

the Thalweg

Watershed Stewardship Program

Summer 2014

Volume 11 Issue 3

**Cobb County
Board of Commissioners**

Tim Lee
Chairman

Helen Goreham
District One

Bob Ott
District Two

JoAnn Birrell
District Three

Lisa Cupid
District Four

David Hankerson
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
Kathleen Lemley
Lori Watterson
Cheryl Ashley-Serafine

www.cobbstreams.org



Follow our boards on Pinterest
for environmental education
and stewardship resources.

Eco-Logical... Tips to Reduce Your Footprint with Household Hazardous Waste

The next two editions of *Eco-Logical...Tips to Reduce Your Footprint* will focus on Household Hazardous Waste, highlighting the importance of reading product labels and ensuring that these products are disposed of properly.

In part one of the series, we define Household Hazardous Waste and discuss what you should know about this important issue. By definition, household hazardous products are consumer products that are toxic, corrosive, reactive, flammable, or explosive. Product labels on hazardous items will contain the word *caution*, *warning*, or *danger*. Examples include cleaners, polishes, automobile fluids, pesticides, fertilizers, batteries, paints and thinners, and some personal grooming products. These products may contain chemicals that pose a threat to the health of humans, animals, or the environment, and many household hazards end up in the environment through both normal use and improper disposal.



Part two of the series defines the words *danger*, *caution*, and *warning* as they apply to product labels; explains how to read labels to determine product safety; and gives insight on how to dispose of household hazardous waste. Storing unused quantities of any chemical can be a danger to you, your family, your pets, and the environment. The best way to prevent illness, accidents, or improper disposal is to not bring hazardous materials into your home. Try to purchase the smallest quantity needed to complete the job so that you avoid storing dangerous materials in your home or yard.



The video series *Eco-Logical...Tips to Reduce Your Footprint* features various pollution prevention topics to help reduce water quality issues throughout Cobb County and surrounding watersheds. *Tips to Reduce Your Footprint with Household Hazardous Waste*, the fourth and fifth episodes in the *Eco-Logical* series, is now available online. To view these videos and others in the series, visit www.cobbstreams.org.

Beaver: Keystone of the Watershed



Before the arrival of Europeans in North America, when there were 100 to 400 million beaver, streams looked very different than they do today. Instead of a single gully with deeply eroded banks, streams were a series of broad pools connected by shallow, braided channels. While some had banks of only one to two feet, many others had no true banks, softly sloping from lush meadow to marsh to slow open water, each habitat teeming with wildlife.

Since Europe had been cleared of beaver long before North America, the settlers, like us, never really observed an original watershed. Before most European settlers arrived, trappers had already swept relentlessly from the Atlantic to the Pacific coast. By 1850, they had hunted the beaver to near extinction. Without the influence of beaver, streams in every watershed have eroded into the channels we know today.



Beaver dam in Georgia Piedmont. Photo by Billy Humphries, Forest Resource Consultants, Inc., www.Bugwood.org

So how and why do beavers have so much influence over watersheds? When beavers move into an area and start cutting down trees, the ecosystem is transformed. The tree canopy is opened up, allowing shrubby, sun-loving plants to thrive, providing food for deer, elk, and moose. The leftover wood chips and brush provide food and shelter for many smaller animals.

Beavers are compelled to build dams by the sound of rushing water. The trees they cut down with their strong teeth are pushed into the bottom of a shallow creek. They then use their front paws to carry mud from the bottom to fill in holes. Water backs up behind this dam creating a deep pond that provides more protection from predators. This also lessens the chance that the water will completely freeze, enabling the beaver to access buried caches of leaves and branches under the dam for a continued food supply during the winter.

As the soil becomes saturated with water, the terrestrial vegetation that once lived there begins to die. Fallen trees and snags become home to a wide array of animals like insects and woodpeckers, whose nesting holes provide homes for other wildlife later on. Decomposition of dead plant material slowly releases minerals and nutrients into the water. Because of the water's increased fertility, many species of aquatic animals and plants can now live in the pond and downstream from the dam. Raccoons, weasels, and herons use the marshy edges of beaver ponds to hunt for frogs and other prey. Waterfowl use these ponds as resting and foraging areas during migration.

Beavers create diverse habitats, transforming a uniform forest into open, shallow streams and many ponds both active and abandoned. In addition, wet and dry meadows; drowned, riparian, and dry forests; and different wetlands of all sizes, types, and successional phases are also created. As beavers move out of ponds or return to abandoned dams, the ecosystem shifts with them. Beavers and the work they do are the keys to biodiversity and habitat creation in the watershed.

Sources:

Beaver natural history narrative. (n.d.). Retrieved from <http://home.nps.gov/glac/forteachers/beaver-natural-history-narrative.htm>

Hemenway, T. (n.d.). *Learning from the ecological engineers: watershed wisdom of the beaver.* Retrieved from <http://www.permacultureactivist.net/articles/Beavers.htm>

Living with wildlife: beavers. (n.d.). Retrieved from <http://wdfw.wa.gov/living/beavers.html>

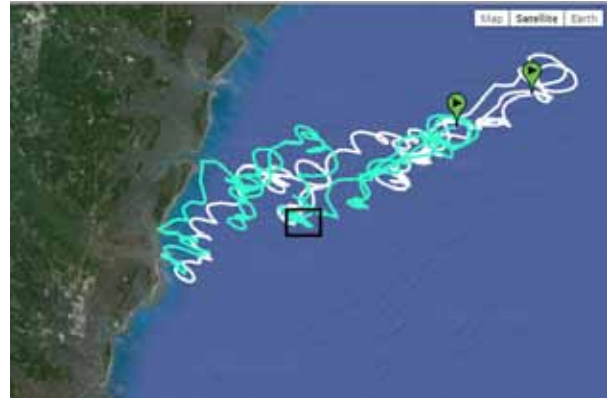


The beaver's front teeth grow all its life and are constantly worn down by chewing on bark. The back of the incisors wears down faster than the front (which contain iron), keeping the teeth chiseled and sharp. Being strict herbivores, they have no canine teeth. Instead, this toothless area in the jaw is used to hold trees and branches while the beaver swims. Flaps of skin in this area also keep out water and wood fragments. Photo source: www.educationalbiofacts.com

Tracking Currents with Drifters and Dye

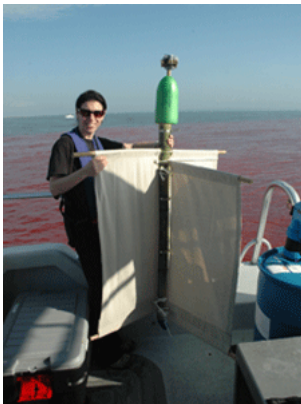
On Monday May 12, 2014, researchers and staff from Georgia Southern University and Gray's Reef National Marine Sanctuary released 50 gallons of a non-toxic red dye (rhodamine WT) into the Altamaha River. The plume of dye that resulted was monitored visually, with support by volunteers from the GA chapter of the Coastal Conservation Association (CCA), and with instrumentation as the dye flowed from the release point along the Georgia coast and offshore. Tracking the path of the dye will provide estimates of the extent to which the Altamaha River delivers dissolved contaminants, nutrients and freshwater along the Georgia coast and to hard-bottom reefs, such as Gray's Reef, found approximately 20 miles offshore.

In addition to the dye release, the investigators deployed two GPS satellite-enabled current drifters that will provide information on how larger materials, such as dead stalks of marsh grass, may disperse after being transported from the Altamaha River estuary. You can follow the drifter's tracks on a Google map and find out where they go! Data obtained from the drifter paths are available to educators for use in the classroom. These student-drifters were constructed from basic materials found in local hardware stores and the GPS satellite transmitter tracking and mapping was coordinated through NOAA's NE Fisheries Science Center.



Gray's Reef National Marine Sanctuary Drifters deployed May 12, 2014; locations as of June 5, 2014.

Photo source: www.google.com



Georgia Southern University professor Dr. Risa Cohen prepares to deploy surface drifter in released dye, (see red dye background water). Photo by Jody Patterson, www.graysreef.noaa.gov

Gray's Reef education staff will conduct drifter building workshops for educators to develop current studies into classroom lesson plans and then participate in their drifters' deployment during future releases. To receive Gray's Reef education program announcements, including workshop opportunities, subscribe to our listserv (GRNMSeducation-join@list.woc.noaa.gov).

Resources:

- http://graysreef.noaa.gov/news/press/2014/pdfs/dye_drop_may_2014.pdf
- http://www.nefsc.noaa.gov/drifter/drift_grnms_2014_1.html
- http://www.nefsc.noaa.gov/drifter/drift_grnms_2014_1.dat
- <http://studentdrifters.org/>
- <http://www.nefsc.noaa.gov/>

To read this press release online, visit http://graysreef.noaa.gov/news/features/2014/drifter_tracking.html. Originally published on May 14, 2014.

North American River Otter (*Lontra canadensis*)

If you spend any time near or on the Chattahoochee River or one of its many tributaries, you may have been lucky enough to come across a river otter. A member of the weasel family, this elusive creature is most active early evening through early morning, foraging for tasty carnivorous morsels like fish, crayfish, mollusks, amphibians, and even small mammals. It uses its whiskers and very keen sense of touch to find and catch prey with its mouth. If you happen to see a young family of otters, you will soon notice that play time is almost as important as dinner time. Whether chasing and pouncing on each other, poking around and sliding in the mud, or floating on their backs to inspect a new found object, they are truly a fascinating sight to behold.

OBSERVATIONS



North American river otter. Photo by Terry Spivey, USDA Forest Service, www.Bugwood.org

Bee Basics: An Introduction to Our Native Bees

A USDA Forest Service and Pollinator Partnership Publication

By Beatriz Moisset, Ph.D. and Stephen Buchmann, Ph.D.

Introduction

Native bees are a hidden treasure. From alpine meadows in the national forests of the Rocky Mountains to the Sonoran Desert in the Coronado National Forest in Arizona and from the boreal forests of the Tongass National Forest in Alaska to the Ocala National Forest in Florida, bees can be found anywhere in North America, where flowers bloom. From forests to farms, from cities to wildlands, there are 4,000 native bee species in the United States, from the tiny *Perdita minima* to large carpenter bees.

Most people do not realize that there were no honey bees in America before European settlers brought hives from Europe. These resourceful animals promptly managed to escape from domestication. As they had done for millennia in Europe and Asia, honey bees formed swarms and set up nests in hollow trees. Native pollinators, especially bees other than honey bees, have been pollinating the continent's flowering plants since long before the arrival of honey bees. Even in today's vastly altered landscapes, they continue to do the yeomen's share of pollination, especially when it comes to native plants.

The honey bee, remarkable as it is, does not know how to pollinate tomato or eggplant flowers. It does very poorly compared to native bees when pollinating many native plants, such as pumpkins, cherries, blueberries, and cranberries.

Let us take a closer look at this forgotten treasure of native bees.

Native Bees: Varied and Valuable

Native bees come in a wide array of sizes, shapes, and colors. They are also varied in their life styles, the places they frequent, the nests they build, the flowers they visit, and their season of activity. They remain ignored or unknown by most of us. Yet, they provide an invaluable ecosystem service, *pollination*, to 80 percent of flowering plants. What would our world be like without the beauty of flowering trees, shrubs, and wildflowers? How many of us know that bees pollinate approximately 75 percent of the fruits, nuts, and vegetables grown in this country?

Bees are efficient foragers. One example is the southeastern blueberry bee, *Habropoda laboriosa*, a hard working little creature capable of visiting as many as 50,000 blueberry flowers in her short life and pollinating enough of them to produce more than 6,000 ripe blueberries. At market those 6,000 blueberries are worth approximately \$20 or more. Not every bee that you see flitting about may be worth \$20, but all of

them combined keep the world of flowering plants going. The world as we know it would not exist if there were no bees to pollinate the earth's 250,000 flowering plants.

From Whence They Came: Bees' Heritage

Bees are descended from wasps. Most wasps are carnivores; they either prey upon or parasitize other insects or spiders, and use this rich protein source to feed their young. About 125 million years ago, when the first flowering plants evolved, some wasps made a switch from hunting prey to gathering pollen for their brood. Perhaps they were hunting for insects that visited flowers and ate some of the pollen or drank the nectar along with their prey. It didn't take much to find the advantages of consuming pollen over hunting. Pollen is rich in proteins and doesn't fight back, so it is easy to imagine why the bees became vegetarians. Gathering pollen and nectar requires certain adaptations different from those of hunters, so they started to change, to evolve to meet these requirements and consequently became bees.

Even today, there are bees that appear very similar to wasps. Like wasps, some bees are also nearly hairless; and like female wasps, only female bees have stingers.

The similarities do not stop with physical appearance. Both bees and wasps have species that are solitary (living and raising their brood alone) or social (living together and sharing the rearing and provisioning). For example, bumble bees and yellow jacket wasps are social and have an annual colony. In both, an over-wintering queen emerges in the spring. The queen builds a nest, collects food, and lays eggs. The female workers hatch and work together to feed and care for the colony until fall when new queens emerge, mate, and hibernate until the following spring when the cycle begins anew.



Bees or Wasps? Upper left: An eastern yellowjacket wasp (*Vespa maculifrons*); Lower left: The familiar black and yellow mud dauber wasp (*Sceliphron caementarium*); Upper right: A digger bee, in the genus *Diadasia*; Lower right: The nomad bee, within the genus *Nomada*.



U.S.'s smallest bee (Perdita minima) face to face with a female large carpenter bee (Xylocopa varipuncta).

Conservation

In recent years the general public has become aware that honey bees are in serious trouble. Honey bee colonies have been mysteriously dwindling in what has been called "Colony Collapse Disorder." The cause is unknown, but may be due to a combination of factors including diseases, nutrition, stress, and pesticides. This is just the most recent of several honey bee die-offs over the past century. What most people don't know is that it's not just honey bees that are declining. Some native bees and other pollinators are experiencing population declines and range reductions. Many of the same factors affecting honey bee health are also affecting native bee species health as well.

What You Can Do

- Plant a pollinator garden. Some gardeners are fearful of being stung by bees and would rather they were not in their gardens. Most native bees are quite different from honey bees and yellow jackets (which are not pollinators) as they rarely sting gardeners and if they do, the sting tends to be mild. In fact, there are some bees, such as the Andrenid bees, that are incapable of stinging humans because their stingers are too small and weak to penetrate their skin.
- Avoid pesticides or choose non-chemical solutions to insect problems. If you must use a pesticide, read the label and apply and dispose of it according to label directions. Where appropriate, consider using organic pesticides. For example, aphids can be easily removed by spraying them with water from a garden hose. Pesticides can also be applied when pollinators are not active, before dawn and at sundown. As best as you can, try not to apply the pesticide to the flowers. Doing so will keep visiting pollinators from sipping contaminated nectar or carrying off contaminated pollen. Avoiding the use of pesticides may be a reasonable choice in some cases. Nature has its own checks and balances and manages to keep most pests under control without gardeners having to resort to pesticides. Remember, some damage to plants is part of the ecology of your garden.
- Provide a source of pesticide-free water and mud. A dripping faucet, mud puddle, or birdbath attracts butterflies and beneficial insects. Mud is an important nesting material for some bee species. Providing a clean source of water for birds and other pollinators limits their exposure to possible toxins in the garden.
- Plant native plants from your ecoregion. Using locally native flowering plants is the best gardening you can choose to benefit your local pollinators. Native pollinators and native plants have become mutually adapted through millions of years of partnership with one another. Plant-pollinator partners exist in your ecoregion. Finding and planting the right plants makes a huge difference for pollinators.
- Provide a variety of native flowering trees, shrubs, and wildflowers that bloom successively throughout the seasons. Fortunately this is exactly what most gardeners aspire to have in their gardens. Many highly selected cultivars don't provide for the needs of pollinators. In most cases, they have lost the floral cues that attract pollinators to their flowers. In some cases, these improved cultivars no longer produce pollen or nectar and as such do not provide any food to bees. Using native plants also requires

less care as they are adapted to local climates. Using native plants can be easy on the pocket book. Many modern cultivars and nonnative plants such as many of the roses require a great deal of time and money to care for them. Think of the flowers your grandmother used in her garden as a practical guide, especially when using nonnative plants. The pollinators will thank you.

- You can also plant the kind of lawn that provides habitat beneficial to bees. A perfectly manicured, pesticide-saturated lawn is a desert to wildlife, including pollinators. Reducing the size of the lawn by creating pollinator gardens will benefit native pollinators and other species of wildlife. It is possible to have a lawn that is good for native bees while being esthetically pleasing. As mentioned before, stay away from pesticides and herbicides as much as possible. Second, allow some small wildflowers to become part of your lawn. The look of your lawn may change as a result, but it will continue to serve its purpose. Clover is great food for native bees. It also fixes nitrogen, reducing the need for fertilizers. Other small plants that benefit native bees are plantago, and veronicas. Rather than calling them weeds, call them pollinator food.
- Provide nesting habitats for bees. A simple bare spot here and there (no mulch or grass, just bare soil) may be enough for an aggregation of hard working soil nesting native bees. A sand pile may be even better. Standing dead trees are important nesting habitats for 30 percent of our native bees. If you cannot tolerate a dead tree on your property, it may be possible to keep a stump or a standing log, and use it as an attractive planter. Perhaps it will, in turn, provide housing space for bees. Drilling holes on an old post or even a tree trunk would also make good nesting sites. The holes should be 3/32" to 3/8" in diameter (7-8mm) and 4 to 5 inches deep.
- Build or buy your own bee houses. There are many in the market, and it is relatively easy to build your own by following instructions posted on several websites. Watching the comings and goings of busy female bees can be as much fun as observing a bird house. They become watchable wildlife. Hollow paper tubes, just about the size of drinking straws, can also be used as bee nests. You can also tie up a bunch of hollow twigs, such as elderberry, or paper drinking straws together (plastic ones are not used by the bees) or pack them into a container such as a small milk carton and place them horizontally facing south or southeast. They should be closed at one end. Gluing the straws at their back ends into your container is helpful. For instructions on how to build a bee house, go to <http://www.nwf.org/gardenforwildlife/beehouse.cfm>.

Conclusions

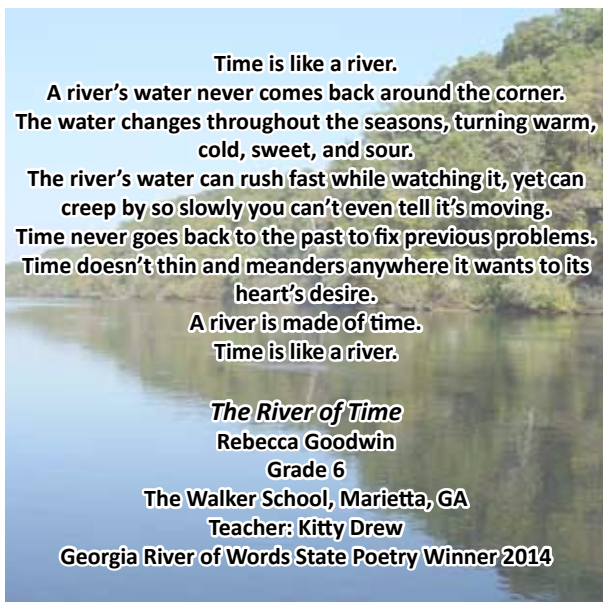
Helping native bees is essential to our continued survival, health, and well-being. These animals benefit us all because of the invaluable ecosystem services they provide to the environment and to our farms, forests, and gardens. Not only do they pollinate most of our flowering plants, their bodies feed other wildlife and their ground-nesting behaviors aerate and enrich soils. They enrich and sustain our lives. The observation of native bees can become a lifelong pastime and pleasure. Become involved. Observe bees with close focusing binoculars; plant a small pollinator garden; or help a neighbor, student, or family member drill small holes in scrap lumber to create a bee house. Join a pollinator and plant-friendly organization to learn more about pollinators and their flowers, like the Pollinator Partnership (www.pollinator.org). Become a pollinator observer as a citizen scientist and report your observations. Some of our bees are declining, and your findings are invaluable to understanding the big picture. Most importantly, get outdoors with your children and experience the amazing natural and urban habitats that we share with pollinators and flowering plants. Do your share to make sure that this precious legacy continues.

To read the full publication, visit
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5306468.pdf.

Illustrations by Steve Buchanan.



Females of the brightly-colored Blue Orchard Bee (Osmia lignaria) visit and pollinate the blossoms of sweet cherry (Prunus avium).



Time is like a river.
A river's water never comes back around the corner.
The water changes throughout the seasons, turning warm,
cold, sweet, and sour.
The river's water can rush fast while watching it, yet can
creep by so slowly you can't even tell it's moving.
Time never goes back to the past to fix previous problems.
Time doesn't thin and meanders anywhere it wants to its
heart's desire.
A river is made of time.
Time is like a river.

The River of Time
Rebecca Goodwin
Grade 6
The Walker School, Marietta, GA
Teacher: Kitty Drew
Georgia River of Words State Poetry Winner 2014

welc  me

Faith Ann Fletcher
Anuran Monitoring in the Sweetwater Watershed

Mitzy Gann
Anuran Monitoring on Butler Creek

Olde Man of the Creek
Chemical Monitoring on Rubes Creek

CONSERVATION TIP

Unplug It

Amazingly enough, even when your appliances are technically turned off, they continue to suck energy out of the wall and money out of your wallet. The "phantom load" accounts for more than 27 million tons of CO₂ emissions in the United States every year, as well as mountains of resources wasted to produce the power. Your phantom load, also known as standby power or idle current, totals 5 to 15 percent of your monthly electric bill. Cube-shaped transformers – those oversized AC plugs – have phantom loads of 20 to 50 percent of their regular energy use. They consume so much electricity that they're sometimes referred to as "vampires." In all, Americans spend about \$4 billion a year on electricity for things they're not using. To eliminate phantom loads, you've got to unplug your devices and appliances. Make it easy on yourself by using smart power strips with on/off switches you can turn off when you're not running anything, when you go to sleep, and when you go on vacation. Smart power strips can be purchased for about \$35 apiece at any hardware store.

Go Green, Live Rich

RECOMMENDED RESOURCE

Hiking Atlanta's Hidden Forests: Intown and Out

by Jonah McDonald

Atlanta's forests are one of the city's best-kept secrets. In this guide, outdoor leader Jonah McDonald outlines 60 hikes in the metro area, all within 30 miles of Georgia's Capitol dome. From the well-known Chattahoochee River and Stone Mountain to pristine Arabia Mountain and secluded Hahn Woods, Atlanta hiking is your opportunity to experience the many native birds, wildflowers, historic sites, and champion and sentinel trees of the city. Routes range from less than a mile to 12 miles in length, with options for experienced and casual hikers of all ages. Each entry includes maps, complete driving and hiking directions, trailhead GPS coordinates, and public transport access information. There's no need to drive to the mountains to get out on the trail! Hiking Atlanta's Hidden Forests lets you visit state parks, wildlife areas, and nature preserves without leaving the metro area.



Amazon.com

Finally, a resource that pays tribute to Atlanta's rich and diverse habitats and park lands – bravo! Hiking Atlanta's Hidden Forests makes it inviting for anyone to learn about and explore these relatively unknown, and many times underappreciated, outdoor sanctuaries. -Atlanta Audubon Society

SEASONAL HAPPENINGS

Outdoor Ramping & Creek Stomping Series

This summer, the Watershed Stewardship Program is partnering with the Cobb Parks, Recreation, and Cultural Affairs Natural Resources Unit to offer these family adventure programs.

Mark your calendars!

July 2 • 9:30am-11:30am • Fairy Houses at Wright Environmental Center

July 9 • 9am-11am • Amazing Eco-Race at Oregon Park

July 16 • 9:30am-11:30am • Creek Stomp at Nickajack Creek on Concord Road

The cost is \$3/person, and registration is required.

Contact: kaye.wilson@cobbcounty.org

ECOPEDIA



Cuckoo bee. Photo by Whitney Cranshaw, Colorado State University, www.Bugwood.org

Kleptoparasitic

Describing a behavior in which food, nesting material, or other resources gathered by one animal are stolen by another. Insect kleptoparasites include cuckoo bees, which lay their eggs in the brood cells of other bees. For example, sharp-tailed bees are kleptoparasites as their larvae grow up on food stolen from leaf-cutter bees.

Source: www.amentsoc.org



Follow our boards on Pinterest for environmental education and stewardship resources.

Stewardship Stars Excellence in Data Collection

The following volunteers have submitted data each month during the March, April, and May quarter:

Anne Ledbetter - Chemical & Bacterial Monitoring on Poplar Creek
Butler Creek Kennesaw - Chemical, Bacterial, & Visual Monitoring in the Butler Watershed
David Zandstra - Chemical Monitoring in the Rubes Watershed
Dragon Frog - Anuran Monitoring on Noses Creek
Dodgen Middle School - Biological Monitoring in the Sewell Mill Watershed
Fairfax Consulting - Chemical & Bacterial Monitoring in the Powder Springs Watershed
Friends of Victory Heights Subdivision Park - Chemical & Bacterial Monitoring in the Rottenwood Watershed
Keep Smyrna Beautiful Adopt-A-Stream - Chemical Monitoring in the Rottenwood Watershed
McClesky Middle School - Chemical, Biological, & Bacterial Monitoring in the Rubes Watershed
Mitzy Gann - Visual & Anuran Monitoring in the Butler Watershed
Pope High School - Chemical Monitoring on Piney Grove Creek
Sally Brooking - Chemical Monitoring on Sope Creek
Sharon and Rick Donato - Anuran Monitoring in the Rubes Watershed
Sierra Club Cobb Centennial Group - Chemical, Biological, & Bacterial Monitoring in the Rottenwood Watershed
Tritt Elementary School - Chemical Monitoring in the Willeo Watershed
Village North Highlands Subdivision - Chemical & Bacterial Monitoring in the Willeo Watershed

Thank you for your hard work and dedication!



ANNOUNCEMENTS

2014 River Rendezvous

Once again this year, we watched the weather closely until the last minute. It always seems as though there is a constant back and forth between a high and low chance of rain leading up to the event, but fortunately we were able to hold the 8th annual River Rendezvous on Saturday, May 10th, 2014! This event is a partnership between the Sierra Club Cobb Centennial Group and the Cobb County Water System and provides a snapshot of water quality in the Rottenwood Creek watershed. Twenty-four participants were divided into ten teams. Supplied with test kits, sample bottles, maps, trash bags for site cleanup, and digital cameras, each team visited three sites in the watershed for water quality testing. While in the field, participants performed Adopt-A-Stream chemical and bacterial monitoring at a total of thirty sites. Additional samples were taken at each site and brought to the Cobb County Water Quality Laboratory for more extensive testing, including nutrients, metals, turbidity, biological oxygen demand, and total suspended solids.

During the event, volunteers also used their observation skills to complete a habitat assessment, evaluating in-stream and riparian parameters such as embeddedness, sediment deposition, flow, bank stability, and vegetative protection. It is during this time that participants notice and note excessive litter, illicit discharges, sewer overflows, and other potential pollution problems. These records, along with the field measurements and lab results, are shared with the Georgia Environmental Protection Division. The results have been posted on the Georgia Adopt-A-Stream

online database. To view the report, visit www.georgiaadoptastream.org, under data views/watershed surveys/Rottenwood Creek.

This year, participants discovered significant debris build up at stormwater infrastructure that could have caused flooding. Many sites also had high *E. coli* bacteria levels because of rain before the event. No sewer spills were found. As with previous events, all issues have been reported to the appropriate County or City of Marietta authority.

Besides the scientific aspect, everyone enjoyed helping the community and meeting other environmentally-minded people. River Rendezvous is a fun event for all ages and is a great way to become more familiar with a watershed and help the community at large. We encourage you to join us in monitoring local waterways near your home or consider participating in next year's River Rendezvous event. Visit our calendar of events for upcoming volunteer and training opportunities.

Finally, thank you to our partners who made this event possible: Sierra Club Cobb Centennial, Cobb County Water Quality Laboratory, Georgia Association of Water Professionals Young Professionals Committee, Georgia Adopt-A-Stream, Georgia Environmental Protection Division, and South Cobb High School.

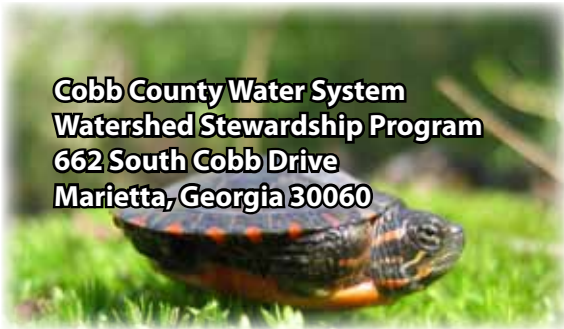
Find out what we've been up to!

Our 2013-2014 Annual Report is now available online. Visit www.cobbstreams.org, under resources/publications.



We post twice weekly updates, workshop information, natural history tidbits, and more!

**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

July

- 2 Parks Summer Series • Fairy Houses • 9:30am - 11:30am • Wright Environmental Center • contact: kaye.wilson@cobbcounty.org
- 3 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 8 Library Summer Series • Rain Sticks & Drops • 11:00am - 12:00pm • Acworth Library • www.cobbcat.org
- 9 Parks Summer Series • Amazing Eco-Race • 9:00am - 11:00am • Oregon Park • contact: kaye.wilson@cobbcounty.org
- 10 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 12 Adopt-A-Stream Macroinvertebrate Monitoring Workshop • 9:00am - 2:00pm • Cobb County Water Quality Laboratory
- 14 Rain Barrel Make & Take • 10:00am - 11:00am • Cobb County Water Quality Laboratory
- 15 Library Summer Series • Rain Sticks & Drops • 1:00pm - 2:00pm • Powder Springs Branch Library • www.cobbcat.org
- 16 Parks Summer Series • Creek Stomp • Nickajack Creek on Concord Road • 9:30am - 11:30am • contact: kaye.wilson@cobbcounty.org
- 17 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 17 Library Summer Series • Rain Sticks & Drops • 11:00am - 12:00pm • Kemp Memorial Library • www.cobbcat.org
- 24 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 24 Library Summer Series • Rain Sticks & Drops • 12:00pm - 1:00pm • Stratton Library • www.cobbcat.org
- 31 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

August

- 6 Rain Barrel Make & Take • 1:00pm - 2:00pm • Cobb County Water Quality Laboratory
- 6 Adopt-A-Stream Bacterial Monitoring Workshop • 6:00pm - 8:30pm • Cobb County Water Quality Laboratory
- 7 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 14 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 21 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 28 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

September

- 4 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 11 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 16 Rain Barrel Make & Take • 12:00pm - 1:00pm • Cobb County Water Quality Laboratory
- 16 Adopt-A-Stream Chemical Monitoring Workshop • 6:00pm - 8:30pm • Cobb County Water Quality Laboratory
- 18 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 25 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

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