

A newsletter for environmental programs in Harford County

Welcome

Streams are frequently damaged by sediment, pollutants and stormwater runoff. In this issue, learn about how Harford County is working to restore streams to a more healthy, natural state. Also read about the year-round educational programs available to everyone at Ladew Topiary Gardens. Then learn about pharmaceutical products that have been found in surface and groundwater around the world and the currently recommended procedure for disposal of unused medicines.

Enviro News is distributed quarterly (March, June, September and December) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov under Downloads (upper right corner) - Public Works - Enviro News.



MARITIME TRADITIONS DEMONSTRATION

Jan. 4, Feb. 1, & March 1, 2009

2PM

Experience traditional skills and crafts of the Chesapeake Bay region. Listen and watch as the experts share their knowledge on topics including chair caning, rope tying, sail mending, oystering and crabbing, and boat building. Free to members and with regular paid museum admission.

Havre de Grace Maritime Museum
100 Lafayette St,
Havre de Grace, MD
410-939-4800
www.hdgmaritimemuseum.org

Stream Restoration (Part 1 of 2)

by Christine Buckley
Harford County Water Resources

The most significant lesson that we have learned since the completion of our first stream restoration in 2002, is that restoring streams is an evolving process. Rarely are two projects the same, but all share the similar lengthy schedule.

In December, construction of the Laurel Valley Stream Restoration will begin. This project will restore approximately one thousand linear feet of an unnamed tributary to Bynum Run that flows between the Box Hill North and Laurel Valley developments. While the construction phase looks extremely messy and can sometimes be rather loud, it is the portion of the project that takes the least amount of time to complete, on average three months.

The Laurel Valley Stream Restoration has been a long time in coming. The project started over ten years ago when the site was first identified through a stream corridor assessment for the Bynum Run Watershed.

During these assessments, problems such as stream bank erosion are identified and photographed. This inventory of problem sites is used to develop a prioritized list of restoration projects including stormwater management retrofits and stream restorations. The problems that are the most severe

(continued page 2)

David R. Craig
Harford County Executive
"Preserving Harford's Past, Promoting Harford's Future"



Schedule of Events

Rock Run Christmas Bird Count. Dec 28; Annual count centered in Susquehanna State Park. www.hafordbirdclub.org.

Preservation Workshop. January 18, Feb 15, & March 15; 1-4PM. Havre de Grace Maritime Museum. Get expert advice on how to care for your family treasures for future generations. 3-part series - basics of genealogy, conservation of photographs and documents, and preservation of family antiques and vintage items. Handouts and materials provided. Preregister. \$20/session or \$50/series. 410-939-4800 www.hdgmaritimemuseum.org

Night Hike. January 31, & Feb 7, 14, 21 & 28. 7:30 pm. Eden Mill Nature Center, Pylesville. Take a guided hike on the trails, then enjoy hot chocolate. Admission. Preregister. 410-836-3050. www.edenmill.org

Senior Sunrise Stroll. February 26, 7- 9am. Eden Mill Nature Center, Pylesville. Guided, leisurely, low impact, walk. Enjoy hot coffee and an activity. Ages 55+. Admission. Preregister. 410-836-3050. www.edenmill.org



For More Info

Ladew Topiary Gardens 410-557-9570
www.ladewgardens.org

Harford County Government 410-879-2000
www.harfordcountymd.gov

EPA - pharmaceuticals info 513-569-7076
www.epa.gov/ppcp



Recommended Readings

American Shad in the Susquehanna River Basin: A Three-Hundred-Year History.
by Richard Gerstell, 1998.

The inspiring story of how the American shad was brought back from the brink of extinction in the Susquehanna River basin.

Stream Restoration (Part 1 of 2) (continued from page 1)

and easiest to correct are placed highest on the priority list.

Assessments have been completed for a majority of the developed portions of Harford County including Swan Creek, Bynum Run, Little Gunpowder, Foster Branch, Winters Run, Church Creek and portions of Deer Creek.

After a problem is placed on a priority list, a proposed restoration plan is developed. The problem identified for the Laurel Valley Stream Restoration was excessive stream bank erosion. Excessive stream bank erosion occurs when increased runoff from development is not adequately controlled.

The first step in developing a restoration plan to repair stream bank erosion is to search for opportunities to slow the runoff before it reaches the stream. These opportunities include upgrading an existing stormwater management facility to provide management that protects the stream channels or finding available land to construct a new facility. For the stream bank erosion identified in Laurel Valley both opportunities were available.

The next step in the process is to contact the property owner(s) to elicit their interest in participating in the proposed restoration. In this case, the existing stormwater management facility and an area proposed for constructing a new bioretention facility or rain garden were on property owned by the Laurel Valley Homeowners Association.

We stress to all property owners that our projects are voluntary and that no financial contribution is expected from the property owner. Continuous contact with property owners is necessary throughout the project to allow input on the design. No formal commitment is required from the property owner until construction drawings have been completed. At that time easements from the property owners are required to allow the construction to occur.

The design for the stormwater management and bioretention facility began in 2003 and was complete in 2005. Because most of our projects have direct impacts to streams, lengthy permitting through the State of Maryland are required to ensure the viability of the ecosystem is maintained. Construction of the stormwater retrofit and bioretention facilities was completed in 2005. The stream restoration is expected to be completed in Spring 2009.

(See part 2 of 2 in the Spring issue 2009)

Education

Year-Round Learning at Ladew Topiary Gardens: There's Something for Everyone

by Sheryl Pedrick
Ladew Topiary Gardens

It may be winter, but learning is still taking place at Ladew Topiary Gardens, as it does all year round. In fact, Ladew just wrapped up their annual **Christmas Open House** where they educated the public with the theme – “A Green Christmas” – decorating with materials and techniques for celebrating in a healthy, earth-friendly manner.



Learning continues on Sunday, February 15 (2-4pm), with Ladew's popular **Maple Magic** program. It's an opportunity for people of all ages to get outside to explore nature in winter and enjoy the fun of making maple

syrup. Participants head to Ladew's Nature Walk to identify maple trees, collect sap, learn how it's boiled into syrup, and taste yummy treats including pancakes, maple candy and syrup made from Ladew's trees.

On Sunday, March 29, the gardens are officially open to the public with one of their newest programs – **Tally Ho!** It's a sight to be seen complete with dozens of horses and riders in formal attire alongside over 50 foxhounds. The riders share the history of fox hunting (now fox chasing), which still takes place throughout the rolling countryside of Harford County and neighboring counties. Participate in this event and you'll feel like you've been transported to jolly 'ol England.

Also offered this winter is **Nature Stories and Crafts** for 2 to 4 year olds. It's a terrific program for introducing children to reading in a social setting and for fostering an appreciation for nature. Themes this season include Tracks and Trails, Wake Up Groundhog and Snug as a Bug. Once the warmer months arrive, the program heads outside for **Storytime in the Gardens**.

By April, as thousands of tulips and daffodils are in full bloom, the gardens begin buzzing with hundreds of visitors attending our **Adult Lecture Series**. The lectures cover topics in horticulture, landscape design, floral design, art, and natural history. Furthermore, the **In the Garden Series** is offered to provide free, hands-on lessons in composting, pruning, lawn maintenance, pond care and more.

The gardens are also a wonderful outdoor classroom for **school fieldtrips** and **summer nature camps**. During

the spring and fall, the gardens bring school curriculums alive for children learning lessons on plants, animals, and ecology. In June and July, nature camps take place for ages four to nine year olds.

Rounding out the program calendar, Ladew provides special events throughout the year. Some of these perennial favorites include Mother's Day weekend, car shows, summer concerts, Children's Day, and don't forget Free Weekend in the fall and Dollar Days in the spring. The next **Dollar Days** are **Saturday, April 18 and Sunday, April 19**.

So whether you're young or young-at-heart, male or female, looking for a structured course or interested in a leisurely stroll and picnic in the gardens, come on out to Ladew Topiary Gardens, there's something for everyone. Ladew Topiary Gardens is a non-profit organization located in Harford County at 3535 Jarrettsville Pike, Monkton, MD 21111. For more information call 410-557-9570 or visit www.ladewgardens.com.

Guest Author



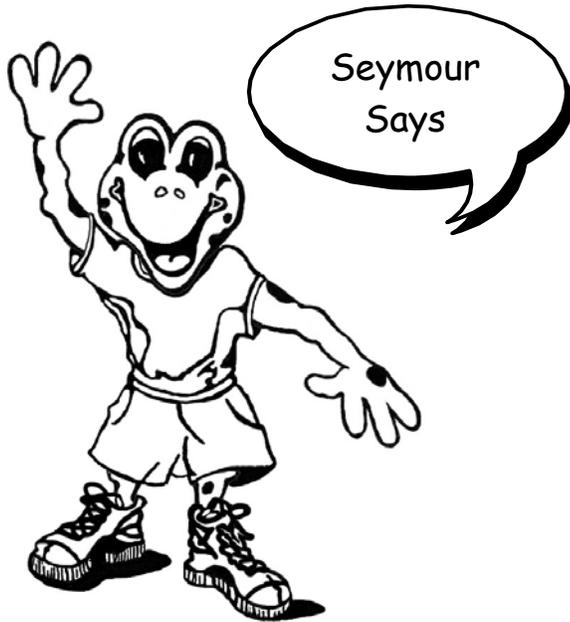
Pharmaceuticals in Our Waters

by Joanne Bowen
Harford County Water Resources

Pharmaceuticals, including human and veterinary prescription and over-the-counter drugs, have been found in surface waters and groundwater around the world. Although concentrations of these drugs are small, measured in parts per billion or trillion, their presence is causing concern over possible long-term consequences to human health, aquatic life, and the environment. Medicines are designed to produce biological effects in small doses. Cumulative and synergistic effects with other medicines or contaminants in water are possible. Although our water is currently considered safe, subtle changes that could easily go unnoticed, such as behavioral or reproductive effects, are the possible result from low level, long term exposures.

Scientists are concerned that pharmaceuticals in our waters may disrupt human hormone systems, may cause lower sperm counts, and may be linked to increased rates of breast, testicular, and prostate cancer, and increased incidence of hyperactivity. Disease causing bacteria exposed to sub-lethal levels of antibiotics in our environment over extended periods of time may lead

(continued page 4)



Plant trees around your house as a wind-break. Effective windbreaks can reduce heating costs by up to 30%.

Tankless water heaters save energy. These on-demand systems only heat water when needed, unlike traditional systems that heat water 24 hours a day. You'll get hot water instantly, and reduce your water heating bills by up to 50%.

Buy Maryland grown agricultural products. Visit the Maryland's Best website at www.marylandsbest.net to find a guide of who, where, what and how to find and enjoy Maryland's foods including fruits and vegetables, meats, seafood, dairy products, eggs, nursery stock, farmers markets, agritourism, and much more.

Enviro News

212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

(410) 638-3545

environews@harfordcountymd.gov



**Next Issue Available
March 2009**

to resistant bacteria strains which cannot be easily treated.

Hormone-altering pharmaceuticals known as endocrine disruptors have affected sperm levels and spawning patterns in aquatic organisms. Around the world, abnormally developed fish have been found, most notably male fish growing eggs. Locally, such intersex fish have been found in the Potomac River and its tributaries, and the Shenandoah and Monocacy Rivers. Studies have shown antidepressants can trigger premature spawning in shellfish, and drugs used for treating heart ailments can block the ability of fish to repair damaged fins. Species located at the base of our food chain, such as earthworms and zooplankton, are also being affected.

Hospitals, medical facilities, pharmaceutical industries, concentrated animal feeding lots, aquaculture, and households all contribute to the problem of pharmaceuticals in our waters. Because up to 90 % of oral drugs can pass through digestive systems unchanged, many drugs enter the environment through human and livestock urine and fecal waste. Manure, containing traces of pharmaceuticals, is often spread on land as fertilizer that can then runoff into local streams and rivers. Improper disposal, such as flushing drugs down the toilet, is also a factor.

Cleanup and removal of drugs from our waters is difficult. Wastewater treatment plants are not specifically designed to remove pharmaceuticals, and chlorination, the preferred public drinking water treatment method in the U.S, does not effectively remove pharmaceuticals.

The current federally recommended disposal method for unused medications is to mix them with an undesirable substance, such as kitty litter or coffee grounds, to render the drugs unusable. Then seal the drugs in an impermeable, nondescript container and dispose of them in the trash. Do not flush medicines down the drain unless instructed to do so by the label. Where allowed, unused medicines should be returned to pharmacies or other community return programs, rather than dumped down a drain or put out with the trash. Individuals should minimize the overuse and misuse of drugs. Designing more environmentally friendly chemicals and point-of-use treatment are other potential control approaches. The best strategy for reducing pharmaceutical contamination of our waters is prevention.

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Harford County is working to restore streams to a more natural, healthy condition. Continue reading about this work in Part 2 of Stream Restoration, an article that began in the last issue of *Enviro News*. Then learn about the various methods that are used to survey red fox populations. Also read about the Grow It Eat It campaign, a new program starting this spring throughout Maryland, designed to help and encourage individuals to grow their own food.

With the printing of this issue, *Enviro News* marks its 10th anniversary of publication. *Enviro News* is distributed three times per year (January, May, and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.



Cans for Cancer

A local family-run non-profit organization has been very active in Harford and Baltimore County with the local Parks and Recreation Councils. The Frank M. Trupia Head and Neck Cancer Founda-

tion has sponsored "Cans for Cancer" at several events around town. Using recycling bins, they collect & sort beverage containers & dispose of them properly. Most events were at non-recycling locations. Not only does the foundation keep our community clean but the reimbursement from the aluminum collection goes toward supporting cancer patients, survivors and their families. To participate or obtain details on this organization or the "Cans for Cancer" fund raiser, please contact Trisha at 443-992-2102 or send an email to trisha@fmtcancer.org or checkout their website at www.fmtcancerfoundation.org

Stream Restoration (Part 2 of 2)

by Christine Buckley
Harford County Water Resources

With great satisfaction from the community, the Laurel Valley Stream Restoration was recently completed. Previously slumping stream banks have been stabilized. Encroachment of the stream on nearby sewer lines has been blocked. Excessively tight bends in the stream have been smoothed. And trees and shrubs have been planted.

As expected, construction was messy and loud and was an annoyance to some. Large equipment was necessary to place the massive stones (over four foot in length and over 1,500 lbs) and grade the new shape of the stream. Access to the stream from the road was very difficult and had to occur between existing homes. Dump trucks delivered materials to the job site. Those materials are then transferred to the portion of the job that was actively under construction that day through an access road to the stream. Removal of trees to gain access to the stream was unavoidable. The use of an existing sewer right-of-way within the project area for the Laurel Valley Stream Restoration allowed impacts to existing forest to be minimized.

Construction generally occurs for stream restoration from the upstream end of the restoration to the downstream end and occurs in sections. In order to minimize impacts to the ecosystem, construction

(continued page 2)

David R. Craig
Harford County Executive
"Preserving Harford's Past, Protecting Harford's Future"

Schools

Vulpes vulpes Censusing Techniques

by Erin Van Seeters
Science & Math Academy Student

The red fox, *Vulpes vulpes*, is a very important and adaptable species. They are found all over the world, in all climate ranges. Because of this they have been supremely hard to study, as they are different in all regions. This is one of the reasons I chose to complete my Senior Capstone project on them. I am a student at the Science and Math Academy at Aberdeen High School and along with my mentor, Deidre DeRoia, and my student advisor, Yvonne Gabriel we have been surveying the red fox at the Anita C. Leight Estuary Center.

Censusing foxes has proven to be a difficult task as they are extremely elusive creatures and fear humans. The Estuary Center is a safe haven for creatures in the area as it is composed of undeveloped land. And although it is a small area, it was perfect for completing our task.

There are many different methods to survey the red fox. We have implicated scat deposition transects, scent stations, scat analysis, vegetation sampling and the use of remote triggered cameras. Scat deposition transects are 100-meter lines along a trail. Foxes have been known to defecate on bare empty spaces. This fact has been backed up as the majority of our scat has been found on bridges. Transects are walked twice in each direction.

Scent stations are a one-meter circle of sand; (see photo). An olfactory lure is placed in the middle of the circle and left overnight. Once an animal walks in the sand their tracks are recorded and can then be identified.



Another method used is scat analysis to determine the foxes diet. This is very important as it is used to maintain and manage predator and prey species relationships. The scat must be washed and then dissected. The different materials are identified and weighed.

Vegetation sampling is another method that is a necessity to learning more about the fox species. Counting and identifying the vegetation species in the area can determine if any of them can be used as food sources. Remote triggered cameras are also a good way to re-

cord the creatures without disturbing them. A camera is set up on a tree and left for a few days taking pictures of movement in the area.

Though some people don't understand why studying animal species is necessary, I have realized through my project that one species can have a great impact on another. We hoped to create a Habitat Suitability Index model, to determine if this region is a healthy habitat for foxes. Unfortunately due to lack of time and data we were unable to create the model. We believe one of the reasons why we were unable to obtain a large sampling of data was due to the amount of disturbances in the area. Because of ongoing projects at the center there is a high level of activity along the trails and the stream where we placed our camera. But I know that the information we have obtained will still be able to help park managers manage the fox species. And I hope that someone will continue my project over a longer span of time, collecting even more data on the red fox.

Guest Author

Grow It Eat It!

Learning to Grow Your Own Food: A New State Initiative

by Joyce Browning
Maryland Cooperative Extension Service, Harford County

Do you want to begin a vegetable garden but don't know how? Are you unhappy with the yield from your vegetable garden? Do the weeds enjoy your garden more than you do? The University of Maryland Cooperative Extension office in Forest Hill has help for you. Grow It Eat It, a new spring program, is being offered to help Marylanders grow their own food.

Harford County Master Gardeners are teaching a series of four gardening Grow It Eat It classes in March and April at the Joppa, Edgewood, Abingdon, and Havre de Grace Libraries. Check the library website at www.hcplonline.info for details and pre-registration. Half-day garden seminars will also be taught at the Forest Hill Extension office, Harford Glen Environmental Education Center, and Harford Community College. These will be demonstration garden sites. Dates and times will be announced in the Aegis Calendar of Events and on our website, harford.umd.edu. Click on the Master Gardener site and select the Grow It Eat It menu.

Food gardening can help you save money on fresh, safe and healthy food. Vegetable flavor is improved when vegetables are allowed to ripen on the plant, as opposed to market vegetables picked prior to their full ripe stage.

(continued page 4)



Schedule of Events

Wade-In. June 6, 2-5pm. Anita C. Leight Estuary Center, 700 Otter Point Creek Rd, Abingdon. Family oriented environmental activities. Wade into Bush River to determine the depth of water clarity. Free. 410-612-1688. www.otterpointcreek.org

Early Morning Guided Canoe Trip. June 20, 8-10:30am. Eden Mill Nature Center, 1617 Eden Mill Rd, Pylesville. Enjoy a morning canoe trip on Deer Creek. All equipment provided. . Pre-register. Admission. 410-836-3050. www.edenmill.org

Mari*Fest 2009. July 24-26. Havre de Grace Maritime Museum, 100 Lafayette St. Enjoy food, musical and dance performances, living history interpretations, demonstrations, crafters, & childrens activities. Festival free. 410-939-4800. www.hdgmaritimemuseum.org

22nd Annual Duck Fair. Sept. 12, 9-4. Wildlife artists & carvers, auction, retriever dog demo, food & fun. Havre de Grace Decoy Museum, 215 Giles St. Free. 410-939-3739. www.decoymuseum.com

does not occur within the free flowing stream. Instead the contractor must dam the stream with sandbags at the upper end of the area actively under construction and pump the stream through flexible pipe back into the stream below the active area. This allows the backhoe operator to work within the channel to restore the stream and save as many trees along the bank as possible. Old growth trees on the stream bank hold the earth in place and provide excellent stabilization. Therefore, the contractor is conscientious to keep as many existing trees as possible.



(Dump truck delivering material to backhoe in-stream)



For More Info

Harford County Water Resources 410-638-3545
www.harfordcountymd.gov/waterresources

Harford County Cooperative Extension 410-638-3255
harford.umd.edu

Anita C. Leight Estuary Center 410-612-1688
www.otterpointcreek.org

Many different techniques are used in stream restoration and are selected based on the location along a stream channel and the location with respect to adjacent features. For example, many sewer lines run along the stream valley and can be impacted by the movement of the stream within the floodplain. Therefore, large stacked stone is used in those areas. In areas where there is no existing infrastructure, stream banks can be graded and planted to provide stabilization at a fraction of the cost of stacked stone.

Stone structures and in some cases log structures within the stream are also used to slow the flow of the water through a cascade. Other structures within the stream redirect the flow away from the stream banks to reduce the risk of erosion.

In all cases the design is intended to complement the existing surroundings such that after several years of growth for the trees and shrubs, it is difficult to notice that a restoration has occurred.

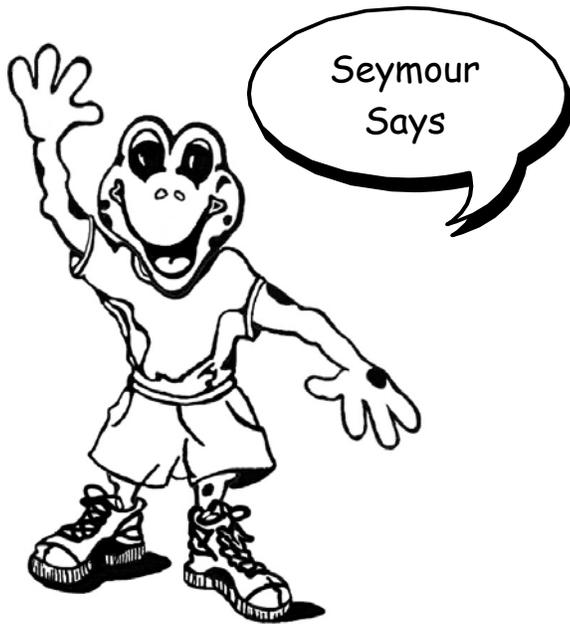
A special thanks to those who contributed to completing this project on time and under budget including Betsy Weisengoff, project engineer, Tom Brookhart, construction inspector and the contractor, Environmental Quality Resources, LLC.



Recommended Readings

Waterfowling on the Chesapeake, 1819-1936
by C. John Sullivan

Drawing on oral histories, period documents, and artifacts, this book explores a century of hunting on the Chesapeake Bay and its major tributaries, including the dog/hunter relationship, decoys as folk art , and the effects of technological change on hunting.



Grow It Eat It (continued from page 3)

Food quality improves when the shipping process is eliminated. Plus gardening is an opportunity to get the family outside working together. Ask any gardener—nothing can compare to preparing a tasty meal for your family with food you grow yourself.



Choose nursery propagated native plants when landscaping. Native plants require less water, fertilizer and pesticides, and thrive with minimal care since they are already adapted to the environment where you live.

Plant groundcovers other than grass in areas of your property that do not receive much foot traffic. They require less water and care and will not need to be mowed.

Reduce your carbon footprint when on vacation. Turn off the air conditioning or heat, the lights and the TV when you leave your hotel or motel room to save energy and conserve water by letting housekeeping know that it is not necessary to change your towels and sheets every day.

Everyone with a location that receives six to eight hours of sun can begin container gardening. Apartment decks and town house patios are great sites to plant a cherry tomato in a five-gallon bucket or a plastic tub. Drill a few holes for drainage and fill the container with indoor potting mix for a nice lightweight easily moveable container. Local outdoor soils tend to be too high in clay and may have inadequate drainage. Mixing outdoor soil and indoor potting mix is another option.

With proper care a tomato plant will grow to a minimum height of three feet. Plan to provide support for the climbing stems. Tie them to a porch railing with an old strip of rag or nylon, or make a trellis tree pole out of three 4-5' plant stakes. While the plant is young, plan to water when the surface of the soil is dry. Always water heavily so the excess runs out the bottom of the pot. Watering will eventually become a daily chore. Changing weather conditions will cause the plant to drink more some days as opposed to other days. Watch for these heavy water use days: clear weather with low humidity, direct sun without cloud cover, and breezy days. Locate your container convenient to a water source. The challenge is to have a tomato the week of July 4th!

If advice is what you need, 'Ask a Master Gardener' volunteers will be available for home and garden questions at the Forest Hill Cooperative Extension office on Mondays and Wednesdays from 9 am to 1 pm beginning in May. They are also available weekly at the Saturday Bel Air Farmers Market and the second Saturday monthly at the Bel Air Library.

For more information call the Harford County Cooperative Extension Office, 410-638-3255. 'All Maryland Cooperative Extension programs are equal opportunity and equal access.

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

(410) 638-3545
environews@harfordcountymd.gov



**Next Issue Available
September 2009**

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Harford County's water resources have been enjoyed by many generations. Learn how the Illicit Discharge Monitoring Program protects them from stormwater pollutants. Read about a science project on the Toxicity of Driveway Sealants. Also find out about the wetland restoration on the Magness Dairy Farm.

Enviro News is distributed three times per year (January, May, and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.



Swanfest 2009

October 11, 2009
11 a.m. to 4 p.m.

Swan Harbor Farm,
Havre de Grace.

Join Harford County Parks and Recreation as they showcase the 11th annual Swanfest. Situated on the Chesapeake Bay, come and enjoy this popular fall festival with family and friends.

There are activities for children, musical entertainment, mansion tours, canoe rides, petting zoos, pumpkins galore, food and so much more.

There is an admission fee. For more information visit www.swanharborfarm.org.

Illicit Discharge Monitoring Program

by Deborah V. Lewis
Harford County Water Resources

On a rainy day, you will hear this old familiar chorus from kids of all ages "Rain, rain go away come again some other day". But in reality, rain is stormwater and one of our most precious natural resources. In fact my workgroup, Harford County Bureau of Water Resources, loves stormwater.

Stormwater replenishes our water resources: streams, rivers, lakes, reservoirs, ponds, and wetlands. Water resources have been a source of recreational, educational and economic activity for generations. The Bureau of Water Resources mission is to provide comprehensive environmental programs that protect and enhance the quality of Harford County's water resources.

Stormwater (rainwater) travels over land and enters the storm drain system. The storm drain system discharges directly to our streams, rivers and ultimately, the Chesapeake Bay. Stormwater receives no pre-treatment. Travelling over land, stormwater comes in contact with many substances. These substances may have a significant impact on the storm drain system and water quality. Some of the effects are flooding, clogging, property damage and endangerment to aquatic life and drinking water.

The Illicit Discharge Monitoring Program is designed

(continued page 2)

David R. Craig
Harford County Executive

"Preserving Harford's past, promoting Harford's future"



Schedule of Events

Guided Walk of North Park Trail. Sep. 19 & Nov. 14, 10 am; Lock House Museum, Havre de Grace. Free. 410.939.5780. www.lockhousemuseum.org.

Night Hike. Oct. 2, 7:30 pm; Eden Mill Nature Center, Pylesville. Guided trail hikes followed with hot chocolate. Admission. Preregister. 410.836.3050. www.edenmill.org.

The Graw Days. Oct.10; 10 am-5 pm; Havre de Grace. Festival to celebrate when there was horse racing at The Graw. Free. 410.939.1811. www.mainstreethdg.com.

Native American Exhibit. Nov. 8, 1-4 pm; Hays House, 324 Kenmore Ave., Bel Air. Amazing display of Native American clothing and beadwork. Admission. 410.838.7691. www.harfordhistory.net.

Rock Run Christmas Bird Count. Dec. 27; Annual count centered in Susquehanna State Park. Volunteers welcomed especially those living near Rock Run. Contact Mark 410.692.5978 , www.hafordbirdclub.org.

to protect our storm drain system from stormwater pollutants (illicit discharges). Some types of stormwater pollutants or illicit discharges are: motor oil, oil filters, anti-freeze, transmission fluid, paint, solvents, degreasers, cooking grease, home improvement waste, excessive dirt and gravel, construction debris, chemicals and yard waste. The only substance entering the storm drain should be stormwater.



We need your help to make sure only stormwater travels through our storm drain system. If you see the above mentioned substances or other compounds in a storm drain, please call us at the number below. Also if you see someone or a business disposing of a stormwater pollutant or any suspicious substance in a storm drain, please call us at the number below. This phone number is operational 24 hours a day.

The mission of Harford County Water Resources cannot be achieved without you, our valued citizens. We all must be diligent to protect our streams, rivers, lakes, reservoirs, ponds, and wetlands to ensure their sustainability for future generations.

To report an illegal discharge of a stormwater pollutant call **410.638.3400**. For more information on the Illicit Discharge Monitoring program visit: <http://www.epa.gov/npdes/pubs/fact2-5.pdf>.



For More Info

Harford County Water Resources 410.638.3545
www.harfordcountymd.gov/waterresources

Growing Home Campaign 410.638.3545
www.growinghome.info



Recommended Readings

Why Leaves Change Their Color
by Ellen Rene

Have you ever wondered what causes leaves to change their green color in fall? Also why some leaves change to yellow, red, or purple? This tiny book will answer those questions and more about tree leaves. A good book to read on a crisp fall day.



Schools

Toxicity of Driveway Sealants

by Sara Laskowski
Aberdeen Science & Math Academy Student

The worldwide increase in human population has strained natural resources, indigenous plants and animal communities. This increase has impacted environmental stressors. One impacted environmental stressor is increased pollution and unintentional release of man-made chemicals in the environment. A group of over one-hundred chemical compounds, called polycyclic aromatic hydrocarbons (PAHs) are known pollutants. Polycyclic aromatic hydrocarbons are lipophilic, meaning they are soluble in oils and fatty substances. They are commonly found in biota and have an affinity to organic carbon, often found in soil and sediments (National Pollutant Inventory, 2004).

Significant environmental residues containing polycyclic aromatic hydrocarbons have been found in sediments near parking lots and driveways. Recent evidence suggests that these residues are particulates from commercially available driveway sealers. These particulates can flake off and wash into storm drains and ultimately our streams.

The present study was designed to investigate the relative toxicity of water soluble coal-tar based driveway sealers in several classes of organisms. The selected representative receptors are: a terrestrial insect (fruit fly: *Drosophila melanogaster*), an aquatic invertebrate (water flea: *Daphnia magna*), and an aquatic plant species (duckweed: *Lemna gibba*).

They were exposed to concentrations of water soluble coal-tar based driveway sealer. Following a brief range-finding experiment, fifteen fruit flies were exposed in triplicate to concentrations of 0, 100, 250, 500, 750, or 1000 mg sealer/kg agar wet weight for two weeks and adults, eggs, and pupae were counted. Although there were no statistical differences in treatments, trends in the reduction of larvae appearance suggest a delay in reproduction and/or development.

Husbandry problems associated with the *Daphnia magna* cultures precluded their inclusion in the experiment.

Fifteen duckweed fronds were exposed to 0, 100, 250, 500, 750, or 1000mg sealer/L water and observed for two weeks. Concentrations of 750 mg sealer/L water affected duckweed density. The duckweed density concentrations for 1000 mg sealer/L water were lower than 750 mg sealer/L groups.

These results suggest that the sealant may have an adverse-effect on aquatic and terrestrial organisms in the environment; however, further research is needed to better understand the magnitude of these responses in other species.

Guest Contributors

Barbara Allera– Bohlen, Gary Davis and Harford County Division of Agriculture

A Day on the Farm
Magness Farm Wetland Restoration
by Deborah V. Lewis

A wetland restoration project on the 160 -acre dairy farm owned by Dan and Pat Magness has received praise from the environmental community. This project is part of Governor Martin O'Malley's Smart, Green and Growing environmental initiative. The initiative's purpose is to restore the Chesapeake Bay by preserving land, revitalizing communities, creating green jobs, improving transportation, conserving energy and addressing climate change. Project funding was provided by the Transportation Enhancement Program, Environmental Preservation Fund and Harford County Government.

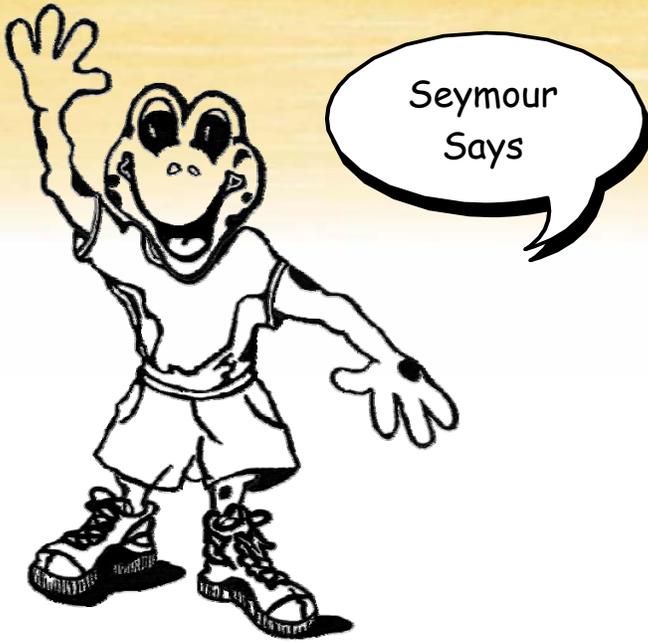
Many changes impacted the health of this original wetland. Over the years, to increase pasture land, pipes were put in for drainage. An open ditch was dug for a mosquito control program. Stormwater from various sources caused severe erosion and head-cutting of the stream. The open ditch transported stormwater runoff with heavy nutrient and sediment loads to a tributary of Deer Creek.

Deer Creek is the largest watershed in Harford County. It is a vital ecological community for wildlife, fish and vegetation. Deer Creek is home to several endangered species. It serves as a tributary to the Chesapeake Bay.

The five project goals according to Gary Davis, former District Manager of Harford Soil Conservation District, were to stabilize and restore the original stream, restore the original hydrology, restore a wetland plant regime, create wildlife habitat and public education and outreach. Barbara Allera-Bohlen of the State Highway Administration directed the project design. She describes this project as transforming a marginally emerging wetland into a forested wetland.

A regenerative design by Biohabitats Inc. was used to create a 7.5 acre wetland that is befitting of the farm's

(continued on page 4)



Magness Farm Wetland Restoration (continued from page 3)

rural landscape. Biohabitats, Senior Ecologist Joe Berg defines the purpose of a regenerative design is to restore the natural process in a way that increases resiliency, allows natural self-organization and never requires replacement nor maintenance. Conventional construction utilizing rock, concrete, pipes and mechanical features which may give a harsh and cold presence in the environment, were not used.

This design incorporates trees, shrubs, coconut fiber matting and rock weirs creating shallow pools for an aesthetic design that blends with a country farm. A key feature of the design was raising the stream bed for more effective drainage of stormwater runoff. Daisy Concrete performed the actual construction. The site planting firm was William T. King, Inc. According to Ms. Allera-Bohlen the design created a one acre riparian buffer, an acre of upland plantings, five acre forested wetland and restored 1,200 linear foot of stream. Since this is a dairy farm where cattle are home on the range, cattle crossings and electric fencing were installed to protect the wetlands.

Fall is a great time to plant a tree. The Growing Home Campaign offers a free \$10 coupon towards the purchase of many different trees. The coupon is good at various local nurseries. www.growinghome.info

Do a fall garden cleanup. Remove dead flowers and leaves from the garden. This will prevent pests and diseases from overwintering.

Try to reduce holiday gift packaging. This holiday season why not use baskets, tin cans, bags or containers to wrap those gifts. If you must use paper consider old maps, newspapers or the kids priceless artworks. When you receive a package in a box reuse it for those gifts you mail.

Christmas Evergreens. Remember to recycle your live Christmas tree, swags and wreaths.

So from hearing and reading all of the positive reports, I looked forward to my August tour of the wetlands. Just ten months after restoration, a visit to the wetland reveals a vibrant ecosystem. Lush vegetation traps sediment and nutrients. Trees are emerging providing a canopy to shade the stream and protect wildlife. Aquatic life resides in a natural habitat. The stream moves slowly with trickles and ripples sustaining life in various forms and allowing you to bask in the wonders of nature. This was a day worth waiting for.

The Magness Family are truly passionate about farming. They have a Farm Museum on the property. The museum offers a glimpse of farming in the 19th century. For more information or to arrange a tour contact them at magnessfarms@earthlink.net

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

(410) 638-3545
environews@harfordcountymd.gov



**Next Issue Available
Winter 2010**

October 2008

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Rivers, streams and creeks have powered mills since colonial times. In this issue, learn about the history of Eden Mill and in the next issue efforts to produce electricity at the mill once again. Read about Harford County's Water Resources partnership with Hickory and Forest Hill Elementary Schools. Also read the Harford Bird Club's article on winter bird feeding. You can enjoy birds in your backyard all winter long.

Enviro News is distributed three times per year (January, May and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.

Eden Mill (Part 1 of 2)

by Deborah V. Lewis
Harford County Water Resources

Guest Contributors

Frank Marsden, Dave Robinson and Jack L. Shagena,
P.E. (Ret.) , Eden Mill, An Illustrated History

Harford County's streams, rivers, and creeks have been a source of recreation and economic activity for many generations. These water resources were used to power mills since the 1600's. Mills produced lumber, grain, cloth, oil and other materials essential for economic growth. Mills were the original eco-friendly industries. Even today where the waters of Deer Creek combine with Big Branch stands Eden Mill, a testament to an old industry that is having a resurgence in today's quest for more green technology.

Eden Mill was erected and operated by the Stansbury family for 85 years. Since then it has served as a saw (lumber) mill, grist (grain) mill, fulling (fabric) mill, water (hydroelectric) mill, nature center and mill museum. Subsequent owners added many improvements to keep the mill competitive. George Anderson added rollers to challenge Midwestern mills that produced larger quantities of refined flour preferred by consumers. John Marsteller and Asa J. Van Sant added steel rollers in succession. They slowly processed wheat grain into flour. The undesirable bran was not broken into smaller pieces it remained whole. The bran was then removed by further manufacturing processes. This flour was more desirable

(continued page 2)



Eden Mill Nature Center

1st Annual
Shrimp and Bull Roast
Fundraiser

Eden Mill Nature Center (non-profit organization) will be hosting a fundraising event on Sunday, January 31, 2010 at Jarrettsville Gardens to support their endeavors. The event will last from 1PM.-5PM. Tickets are \$35.00 per person and includes buffet, beverages and music. Contact information is below.

Eden Mill Nature Center
1617 Eden Mill Road
Pylesville, MD 21132
410-836-3050
www.edenmill.org
edenmillnaturecenter@gmail.com

David R. Craig
Harford County Executive

"Preserving Harford's past, promoting Harford's future"



Schedule of Events

Vegetable Gardening with Confidence. Various dates, locations and times; Learn how to start a vegetable garden in 6 basic steps. Harford County Cooperative Extension Service. 410-638-3255. www.haford.umd.edu

White-tailed Deer Survey. February 13; 9AM.-Noon. Anita C. Leight Estuary Center. Help determine the deer population at the estuary by participating in a survey. Participants will be counting deer scat. 410-612-1688. www.otterpointcreek.org

Eden Mill Nature Center& Historic Grist Mill Museum. Monday-Friday, 9AM.-4PM. and most Sundays, 1PM.-5PM. Eden Mill Nature Center, Pylesville. Step back in time and enjoy this historic grist mill and its unique museum. 410-836-3050. www.edenmill.org

Community History Day. March 6, 1PM.– 5PM. Havre de Grace Maritime Museum. A new program that uses a series of student community history projects to learn local history. 410-939-4800. www.hdgmaritimemuseum.org



For More Info

Harford County Bird Club 410-939-3537
www.harfordbirdclub.org

Harford County Water Resources 410-638-3545
www.harfordcountymd.gov/waterresources



Recommended Readings

Mills: Grist, Saw, Bone, Flint, Fulling...& More
by Jack L. Shagena, Jr., Henry C. Peden, Jr. and John W. McGrain 2009.

The fifth installation in the Harford County's rural heritage series explores our rich mill history. Mills were named for the type of product being milled. So flour was produced from a flour mill. What do you think a grist mill produced? This book will educate and amuse you on this important water powered technology.

for market. Frank Wolfe used steam to run the mill.

The inventions of Thomas Edison (incandescent light bulb) and George Westinghouse (transformers) ushered in the age of water powered electricity. Electricity was now the preferred choice of power over coal, oil and gas. It was efficient, reduced labor costs, production time, and was less expensive. In 1917, a group of businessmen purchased Eden Mill with plans to produce electricity for Fawn Grove, Pennsylvania, a few local businesses and farms. This venture was known as the Fawn Grove Light and Power Company, incorporated several changes to Eden Mill and the original dam constructed by Elijah Stansbury in 1792. The Fawn Grove Light and Power Company merged with the Glen Rock Electric Light and Power Company in 1929. With this merger the hydroelectric plant at Eden Mill was discontinued. The mill was sold to James T. Smith who added the hammer mill for grinding feed.

During winter months the dam would freeze forming ice. The ice was harvested and stored below ground for summer months. The frozen creek was used to transport lumber and other goods to market.

Eden Mill provided wildlife habitat and outdoor recreation for the young and old. Each season brought a host of recreational activities. The abundant wildlife provided food for the farmer as well as for the popular Baltimore restaurants. Eden Mill's outdoor recreation and wildlife can be enjoyed even today.



(See part 2 of 2 in the Spring–Summer issue 2010)

Education

Addressing Water Quality on School Campuses
by Christine Buckley
Harford County Water Resources

In September 2009, Harford County Water Resources began a partnership with Hickory Elementary and Forest Hill Elementary in the development of environmental projects to improve the quality of stormwater leaving their campuses.

Both locations were identified as priorities for restoration in the Deer Creek Watershed Action Strategy completed by Harford County Planning and Zoning in 2007. For more strategy information visit the website <http://www.harfordcountymd.gov/PlanningZoning/WRAS/>.

The focus of the environmental projects is to work with the students in developing a plan to improve water quality and educate the student body and the community. Both schools have selected a group of fourth grade students in their gifted and talented programs to participate in the project.

Students have been researching how their campuses impact water quality and ways to offset those impacts. They have studied how stormwater flows from their campuses to their local stream, Stout Bottle Branch, which drains to Deer Creek. Deer Creek, then flows into the Susquehanna River which drains into the Chesapeake Bay. Although both schools are many miles from the Chesapeake Bay, understanding the connection of the land to the water and our impacts on water quality are important concepts to instill in the students.

While the students have been studying water quality, consultants to Harford County Water Resources, Century Engineers and Biohabitats Inc., have been collecting information about the school campuses including surveying the topography or landscape and inspecting existing structures that control stormwater runoff. They will have recommendations for existing and new structures. One new proposed facility is a bioretention facility or rain garden. Rain gardens improve water quality and are nice landscaped features. For more information about rain gardens visit the website http://www.lowimpactdevelopment.org/raingarden_design/.

The students in partnership with Water Resources will refine the restoration plan, assist in selection of native plantings, and publicize the project among other students as well as their parents. Construction for portions of the project is anticipated before the end of the school year and will include the students.

(See part 2 of 2 in Spring-Summer issue 2010)

Guest Author



Winter Bird Feeding
by Dave Webb
President, Harford Bird Club

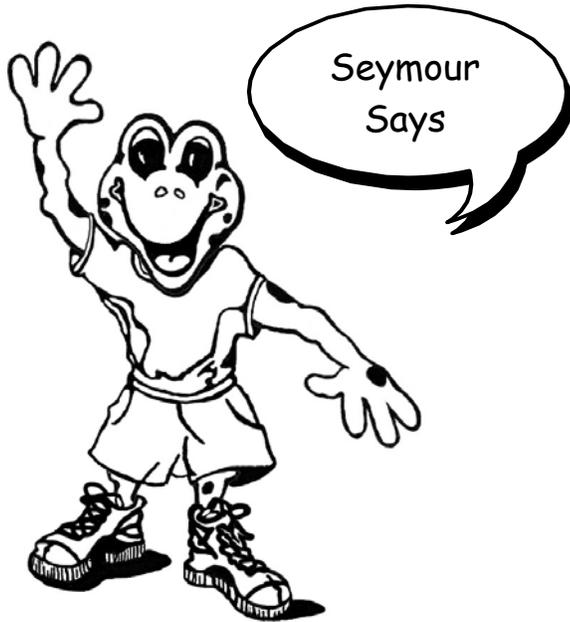
Among Harford County's most fascinating natural resources are the more than 240 diverse bird species that reside in or annually migrate through the landscape, a landscape that includes backyard feeding stations. Feeding of wild birds is beneficial to both the birds and humans. Birds obtain valuable nutrition, while people take pleasure in the colors and behavior of our feathered friends. With a few simple feeder stations, a field guide from the local bookstore or library, and a pair of binoculars, one can enjoy the limitless wonders and occasional surprises of "backyard birding". Here is some information to get you started on discovering your very own backyard birds this winter.

Options abound when shopping for bird food, but a few items are really all that are needed to attract an impressive number of species. Start off with black-oil sunflower seeds, which have a higher nutritional value than striped varieties. Black oil is favored by more bird species than any other food source. Set them out in a hopper feeder, a platform tray feeder, or just a deck railing. It won't be long before the chickadees, nuthatches and cardinals take notice. In winter, raspberry-tinged Purple Finches are often seen feasting at sunflower feeders; every few years, flocks of brightly plumaged Evening Grosbeaks descend on sunflower feeders to gorge on this delicacy.

Although commercial birdseed mixtures are widely available and convenient, they are often stretched with less desirable foods which are left behind after the birds pick out their favorites. Try your own blends of as few ingredients as possible to minimize waste. With black oil sunflower seeds, throw in about a third as much medium-cracked corn and/or white proso millet to attract additional species such as Mourning Doves, Blue Jays, Common Grackles, and several varieties of sparrows.

A colorful sight in any backyard is the American Goldfinch. However, these small finches have trouble competing for the same food sources with other larger and more aggressive birds. To help them out, offer "Nyjer", a special variety of thistle seed. Specially designed tube or sock feeders are built for holding and dispensing the little black seeds, and allow these feathered acrobats to comically hang as they feed. In some winters, feed

(continued page 4)



watchers in Harford County are excited to see Pine Siskins join their goldfinch cousins at thistle feeders.

The next basic element in any backyard feeding arrangement is suet, a type of beef fat. Although it is fairly easy to make your own suet, commercially available blocks are nearly as cost effective and are less likely to turn rancid in warmer weather. Suet blocks often contain other seeds, nuts or fruits to increase their attractiveness and to diversify the nutritional quality. As such, many types of birds rely on suet as an energy source in the frigid months of winter. A block of suet hung inside a wire cage or mesh bag is sure to attract a variety of woodpeckers, but don't be surprised if a junco or a wren sneaks a quick nibble from your suet offering.

Water Conservation. Soak pots and pans to remove waste instead of scraping and rinsing. Designate one glass to use for drinking water. This eliminates cleaning multiple glasses.

Winter Weather. Consider using non-toxic de-icing substances such as clean clay cat litter or sand. Chemical deicers can be hazardous to pets, trees, shrubs and the environment. Sweep up the clean clay litter and sand after the winter storm event and store for reuse.

Batteries. Use rechargeable batteries for your flashlights or those with a low mercury content.

Use electric snow removal products. Use electric snow removal products instead of gas powered ones. They do not emit greenhouse gases. Better yet use shovels and brooms to clear snow from sidewalks, porches and driveways.

Providing clean, fresh water is one of the best ways to attract even more birds to your backyard. Water is essential to birds not only for drinking, but also for bathing and keeping cool in the summer. During winter, the problems of icing over and cracked birdbaths can be avoided by adding a heating element. A pricier, yet extremely effective method for attracting birds is to add a submersible pump. The sound of running water, especially during sub-freezing periods when open water is a rare commodity, will attract birds from miles around.

Once you are successful in attracting a few birds to your feeding stations, more will follow if you maintain the food supply and occasionally clean your feeders to prevent the growth of harmful bacteria. Don't hesitate to experiment with occasional treats such as peanuts (hulled or in the shell), safflower seeds, mealworms, raisins and other dried fruit. What birds are in your backyard? Set out a few feeding stations and find out!!!



Red-bellied Woodpecker
(Photo: K. Rohe, Joppatowne)

For more information on backyard birding, visit either www.dnr.state.md.us/wildlife/wildacres.asp or www.birds.cornell.edu/pfw/AboutBirdsandFeeding/tbirds_index.html.

(See part 2 of 2 in the Spring-Summer issue 2010)

Enviro News

212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014
(410) 638-3545
environews@harfordcountymd.gov



**Next Issue Available
Spring-Summer 2010**

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Rivers, streams and creeks have powered mills since colonial times. This issue, concludes our article on the history of Eden Mill and efforts to produce electricity at the mill once again. Continue reading about Harford County's Water Resources partnership with Hickory and Forest Hill Elementary Schools. Also Part 2 of the Harford Bird Club's article on enjoying birds in your own backyard.

Enviro News is distributed three times per year (January, May, and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.

Maryland Birds and Habitats Summer Program June 20-25, 2010



The Maryland Ornithological Society and The Washington College Center for Environment and Society will sponsor a one week summer program for educators and students on Maryland Birds and their habitats. Birds are great environmental indicators of habitat quality. This program will consist

of field and classroom experiences. Educators can be either professional or volunteers that work with youth. Students should be in grades 8 through 12 in the 2010-2011 school year. The program will take place at Washington College in Chestertown, Maryland. There is a cost for the program, but scholarships are available. Application will be accepted until program is full. To learn more about this summer program contact George Radcliffe at radclifg@gmail.com.

Eden Mill (Part 2 of 2)

by Deborah V. Lewis
Harford County Water Resources

Guest Contributors

Frank Marsden, Dave Robinson and Jack L. Shagena, P.E.
(Ret.), Eden Mill, An Illustrated History

When James Smith died in 1964, Eden Mill and several acres of surrounding land were purchased by Harford County Department of Parks and Recreation. Many ideas were presented for developing Eden Mill but lack of funding delayed development. Caretaker efforts of many private citizens helped Eden Mill survive during these early years. The tireless efforts of the Eden Mill Nature Committee Inc. (Frank Marsden, Peggy Eppig, Sylvia Hunt, Dick and Elaine Hunt, Jerry Logan, Sharon and John Miller, Andrea Musser and others) created what is now the Eden Mill Park Nature Center & Historic Mill Museum.

Eden Mill has been a preserver of the great outdoors for Harford County. This historic mill continues to serve as a nature center, museum and outdoor recreation facility for today's generations and those yet to come. Eden Mill is experiencing another rebirth. According to volunteer Dave Robinson, once again it is being refurbished to function as a water (hydroelectric) mill. There are several goals for this project: produce enough electricity to operate the mill, receive credit from Baltimore Gas and Electric Company for any excess electricity, operate as an

(continued page 2)

David R. Craig
Harford County Executive

"Preserving Harford's past, promoting Harford's future"



Schedule of Events

Bird Banding. Various Dates, 7am-12pm. Eden Mill Nature Center, 1617 Eden Mill Rd, Pylesville. Bird banding is important for studying birds movement, survival and behavior. Free. 410-836-3050. www.edenmill.org

Wade-In. June 5, 2-5pm. Anita C. Leight Estuary Center, 700 Otter Point Creek Rd, Abingdon. Family oriented environmental activities. Wade into Bush River to determine the depth of water clarity. Free. 410-612-1688. www.otterpointcreek.org

Summer Fun Day at Steppingstone Museum. July 11, Noon-4:00pm. Steppingstone Museum, 461 Quaker Bottom Road, Havre de Grace. Summer family fun with lawnmower races, games, crafts, food and more. Admission. 410-939-2299. www.stepsingstonemuseum.org

23rd Annual Duck Fair. Sept. 11, 9-4pm. Wildlife artists & carvers, auction, retriever dog demo, food & fun. Havre de Grace Decoy Museum, 215 Giles St, Havre de Grace. Free. 410-939-3739. www.decoymuseum.com



For More Info

Harford County Water Resources 410-638-3545
www.harfordcountymd.gov/waterresources

Harford County Bird Club 410-939-3537
www.harfordbirdclub.org

Growing Home Campaign 410-638-3545
www.growinghome.info



Recommended Readings

Secret Lives of Common Birds

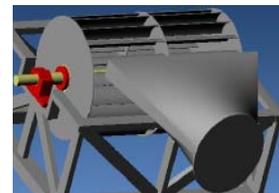
by Marie Read

Just like humans, birds have unique and different behaviors. Take for instance the need to drink water. While some birds sip, others slurp water. Many birds living in desert regions produce some of their own water through a process known as metabolic water. If these little tidbits have tickled your feathers, then this book on bird behaviors with its beautiful pictures is a must read.

eco-friendly generation facility, decrease the carbon foot print by not using carbon sources for power and provide an educational tool for visitors. Northland Engineering of International Falls, LLC performed the hydroelectric study for the mill. Constraints of the project are: preserving the historic environment, existing conditions of mill and related structures, construction and operation cost, regulatory requirements and design requirements such as head and flow rate. The flow rate must also consider seasonal low flows that typically occur from July to September. During seasonal flows the water level in Deer Creek is lower. During this time water flow is critical for Eden Mill and locations downstream.

The dam erected by Elijah Stansbury was constructed of concrete; the height is eighteen feet. A renovation was done in 1976 of the dam and related structures. Water flows by gravity from Deer Creek into the dam. The dam is constructed with a center gate for maintenance and emergency situations. The hydro turbines are housed in (2) vaults on the north side of the dam each with a wooden head gate. The vaults operate independently. The existing design includes a trash rack the length of both vaults. Above the turbines you will find the generators. Typically only one generator operated at a time. The other was kept on standby. On the north bank of Deer Creek is the tail race. This is the final discharge point for water flowing through the dam.

The engineering firm presented several options to stakeholders. The final proposed design is to remove one of the existing turbines and replace it with a crossflow turbine. The old turbine will be displayed in the museum as a teaching tool. The crossflow turbine meets design, construction, operation, maintenance and cost requirements. One disadvantage of this turbine is that it will not utilize all available head space. Head space is the vertical distance in which the water drops. The larger this number the more electricity produced. Eden Mill will produce less electricity. This trade off was not a major priority for the stakeholders.



Crossflow Turbine

Several issues now impact the success of this project with funding again being the major. But if we have learned anything about the resilience of Eden Mill volunteers, it is always full steam ahead. For more information visit their website www.edenmill.org.

Schools

Addressing Water Quality on School Campuses
by Christine Buckley
Harford County Water Resources

Plans for the rain gardens at Forest Hill and Hickory Elementary Schools are moving forward but at a slower pace than expected. Unfortunately, the big snows arrived just when the topographic surveys or elevation measurements were scheduled. Most of the areas to be surveyed were in locations where the snow was placed. So, we had to wait for the snow to melt.

Those surveys have been completed and soil testing is scheduled to be done soon. All of this information is gathered, so the design engineer knows what the existing lay of the land is and types of soil present where the rain gardens will be constructed. While the design engineer has been busy drafting construction drawings, a small group of students at each school have been busy conducting research. Their research has included walking the school grounds to understand which directions water flows after a rain and what pollutants exist that could be carried away with the water. Some of those pollutants could include excess fertilizers, sediment, antifreeze, oils and greases, and trash.

The students have spent many hours on the internet developing an understanding of how rain gardens remove pollutants from the water before they reach the local streams. Rain gardens gather the runoff after a rain and it percolates slowly into mulch and a specially mixed soil. The plants selected for a rain garden can tolerate short periods of time in standing water. This helps absorb pollutants. The students have been researching appropriate plants to select and will create a landscaping plan for their rain gardens.

They have been encouraged to expand their research to include ways to reduce pollutants first at their source. For example, encouraging people to keep their cars properly maintained can reduce the amount of pollutants like antifreeze and oils and greases that need to be removed in the rain garden.

The next phase of the project for the students is to get the word out about the rain garden project and educate the rest of the student body and their parents about water quality. This outreach will include letters to the parents, short facts in the school newsletter and posters and pictures. Because snow delayed the project, construction will take place during the beginning of the next school year. The winter issue of *Enviro News* will feature articles from each school written by the students.

Guest Author



Spring Birding in Harford County
by Dave Webb
President, Harford Bird Club

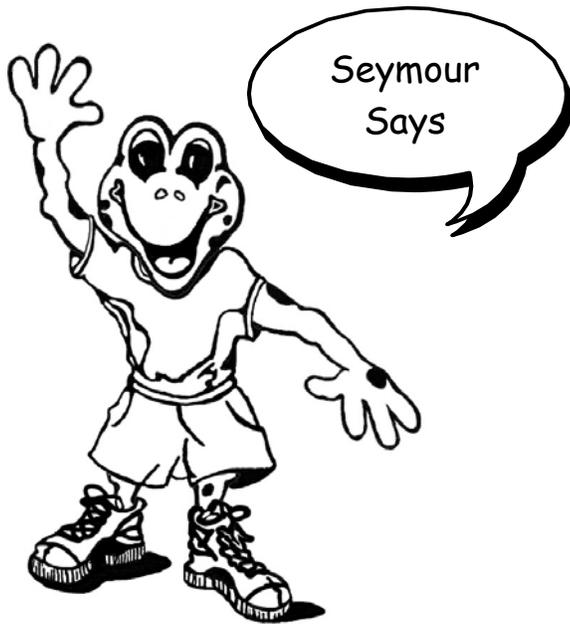
At no other time of the year is the hobby of bird watching more exciting than spring when birds sport their most colorful plumages, fill the air with exuberant songs, and perform fascinating and sometimes bizarre courtship rituals. Over 110 species of birds regularly breed in Harford County. Another 120 migrate through en route to more northerly breeding grounds. Here's a brief guide to some of the best places to witness this spring spectacle and the birds that you might encounter.

Two of our largest predatory species, Great Horned Owl and Bald Eagle, start breeding in December. By early February, many are incubating eggs. Eagle nests (or "aeries") can weigh more than a ton and are about six feet wide. They are easy to spot until mid-April when trees fill out. Aeries are always found near water, so look for them along the Susquehanna River, Deer Creek, and Broad Creek. Great Horned Owls can be found anywhere in the county with sufficient open space for hunting. They use the abandoned nests of other large birds. Look for their "horns" or feather tufts barely sticking up from the nest.

On warm, calm March evenings, male American Woodcocks woo their female counterparts with a bizarre ritualistic "sky dance". These pot bellied members of the shorebird family inhabit wet, upland meadows. As sunset approaches, their attention turns to courtship. The males start the sky dance with a spiraling skyward flight. As they do this, their wing beats make a rapid, twittering sound. Once they reach 200 feet, they sing a few chirps, and then rapidly return to the ground in a tight spiral. To complete the dance, they give a loud, nasal "peent" call. You can witness sky dances on special field trips offered by the Harford Bird Club.

Swan Harbor Farm has earned a reputation as one of the best birding hotspots in Harford County. The impoundment built by Ducks Unlimited, and the surrounding agricultural fields are not to be missed in April. Long-legged waders such as Great Egret and Glossy Ibis may join smaller shorebirds such as Wilson's Snipe, Greater Yellowlegs and Least Sandpiper to feed in the shallows and mudflats. Other unheralded species waiting to be discovered at Swan Harbor Farm are bitterns, rails, and Pied-billed Grebe. The American Bittern hides in cattails with its streaked neck extended upward to maximize

(continued page 4)



Choose nursery native plants and trees

when landscaping. Native plants and trees require less water, fertilizer and pesticides, and thrive with minimal care since they are already adapted to the environment where you live.

Reuse empty glass containers. Use them to store drinking water and other beverages. They make great food storage containers.

Participate in spring clean-up events. Whether it is household hazardous waste, e-cycling, stream, neighborhood or the garage, spring clean-up events help protect and improve our environment.

Lawn care. Have soil tested at local cooperative extension office to know what amendments you need. Use natural fertilizers made from waste products such as chicken feathers, manure etc. sparingly. Mow with a mulching mower and keep blade sharp. Mow at proper height. Compacted or thin lawns may require aeration in the fall.

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

(410) 638-3545
environews@harfordcountymd.gov



**Next Issue Available
September 2010**

Spring Birding in Harford County (continued from page 3)
camouflage. Virginia Rail, King Rail and Sora are very secretive denizens of the impoundment. In recent years, pair of Pied-billed Grebes has successfully raised young at the impoundment. This makes Swan Harbor Farm one of only a handful of locations in Maryland where this declining species of water bird breeds.

For many local birders, the highlights of the spring season are the waves of vireos, swallows, flycatchers, thrushes, orioles, cuckoos and warblers that can be found in Harford County. Many of these birds have spent their winter in tropical regions between the Caribbean and South America. These "neotropical migrants" are insectivorous and most are found in trees. Some of the better public areas for viewing spring songbirds include Harford Glen, Rocks, Susquehanna and Gunpowder Falls State Parks. Susquehanna State Park has brilliant gold Prothonotary Warblers. These cavity nesters are found along Stafford Road near slow moving water or stagnant pools. Yellow-throated Warblers boldly marked in black and white with golden throat, forage in the canopies of sycamores along the banks of Deer Creek. The most celebrated of the park's songbirds is the Cerulean Warbler. This small, sky blue warbler has seen its North American population plummet by 80% over the last 40 years. However, they remain fairly common along the Susquehanna Ridge Trail (blazed in red). Their high pitched buzzy song is often the best clue to their presence.

Even in your own backyard you can attract colorful spring migrants by offering them food. Brilliant Indigo Buntings and Rose-breasted Grosbeaks readily take offerings of sunflower seeds. Halved oranges are a tasty treat for Baltimore Orioles. A 4:1 mixture of water and sugar in a specially designed feeder will attract our smallest feathered friend, the Ruby-throated Hummingbird.



Male Rose-breasted Grosbeaks: photo Lynn Feryus

Watching birds is your ticket to a world of beauty, diversity and wonder. So grab your binoculars, field guide, and see what birds you can find in the great outdoors of Harford County!

For information on birding field trips in Harford County at any time of the year, visit www.harfordbirdclub.org/harfield.html.

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Harford County's Division of Environmental Services, Office of Recycling will kick-off "Single Stream Recycling" in the fall. Learn how this new and improved program will protect the environment. Read about The Meadowvale Elementary School Trash Free Tuesday Program. Finally, fall is a great time to plant a tree, learn some important tips.

Enviro News is distributed three times per year (January, May, and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.

Darlington Apple Festival October 2, 2010 10:00a.m- 5:00p.m.



The Village of Darlington will once again host the Apple Festival. Proceeds provide much needed funding for churches, charities and non profits that truly make a difference in this historic community. Rain or shine this free event will take place.

For additional information contact 410.457.4189 or visit www.darlingtonapplefest.org.

Single Stream Recycling

by Becky Joesting

Harford County Division of Environmental Services

Beginning the week of September 12, 2010, Harford County's curbside recycling program is going single stream. Harford County Government has partnered with WM Recycle America to "Protect and preserve the County's environment through efficient use and reuse of its resources." Single Stream recycling is part of County Executive David Craig's Environmental Stewardship Initiative. Along with a significant cost savings for the County, waste items such as glass, metal and paper bypass the landfill and become useful products.

This new and improved program will allow all recyclables to be placed in the same container for pick up each week. No longer will you need a schedule to keep track of which week is paper or container collection. Also, no more plastic bags to worry about. You will have much more flexibility when choosing your recycling container. You could use a spare trash can, laundry basket or cardboard box. You can identify your recycling container with stickers that the Recycling Office will be mailing to residents. Residents also have the option of placing an "X" on the side of their recycling container if they wish. The Recycling Office will be mailing detailed information about the program prior to its implementation.

(continued page 2)

David R. Craig
Harford County Executive

"Preserving Harford's past, promoting Harford's future"



Schedule of Events

Single Stream Recycling (continued from page 1)

Family Movie Night. Sep.18 & Oct. 23,7:30pm.; Eden Mill Nature Center. Pre-registration. Free. www.edenmill.org.

International Observe the Moon Night. September 19, 7pm.; Harford County Astronomical Society, Harford Community College Observatory. Join the international celebration and spend an evening viewing the moon. Free. 410.836.7285. www.harfordastro.org.

Harford Bird Club. September 25, 7:30am.; Lower parking lot Eden Mill Nature Center. Explore Falling Branch stream and the falls. Lots of migrant song birds and raptors. Free. www.harfordbirdclub.org.

Founders Day Nov.13,11am.-8pm.; Maritime Museum Havre de Grace. Celebrate the museum Founders by exploring the first people of the Chesapeake through demonstrations and hands on activities. Free. www.maritimemuseum.org.

Eagles at Conowingo. Nov. 14, 9-11 am., Conowingo Dam. Observe and photograph Bald Eagles fishing in the Susquehanna River below the dam. Admission and age requirement. www.otterpointcreek.org.



For More Info

Harford County Water Resources 410.638.3545
www.harfordcountymd.gov/waterresources

Growing Home Campaign 410.638.3545
www.growinghome.info

Harford County Office of Recycling 410.638.3417
www.harfordcountymd.gov



Recommended Reading

Chesapeake Bay Crab Cookbook

by John Shields

The blue crab has long been a local indicator for many of the health of the Chesapeake Bay. This cookbook on everything crab has a recipe for Crab-Cough syrup and defines crab mustard. Kid's thoughts on crabs, and the down memory lane pictures will make you smile. Some say the crabs in the fall are meatier... why not try a recipe and see.

Another major benefit to the single stream program is that new items will be accepted for recycling. Items such as juice boxes, milk and juice cartons, all numbers of plastic food and beverage containers, plastic cups, flower pots, plastic toys, buckets and pails, plastic coolers, and plastic lawn furniture. Aluminum foil and bake ware will now be accepted as well as empty aerosol cans, and more. Large items such as coolers and lawn furniture can be placed next to your recycling container for collection.

There are still a few items that cannot be accepted at curbside for recycling and will need to be put out as trash. Items such as polystyrene (Styrofoam), motor oil containers, pesticide or solvent bottles, CD cases, VHS tapes and vinyl siding. Plastic electronics like alarm clocks and coffee makers are not accepted. No propane cylinders, pots and pans, window glass, ceramics, crystal, light bulbs, or mirrors will be accepted. Also, no food contaminated wax or laminated paper, paper plates, cups, tissues and towels or metallic paper items.

One of the major differences to the Single Stream Program is that you will no longer be able to use plastic bags as containers. All recyclables must be in some sort of container. Plastic bags will create operational difficulties with the processing equipment. Resident are encouraged to recycle plastic bags at the many grocery stores which accept them.



The new and improved program is sure to encourage participation. Harford County has enjoyed being the number one recycling County in Maryland. This new program should seal our top position for many more years to come. Kudos to all County recyclers who have put us on top because they care about the environment and Harford County.

Schools

Trash Free Tuesday at Meadowvale Elementary

by Jessica Hoover
Gifted and Talented Teacher Meadowvale Elementary

The fourth grade gifted and talented students of Meadowvale Elementary School are trying to make a positive impact on the environment. In the fall of 2009, these students began to research the impact that lunch waste has on the environment. They discovered the average student throws away about 67 pounds of trash per school year. This data was used to calculate how much lunch waste was produced per school year. They came up with a staggering figure of 34,438 pounds per school year! That data prompted the students to begin a research project titled, "Trash Free Tuesday."

The Meadowvale Fourth Graders, also known as the Trash Tally Team, created a process that students could use to tally up the amount of trash produced during lunch. They created a trash tally book that could be used in the cafeteria by students. The students produced an informative video to teach the other students how to tally their trash.

Next, the Trash Tally Team used this baseline data to launch a persuasive and informative advertising campaign encouraging students to reduce lunch waste. Each week the Trash Tally Team students analyzed the data from the Trash Tally Books. They developed data displays and initiatives to continually influence students to reduce lunch waste.

Over a four week period, the efforts of the Trash Tally Team helped students at Meadowvale reduce their lunch waste from an average of 5.02 pieces of trash per person to 4.48 pieces per person. Some classes reduced their lunch waste by over 3 pieces per person! The students of Meadowvale Elementary will continue their efforts to improve our environment by encouraging their peers to reduce the amount of waste they produce at lunch in hopes to have a truly Trash Free Tuesday one day very soon!



The Trash Talley Team

Guest Contributors

Selecting the Proper Tree for Your Property

by Elizabeth Greene
Harford County Government Department of Planning and Zoning

It's hot. It's humid. You're wondering where the best shady spot is to sit and relax. Looking around your yard, you think how nice it would be to have a big tree to sit under. Perhaps your yard is not that large. Maybe the ground is sloped, or you have children who play there. Maybe you want to plant a border along your property line. With all these questions, just what is the right tree for your property? Before visiting the local nursery, here are some things to consider.

Trees provide more than shade. They block the wind, provide fruit and nuts, clean the air, reduce glare and reflection, provide habitat for wildlife...so picking the right tree is an important decision and a wise investment. Knowing what to look for when tree shopping will help you select the right tree.

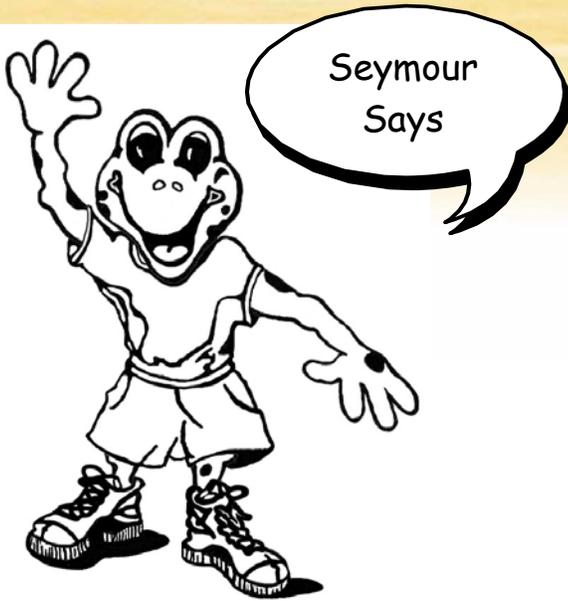
There are a number of considerations to take into account. First, what species of tree you want to plant. Next, you need to look at the height and width and depth of the roots when it is mature. Do you want a tree that is green year-round, blossoms beautifully in the spring or provides stunning fall foliage?

One of the most important things to look for in a tree is its form. For most trees, there should be one strong leader, or trunk, and a balance of side branches. Look the tree over carefully to see if there is evidence of tree rot, disease or insects.

What are the growth conditions where you will be planting the tree? What are the sunlight and moisture requirements? You don't want to plant a drought resistant tree in an area that stays moist most of the year.

Should you buy a container grown tree or a balled and burlapped tree? Container grown trees spend most of their life in a pot. These trees transplant well in the spring or fall. Check for plenty of feeder roots, those thin, hair-like roots and signs of damage like chewed roots, tunneling, holes, or a rotten odor. Balled and burlapped trees usually transplant well. The tree's root system is contained within the ball of soil and will help minimize transplant shock. Don't buy a tree whose roots have been allowed to dry out.

(continued on page 4)



As you can see, there are many things to consider when selecting a tree. Be sure to purchase your tree from a reputable, local nursery. Locally grown trees are more likely to thrive in your yard. Advice from an arborist or master gardener is also beneficial when purchasing a tree.

The Growing Home Campaign offers a free \$10 coupon towards the purchase of many different trees. The coupon is good at various local nurseries. Additional information can be obtained from these websites:

University of Maryland Cooperative Extension office at <http://extension.umd.edu/>
Department of Natural Resources Forest Service at <http://www.dnr.state.md.us>
Maryland Arborists Association at www.mdarborist.com/
Growing Home Campaign at www.growinghome.info.

Do a fall garden cleanup. Remove dead flowers and leaves from the garden. This will prevent pests and diseases from overwintering. Now is the time to aerate that compacted lawn or trim those tree limbs.

Energy Audit. Now is the time to winterize your home. Check windows and doors for leaks. Insulate to help lower heating bills. Make sure your furnace or heat pump is operating properly.

Emergency Supplies. Check your emergency supplies so you will be prepared for weather related events.

Pool Water. Always test your pool water for chlorine before releasing to the stormdrain system. You must not have any detectable chlorine before release. Chlorine is harmful to aquatic life.



White Oak



Flowering Dogwood

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

(410) 638-3545
environews@harfordcountymd.gov

**Next Issue Available
Winter 2011**



"Let us cross over the river and rest under the shade of the trees."

-Thomas Stonewall Jackson-

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Read about a summer program that investigated how human development affected biodiversity in the Wheel Creek Watershed. Learn about Flowers by Bauers innovative eco-friendly greenhouse business that recycles all water and nutrients.

Enviro News is distributed three times per year (January, May and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.

Mammals and Trees

by Jake Burrows

Summer Center for Conservation and Research,
Tree Team

The Summer Center is a two week daily program held at Harford Glen. When we arrived on the 1st day the teachers gave us a research issue. Our issue was: How has human development in the Wheel Creek watershed impacted its biodiversity? Our first tasks were to collect data and learn about two different subjects, such as ornithology (the study of birds) and herpetology (the study of reptiles and amphibians). On Friday, July 23rd, 2010 the whole Summer Center went out in the middle of the woods to record data and identify problems.

Once we got back, my class started developing research questions. This was done by using the data we found on a computer program called ArcGIS. My research question was: To what extent does the tree count affect the presence of mammals in the Wheel Creek Watershed at Harford Glen?

On Tuesday, the people who wanted to join this research group start making a PowerPoint presentation. Once we got further into our PowerPoint presentation my team and I inferred that the tree count did not harm/affect mammals in Harford Glen in any sort of way. For example: the deer at Harford Glen are found in a variety of tree densities: From 2 trees to 6 trees.

(continued page 2)



**Upper Chesapeake
Health**

Red Pump Ball

To Benefit

Cardiovascular Programs

February 5, 2011

6:00 p.m. to 10:00 p.m.

Enjoy an evening of dancing and music while raising funds to benefit the cardiovascular programs at Upper Chesapeake Health. This black tie optional event brings awareness to the prevalence of heart disease in this country and especially among women. For tickets and additional information contact 443.643.3460 or www.uchs.org.

Bulle Rock Residents Club
Havre de Grace, Maryland 21078

David R. Craig
Harford County Executive

“Preserving Harford’s past, promoting Harford’s future”



Schedule of Events

Jerusalem Mill Village. Sat.& Sun.;1:00p.m.-4:00p.m. Kingsville. Amid the tranquil waters of Little Gunpowder Falls enjoy a simpler time visiting this historic mill village. 410.877.3560. www.jerusalemill.org.

Duck Duck Goose. January 29;1:00p.m.– 2:30p.m. Anita C. Leight, Abingdon. Join Phil Powers on the pontoon boat to watch winter waterfowl. Free. 410.612.1688. www.otterpoint.org.

This Little Heart of Mine Valentine Party. February 12, 2011. Eden Mill Nature Center, Pylesville. All ages are welcome to celebrate Valentines Day. Admission. Pre-register. 410.836.3050. www.edenmill.org.

Maple Magic. March 6, 2011;2:00p.m.-4:00pm. Ladew Topiary Gardens, Monkton. Come and experience maple sugar time at the gardens. Admission. Pre-register. 410.557.9570. www.ladewgardens.com.



For More Info

Maryland Summer Centers 410.767.0821
www.maryland_publicschools.org

Harford County Water Resources 410.638.3545
www.harfordcountymd.gov/waterresources

Flowers by Bauers 410.692.5141

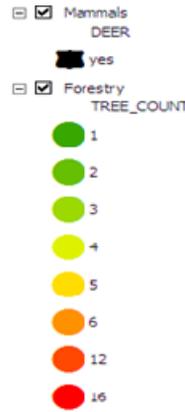


Recommended Readings

Saving the Baghdad Zoo (A True Story of Hope and Heroes).
by Kelly Milner Halls and Major William Summer, 2010.

The inspiring story of how the Baghdad Zoo was saved during Operation Iraqi Freedom and become a symbol of hope for a nation.

We concluded that in general the mammals prefer a medium amount (3-6) density of trees. On Thursday, my group finished our PowerPoint presentation and went to inform a panel from the Harford County Board of Education about our project.



The last day, we preformed our action plan. One of the choices of an action plan is to write an article about your research project at Harford Glen. The other two choices were making posters informing people about leaving the environment alone, or showing the importance of the amount of tree diversity to mammals.

So as I conclude this article, I ask the reader two things: Can you try and not cut down trees because our awesome mammals need the trees? If you have to cut down a tree can you plant two more in its place?

Thanks, Jake B.J.

P.S. This Summer Center was AWESOME!



Summer Center for Conservation and Research is a program sponsored by the Maryland State Department of Education that provides summer educational opportunities for Maryland elementary and secondary gifted and talented students.

Guest Contributor

Charles, Richard and Matt Bauer

Flowers by Bauers Eco-Friendly Greenhouse

by Deborah V. Lewis, Water Resources

Driving up Harford Creamery Road, I had no idea what this wintry day at Garnet Anderson Farm (7th generation of farmers) would spring forth. Upon entering the greenhouse, I was surrounded by a beautiful array of snapdragons in the middle of winter. Yes, snapdragons - yellow, pink, white and so huge. Charles, Richard and Matt Bauer are innovative growers who use a process known as hydroponics to produce snapdragons year round. Hydroponics allows you to grow plants in nutrient solutions with water. Soil is not used at all and this has some great benefits. But the biggest benefit of these farmers' operations is **Zero** waste water to the Chesapeake Bay. That's right, everything gets recycled and reused back into the greenhouse system. Now this is some operation.



Greenhouse Facility

The traditional method of growing plants in soil has several limitations. First the growing cycle is weather dependent. Plants cannot be harvested all year long in most areas of the country. Second, the grower is dependent on local soil type. If it is not suitable for the plants you wish to grow, soil amendments must be added. These are costly expenses. Third, if rain is inadequate you must irrigate, creating another cost. Finally, your crop can be damaged by pest or disease. These losses will definitely impact your costs and business survival. So with all of these limitations, the Bauers considered a greenhouse operation for their snapdragon business.

In 1996, the Bauers decided to make an initial capital investment and establish a state of the art greenhouse business maintained by computers. Using hydroponics technology they no longer need soil as a media. Their growing media is perlite, well aerated and grown on rolling benches 12 inches off the ground. This allows good air circulation and more root hairs for nutrient uptake. Computerized technology is the source of this op-

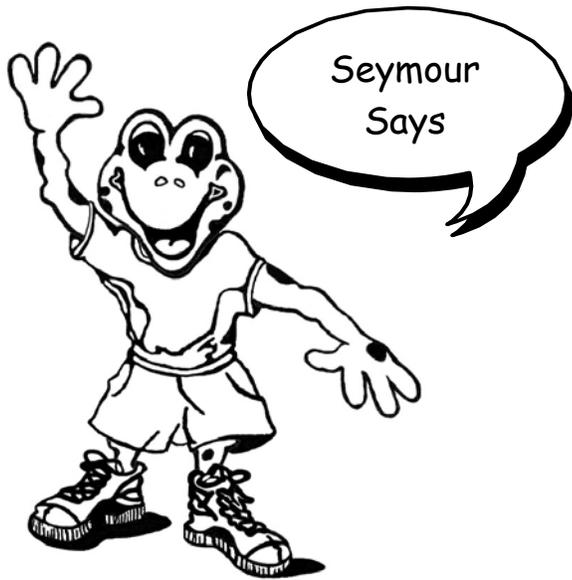
eration. Computers control the release of water, nutrients, air circulation, heating, pH and humidity. They are constantly taking measurements at the plant level to quickly access when conditions warrant a change in one of the growth variables. They can see the impact of change the next day. Water usage is measured daily and dispensed through drip tubes through a process known as precise irrigation. The computer monitors energy from the sun and dispenses water accordingly. More light, more water and less light, less water. The water tank will release the precise amount of water to the plants based on light requirements.



Water Tank

This prevents overwatering the plants which can lead to wilting, disease, pest problems and rotting. Any water not used in the process or from moisture is called gravitational water. The gravitational water is collected and returned to a sump. This water is put back in the water tank for reuse and is monitored by a computer to adjust pH and electrical conductivity. This is how they maintain **Zero** release of wastewater to the Chesapeake Bay. Managing smaller volumes of water, nutrients, and energy at the plant level reduces your operational cost. Transpiration rates are constantly monitored through Vapor Pressure Deficit to get beautifully colored snapdragons. Vapor pressure deficit is the difference between the amount of moisture in the air and how much moisture the air can hold when saturated. Once air becomes saturated and dew forms over the leaves, this can lead to rot. Another cost saver is that the media bags used to grow the snapdragons are kept for 6 to 7 years. They are changed when beginning to disintegrate. Once the plants are harvested what is left over gets vacuumed up and composted. The cleanup takes 24 hours and this is the one part of the operation requiring outside labor.

(continued page 4)



Flowers by Bauers (continued from page 3)

Different varieties of snapdragons are grown for summer and winter. A winter crop takes 21 weeks to grow. A spring crop grows in 10 weeks because of warmer temperature and longer days. Snapdragons are geotropic. That means once they are harvested they must be kept in a vertical condition because the flowering spikes will permanently bend down in the direction of gravity.



Geotropic plant

A future goal for the Bauers is to increase automation of the process. They want the greenhouse to be climate neutral, meaning their net carbon footprint is zero. They want to collect heat during the day and store it as hot water for night heating. A future variable for monitoring is carbon dioxide.



Snapdragons

The Bauers see this technology as one that could be used over the entire spectrum of harvesting vegetables and fruits. Also, they envision greenhouses such as this design being built in urban areas providing jobs for economically struggling areas because food is essential for survival.

Funding of the Scind/Minds research and development project provided by USDA. So, if you want a tour of spring during the cold of winter contact Flowers by Bauers at 410.692.5141.

Electronics. Recycle old electronics such as cell phones, computers and televisions at your local Best Buy Store or Harford County Waste Disposal Center. The valuable material inside can be used again in new products.

Tennis Shoes and Sneakers. Recycle old tennis shoes and sneakers of any brand at Nike Reuse -A- Shoe Program. They are used to make playing courts for various sports for kids around the world. Contact them online at nikereuseashoe.com.

Prom/Bridesmaid Dresses. Donate your old prom or bridesmaid dress for someone else to enjoy online at operationfairydust.org or catherines-closet.org.

Newspaper. Use newspaper as paper towels to clean windows. Try them as fire starters or gift wrap. They can also absorb odors in smelly containers or luggage. Use them to make kids toys such as hats, swords and tents.

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014
410.638.3545
environews@harfordcountymd.gov



Report Stormwater Pollutants
410.638.3400
Next Issue Available
May 2011

Enviro News

A newsletter for environmental programs in Harford County

Welcome

This issue is about the many watershed projects County departments have been working on. Read about a project in the rural Deer Creek watershed. Learn about several projects in Wheel Creek. Finally, read about the completion of a stream restoration project in Plumtree Run. Spring is a good time to plant a tree. Information on the Growing Home Campaign can be found in this issue.

Enviro News is distributed three times per year (January, May, and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.

Natural Resources Careers Conference July 24-30, 2011



The Maryland Association of Forest Conservancy District Boards, Maryland Forest Boards Foundation in partnership with Allegany College and Maryland Department of Natural Resources- Forest Service will sponsor a one week summer program for high school students in Maryland and the Mid-Atlantic region interested in careers in

forestry and natural resources. The program will take place at Hickory Environmental Center Garrett County, Maryland. There is a cost for the program, but many local forestry board offer assistance. To learn more about this summer program contact your local forestry board or the National Resources Careers Conference at NRCCINFO@gmail.com.

Plumtree Run at Tollgate Road Stream Restoration

by Elizabeth Weisengoff
Harford County Water Resources

Plumtree Run is a major stream system that drains into Atkisson Reservoir, Winters Run, Bush River, and ultimately, the Chesapeake Bay. Plumtree Run's 1650 acre watershed area originates within the Town of Bel Air. It flows in a southerly direction until its confluence with Atkisson Reservoir. Land use in the watershed includes high density commercial, institutional and residential. The majority of this watershed was developed prior to stormwater management regulations. When it rains, stormwater flows off impervious surfaces, such as roofs, parking lots and roads into stormdrain system very rapidly. This stormwater discharges directly to the stream without the opportunity to infiltrate into the ground. This has resulted in an unstable stream system that experiences significant bank erosion and loss of in-stream and riparian habitat.

From December 2010 through March 2011, Harford County has been constructing a stream restoration project along the main stem of Plumtree Run. The restoration reach is approximately 2000 linear feet and extends both upstream and downstream of the Tollgate Rd crossing. The goal of this project is to reduce bank erosion, provide better floodplain access and improve the habitat quality of the riparian

(continued page 2)

David R. Craig
Harford County Executive

"Preserving Harford's past, promoting Harford's future"



Schedule of Events

Household Hazardous Waste Collection Day. May 7, 10am-2pm. Harford Waste Disposal Center , 3241 Scarborough Road, Street. Dispose of your residential household hazardous waste at this free collection event. To find out what items are acceptable contact 410.638.3417.

Wade-In. June 4, 2pm-5pm. Anita C. Leight Estuary Center, 700 Otter Point Creek Rd, Abingdon. Family oriented environmental activities. Wade into Bush River to determine the depth of water clarity. Free.410.612.1688. www.otterpointcreek.org.

Larry Franz Wildflower Walk—Liriodendron Mansion. Sundays, 1pm-4pm. Liriodendron Mansion, 502 W. Gordon Street, BelAir. Enjoy a stroll through this woodland garden of exotics, native plants, trees, ferns, a rock garden and a blue garden. Free. 410.838.3942. www.liriodendron.com.

Creatures of the Bay – Skipjack Martha Lewis. July 7, 10am-11:30am. Skipjack Martha Lewis,121 North Union Avenue, Havre de Grace. See first hand some of the animals living in the Chesapeake Bay. Admission. 410.939.4078. info@skipjackmarthalewis.org.



For More Info

Harford County Water Resources 410.638.3545
www.harfordcountymd.gov/waterresources

National Resources Careers Conference 301.746.8461
www.marylandforestryboards.org

Growing Home Campaign
410.638.3545
www.growinghome.info



Recommended Readings

The Nanticoke Portrait of a Chesapeake River
by David W. Harp and Tom Horton, 2008

The authors journey the Nanticoke River by foot and canoe discovering the beauty of this tributary which starts as a ditch in Delaware and ends at our Maryland treasure the Chesapeake Bay.



Before Restoration

buffer. Upstream of Tollgate Rd, the stream travels through the Bel Air Veterinary Hospital Property. Restoration techniques in this section include a series of step pools to dissipate flow velocity, a new, stable ford crossing for livestock, streambank grading, boulder banks and grade control structures. In addition, fencing was added along the stream to limit direct access by livestock. Downstream of Tollgate Road, boulder banks, stone toes and bank grading were employed to address significant bank erosion in this section. Throughout the entire project area, native trees, shrubs and herbaceous plants were planted to improve the quality of the riparian buffer. All of the property-owners along Plumtree Run were extremely cooperative and supportive during this process.



After Restoration

Plumtree Run at Tollgate Rd Stream Restoration Project is only one of many potential watershed projects to address the impact of impervious surfaces on stream health. Additional restoration opportunities have been identified in the recently-completed Plumtree Run Watershed Assessment. The opportunities include retrofitting existing stormwater management facilities to better manage water quantity and improve water quality as well as stream reaches in need of restoration and stabilization. The implementation of future projects is dependent upon the availability of County, State and Federal funds and the cooperation of landowners.

The Wheel Creek watershed (unofficially named) is centrally located in Harford County, approximately 3 miles south of the Town of Bel Air. It is a second order tributary to Winters Run and Atkisson Reservoir in the Bush River watershed. Wheel Creek is situated along the eastern edge of the Piedmont physiographic province, drains 435 acres, and contains approximately 27% impervious cover. A mixture of commercial and high density residential land use dominate the headwaters of the watershed. The remainder of the watershed consists of medium and low density residential land use. The Harford Glen Environmental Education Center, which is part of the Harford County Public School system located in the lower reaches of the Wheel Creek watershed, is predominately forest.

Historic aerial photographs show the Wheel Creek watershed as rural through the early 1980s. However, by the late 1980s and early 1990s the upper watershed was nearly completely developed. Development spread into the middle watershed shortly thereafter. New residential subdivisions are currently under construction. Approximately 10% of the watershed is still available for future development.

Changes in the land use from historically forested areas to agriculture and subsequent commercial and residential development have caused Wheel Creek and its tributaries to undergo significant alterations which have contributed to unstable channel conditions. The unstable conditions include incision of the streambed, streambank erosion, widening of the channel, lateral migration, and aggradation throughout much of the watershed. These channel adjustments have contributed a significant amount of sediment to downstream areas and to Atkisson Reservoir.

In order to address the issues in the watershed, Harford County DPW completed the **Wheel Creek Watershed Assessment** in 2008. The purpose of the assessment was to identify channel instability and sedimentation problems, find opportunities for implementing stormwater retrofits and channel restoration projects, develop recommendations to control runoff from developed areas, correct stream channel instability problems, reduce sediment loadings and improve the overall water quality of Wheel Creek and its receiving waters which include Winters Run, Otter Point Creek, and Bush River. Based on the findings of this study, restoration and retrofit recommendations and design concepts were developed along with preliminary cost estimates for those activities.

In 2009, the County began implementing the Calvert's Walk Stream Restoration project and Gardens of Bel Air South Stormwater Retrofit in addition to monitoring the chemical, biological and physical condition of the watershed. Funding for this project is provided in part through the County's Capital budget along with over \$600,000 in grant funding from the Maryland Department of Natural Resources (MD-DNR) Chesapeake and Atlantic Coastal Bays 2010 Trust Fund, the Chesapeake Bay Trust Fund, the Chesapeake Bay National Estuarine Research Reserve and DNR's Coastal Zone Management Division.

Guest Author

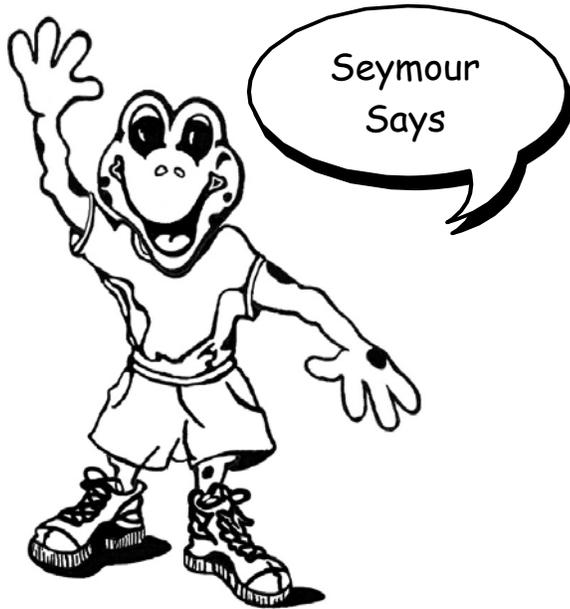
Deer Creek Watershed Conservation and Restoration
By Joanne Bowen
Deer Creek Outreach Coordinator

The Deer Creek watershed is 171 square miles in size. 80% of the watershed is located in northern Harford County, with the remaining 20% in Baltimore County, MD and York County, PA. In 2005 Harford County began a study to identify strategies to preserve and restore Deer Creek and it's watershed in order to protect water quality and conserve natural resources. A written report of this study, called the Deer Creek Watershed Restoration Action Strategy (WRAS), was completed in 2007 and is available online at www.harfordcountymd.gov/Planning/Zoning/index.cfm?ID=202.

Last summer, Harford County was awarded a \$400,000 grant from a federal agriculture appropriations bill to begin implementing recommendations identified in the Deer Creek WRAS. The grant money is being split between Harford County Environmental Planning and the Harford Soil Conservation District (SCD) to design agricultural best management practices, promote the planting of streamside buffers, conduct community outreach and education, and conduct a more in-depth study of a subwatershed of Deer Creek.

A stream corridor assessment was recently conducted in the Stout Bottle/Cabbage Run subwatershed. Landowners with stream frontage in that subwatershed were sent letters asking for permission to walk the stream corridors on their properties. If permission was granted, the stream on those properties was walked and problems such as streambank erosion, fish barriers, pipe outfalls, inadequate streamside buffers, channel alteration, trash, and construction, were identified and mapped. Erosion and inadequate buffers were the predominant problems identified.

(continued page 4)



Streamside buffers, also called riparian buffers, are essential in maintaining cleaner, healthier waterways, controlling erosion and flooding, and in creating and maintaining fish and wildlife habitat. Owners of properties identified in the WRAS as having inadequate buffers, along with properties already in the Rural Legacy program, were recently sent letters informing them of the benefits of forested streamside buffers. Other properties with inadequate forested streamside buffers located within priority subwatersheds of Deer Creek are being identified through the use of GIS and aerial photographs and will also be contacted via letters later this year. Money from the \$400,000 grant is available to design plans to establish streamside buffers. In addition, a completely voluntary program called the Maryland Conservation Reserve Enhancement Program (CREP) is available to help establish streamside buffers. CREP offers:

- A one-time signing bonus of up to \$200/acre
- Annual rental and incentive payments
- Cost-share assistance of up to 87.5% of your cost to install streamside buffers
- Annual payments to assist with the maintenance of streamside buffers

On March 4, 2011, the first in a series of workshops on streamside buffers and CREP was held. Twenty-six people attended. Workshop topics included:

- Benefits of streamside (riparian) buffers.
- CREP benefits to landowners and the environment (signing bonuses, incentive payments, cost-share assistance, how to enroll)
- Presentations by several property owners already enrolled in CREP
- Tour of several properties with established streamside buffers



To put your name on a list to be notified of upcoming workshops, please send your name, address, phone number and email address to deercreek-wras@harfordcountymd.gov. Please join us at an upcoming workshop and learn about the many benefits of buffer plantings. For more information about CREP and streamside buffers, please call the SCD at 410-838-6181, extension 3.

Spring is a good time to plant a tree. The Growing Home Campaign offers a free \$10 coupon towards the purchase of many different trees. The coupon is good at various local nurseries. www.growinghome.info.

Brown Marmorated Stink Bags. To learn more about this invasive species and safe pest management options contact the University of Maryland Extension Harford County Office, 410.638.3255 or www.harford.umd.edu.

Participate in spring clean-up events. Whether it is household hazardous waste, e-cycling, stream, neighborhood or the garage, spring clean-up events help protect and improve our environment.

Lawn care. If you need a new lawnmower, consider an electric or battery operated mower. Never hose down grass clippings. Try a broom instead and enjoy the exercise or mulch the clippings on the lawn (grasscycling). Visit the Abingdon Library's rain garden to learn about this lawn option.

Enviro News

212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014
(410) 638-3545
environews@harfordcountymd.gov



Report Stormwater Pollutants
410.638.3400

Next Issue Available September 2011

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Read about Harford County's Division of Water and Sewer's anticipated completion of the Abingdon Water Treatment Plant expansion. This expansion will double the facility's capacity. Learn about the problem with flushable products. See how volunteers have been making our environment better. Finally, fall is a great time to plant a tree, learn about the Growing Home Campaign and its tree coupon.

Enviro News is distributed three times per year (January, May, and September) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on-line at www.harfordcountymd.gov/environews.

Growing Home Campaign



Fall is a great time to plant a tree! Homeowners can get \$10 for every tree planted in their yards this fall. The \$10 Growing Home Tree Coupon and information about selecting, planting and caring for trees is **free** and available at www.growinghome.info,

county and city offices and all libraries. More than 4-dozen area garden centers and nurseries are accepting the coupon on trees with at least a \$25 price tag. For additional information contact 410.638.3545.

The Abingdon Water Treatment Plant Expansion (Part 1)

by Jacqueline Ludwig

Harford County Division of Water and Sewer

Harford County has always celebrated its past and embraced the future with environmental stewardship of its water resources by providing safe, adequate and reliable drinking water to the citizens of Harford County. Harford County's Water System relies on multiple water sources. Prior to 1980 the Perryman well field, which utilizes ground water, was the county's only water source for its citizens and business community. To accommodate rapid growth and development during the late 1980s and throughout 1990s the County partnered with the City of Havre de Grace. They developed an additional raw water source, by utilizing surface water from the Susquehanna River with intakes located below the Conowingo Dam. Then in 1994 the Abingdon Water Treatment Plant (AWTP) was constructed. It was designed with two surface water sources. They are Loch Raven reservoir located in Baltimore County and the Susquehanna River, with the intake located behind the Conowingo Dam in what is known as the Conowingo Pond.

Today the County stands at another threshold to provide safe and reliable drinking water to over 43 thousand customers. This includes partial water capacity to the City of Aberdeen, the Maryland American Water Company (which services the Town of Bel

(continued page 2)

David R. Craig
Harford County Executive

"Preserving Harford's past, promoting Harford's future"



Schedule of Events

Abingdon Water Treatment Plant (continued from page 1)

Family Campfire. Sep 30, Eden Mill Nature Center. Bring a blanket or lawn chairs. Check website for more information. Pre-registration required. Free. www.edenmill.org. or 410.836.3050.

Harford Bird Club. September 10, 7:30am; Ma and Pa Trail, Meet at Annie's Playground on Smith Lane. Explore a variety of birdlife that live in this field, marsh, forest and water habitat. Free. www.harfordbirdclub.org.

Ladew Topiary Gardens. October 25, 9:30am.; 3535 Jarrettsville Pike, Monkton. In the Garden Series: Tree Pruning. Learn from the gardeners that maintain Ladew. Admission. [410.557.9570 ext. 224](tel:410.557.9570).

Founders Day Nov.12,11am.-8pm.; Maritime Museum Havre de Grace. Celebrate the museum Founders Day by exploring the first people of the Chesapeake through demonstrations and hands on activities. Free. www.maritimemuseum.org.



For More Info

Harford County Water and Sewer 410.638.3300
www.harfordcountymd.gov

Growing Home Campaign 410.638.3545
www.growinghome.info

Lower Susquehanna Heritage Greenway 410.457.2482
www.hitourtrails.com



Recommended Reading

Maryland's Lower Susquehanna River Valley

by David A. Berry

The Lower Susquehanna River Valley, where the Susquehanna River meets the Chesapeake Bay, shaped the development of both Harford and Cecil counties. The author gives a historic tour of how the river valley has impacted our nation's history, military, commerce, railroad, wildlife, horse racing, BRAC, ducks and decoys.

Air), and Greenridge Utilities, Inc. (serving the community of Greenridge). Additionally, the County is the backup water source for Aberdeen Proving Ground providing emergency water during times of drought situations.

Anticipating future growth demands as well as drought conditions, the Abingdon Water Treatment Plant Expansion project began design in 2006. Construction commenced January of 2009 and is currently nearing the completion of Phase 2 of a 3 phased project. Completion is scheduled for the first quarter of 2012.

The current expansion will allow the facility to produce 20 million gallons of water per day (MGD), thereby increasing the County's Water Treatment Capacity from 20.5 MGD to 30.5 MGD. One significant challenge for the expansion is that two alternate sources provide raw water for processing. The sources differ in water quality, flow and pressure. These variables present unique challenges with respect to treatment and operational strategies. Currently, Loch Raven reservoir is the primary water source; however, as growth continues throughout Central Maryland, the Susquehanna River will be the ultimate source of raw water for the AWTP. Water quality from Loch Raven is considered high-quality and requires very little treatment. However there is not enough water in the Reservoir to satisfy the needs of Central Maryland. The Susquehanna River water is more difficult to treat because of the vast size of the river's drainage area and the corresponding solids and natural organics that are transported by storm water. River water variation necessitates more intensive and longer duration of the treatment process.

The Deer Creek Pumping Station and Susquehanna Aqueduct are used for transporting water to the AWTP. Susquehanna water is currently only used occasionally, primarily during drought conditions. This water can be plagued with challenges such as odor, high pH and much higher spikes in particulate matter. Particulate matter affects water turbidity. Turbidity is a fundamental measurement in water treatment. Turbidity is the cloudiness or murkiness in water. It is due to the presence of suspended particles. It is a good measure of water quality because you want the drinking water used for consumption to be crystal clear.

The following major firms provide services for this project: Hazen & Sawyer (Engineers); Pizzagalli Construction Company (General Contractor) and Arcadis (Construction Manager).

Guest Contributor

Flushable Wipes-Not Flushable

by Angela Hoover, P.E.
Harford County Division of Water and Sewer

Flushable wipes are not flushable, in fact, Harford County's Division of Water and Sewer recommends flushing only bodily waste and toilet paper—that's it. Everything else should be placed in an appropriate trash can receptacle. Due to busy, hectic schedules, people use products that promise ease and convenience, such as disposable "flushable" cleaning wipes. Disposable does not mean flushable! Although wipes might fit through plumbing fixtures, they do not breakdown or degrade in the sewers. Eventually, they have to be hauled to the landfills.



So, in order to help keep things flowing smoothly from bathroom to wastewater plant, please do not flush items that may cause problems for us such as "flushable" cleaning wipes, baby wipes, moist wipes, pull-ups, Depends, feminine hygiene products (pads), swabs, facial tissue, dog poop bags, and kitty litter.

We all can do our part to protect public health, the environment, water quality and the efficient operation of our sewer system. Thank you for your consideration in watching what you flush!

Guest Contributor

Rain-Soaked River Sweep

by Theresa G. Wiseman
Lower Susquehanna Heritage Greenway

Despite heavy rain, more than 680 volunteers spent the morning of Saturday, April 23, participating in River Sweep, Lower Susquehanna Heritage Greenway's 11th annual volunteer shoreline and roadside clean-up in honor of Earth Day.

"The response to our call for volunteers was very strong despite the challenging weather conditions," said Mary Ann Lisanti, executive director of Lower Susquehanna Heritage Greenway. "Nearly 450 people registered online to help us remove trash and debris from area waterway and roadsides and close to 700 people showed up. Some volunteers drove two hours to be part of this community effort."

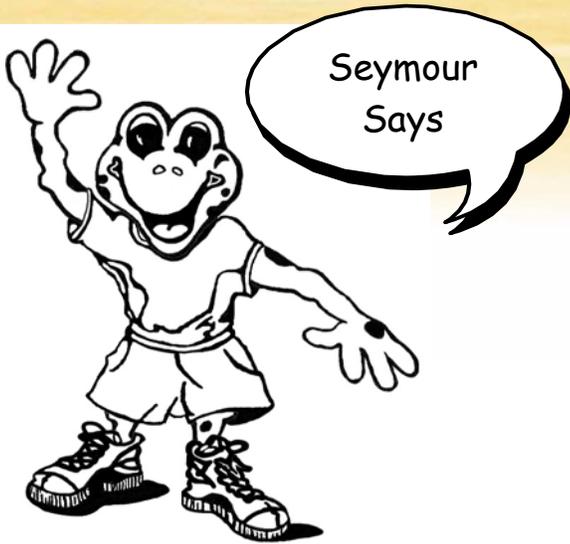
Twenty-four tons of trash were removed including tires, propane tanks, glass, toys and textiles. Over the first 10 years, River Sweep volunteers removed more than 50 tons of trash from area waterways.

River Sweep volunteers checked in at Exelon Trail at Octoraro Creek in Conowingo, Tydings Park in Havre de Grace, Community Park and Boat Launch in Perryville and Marina Park in Port Deposit— and then fanned out and spent the morning removing trash and other debris from the Chesapeake Bay, Susquehanna River and tributaries that feed into the Susquehanna River. Garrett Island was also included in this year's River Sweep.

Coordinating the volunteers in Havre de Grace were Joe and Sarah Kochenderfer, Peter Green, Karen Green, and John and Carolyn Narvell. In Perryville, Mayor Jim Eberhardt and Commissioner Barbara Brown oversaw the volunteers; in Port Deposit, Mayor Kerry Abrams and Commissioner John Leeds. Fred Smith of Exelon led the Octoraro Creek team.

Sponsors of the 2011 River Sweep were Exelon Power, Sierra Club (Maryland Chapter), Greater Perryville Chamber of Commerce, Paramedical Personnel of Maryland, Cecil Whig and Delmarva.

(continued on page 4)



Support your local farms. Visit your local farm for fresh produce, fruits and flowers during the harvest season. Also why not purchase that holiday tree at the local tree farm. Consider a tree that can be planted when the holidays are over. Visit www.harfordfarms.com.

Lower Susquehanna Heritage Greenway is a nonprofit organization whose mission is to stimulate local economic activity by developing a linkage to natural, historic and cultural resources through land and water recreational trails. To date, 22 miles of continuous public recreation trails connecting Harford and Cecil counties have been constructed. The organization's goal is 40 miles of trails. The trails system was recently designated as part of the Captain John Smith Chesapeake National Historic Trail. More information may be found at www.hitourtrails.com.



Energy Efficiency. Look for products carrying the "Design for the Environment" label they are safe for families and the environment.

Arbor Day 2011

by

Elizabeth Greene

Harford County Government Department of Planning and Zoning



Particle Pollution: Is a new program to report particulate pollution year round. Particulates can get deep in lungs and cause health problems. Check out the info at www.epa.gov/airnow.



Lawn Care. Fall is the best time to revitalize your lawn. Get a soil test to learn what amendments you need. Contact the local Maryland Extension office 410.638.3255.

On April 22, 2011 over 250 volunteers of all ages planted 937 trees at Cedar Lane Regional Park in Celebration of Arbor Day. Over the past eight years, 2000+ volunteers have planted 8,615 trees on 32 acres including 8,250 feet of riparian buffer.

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

(410) 638-3545
environews@harfordcountymd.gov



Report Stormwater Pollutants
410.638.3400
Next Issue Available
January 2012