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**The Conewago Creek Initiative** is a locally-led, collaborative partnership effort in the Conewago Creek watershed in Dauphin, Lancaster, and Lebanon Counties. We seek to work with local residents and stakeholders to increase awareness and adoption of land management practices that will improve water quality of local streams and ensure healthy farms and communities, implementing the vision of the Conewago Creek Watershed Community: *a restored Conewago as a centerpiece of pride and a treasured asset in a rural landscape.*

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# Conewago Currents

Volume 1, Issue 4

Fall 2011

## The Coordinator's Report

Fall in the Conewago started with extreme weather challenges. And things have never really dried out. Hurricane Irene and Tropical Storm Lee resulted in the worst flooding many Conewago residents have seen in their lifetimes. Flood stage at the mouth of the Conewago was greater than Agnes. During the flood's height, the water flowing down the Conewago was more than 25% of the flow of the entire Susquehanna during typical low flow conditions.

These events brought challenges to farmers and nonfarmers alike, as crop and property damage was experienced. Let's hope we don't see a situation like this for quite a while.

Fall also marked some successful restoration efforts and workshops held by Conewago Initiative partners. As you will read below, Conewago farmers gath-

ered at the Kopp family farm to hear about the advantages of no-till, cover crops, and manure injection. These practices help to greatly reduce soil and nutrient loss from crop fields.

Homeowners also learned from Penn State landscape architecture and engineering students about "green" solutions for managing stormwater on their properties, apropos given the rainfall experienced this fall.

Hundreds of trees were planted along Conewago streams, adding to the restoration of forest riparian buffers in the watershed. And many other agricultural best management practices were installed on Conewago farms by our Conservation District and NRCS partners.

As we move into winter, look for winter meeting opportunities, particularly a Conservation District workshop on the new Manure Management Manual,



**Cover crops were featured at the field day hosted by the Kopp family's Stonylawn Farms in November.**

Happy Holidays to all and a Happy New Year!

*Matt Royer*

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## Cover Crops and Manure Injection Field Day a Success

Some of the top agricultural best management practices to protect and improve water quality were showcased at a field day at the Kopp family's Stonylawn Farms on November 9. Presented by Penn State Cooperative Extension in partnership with the Lancaster and Dauphin County Conservation Districts and the Conewago

Creek Initiative, nearly 50 farmers and agricultural conservation professionals heard from Penn State Extension Educators about the advantages of no till, cover crops, and manure injection practices. Ron Kopp, who together with his brother and nephew operate a dairy and farm 800 acres near Middletown, talked about his farm

operations and the advantages of the no-till system they have been implementing for many years.

The Kopp farm is one of eight locations where Penn State Extension is conducting on farm research on manure injection and cover crops within no till systems.

**See COVER CROPS page 2**

[Click here](#) for an excellent Lancaster Farming article on the field day.

## Cover Crops and Manure Injection (cont.)



Extension's Jeff Graybill and Robb Meinen discussed the manure injection system employed at the Kopp farm. Manure injection has the advantage of placing nutrients under the soil surface where they can best be utilized by crops. The shallow disc manure injection is compatible with no-till systems, and thus results in minimally disturbed soils. Research at Penn State's Rock Springs farm from 2006-2007 also showed that manure injection resulted in an average of 79% less nitrogen loss to the environment than traditional surface application. Yield tests at the Kopp farm experiment showed yield increases of 5 bushel an acre over broadcast manure application. Producers must also factor in the cost of manure

injection, which has shown to be a bit higher because of the additional time it takes to precisely operate and apply the injection equipment.

The manure injection at the Kopp farm was performed by custom manure hauler Steve Lehman, Lehman Ag Service. If you are interested in manure injection on your operation, contact Steve at (717) 284-5710 or lehmanag@juno.com. Sjoerd Duiker, Penn State Associate Professor of Soil Management and Applied Soil Physics, talked about no-till systems and cover crops. He showed the advantages of increase soil moisture, macropores and increased earthworm activity, build up of organic matter and enhanced microbial activity in soils. Dr. Duiker is looking at a variety of cover crop mixes at the farm, each with varying advantages.

Some cover crops like rye are cold tolerant and do well as winter cover crops; others like wheat can potentially serve as forage or a cash cover crop. Still others, like legumes, have the advantage of being nitrogen fixers.

**Penn State Extension research has shown that manure injection results in 79% less nitrogen loss than surface application.**



**Penn State's Jeff Graybill and Sjoerd Duiker discuss no-till during the November 9 Field Day.**

## Penn State Students Offer Stormwater Solutions



**Penn State landscape architecture student Dan Barefoot (left) and Penn State Harrisburg hydrology student Ahmed Clayiff (right) discuss stormwater management with attendees of the November 5 Conewago stormwater workshop.**

As part of a unique class offering this fall, Penn State landscape architecture and engineering students presented Conewago property owners with "green" solutions to stormwater management challenges. Students worked as teams and were

matched with four landowners in the watershed who were looking for advice on how to manage stormwater on their properties. The students conducted site visits and assessments, met with landowners, and developed customized solutions for their properties. Solutions were presented as case studies as part of a workshop offered on November 5 at the Londonderry Township Municipal Building.

The students developed a comprehensive guide entitled "Eco-landscaping for Water Quality." The guide highlights eight practices property owners can consider implementing to better manage stormwater on their properties, ranging from rain gardens to porous pavement. Basic design elements and considerations are presented for each element, along with summary information on benefits, negatives, cost estimates, maintenance requirements, and aesthetic appeal, making it easy for landowners to consider each technique and decide whether it meets their needs.

Workshop attendees were provided with a copy of the Eco-landscaping Guide. An electronic version will be pro-

vided on the Conewago Initiative website soon.

Special thanks to Professors Kelleann Foster and Dr. Shirley Clark for offering this special project opportunity, and thanks to all the talented students who helped lend their services to the Conewago community: Dan Barefoot, Ahmed Clayiff, Danielle Harrow, Greg Potteiger, Byron Robinson, Jean Ryan, Alex Smith, and Matt Weir.



## Volunteers Complete Riparian Buffer Plantings



**23 acres of riparian buffer restoration at Hershey Meadows was completed by volunteers this fall.**

Nearly 100 volunteers worked with Conewago Initiative partners this October to plant several hundred streamside trees in the Conewago Watershed. Eagle Scout Logan Finley

organized a work crew to plant over 100 native trees and shrubs in the headwaters of a tributary to the Conewago on the Ambrose farm.

A week later, over 70 volunteers worked with Tri-County Conewago Creek Association, the Chesapeake Bay Foundation, and Wild Resources, Inc. to plant several hundred trees along the Conewago at the Hershey Meadows restoration site between Routes 743 and 283. Groups assisting included Conewago Cub Scout Pack 98 and the Kiwanis Club of Her-

shey-Hummelstown. The work of the volunteers completed over 23 acres of riparian buffer restoration started in the spring.

Riparian buffers are one of the best things you can do to improve water quality. Planting native trees and shrubs along a stream filters runoff, shades and cools stream temperatures, slows bank erosion, and helps to minimize flooding. Thanks to all of the volunteers who worked hard to plant buffers in the Conewago this fall!



**Logan Finley and his work crew of volunteers planted over 100 trees in this headwater area of a Conewago tributary in Lebanon County.**

## Conewago Partner Spotlight: Intern Nate Straw

The Conewago Initiative is lucky to have another talented intern this fall. Nate Straw is a senior at Lower Dauphin High School. He is interning with the Initiative as part of a work experience program offered by his school's career office.

This fall Nate has helped analyze watershed assessment data, conducted buffer maintenance, participated in stormwater mitigation site assessments, and developed meeting minutes

and reports. He will continue to provide valuable assistance through spring semester.

Nate is a member of the varsity soccer team. After graduation, Nate plans to attend college to major in environmental science. In his spare time, Nate can be found fishing and hunting in the Conewago and Swatara watersheds or at his family's camp in Clearfield County.

Welcome aboard, Nate!



**Conewago Intern Nate Straw (right) helps Tetra Tech environmental engineer Russ Dudley conduct stream restoration assessments.**

## Practice Spotlights

### On The Farm: Manure Management

All farms (regardless of size) that generate or use manure are required by PA law to have and implement a Manure Management Plan. These plans require practices to minimize nutrient loss that can be harmful to water quality. Plans must follow the new revisions to the Manure Management Manual, finalized this fall. A workshop will be

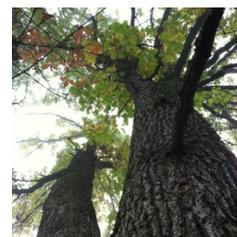
held in the Conewago this winter on Manure Management Planning. Look for details in the January Conewago Connection e-news. [Click here](#) to download your copy of the Manual.



### Around The Home: Planting Trees

Not only do trees add beauty to your property, they help improve the water quality of your local streams. Trees help slow down and soak up runoff from stormwater. A single mature oak can soak up 4,000 gallons of stormwater per year! If you are considering planting

trees on your property this spring, go native. Native trees do better in our local soils. Keep your eye out for the Conservation District seedling sales in March.



### Conewago Photo Gallery



This issue's gallery features autumn scenery and photos from our Conewago workshops, field days, volunteer work days, and field trips this fall.

## Record Floods Hit Conewago

By this time, countless stories of the September 2011 floods have been written. Yet many Conewago residents and others in the region are no doubt still dealing with the aftermath of these devastating events. In this summer's newsletter, we reported on the new USGS gauge station on Conewago Creek along Sawmill Road. This gauge provides the first continual monitoring data on the Conewago and will help track improvements in water quality over time. [Click here](#) to visit the USGS website and

check real time data for the Conewago. If you were checking data mid-September, you would have noticed some blanks. That's because the floods had knocked the station offline. The normally shallow Conewago crested at 15.73 feet, and the force of the water pushed the gauge house four feet downstream (see photo at right). Mike Langland and Dave O'Brien of USGS measured the peak discharge and it was an astounding 6,500 cubic feet per second (cfs). This is over 25%

of the entire summer flow of the Susquehanna River, which drops to about 25,000 cfs. The floods caused widespread damage. Bridges, culverts, and homes throughout the watershed were damaged. The Dauphin County Conservation District documented over \$900,000 in crop damage to Dauphin County farmers.



**The Conewago USGS gauge station was knocked off line and washed off its platform during Tropical Storm Lee. It is now back online and running.**

*Mike Langland, USGS, and Mike Hubler, DCCD, contributed to this story. Photo by Mike Langland.*

## Conewago Hosts National Fish and Wildlife Foundation Field Trip

The Conewago Creek watershed was host to program officers and grantees from the National Fish and Wildlife Foundation (NFWF) this November.

NFWF, located in Washington, D.C., is the primary funder of the Conewago Creek Initiative. The Foundation hosts an annual networking forum for all of its Chesapeake Bay Stewardship Fund grantees working on agricultural projects in the Bay

watershed. This year, the forum was held in Hershey. On the second day of the forum, Conewago Initiative partners led a field trip to the Hershey Meadows restoration site. Highlights of the Initiative partnership and accomplishments to date were shared and the story of the Hershey Meadows project was told. Field trip participants walked the site and observed the restored wetlands, stream banks and channels, and newly planted riparian

buffer. The project showcases what many hands of many partners can accomplish and how watershed restoration projects can achieve multiple benefits of improved water quality, enhanced wildlife habitat, and community opportunities and sense of pride.



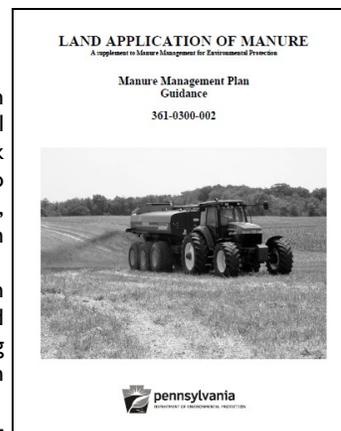
**Mark Roberts, US Fish and Wildlife Service, shows field trip attendees stream restoration at the Hershey Meadows site.**

## Manure Management Manual Finalized

This fall, PA DEP finalized its Manure Management Manual. The new Manual provides updates to and supersedes all previous manuals related to manure management and field application. Every farm in PA (regardless of size) that land applies or generates manure is required to have and implement a Manure Management Plan. The Manual provides the format that farmers should follow to develop their Plans.

Plans must include: (1) general information about the farm; (2) information on manure application rates and timing; (3) a farm map showing locations of fields, structures, environmentally sensitive areas, and setbacks; and (4) recordkeeping requirements and forms. If a farm has a manure storage facility or stockpiles, information on storage and stockpiling is also required. Farms that pasture animals or have animal concentration areas (ACAs) must

include this information as well. The Manual comes with a workbook that allows farmers to develop their own plans, or they may work with agricultural technicians. Staff with Conservation Districts, NRCS, and Extension are undergoing training on the Manual in December and January. A workshop for Conewago farmers is being planned for later this winter.



**[Click here for your copy of the Manure Mgt Manual.](#)**

## CONEWAGO CREEK INITIATIVE

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*Dauphin County Conservation District • Lancaster County Conservation District • Lebanon County Conservation District • Tri-County Conewago Creek Association • South Londonderry Township • Elizabethtown College • Penn State University • PA Department of Environmental Protection • PA Department of Conservation and Natural Resources • PA Fish and Boat Commission • PA Department of Agriculture • USDA Natural Resources Conservation Service • USDA Agriculture Research Service • U.S. Geologic Service • U.S. Fish and Wildlife Service • U.S. Environmental Protection Agency • Chesapeake Bay Foundation • ZedX Corporation • American Farmland Trust • Capital Area RC&D*

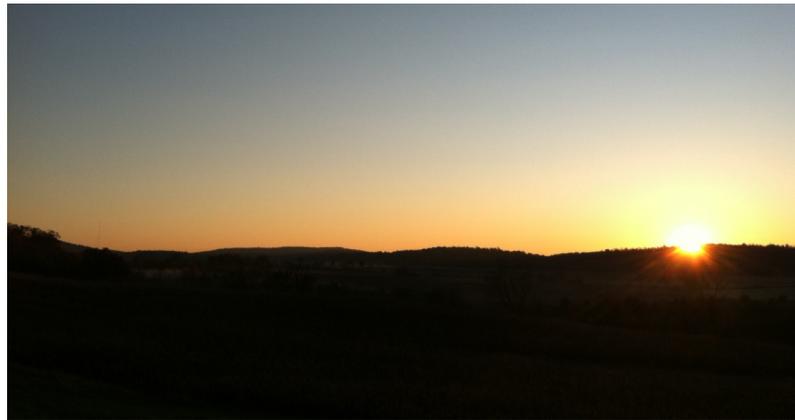
**The Conewago Creek Initiative is a project of Penn State Cooperative Extension made possible through funding by the National Fish and Wildlife Foundation and the Foundation for Pennsylvania Watersheds**



## Community working together for a restored Conewago.

**The Conewago Watershed Community has envisioned a future that establishes the restored Conewago and its tributaries as a centerpiece of pride and a treasured asset in a rural landscape.**

**This vision includes a strong agricultural community and productive farmland, community recreation areas and vibrant, well planned communities. Pristine landscapes will be protected while providing sustainable uses of natural resources, clean water and streams, and educational opportunities for generations to come.**



## Calendar of Events

**January 3-4, 9:00 am- 4:00pm**  
**January 5, 9:00 am - 3:00 pm**  
**Keystone Farm Show**  
334 Carlisle Avenue  
York, PA 17404

**January 7-14**  
**Pennsylvania Farm Show**  
Farm Show Complex  
N Cameron & Maclay Streets  
Harrisburg, PA

**January 10**  
**2:30 pm**  
**Water Quality Volunteer**  
**Coalition Meeting**  
Farm & Home Center  
1383 Arcadia Road Lancaster, PA  
(717) 392-4911

**January 25**  
**7:00 pm – 9:00 pm**  
**Tri-County Conewago**  
**Creek Association**  
**Annual Meeting**  
Conewago Township Building  
3279 Old Hershey Rd, Etown  
(717) 948-6459

**February 1-4**  
**Pennsylvania Association**  
**for Sustainable Agriculture**  
**Farming for the Future**  
**Conference**  
Penn State Conference Center  
Hotel  
215 Innovation Boulevard,  
State College PA  
(814) 349-9856

**February 9**  
**9:30 am - 3:00 pm**  
**Winter Crops Conference**  
Lebanon Valley Expo Center &  
Fairgrounds  
80 Rocherty Road  
Lebanon, PA 17042  
(717) 270-4391

**February 21**  
**12:00 pm – 3:00 pm**  
**Conewago Initiative Project**  
**Advisory Team Meeting**  
Penn State Harrisburg  
Educational Activities Building  
(717) 948-6459

Check the [Conewago Calendar](#) often for updated events!