

the Thalweg

Watershed Stewardship Program

Spring 2018

Volume 15, Issue 2

Cobb County Board of Commissioners

Michael H. Boyce
Chairman

Bob Weatherford
District One

Bob Ott
District Two

JoAnn Birrell
District Three

Lisa Cupid
District Four

Rob Hosack
County Manager

Cobb County Watershed Stewardship Program

662 South Cobb Drive
Marietta, Georgia 30060

770.528.1482
water_rsvp@cobbcounty.org

Staff

Jennifer McCoy
Mike Kahle
Taylor Dove
Angie Marcus
Penelope Costanzo

www.cobbstreams.org



Cobb County Participates in Spring National Prescription Drug Take Back Day

National Prescription Drug Take Back Day is April 28, 2018 - 10AM to 2PM

The National Prescription Drug Take Back Day aims to provide a safe, convenient, and responsible means of disposing of prescription drugs, while also educating the general public about the potential for abuse of medications.

In partnership with the U.S. Drug Enforcement Administration (DEA), Cobb County Public Safety and Keep Cobb Beautiful, Cobb County Water System's Watershed Stewardship Program is organizing a collection event at **Precinct 1, located at 2380 Cobb Parkway in Kennesaw.**

Improper disposal can impact water quality and public health. If you have old, unneeded, unwanted, and expired medicines in your home, these drugs need to be disposed of properly. Medicines that languish in home cabinets are highly susceptible to diversion, misuse and abuse. Rates of prescription drug abuse in the U.S. are alarmingly high, as are the number of accidental poisonings and overdoses due to these drugs. Studies show that a majority of abused prescription drugs are obtained from family and friends, including from the home medicine cabinet. DEA launched its prescription drug take back program when both the Environmental Protection Agency and the Food and Drug Administration advised the public that their usual methods for disposing of unused medicines—flushing them down the toilet or throwing them in the trash—posed potential safety and health hazards.

We anticipate hosting a second collection event in October. If you can't make this event, we have provided information about proper DIY disposal practices in our conservation tip on page 6 and on our website: cobbcounty.org/rx.

Watershed Stewardship Fair - March 28, 2018

Cobb County is fortunate to have amazing residents who are committed to helping ensure our community is educated about the relationship between water quality, environmental health, and personal actions. Each year we invite our program participants to join us in celebrating the collective good works of our volunteers. This year we were excited to profile the extraordinary service of several volunteers.

Eddie Richards - Garden Volunteer of the Year

Congratulations to **Eddie Richards**, our 2017 Wildlife & Rain Garden Volunteer of the Year! Just about every week, and sometimes more frequently, Eddie arrives to the garden, rain, snow or shine and takes care of the wildlife and anything else that needs to be done. No one is a stranger to Eddie and he helps in too many ways to list them all. He's become the garden's official *Birdman* by cleaning and filling feeders and water, the *Toolman* by sharpening the tools, and *Handyman* by fixing signage, clearing trail edges, and so much more. It's a pleasure to have Eddie in the garden each week and his efforts over the past year and half have made it easy for us to name him the **2017 Garden Volunteer for the Year**. Thank you, Eddie, for being an important part of the Wildlife & Rain Garden!



Tritt River Kids - Rivers Alive's Adopt-A-Stream Award from Georgia's Annual Waterway Cleanup Program

Tritt Elementary School has been monitoring water quality and picking up litter from a neighborhood creek near the school for many years. They call their year-long education unit *Life Is A River*. The 3rd grade student participants, Tritt's River Kids, visit the stream numerous times throughout the year, testing the water and picking up trash. Tamera Neal, their teacher, received her initial Adopt-A-Stream training in 2007 and started submitting the student data to the state database in 2009. In recognition of their ongoing and cumulative efforts, Rivers Alive is recognizing **Tritt River Kids** with an award for their service this year. Excellent job Tamera and all the students who you've guided in watershed stewardship actions over the past 10+ years!



Rosco Peters - New Volunteer of the Year

Rosco Peters has taken on the challenge of monitoring multiple sites in his first year as a certified Adopt-A-Stream monitoring volunteer. He has four sites along Rottenwood Creek where he monitors for *E. coli* and chemical parameters. He has also attended the training for macroinvertebrate monitoring and hopes to mentor with Sierra Club Cobb Centennial Group, who monitors downstream from him, to add data quarterly data collection on the insects, crustaceans, snails, clams, and worms potentially living in the stream. The initiative Rosco has taken in his first year of volunteering has earned him the **New Volunteer of the Year for 2017!** Congratulations Rosco and thank you for your dedication and hard work!





The Coles - Excellence in Data Collection Award

Since August of 2014, **Richard and Nancy Cole** have collected data at their site, a Tributary of Allatoona Creek, on a monthly basis. The significance of consistent monitoring for this amount of time is that by doing so, the Cole's have successfully captured a reliable reference for this stretch of stream. We now know what the water quality should look like, making it easier to spot problems if any occur. With great appreciation for Nancy and Richard's consistent and reliable data collection, we are happy to award them with the **Excellence in Data Collection Award for 2017**.



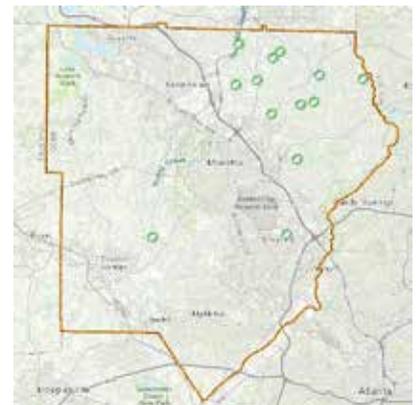
Over 80 community members attended the Stewardship Fair this year, touring the water quality laboratory, sharing their volunteer experiences and learning from each other.



CALL FOR VOLUNTEERS

Frog Monitors Needed! - Help us map species locations

Watershed Stewardship has developed new data collection tools to encourage community members to join in our ongoing effort to monitor local frog and toad populations. We have expanded the training to incorporate technology and mapping and hope to re-energize past data collectors as well as recruit new participants. We piloted the new methodology last month, training eight new volunteers on how to utilize smart phone technology to identify and map species by vocalizations. We also showcased the new [Frogs of Cobb County Story Map](#) at the Watershed Stewardship Fair. If you are interested in learning more, we encourage you to join one of the Thursday Sunset Frog Walks along the Noonday Creek Trail next month - see page 7 for more information. We also invite individuals interested in collecting and submitting data to participate in our upcoming Frog Monitoring Workshop. The session will be held at the Water Quality Laboratory in Marietta the evening of April 26th, 7pm-9pm. Registration through our website calendar is required to attend this free training. For more information, contact Mike Kahle at 770-528-1482 or michael.kahle@cobbcountry.org



River Rendezvous - Saturday, April 14, 2018

River Rendezvous is a one-day water quality sampling event throughout the Rottenwood Creek Watershed. We will have seven teams collecting data at 24 sites to gather a snapshot of water quality throughout the entire watershed. Each team will have an Adopt-A-Stream Chemical Monitoring Volunteer as a leader and will collect the following data: temperature (air and water), dissolved oxygen, pH, specific conductivity, photo data points, trash collection at site and water samples for nutrient and metals analysis. This data will help educate community members and identify stream impairments. Once noted, Cobb County works to solve these impacts.

River Rendezvous is sponsored by Cobb County Water System's Watershed Stewardship Program and planned with Sierra Club Centennial Group and Georgia Adopt-A-Stream. We welcome volunteers to assist with our River Rendezvous. This volunteer opportunity is ideal for those who are certified in Adopt-A-Stream Chemical Monitoring. If you are interested in participating in our River Rendezvous, register through our calendar.



Pharmaceutical Disposal and Water Quality

Source: PennState Extension

For purposes of water quality discussions, pharmaceuticals are usually grouped with other chemicals found in water supplies and called pharmaceuticals and personal care products (PPCPs). PPCPs are a diverse group of chemicals that include;

- products we ingest (or give to our pets and domesticated animals) to improve health, which include over-the-counter (OTC) drugs, pharmaceuticals (prescription medicines, nutritional supplements, and veterinary drugs,
- products we use to adorn and clean ourselves, which include fragrances, lotions, shampoos, antibacterial soaps, detergents, sunscreens, cosmetics, and,
- other chemicals used in various important applications, which include pesticides, plasticizers, and brominated flame retardants.

All of these chemicals are used by humans or given to animals and are finding their way into our water supplies. The purpose of this fact sheet is to explain the source of these chemicals, how they are getting into our water supplies, and how each person should properly dispose of unwanted or no-longer-needed PPCPs.

Ingested Health Care Products

Medicines are produced and used in very large volumes. Fifty percent of the population uses at least one prescription drug daily and four out of five patients leave the doctor's office with a prescription. Almost 800 million prescription items were dispensed in 2007, 59.2 % more than in 1997.

Worldwide, between 200 and 400 million pounds of antibiotics are taken annually. Of this total over 50 million pounds of antibiotics are taken in the United States annually with half of these going to animals. It is estimated that hospitals and long-term care facilities intentionally discard 250 million pounds of unused or unwanted medicines each year. These PPCPs enter the environment by excretion by humans and domestic animals and by flushing unneeded or expired PPCPs down a toilet or drain. These PPCPs in the waste stream go to the local municipal wastewater treatment plant or to your private on-lot sewage system. Many people are surprised to learn that today's municipal water and wastewater treatment systems do not intentionally remove these chemicals from the water and wastewater they treat, although a considerable portion of these chemicals are removed in the treatment processes. On-lot sewage systems, likewise do not intentionally remove these chemicals though some PPCPs are adsorbed onto the soil receiving the absorption field's wastewater.

Adorning and Cleaning Products

Little is reported about the quantities of fragrances, lotions, shampoos, antibacterial soaps, detergents, sunscreens, and cosmetics used by the population. What we do know is that every time you take a shower, you wash whatever of these products you use down the drain where they enter the wastewater treatment or private on-lot sewage systems. As with health care PPCPs, only limited quantities of these chemicals are removed by today's treatment systems. When you go swimming, these products are washed directly into the surface waters.

Other Chemicals

Pesticides, plasticizers, brominated flame retardants, and other similar products enter the environment by various pathways including being placed in the soil, volatilizing into the atmosphere, and being discharged into streams. In few cases is there any quality control or deliberate treatment of these chemicals.

Why the Concern Now?

Until very recently chemical diagnostic technology was not able to detect these chemicals in water because the concentrations were below detectable limits. Now that it is possible to detect parts-per-trillion (ppt) or nanograms per liter, we are frequently finding one or more of these chemicals in our water. Even though these concentrations seem very small and insignificant there are an extremely large number of molecules of these products in the water we drink.

What are the Current Conditions?

A USGS reconnaissance study (Kolpin et al. (2002) in 1999-2000, the first of its kind, evaluated the presence of pharmaceuticals, hormones and other organic contaminants in 139 streams in 30 states. They found 82 of 95 antibiotics, non-prescription drugs, steroids, and hormones in at least one sample. Eighty percent of streams sampled had more than one contaminant. Seventy-five percent had two or more. Fifty-four percent had more than five, 34% had more than 10 contaminants, and 13% of streams tested positive for more than 20 targeted contaminants.

In a study (Velicu and Suri, 2008) that sampled 21 Chester County streams, seven different estrogen compounds were detected in at least 10% of the streams sampled and two of these compounds were found in more than 86% of the streams sampled. The two estrogen compounds found in the highest concentrations were estriol (0.33 to 19.7 ng/L) and progesterone (7.35 to 11.8 ng/L).

Acetaminophen, commonly known as Tylenol, is a much used over-the-counter drug. A common dose of Tylenol is 500 milligrams (mg). Acetaminophen has been detected in drinking water at concentrations of 0.00000005 mg/L. This concentration is equal to 0.00005 µg/L or 0.05 ng/L or 50 pg/L. 50 pg/L is equivalent to 50 grams of acetaminophen in one trillion liters of water. This is also equivalent to finding 48 billion (48,000,000,000) molecules of acetaminophen in a cup of water. So the next time you have your morning cup of coffee, consider what else is in that cup.

There is no doubt these chemicals are beginning to show up in our drinking water supplies. The important question is "So what?" "Are they really harmful to us?"

There is not a great deal of credible information to show that we humans are being affected, health wise, by these very low concentrations of chemicals in our drinking water. There is, however, growing evidence that some of these chemicals disrupt the endocrine balance in various ecological species (endocrine disruptors) and can adversely affect fish and other aquatic species living in the contaminated waters.

Some of these chemicals interfere with or mimic natural hormones and disrupt reproduction, development, and behavior of fish and other organisms. Feminization of male fish has been observed in waters with estrogen concentrations in the 0.1 to 10 ng/L range. No one knows at what concentrations similar impacts will be detected in humans (the research has not been done).

How do Medicines and Drugs get into Our Water?

In the United States, most unused or unwanted medicines are either flushed down the toilet (35%) or placed in the trash (54%). Many pharmacies have appropriate drug disposal programs and procedures, but less than 2% of unwanted medicines are returned to the pharmacy where they were obtained. Over 7% of the population leaves unwanted medicines in a cabinet for someone else to deal with later.

It is relatively easy to understand how drugs that have been flushed down a toilet could get into the water supply.

A major portion of these chemicals are removed (some as high as 99.9%) by traditional wastewater treatment plant processes but the accumulated effect of the chemicals that remain in the effluent and are discharged into the receiving waters is troublesome. Chimchirian et al. (2007) found that 41 to 99% of estrogen compounds were removed from three traditional wastewater treatment plants, with activated sludge plants showing the best removal.

However, estrogen compounds found in the treatment plant effluent were still above the detectable limits, leaving daily estrogen loads (predominately estrone) in the effluent ranging from 2 to 167 mg/d. Data from a wastewater treatment plant that applies microfiltration followed by reverse osmosis advanced treatment to a portion of their treated water still shows detectable concentrations of many PPCPs in the effluent. Treated wastewaters are usually discharged to local streams and flow downstream to the next town where the water is treated before being piped to your home.

Drugs that are disposed of in the trash should be expected to be retained in a landfill where the trash is deposited. However, much of the waste deposited in landfills is organic and, over time, organic waste decomposes and produces leachate. In modern, properly designed and operated landfills, the landfill leachate is collected and treated; but the treatment processes do not completely remove the PPCPs in the leachate before being discharged to local surface waters.

PPCPs in treated wastewater that is irrigated onto forest or cropland will generally be captured in the soil profile where soil microbes and soil chemical reactions will breakdown the PPCPs into quite harmless products.

There is a far more subtle and maybe more important pathway from a PPCP user to the water supply. When a doctor prescribes medicine(s), you ingest these drugs. Your body uses some of the prescribed drug for its designed purpose, but a majority of each drug is excreted. So a large portion of prescribed and properly used medications are automatically returned to the wastewater and then to our receiving streams. Adorning and cleaning products enter our drinking water by being washed into the wastewater and then into the receiving streams.

Keep these Chemicals Out of the Water

Keeping PPCPs from our water supplies is almost impossible. Reducing the use of these products is the only way to reduce the volume of these products that reach our water supply. At this point, the technology does not exist that will completely remove PPCPs from water.

Keeping unused and unwanted health care products from our water supplies is something each of us should give careful consideration. The only truly safe way to dispose of these drugs is by high-temperature incineration. These incineration sites are usually under the control of law enforcement and all of the disposal suggestions below should eventually lead to proper incineration.

The ONDCP (2007) prescription drug disposal guidelines advise you to:

- Flush prescription drugs down the toilet **only** if the label specifically instructs doing so.
- Dispose of unused prescription drugs through pharmaceutical take-back programs if available.

If these methods are not available or appropriate:

- Take unused, unneeded, or expired prescription drugs out of their original containers.
- Mix the drugs with an undesirable substance, such as kitty litter.
- Put the drugs in sturdy, opaque, non-descript containers.
- Throw these containers in the trash.

Summary

Proper management and disposal of pharmaceuticals and personal care products (PPCPs) requires that each of us to take precautions to make sure that these unused and unwanted products do not reach and enter the waters that become our drinking water. Because it is impossible to detect these chemicals until the water contains billions of molecules, it is imperative that every possible action be taken to keep these chemicals out of our drinking water.

References

- Chimchirian, R. F., R. P. S. Suri, and H. X. Fu. 2007. Free synthetic and natural estrogen hormones in influent and effluent of three municipal wastewater treatment plants. *Water Environment Research* 79(9):969-974.
- Kolpin, D. W. et al. 2002. Pharmaceuticals, hormones, and other organic wastewater contaminants in U.S. streams, 1999-2000: A National reconnaissance. *Environmental Science and Technology* 36(6):1202-1211.
- PA Department of State (DOS). 2009. Pennsylvania State Board of Pharmacy Newsletter.
- Velicu, M and R. Suri. 2009. Presence of steroid hormones and antibiotics in surface water of agriculture, suburban, and mixed-use areas. *Environ. Monit. Assess.* 154(1-4):349.
- White House Office of National Drug Control Policy (ONDCP). 2007.

Stewardship Stars Excellence in Data Collection

The following volunteers have submitted data each month during the December, January, February quarter:

- Anne Ledbetter - Chemical Monitoring on Poplar Creek
- Cobb Progressives - Chemical & Bacterial Monitoring on Noses, Noonday & Proctor Creeks
- Connie Ghosh - Chemical, Bacterial & Macro Monitoring in the Rubes Watershed
- Donna Leavell - Chemical Monitoring in the Olley Creek Watershed
- ERM Atlanta - Chemical Monitoring in the Chattahoochee Watershed
- Eddie's Follies - Habitat Survey Monitoring on Sweetwater Creek
- Eric Lee - Chemical Monitoring in the Willeo Watershed
- Friends of Mulberry Creek - Chemical & Bacterial Monitoring in the Chattahoochee Watershed
- Georgia Aycock - Chemical Monitoring on Lake Allatoona
- Keep Smyrna Beautiful - Chemical & Bacterial Monitoring in the Nickajack Watershed
- Keiler - Chemical Monitoring in the Allatoona Watershed
- Lakewood Colony - Chemical & Bacterial Monitoring in the Rubes Watershed
- Lassiter High School APES Classes - Chemical & Bacterial Monitoring in the Rubes Watershed
- Nancy Payne - Chemical & Bacterial Monitoring in the Noses Watershed
- Pic P - Chemical, Bacterial & Visual in the Noses Creek Watershed
- Richard's Creek - Chemical Monitoring in the Allatoona Watershed
- Rosco - Bacterial Monitoring on Rottenwood Creek
- Sierra Club Centennial Group - Chemical, Bacterial & Macro Monitoring on Rottenwood Creek
- Simon Locke - Chemical & Bacterial Monitoring on Butler Creek
- Team Salty - Chemical Monitoring in the Sope Watershed
- The Ochala Family - Chemical & Bacterial Monitoring on Noses Creek
- Varner - Chemical Monitoring in the Noonday Watershed
- Village N. Highland Subdivision - Chemical, Bacterial & Macro Monitoring in the Willeo Watershed

Thank you for your hard work and dedication!



Unnoticed Beauty
2017 Georgia River of Words Winner
Mikayla Stoltz
Grade 6
The Walker School, Marietta
Teacher: Mary Ann Stillerman

w e l c o m e

Pic Petell - monitoring in Noses Creek Watershed
The Garden School - monitoring Little Noonday Creek
Kennesaw Mtn HS - monitoring in Mud Creek Watershed

SEASONAL HAPPENINGS

2018 Summer Library Program: Mockingbird Learning

The theme this year is **Libraries Rock**. Together we'll explore and mimic sounds around us using natural materials and noise makers to make connections in our everyday life.

- **Mountain View Regional Library** June 5, 2018 at 3pm
- **Powder Springs Library** June 7, 2018 at 4pm
- **Sibley Library** June 19, 2018 at 3pm
- **Kennesaw Branch Library** June 20, 2018 at 3:30pm
- **Windy Hill Community Center Library** June 21, 2018 at 3pm
- **South Cobb Regional Library** June 25, 2018 at 11am
- **Acworth Public Library** June 26, 2018 at 3:30pm
- **Gritters Library** July 10, 2018 at 3pm
- **Stratton Library** July 11, 2018 at 1:30

No registration required. Appropriate for age 5 and up.

Chattahoochee Challenge Update

Cobb's Chattahoochee Challenge is a volunteer competition to promote participation in waterway related service projects.

Below is the current leader board for the competition:



- 1st Place: Osborne High School Science Olympiad - **92 Hours**
- 2nd Place: Walton High School STEM Creek Project - **16 Hours**
- 3rd Place: Kennesaw Mountain High School AP Enviro Science Class - **14 Hours**

The group with the most volunteer service hours wins a free floating trip on the Chattahoochee River with a National Park Service Ranger. Good luck to our competitors!

CONSERVATION TIP

Safe Pharmaceutical Disposal

For decades, we have been told the proper disposal method for pharmaceuticals was to flush. However, traces of chemical compounds from medications are now being detected in our water sources. Although the effects of long-term exposure to humans is currently unknown, there is increasing evidence of compromised endocrine and reproductive systems in aquatic life resulting from environmental exposure to these chemical compounds.

Unused drug take-back programs are one strategy for reducing drug abuse, accidental poisoning, and flushing drugs into the water supply. However, if you can't wait for the next community take-back event, you can take action at home and limit pharmaceuticals entering our waterways.

- Use the **"mix and toss"** method as recommended in federal guidelines. Thoroughly mix pharmaceuticals with an undesirable substance such as liquid soap and dispose of them in a sealed plastic bag in your trash can.
- Be mindful of pharmaceutical quantities. The best solution is to avoid pharmaceutical waste of any kind.
- Do not flush unless specifically instructed to do so.

In addition, the **GA Prescription Drug Abuse Prevention Initiative** maintains a list of all drug drop box locations by county. Cobb currently has multiple sites in Marietta, Kennesaw and Acworth. Here is the link for locations: <http://stoprxabuseinga.org/prescription-drug-disposal/>

Thursday Sunset Frog Walks in May

Frogs, Fresh air, Friends, and Exercise...

Join us each Thursday evening throughout the month of May to walk along a portion on the Noonday Creek Trail for our weekly sunset frog walk. While we walk and practice identifying frogs by their calls, we'll input this data using our new CollectorApp, reporting the species that we hear along the way.

The May Thursdays Sunset Frog Walks are free and open to all ages (all minors must be accompanied by an adult at all times).

For more information on locations and times, and to register, visit the calendar at www.cobbstreams.org



To register, visit our online calendar at www.cobbstreams.org, click on the event:

- **April 26 • 1:00pm - 2:00pm**
- **May 21 • 12:00pm - 1:00pm**
- **June 20 • 10:30am - 11:30am**

All three workshops are in Marietta at the Cobb County Water Quality Lab.

ECOPEDIA

The Patrick Principle

Dr. Ruth Patrick's pioneering research, begun in the 1940s and dubbed the *Patrick Principle*, became the fundamental principle on which all environmental science and management is based. Dr. Patrick proved that biological diversity holds the key to understanding the environmental problems affecting an ecosystem.

Called "a den mother for generations of scientists," and a "visionary ecologist," Dr. Patrick grew as adept in the boardroom as in the lab. She filled the role of advisor, director, and trustee for corporations, governments, and nonprofits. For seven decades, she championed environmental protection, mentoring future scientists and inspiring many others by the example of her life and work. Learn more about Dr. Ruth Patrick by viewing her biography, list of positions and activities, honors and awards, and publications.

Source: [The Academy of Natural Sciences of Drexel University](http://www.academyofnaturalsciences.org)

OBSERVATIONS



American Toad - *Anaxyrus americanus* (formerly *Bufo americanus*)

Source: National Park Service, Chattahoochee River National Recreation Area
<https://www.nps.gov/chat/learn/nature/american-toad.htm>

All toads are frogs, but not all frogs are toads. While most frogs have moist, smooth skin and long legs for leaping, typical toads have dry, warty skin and short legs for hopping. Despite common belief, touching toads does not result in warts; only viruses cause warts. When toads are handled with any pressure though, toxins may ooze out from their skin as a defense mechanism. This liquid sometimes causes mild irritation, especially if you rub your eyes or mouth after holding a toad. For this reason, either leave toads alone or just be sure to wash your hands after handling them.

Linda May
Environmental Outreach Coordinator
GA Dept. of Natural Resources
Wildlife Resources Division

RECOMMENDED RESOURCE

Lucas Miller, the singing zoologist!

Silly Songs. Serious Science.

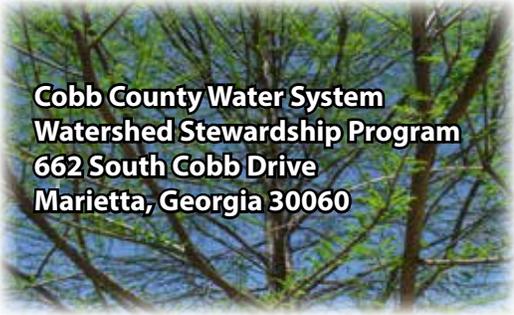
Science education through music, videos, books and school author visits... Since 1992, Bluebonnet Time! (April 2011, BioRhythms Publishing) author Lucas Miller has delighted nearly two million members of the species *Homo sapiens* through his multi-media programs for libraries, schools, zoos, and festivals. His family-friendly humor, animated voice, and engaging books and songs earn rave reviews from educators, parents, critics, and kids alike.

Miller has earned numerous awards for his three childrens music albums, and is the author of Fifi the Ferocious, Dr. DNA & the Anaconda Invasion, and Bluebonnet Time.

Take a gander at this [YouTube playlist](#) featuring Lucas' best videos. Subscribe and you'll get a variety of science education stuff that kids and adults can enjoy together!

Source: www.singingzoologist.com





**Cobb County Water System
Watershed Stewardship Program
662 South Cobb Drive
Marietta, Georgia 30060**



Cobb County...Expect the Best!

This is an official publication of the Cobb County Water System, an agency of the Cobb County Board of Commissioners.

Calendar of Events

April

- 10 Stewardship "Cleanup" Mob • 4:30pm - 6:30pm • Tramore Park
- 12 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
- 14 River Rendezvous • 8:00am - 1:00pm • Cobb County Water Quality Laboratory
- 18 Adopt-A-Stream Chemical Monitoring Workshop • 6:30pm - 9:00pm • Cobb County Water Quality Laboratory
- 26 Rain Barrel Make & Take Workshop • 1:00pm - 2:00pm • Cobb County Water Quality Laboratory
- 26 Garden Work Day • 9:00am - 11:00am • Cobb County Water Quality Laboratory
- 26 Frog Monitoring Training Workshop • 7:00pm - 9:00pm • Cobb County Water Quality Laboratory
- 28 National Prescription Drug Take Back Day • 10:00am - 2:00pm • Cobb County Police Precinct One

May

- 3 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 3 May Thursdays Sunset Frog Walk • 8:15pm - 9:15pm • Noonday Creek Trail
- 5 No Water No Beer • 6:30pm - 9:30pm • Sweetwater Brewery
- 10 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 10 May Thursdays Sunset Frog Walk • 8:15pm - 9:15pm • Noonday Creek Trail
- 12 Community Creek Cleanup • 10:00am - 12:00pm • Belmont Hills Elementary School
- 16 Adopt-A-Stream Bacterial Monitoring Workshop • 6:30pm - 9:00pm • Cobb County Water Quality Laboratory
- 17 May Thursdays Sunset Frog Walk • 8:15pm - 9:15pm • Noonday Creek Trail
- 21 Rain Barrel Make & Take Workshop • 12:00pm - 1:00pm • Cobb County Water Quality Laboratory
- 24 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 24 May Thursdays Sunset Frog Walk • 8:15pm - 9:15pm • Noonday Creek Trail
- 31 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 31 May Thursdays Sunset Frog Walk • 8:15pm - 9:15pm • Noonday Creek Trail

June

- 6 Adopt-A-Stream Chemical Monitoring Workshop • 6:30pm - 9:00pm • Cobb County Water Quality Laboratory
- 7 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 12-14 Cool Waters Educator Workshop • 8:30am - 4:00pm • GA Association of Water Professionals Headquarters
- 12 Family Creek Stomp • 10:00am - 12:00pm • Nickajack Creek
- 19 Fairy House Building Workshop • 9:00am - 11:00am • Terrell Mill Park
- 20 Rain Barrel Make & Take Workshop • 10:30am - 11:30am • Cobb County Water Quality Laboratory
- 23 Household Hazardous Waste Amnesty Day • 9:00am - 12:00pm • Jim Miller Park
- 28 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

Events in **BLUE** are Cobb County Watershed Stewardship events.
More information can be found on our Calendar at www.cobbstreams.org.