)
2001	0	0	0	0	0	N/A
2002	181	1	0	24	1	0.6
2003	130	1	4	7	7	10.8
2004	157	0	0	2	0	0.6
2005	205	0	0	0	0	1.0
2006	263	0	0	0	0	0.4
2007	278	0	1	0	0	0
2008	258	0	0	0	0	0.8
2009	104	0	0	0	0	0
2010	92	1	0	0	0	5.4
2011	63	25	0	0	1	12.7
2012	83	25	0	0	0	13.3
2013	90	11	0	0	0	3.3
2014	93	10	0	0	0	12.9
2015	78	15	0	0	0	7.7
2016	16	1	0	0	0	0
2017	109	29	1	0	0	12.8

UNION COUNTY RECORDS						
Year	Gravid Total	WNV Positives	Human Positives	Avian Positives	Veterinary Positives	Frequency (%)
2001	51	0	0	0	0	0
2002	170	19	0	20	8	11.2
2003	119	14	1	11	12	11.8
2004	152	1	0	0	0	0.7
2005	258	2	0	0	0	0.8
2006	217	2	0	0	0	0.9
2007	205	0	0	0	0	0
2008	221	2	0	0	0	0.9
2009	250	6	0	0	0	2.4
2010	141	1	0	0	0	0.7
2011	149	18	0	0	0	12.1
2012	93	15	0	1	1	16.1
2013	145	9	0	0	0	6.2
2014	104	13	0	0	0	12.5
2015	110	20	0	0	0	18.2
2016	15	1	0	0	0	6.7
2017	192	39	0	1	0	20.3

Useful links for more information:

PA DEP: <http://www.westnile.state.pa.us/>

Penn State Extension: <https://extension.psu.edu/west-nile-virus>

Centers for Disease Control: <https://www.cdc.gov/westnile/index.html>

CDC (Zika Virus): <https://www.cdc.gov/zika/index.html>

American Mosquito Control Assoc.: <http://www.mosquito.org/>

Figure 3. The Northcentral Coalition Records broken down by county. Data provided by PA DEP.

THE CSVT BRIDGES (NORTHERN SECTION)

by: Michael McCleary, Erosion and Sediment Technician

The bridge over the Susquehanna River: My son took some pictures of the piers on the west side of the river with his drone to give us a look at the construction from a different point of view.



(continued on next page)

THE CSVT BRIDGES (NORTHERN SECTION), *continued*

The thru-way will be constructed over relocated Ridge Road.



Acorn Drive will be constructed over the thru-way.



The Bridge over Wooded Run



The north bound lane over Chillisquaque Creek.



AgrAbility in Pennsylvania: A Hidden Gem in the Agricultural Industry
By: Bryanna Kenno, Agricultural Conservation Technician



AgrAbility: a statewide partnership in agriculture that many Pennsylvanians are unaware of. What is AgrAbility? AgrAbility PA is a partnership between Penn State Extension and United Cerebral Palsy (UCP) of Central Pennsylvania designed to assist farmers and workers in the agricultural field with disabilities or long-term health conditions. AgrAbility provides resources and support producers need to continue working or begin working in production agriculture.

AgrAbility is not unique to just Pennsylvania, there are similar efforts in 22 other states! AgrAbility is funded through a project with the United States Department of Agriculture (USDA) and National Institute of Food and Agriculture (NIFA). Any Pennsylvanian with a disability or long-term health condition who is involved in farming/agriculture may be able to receive services. Conditions may include arthritis, amputation, stroke, knee pain/injury, respiratory problems, or back pain to name a few. There is no cost for on-site assessments, technical assistance, or educational materials, however, there are opportunities to seek out funding if assistive technology is needed.

AgrAbility PA staff work with the PA Office of Vocational Rehabilitation (OVR) which can provide funding towards assistive technology equipment, devices, or modifications of existing equipment. OVR determines how much funding a project will receive, often with little cost to the producer. The PA Assistive Technology Foundation (ATF) can also provide low interest loans to the producer for assistive technology equipment. There are other third-party options available, and AgrAbility PA staff are there to help every step of the way!

AgrAbility PA is housed in State College but serves the entire state. The staff are eager to assist those producers with disabilities or health conditions. If you or someone you know in agriculture could benefit from AgrAbility's services, please contact the PA office at (814) 867-5288, email AgrAbility@psu.edu or visit <https://agrabilitypa.wordpress.com/>. Even if you are unsure if you are eligible, contact the organization and start a conversation!

Dig a Little, Learn a Lot, (Part 1)

By: Janette Lesher, District Conservationist, NRCS

Now that harvest season is among us and you find yourself in your fields, take the opportunity to dig a little! When you dig a little, you'll learn a lot about the health of your soil. One of the farmer's most valuable assets is his/her soil. Healthy soils are 1- full of life, 2- high in organic matter, 3- covered all the time, and 4 - well structured. In this article, let me focus on the first part of a healthy soil; being full of life!

A healthy, fully functioning soil is balanced to provide an environment that sustains and nourishes plants, soil microbes and beneficial insects. Soil is a living system, and healthy soil should look, smell and feel alive! Dig in your soil to discover what your soil can tell you about its health and production potential.

See – Healthy soil is darker in color, crumbly and porous. It is home to worms and other organisms that squirm, creep, hop or crawl.

Smell – Healthy soil has a sweet and earthy aroma. An unhealthy, out-of-balance soil smells sour or metallic, or like kitchen cleanser.

Touch – Healthy soil is soft, moist and crumbly and is easy to dig into. This allows plants to grow their roots more freely and unimpeded.

Understanding how healthy soils look, smell and feel are the first steps towards achieving soil health and a soil that is full of life. Healthy soil can increase production, increase profits and protect natural resources. The creatures living in the soil are critical to soil health. They affect soil structure, and therefore soil erosion and water availability. They can protect crops from pests and diseases. They are central to decomposition and nutrient cycling.

Who is living in your soil and what do they do? Bacteria, algae, microscopic insects, earthworms, beetles, ants, mites and fungi are among them! Take for example, bacteria; the soil microbes with the highest number. You can fit 40 million of them on the end of one pin. There are more soil microorganisms in a teaspoonful of soil than there are people on earth!

Bacteria – Feed on organic matter, store and cycle nitrogen and decompose pesticides

Fungi – Some feed on dead organic matter like crop residues, others are parasites that attack other microbes. Some fan out from the root to get more nutrients and hold more water for the plant – delivering nutrients to the plant in exchange for carbon

Protozoa – Eat bacteria, fungi and algae. When they eat their main food source (bacteria) they unlock nitrogen that is released into the soil slowly. They convert organic nitrogen to inorganic nitrogen that is available to the plants.

Mites – Decompose and shred organic matter as an important part of the nitrogen cycle

Nematodes – Microscopic worms that are an important part of the nitrogen cycle. Most are non-pathogenic and don't cause disease. They eat other organisms in the soil.

Earthworms – Expel partially decomposed organic matter, produce nutrient- rich casts, and make lubricated tunnels that aid soil structure and water movement in the soil.

Now that you know who contributes to a healthy soil, it is also vitally important to know what can harm them and help them! Stay tuned for the article in the next newsletter to learn more about Healthy Soils!

Enjoy the rest of the fall season!

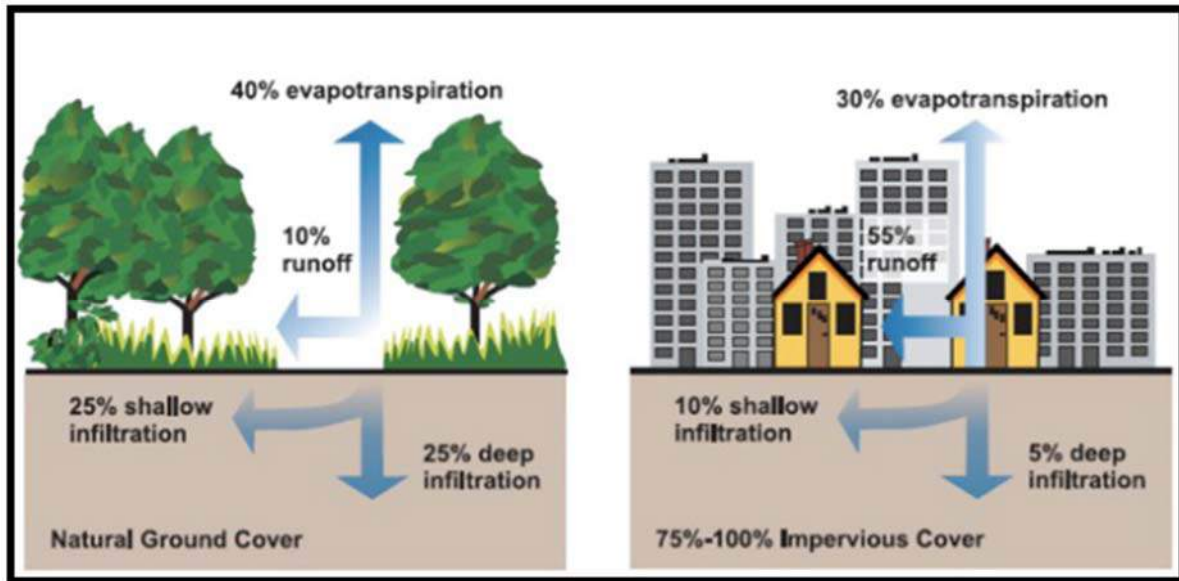


RAIN GARDENS: A STORMWATER SOLUTION

by: Jaci Harner, Watershed Specialist

Stormwater runoff. What is it? Where does it come from? Is it a problem?

Stormwater is water that originates during a rain fall event or snow/ice melt. Stormwater can soak into the ground, evaporate back into the atmosphere or flow over the land as runoff and end up in a stream, river, or lake. In natural areas, like a forest or meadow, the soil absorbs most of the stormwater.



This water is taken up by plant and tree roots, and/or recharges underground water reserves, also known as aquifers. In comparison, in urban, suburban, and developed areas where large areas of ground are permanently covered with roof tops, parking lots, and roadways, stormwater runs over top of these solid surfaces and is often directed to a pipe that discharges directly into a stream or river. Stormwater runoff from developed areas increases flooding; carries pollutants from streets, parking lots and even lawns into local stream, rivers, and lakes; and leads to costly municipal maintenance activities to fix damage to local pipes and roadways.



RAIN GARDENS: A STORMWATER SOLUTION, *continued*

One way to manage stormwater is to direct it into a rain garden. A rain garden is a landscaped area specially designed to collect and treat stormwater runoff. The plants and soil in a rain garden clean stormwater runoff by absorbing and filtering pollution as the water soaks into the ground. This water is cleaned by plants, soil, and beneficial bacteria in the rain garden.

Rain gardens can be used to collect water from rooftops, driveways, or parking lots. If installing a home rain garden, consider these points:

- The rain garden should be at least 10 feet from the house so infiltrating water doesn't seep into the foundation.
- Do not place the rain garden over a septic system
- It may be tempting to put the rain garden in a part of the yard where water already ponds. Don't! *The goal of a rain garden is to encourage infiltration*, and your yard's wet patches show where infiltration is slow.
- It is better to build the rain garden in full or partial sun, not directly under a big tree.
- Choose hardy, native plants for your garden; <https://extension.psu.edu/pennsylvania-native-plants-for-the-perennial-garden>.
- Use shredded hardwood mulch for better absorption.



Many people ask if rain gardens are a breeding ground for mosquitoes. If the garden is installed properly the answer is NO. Mosquitoes need at least 7 days to lay and hatch eggs (the warmer it is the faster the mosquito larvae will grow). Standing water in the rain garden should only last 6 – 24 hours after most storms. Mosquitoes are more likely to lay eggs in bird baths, storm sewers, and lawns than in a sunny rain garden. Also, certain rain garden plants (Black-eyed Susan, Joe-pye weed), can attract dragonflies, which eat mosquitoes! If an unusual rain event leaves standing water in your rain garden for an extended period of time, you can add whole or sections of mosquito dunks to the water. The dunks kill mosquito larvae but are not harmful to plants. These can be purchased at many local hardware stores.

Rain gardens are a way for homeowners and businesses to reduce the impacts of stormwater from their properties. While an individual rain garden may seem like a small thing, collectively they produce substantial neighborhood and community environmental benefits. Rain gardens work for us in several ways:



- * Increase the amount of water that filters into the ground, which recharges local and regional aquifers.
- * Help protect communities from flooding and drainage problems.
- * Help protect streams, rivers, and lakes from pollutants carried by urban stormwater: lawn fertilizers and pesticides, oil and other fluids that leak from cars, and numerous harmful substances that wash off roofs and paved areas.
- * Enhance the beauty of yards and neighborhoods.
- * Provide valuable habitat for birds, butterflies and many beneficial insects.

(continued on next page)

RAIN GARDENS: A STORMWATER SOLUTION, *continued*

There is a wealth of information on this topic at your fingertips; check out these websites:

<http://www.raingardennetwork.com/>

<https://www.epa.gov/soakuptherain/soak-rain-rain-gardens>

<http://dnr.wi.gov/topic/ShorelandZoning/documents/rgmanual.pdf>

No matter where you live, in the country, in a town/city, or in a development, we all live in a watershed, and rain water/snow melt comes in contact with the land we live on. Do your actions influence the water quality in our local community? Absolutely! Take a few moments to think about what you can do to ensure clean, healthy water resources for our local streams and river.



PAG-02 NPDES GENERAL PERMIT, NOTICE OF EXTENSION

A PAG-02 National Pollution Discharge Elimination System General Permit is required when a construction site larger than one acre will discharge stormwater to surface water bodies. On October 21, DEP extended the use of the NPDES General Permit for stormwater discharges associated with construction activities (PAG-02) for one year, until December 31, 2018. The existing PAG-02 General Permit expires on December 7, 2017. This extension applies to PAG-02 General Permit authorizations obtained prior to December 7, 2017. All authorizations obtained prior to December 7, 2017 can be used through December 31, 2018.

After December 7, 2017, and before any PAG-02 final reissuance, applicants who wish to conduct earthmoving requiring an NPDES permit may apply for an individual permit. Individual permittees who were previously eligible for PAG-02 will be charged the current PAG-02 review fee (\$500.00) until the PAG-02 is reissued.

The proposed PAG-02 is available at www.elibrary.dep.state.pa.us (select "Permit and Authorization Packages," the "Clean Water," then "PAG-02"). DEP invites public comments on the proposed draft. Interested persons are invited to submit written comments through December 3, 2017. Commentators are encouraged to use DEP's online eComment system at <http://www.ahs.dep.pa.gov/eComment/>.



Written comments may be emailed to ecomment@pa.gov, or mailed to the Department of Environmental Protection, Policy Office, 400 Market Street, P.O. Box 2063, Harrisburg, PA, 17105-2063. All comments submitted during the 30-day comment period will be retained and considered in finalizing the PAG-02.

If you are in need of a PAG-02 NPDES General Permit and have questions, please contact Michael McCleary, Erosion and Sediment Technician at 570-495-4665 x302.

Transportation Available for Regional Grazing Conference

By: Jaci Harner, Watershed Specialist

Want to learn valuable grazing management practices from fellow producers? We are organizing a van/bus to transport local producers to the Regional Grazing Conference in Maryland to hear a presentation by the well-known Gabe Brown. Cost for the day is \$20; this includes your \$12 registration fee for the conference, and the cost of travel. Checks can be made out to NCCD. **Call the Northumberland County Conservation District by December 15th to sign up.** Not only will we do the driving, but we will also take care of your conference registration. Call us today at 570-495-4665. We hope you'll join us! (See the flyer below for more information on this program.)

Mountains-to-the-Bay Grazing Alliance Presents: **Regional Grazing Conference**

Featured Speakers:

Gabe Brown, Rancher, North Dakota

Gabe will speak about regenerative agriculture farming that integrates animals, crops, and multi-species cover crops.

Nicole Masters, Integrity Soils, New Zealand

Nicole will explain how to improve your soils so you can reduce or eliminate the need for purchased inputs.

We will also host a farmer panel,
featuring graziers from the Chesapeake Bay region.

**Thursday, January 11, 2018
9:30 a.m.–2:30 p.m.**

**Washington County Agricultural Education Center
Multi-Purpose Building
7303 Sharpsburg Pike
Boonsboro, MD 21713**

To register, visit: goo.gl/pMJ9sG

Registration costs \$12 and includes lunch

Questions? Email mheller@cbf.org or jsemmler@umd.edu

This conference is supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under agreement number 69-3A75-16-038. Any opinions, findings, conclusions, or recommendations expressed at this conference do not necessarily reflect the views of the U.S. Department of Agriculture.

COAL MINING HISTORY AND ENVIRONMENTAL STEWARDSHIP

by: Jaci Harner, Watershed Specialist

On October 17th, several school classes from the Mt. Carmel and Shamokin area spent the day learning about local environmental issues and wrapped up the day by planting trees and shrubs along Quaker Run, a tributary to Shamokin Creek. The event focused on teaching local students about local land use practices and their impacts on water quality. The Kulpmont Borough partnered with Shamokin Creek Restoration Alliance and Northumberland County Conservation District to organize the day long field trip educating students about water quality issues.

The day started with students rotating through 3 stations within the town of Kulpmont. One presentation was atop a hill above the Veteran's Memorial Field. A local borough councilman explained this location was home to the Scott Colliery, an active coal mining establishment, dating back to 1905. The site was reclaimed in the 1980's using funds from the Rural Abandoned Mine Program. Now the site offers a baseball field, walking track, and open space for community activities. A second presentation was in a local bank that displays a mural of the original Scott Colliery. Here, a local watershed member explained the history of coal mining and the significant role it played in supporting this local town. A final stop took students to a site with a bird's eye view of Quaker Run. Another local watershed member described how this stream, and many others within the Shamokin Creek watershed, suffer from Acid Mine Drainage (AMD) and permanent channel changes due to past mining activities. AMD impacted streams cannot support aquatic life because of low pH, high iron, manganese, and/or aluminum levels. She also explained how it is the watershed group's goal to return the local creeks to a healthy state so they can sustain native fish and aquatic life in the future.



Next, students were transported to Weiser State Forest where they rotated through another 3 stations. Station 1 focused on riparian buffers. Students learned how buffers help to protect water quality by acting as a filter, holding soils in place with mature root systems and keeping stream waters cool with large overhanging canopies. Station 2 explained how macroinvertebrates can determine water quality. A kick net was used to collect macros from the South Branch Roaring Creek where students used identification sheets to name the macros and classify them as Tolerant, Facultative, or Sensitive. Finally, station 3 talked about watersheds. Students learned that we all live in a watershed and that land use can impact the water quality of our local streams and rivers. Conservation district staff provided information at all 3 of these stations.

Students returned to Kulpmont where they planted 50 trees/shrubs along Quaker Run to enhance its riparian buffer. In addition, several students helped install 5 bird houses along the walking track around the field. Students commented the best part of the day was planting the vegetation.

COAL MINING HISTORY AND ENVIRONMENTAL STEWARDSHIP

continued

A host of partners provided support for this successful day. Funding was provided by the PA Department of Environmental Protection's Environmental Education Grant. Grant activities were organized by Kulpmont Borough, Shamokin Creek Restoration Alliance, and Northumberland County Conservation District. Landscape Services, Inc. of Locust Gap provided the trees/shrubs, related supplies, and a planting demonstration for the students. Cole's Hardware of Mt. Carmel provided supplies for building the bird houses. Finally, Church of Holy Angels, Kulpmont Knights of Columbus, Kulpmont Sportsman Association, and Scicchitano's Buono Pizza all helped to provide lunch. Thank you to this team of people for dedicating their time toward creating informed young citizens within our local community.

"Education is the most powerful weapon which you can use to change the world."

-Nelson Mandela



Don't forget about our annual tree sale! Brochures for our 48th annual sale will be mailed out in early February. If you are unsure if you are on our mailing list, contact our office today! (If you receive a newsletter, that does not mean you are on our tree sale mailing list.)

Northumberland County
Conservation District
441 Plum Creek Road
Sunbury, PA 17801
Phone: (570) 495-4665
Website: www.nccdpa.org



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.

Directors

Mike Hubler: Chairman, Public
Leon Wertz: Vice-Chairman, Farmer
Richard Shoch: Commissioner
Gary Truckenmiller: Farmer
John Kopp: Farmer
Dave Crowl: Public
Rich Daniels: Farmer

Mike Erdley: Associate
Dave Swank: Associate
Blair Carbaugh: Associate
Albert Mabus: Associate
John Pfleeger: Associate
Ted Carodiskey: Associate
Lynn Wilson, Associate

Staff

Judy Becker: District Manager, AgLand Preservation, Editor
Shirley Snyder: Administrative Assistant
Jaci Harner: Watershed Specialist, Nutrient Management Technician
Michael McCleary: Erosion & Sediment Technician, Dirt & Gravel Roads
Bryanna Kenno: Agricultural Conservation Technician
Corey Bower: Mosquito-borne Disease Control Coordinator

**NCCD Board of Directors Upcoming Meetings:
December 7, January 4, and February 1 at 12:30pm;
all held at the NCCD EE Center**