

Stories in this issue:

- Stream Side Tree Nursery.....Page 1
- Why.....Page 2
- 'Invisible' Paxton Creek Problems TMDL....Page 3
- Chesapeake Bay Water ForumPage 6
- Crayfish Crawl Report.....Page 7

Upcoming Events:
 Watch Website for upcoming announcements



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Paxton Creek Watershed & Education Association Newsletter

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A letter and an Invitation about the Stream Side Tree Nursery

Hello, all members out there! My name is Bryan Genesse. I have been involved with the Paxton Creek Watershed Education Association for almost three years. Participating in community awareness, storm water management projects and educational training. Now, I am truly excited to tell you about a new and inspiring PCWEA project. I believe, it has the potential to influence our community and protect our watershed for future generations.

The Stream Side Tree Nursery was founded back in 2001 by our friends, the Alliance for the Chesapeake Bay. In June of this year, PCWEA accepted ownership. During this time friends and partners of the community came together to bring this nursery back to life.

A sturdy wire fence surrounds tiny saplings that sit atop a sturdy black weed barrier. A shed provides everything necessary for the nursery to expand and maintain beautiful Crabapple, Oak, Hawthorne, Locust trees, along with some conifers. The nursery sits back in cozy in Shutt Mill Park located in Susquehanna Township. Positioned alongside Black Run Creek, a tributary to Paxton Creek, This park is a quite place where people bring their dogs and listen to the passing flow of water.

...The Stream Side Tree Nursery was founded back in 2001 by our friends, the Alliance for the Chesapeake Bay...

The original intent of the nursery was to fill the park with trees and move the park closer to the main road of Crooked Hill, but I'm unclear

about the continuation of this movement. Never the less, I have lived near the park nearly all my life and appreciate its beauty.

Continued on Page 2...



One view of the Stream Side Nursery . Photo Rob Davis



Ravages of a 2011 summer storm Photo Rob Davis

Stream side nursery continued...

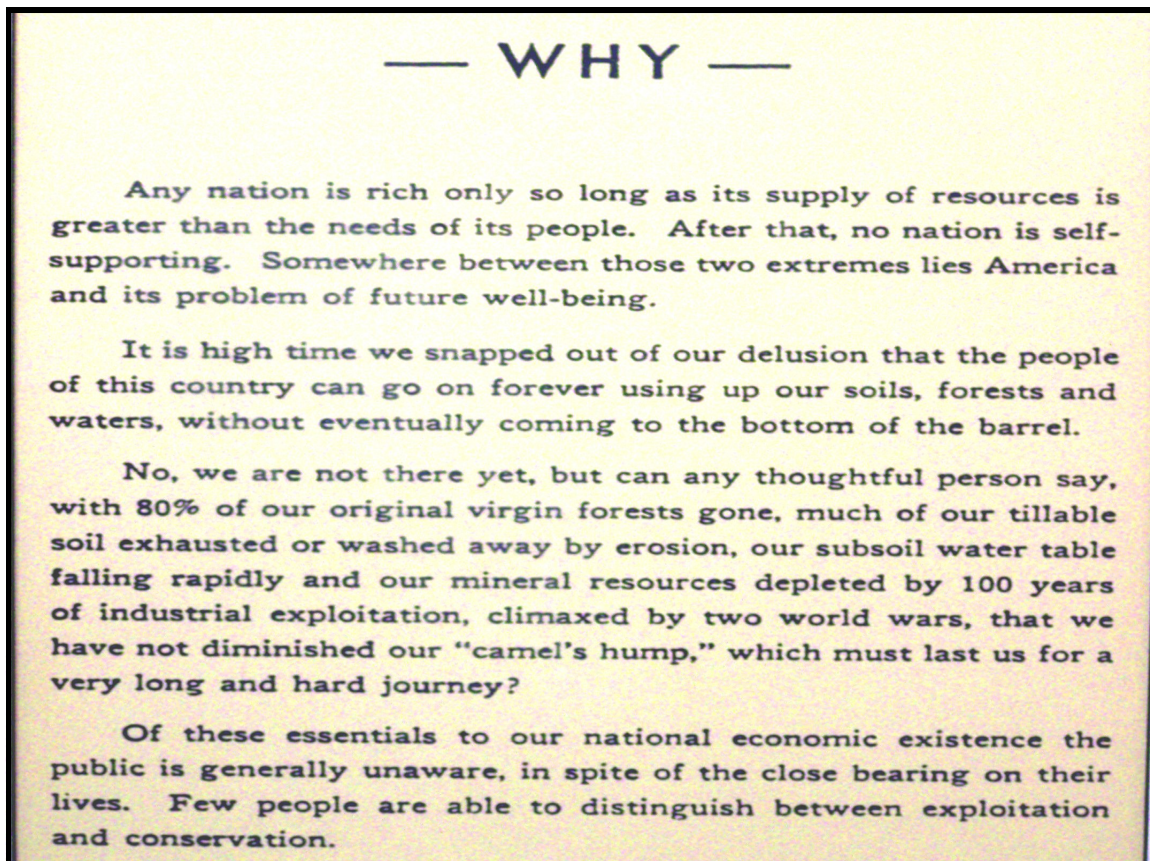
In recent times, the park and nursery has fallen victim to our saturated soils and brutal winds. Collapsed trees will be cut and hauled away before snow falls. This spring will involve more cleanup and repairs such as fence repair and dead branch removal. After improving the nursery's condition, I look forward to working with local Parks and Recreation, and citizen stewardship movements. Trees are the foundation to clean water; and we can all help by planting them in our watershed. Please, if you have any suggestions or would like to volunteer to help restore the nursery this spring, contact me.

...I look forward to working with local Parks and Recreation, and citizen stewardship movements...

Call or e-mail YamahaAES820@verizon.net
717-9493-3827.



Clean up under way. After a summer 2011 storm
Photo Rob Davis



A picture on the wall of the Ding Darling lodge at the National Conservation Training Center. There are four lodges at the NCTC, each devoted to the work of a different conservationist.

Photo Rob Davis



'Invisible'? Paxton Creek Problems: More on the TMDL, Recent History, Exacerbating Conditions & Stormwater Prevention/Remediation Strategies

Part Three of a Three-Part Series

By E. Drannon Buskirk, Jr.

Background. This is the last piece of a three-part series, which began in the spring 2011 *PCWEA Newsletter*. Parts 1 and 2 introduced the latest aspects of the ongoing saga of Paxton Creek watershed's continued demise, local stormwater impacts, stakeholders' (particularly residents) anguish, developer actions, responsibility declines by various governments, legal maneuvers, stormwater perspectives, and issue distortions of various parties involved. Part 3, here, has further information on the TMDL (pollutant removal requirements) of the United States Environmental Protection Agency), insights on recent history and stormwater flows/impacts, and brief discussion of short and long-term strategies for fixing creek stormwater and pollution problems.

Update on the TMDL Situation

Further discussions with government staff have partially clarified the Paxton Creek situation, but a part of the TMDL remains in limbo. The lower area of Paxton Creek Subwatershed (tributary mainly south of the Farm Show) has 28 combined stormwater and wastewater sewers. These pipes continue to have potential serious health hazards (sources of bacteria for cholera, typhoid, and other water-borne diseases), while dispensing sewage into the watershed during heavy storm events. Tributaries upstream have less disease-causing potential, but are significant pollutant sources of other substances, mainly phosphorus and sediment (mostly dirt). The problem with the TMDL (amounts of phosphorus and sediment to be removed from Paxton Creek, 89% and 24%, respectively, issued by the U. S. Environmental Protection Agency (USEPA) is that the assessment model normally used to calculate the amount of phosphorus mainly uses data on the amounts nutrients taken in, and metabolized by periphyton (algae) in activities (photosynthesis and respiration). Paxton Creek's very good monitoring data is mostly of phosphorus contained in the water column; however, it is not a mystery about, or a situation where the concentrations of phosphorus in aquatic plants and water fluctuate wildly. The ratios maintain fairly stable, and Paxton Creek continues to discharge very high levels of Phosphorus – higher than almost all places in the Lower Susquehanna River watershed. Why? The situation is mainly caused by the urban runoff from massive areas of impervious surface (400+ linear miles of roads, parking lots, sidewalks, thousands of building roofs, etc.) that pick up pollutants from the landscape surfaces, and erode creek banks so as to free sediment that wash downstream, particularly during storm events. An additional situation is the issuance of a Chesapeake Bay TMDL for state nutrient removal requirements (~35% phosphorus for PA), and the local communities may think inequities exist "why so much for us?" but the nutrient concentration in Paxton Creek waters is much higher – more than double many places. The TMDL argument and lawsuit between the USEPA and municipalities and developers is over numbers; lower numbers (%'s pollutant removal) mean a big difference (less \$ in clean up costs). Two other streams in PA were left of the most current impaired streams 303D list because of similar problems. So, Paxton Creek remains very impaired, disease and nutrient problems remain, the creek's contributions to the demise of the Chesapeake Bay continue, and the main causes that have caused the creek's degradation (conventional development and grounds fertilization practices) remain ... and the TMDL (possibly, with a lower phosphorus requirement) with enforcement will return in the future.

The irony is that if municipalities had adopted the watershed improvement approach recommended by PCWEA (in effect greening the watershed, requiring a different mode of development, etc.) as discussed in strategies which follow, rather than simply building a big, expensive treatment plant, the watershed and downstream communities would be much better off with far less expense, and further along toward improved quality of life.

Continued on next page

'Invisible' continued

Recent History & Exacerbating Conditions

Summer 2011 is the wettest in recorded history for central PA. Besides the most accumulated rainfall leading to moldy conditions in late season, 2 tropical storms/hurricanes (Irene and Lee) made worse by human practices wrecked havoc on Central PA, causing the creek to rise greatly above normal high levels (about 20 feet at the southern mouth, and 8+ feet greater upstream in places), much flooding, property damage and associated effects including the deaths of both wildlife and humans. Residences near the southern mouth of Paxton Creek, Harrisburg's Shipoke neighborhood with southern areas of the city, buildings and grounds around Maclay and Cameron Streets (i.e., the Farm Show vicinity), AND properties near Walker Mill Road in Susquehanna Township – all suffered significant damage. Many hundreds of other properties along creek tributaries had flooding, erosion, and pollution problems. The causes were basically the same combination of factors: excessive rainfall in short durations, water-logged soils (no room to store additional precipitation), too few vacant low-lying lands/stormwater storage areas (floodplains), AND developments upstream with massive amounts of impervious surface -- asphalt, concrete, metal, rubber/plastic on roads, roofs, parking areas, sidewalks, etc., etc. Rapid runoff resulted with increased volumes of polluted water, and higher/more frequent peak flows downstream. The congregation of these flows from various sources made worse the flooding and other downstream miseries.

Stormwater Prevention/Remediation Strategies

From the *Paxton Creek Rivers Conservation Plan* (see this website), observations, and extensive measurements, it is clear that current watershed practices have been unsound from the beginning (overharvesting of forests), until now (conventional developments with massive amounts of impervious surface especially in the last half century). The situation is worse because of many factors: population growth (more people desiring developments & facilities); sprawl (expanding transport, utilities & structures) that allow growth across the landscape much faster in Central PA than in the rest of the Commonwealth); population concentration where resource support needs and wastes overwhelm and degrade local Natural ecosystem functions; technologies adopted (scale and type) that are contrary to ecosystem operations, and excessive, unnecessary consumption of major resources – together creating an unsustainable, declining quality of life. In regard to stormwater and watersheds. What needs done are the following strategies, some over the short-term, and many in the medium to long range – all that need to start, now.

- (1) Embracement of a shared image** of an improved watershed wanted by people -- its promise, protection, and ways to go about improvements. Watersheds are flow resources that occur among various geographical areas. Paxton Creek originates and flows over/into 6 municipalities. Since each municipality in PA has responsibility for stormwater on its lands, municipalities need to cooperate on stormwater management (common policies and development rules, and management of facilities; cooperative, concerted activities, not independent ones). Currently upstream municipalities are doing things that make stormwater problems worse for downstream communities, and vice versa.
- (2) Greatly increased local landscape infiltration** (water seeps into the ground) so as to decrease runoff, and enhance water conservation and storage. This pertains to total precipitation (rain, snow, sleet, whatever), not just a tiny portion that might be treated for the removal of undesirable components. It is prudent to retain maximum water resources for aquifers (underground storage), well supply, habitat support, opportunity for water cleanup by soils and vegetation, and security of future water supplies. Water that is not infiltrated will evaporate or run off, picking up pollutants as it flows, increasing volumes as various sources combine, and make larger and more frequent peak flows, eroding greater gobs of land from stream banks, toppling trees and other vegetation, and, perhaps, lead to greater and more frequent floods. Infiltration at every opportunity is achieved through minimization of impervious surface (IS) wherever prudent, and extensive, small and large, gardens and plantings/areas with porous soils throughout the watershed. These actions

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'Invisible' continued

would greatly increase green areas with additional benefits: enhance local recreation, increase property values, create trail/communication and alternative transport opportunities, and improve family health through physical exercise and ambiance with Nature. The great majority of Best Management Practices (BMPs) in the PA Stormwater Management have an infiltration basis.

- (3) Reduction of existing impervious surface** (involving decreased IS area, & making it more porous), and retrofit of existing stormwater management facilities so as to enhance their performance. As most existing impervious surfaces age, they wear out and need replacement. These occurrences are opportunities for BMPs that reduce IS where hard surfaces are needed as with transport or other functions. Parking lots, driveways, sidewalks, trails, and other places can use porous pavements (asphalt, concrete) which allow stormwater to seep through to gravel beds underneath, and not accumulate in cracks during freeze-thaw-freeze, etc. periods that greatly shorten the useful lifespans of hard surfaces, and increase future replacement costs.
- (4) Retrofit of existing stormwater management facilities** in Central PA mainly involves improvements to detention basins, large pits generally located near big buildings or parking lots that receive or temporarily store runoff from IS through curbs, gutters, and drains; and afterwards discharge water into neighboring waterways. Unfortunately these facilities often are lacking. College students surveyed about half of the 100 or so detention basins in the watershed, and found over half of them to be performing poorly because of inadequate design (undersized, absence of sediment/debris forebays, improper outlets), inadequate construction, and poor maintenance (e.g., clogged outlets, absence of energy dissipation boulders, erosion).
- (5) New development approaches of undeveloped lands, and infill on existing developed lands** through practices that create much less IS, and better protect natural resources. Rather than start with clear and grub landscape actions in conventional development, approaches such as Low Impact Development (LID), and Better Site Design techniques are used, as has been done in Chester County, in the Brandywine River watershed in PA, and is required in Prince Georges County, MD, and Pacific Coast states. Needed are new SALDOs (subdivision and land development ordinances) in municipalities where IS will occupy 10% or greater landscape areas. Research has shown the 10% figure to be a threshold (actually less), where Nature's regenerative capacities falter, and landscape precipitous declines begin. Under this approach, conventional development might still be practiced in areas of large land parcels with low (less than 10%) projected IS, but once the threshold is reached or projected ...
- (6) Changed practices and habits of watershed stakeholders** so as to achieve resource protection and decreased pollution. Because people may be uninformed about what is necessary in watershed management, have contrary expectations (e.g., want wide roads with on-street parking), may lack concern for effects downstream (e.g., flooding), overuse or store improperly fertilizers & pesticides on landscapes, inadequately maintain residential vegetation, etc., etc., education through various venues and modes, ordinances with enforcement, and perhaps, landscape fees (incentive/penalty) associated with amounts of IS – are crucial in responsible, and effective watershed management.

Paxton Creek is hardly "invisible." Agencies and municipalities can play games and avoid responsible actions, but the watershed remains as it is, a deeply impaired stream. It took 300 years for Paxton Creek watershed to reach its current state, and it will take decades of actions for a desirable reversal. Implementation of these 5 strategies can achieve satisfying, enriching lifestyles at far less cost (at least 80% under the price of waste treatment/pollutant removal plants on Paxton Creek). What it will take is openness to new ideas, stakeholder cooperation, willingness to start, dedicated leaders/warriors, and municipal officials who don't avoid responsibilities so as to truly represent all the people in the watershed, especially downstream, which is almost everyone if you really think about it ,, end

Chesapeake Bay Watershed Forum 2011

by Gary Smith

Five members of PCWEA attended the Chesapeake Bay Watershed Forum in Shepherdstown, WV on September 30-October 2. The annual conference was attended by 340 members of local watershed groups and others interested in wise management of local watersheds in the Chesapeake Bay drainage area. The Keynote speaker was Tim Palmer, author and river photographer. Palmer's message was encouraging to local watershed enthusiasts who often question whether their actions can really make a difference in the future health of the stream ecosystems. Palmer gave several examples of the positive impacts that everyday citizens and local watershed organizations have made in improving river systems throughout the United States.

The Forum offered concurrent two hour workshops ranging from how to manage a watershed organization to technical information to be used in providing local education and outreach. The participants were permitted additional time to interact with others attending the conference with a common goal of improving their local rivers and streams while helping to clean up the Bay.

This is the International Year of the Forest and the Forum focused on urban watersheds and the value trees play in providing ecosystem services in cleaning water and air. Members attending were PCWEA founder Drannon Buskirk, current President Rhonda Hakundy-Jones, board members Rob Davis and Bryan Genesse and Membership Chairperson Gary Smith. Rob and Bryan took advantage of the canoe trip on Sunday afternoon. Several of the PCWEA were recipients of scholarships generously offered by the Foundation for Pennsylvania Watersheds which paid for the cost of attending. Several of our members also assisted with judging of a poster contest on Saturday evening and helping with forum registration on Saturday.

The Forum will be held next year September 28-30, 2012.

Special Thanks:

Gary Smith, membership chairman, working at the registration table at the Chesapeake Watershed Forum.



Past Summer Crayfish Crawl Report

by Andy Ohrman

It was a warm, sun-splashed summer Saturday morning at Shut-mill park in Susquehanna Township at 9 am on July 16, 2011. A dozen or so association members, their families, and guests have quietly gathered inside a small park pavilion for a combined crayfish survey/frolic picnic.

The group is comprised of older adults, young teenagers and even one very young child. After a few minutes, A rugged long haired, Kevin Kelly of PA DEP addresses the group about crayfish and in particular Rusty crayfish. Rusty crayfish are an invasive crayfish originally from the midwestern part of the U.S. They are larger and more aggressive than native crayfish. They have taken over much of the Susquehanna river, and many are concerned they will take over tributaries like the Paxton Creek. Which leads us to this day. The group will be split into four sub-groups three of which will take nets and buckets and capture whatever crayfish they can find at locations downstream and up-stream of Wildwood Park. While the last group prepares for the frolic picnic. The crayfish will then be brought back to be examined to determine the proportion of Rusty to native crayfish along with other individual characteristics such as size and sex..

The main group splits up into several smaller groups and sets out for streams and creeks in the nearby area. I ended up with a father and his younger teenage son. We scurried down a short but steep embankment, trying as best we could to avoid obstacles like poison ivy. And into the water and deep mud we ventured. The mud was so deep that I almost lost my balance and shoes.

As I slowly drudged deep, heavy steps, I cast my net across the bottom of the stream only to come up with small sticks, debris and the occasional minnow. My partners on the other had soon found a less muddy part of the stream and were advancing away from me. Soon calls echoing "I've got one!" would be heard. At such times we would come together to see the wonder of small crayfish trapped in a net then transferred to a murky water-filled bucket. I even managed to capture one or two myself, as learned to look under rocks in well lit parts of the stream.

Back at park pavilion, we gathered to measure and examine our catches. We were given instructions by Kevin Kelly on how to tell the difference between the native and Rusty crayfish. We were also instructed on how to observe and note other attributes such as size and sex. Volunteers were given buckets of crayfish. Each crayfish was removed and checked. One distinct characteristic of the crayfish captured that day was that they were all native. Frozen Rusty crayfish captured at another time from the Susquehanna river were also examined and compared to the native crayfish. This lends to the theory that Wildwood lake is blocking Rusty crayfish migration to streams above Wildwood lake.

Afterwards the frozen Rusty crayfish were placed in hot water heated by propane camping burners. This attempt to cook the Rusties didn't quite "pan out" too well as the Rusties were of a mushy consistency. Higher and longer heat would have fixed that, as Rusties are know as good eating crayfish. But, there was plenty of other food and good company to be had.



Taking a GPS location reading. Photo Andy Ohrman



Native crayfish in stream above Wildwood Lake. Photo Andy Ohrman



Results poured over. A future young scientist. Photo Andy Ohrman



Frozen Rusty crayfish. Soon to be boiled. Photo Andy Ohrman

Good Times and good Events:



PCWEA Board Members at the Chesapeake Watershed Forum (l-r) Rob Davis, Bryan Genesse, Drannon Buskirk and Rhonda Hakundy-Jones



Bryan Genesse canoeing down the Devils Backbone section of the Antietam. It seemed a fitting end to a weekend devoted to saving our waterways and bay. The canoe trip was after the Watershed Forum ended.

About the

Paxton Creek Watershed & Education Association (PCWEA)

The Paxton Creek Watershed & Education Association (PCWEA) was founded in 2001 with a three-part mission: to protect and enhance watershed resources, solve watershed problems, and facilitate hands-on environmental education.

The Paxton Creek watershed covers 27-square miles northeast of the City of Harrisburg, in Central Pennsylvania. Upstream portions of the watershed historically consisted of woodlands and farmland. While downstream portions of the watershed are situated within the City of Harrisburg where Paxton Creek flows through industrial and commercial properties. In places, downstream, the creek is channelized and receives heavy sediment loads eroded from rapidly developing areas upstream.

Development in the upland areas of the watershed has led to the construction of impervious surfaces in the form of roads, parking lots, commercial, and residential buildings. These impervious surfaces severally limit infiltration of surface water into the ground and perpetuate storm water runoff problems. Paxton Creek Watershed generates 15 times the amount of suspended sediments released by typical forested watersheds.

PCWEA Lifetime Members: Frank & Judy Beskid, E. Drannon Buskirk, Jr., R.D., Tom Embich, Jan Fisher, Fred Heagy, Kevin Kelly, Joe Link, David Sheridan, and Arlen Taylor.

Paxton Creek Watershed & Education Association (PCWEA) can be found on the Web at www.paxtoncreek.org Email at info@paxtoncreek.org

PCWEA is now on Facebook

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