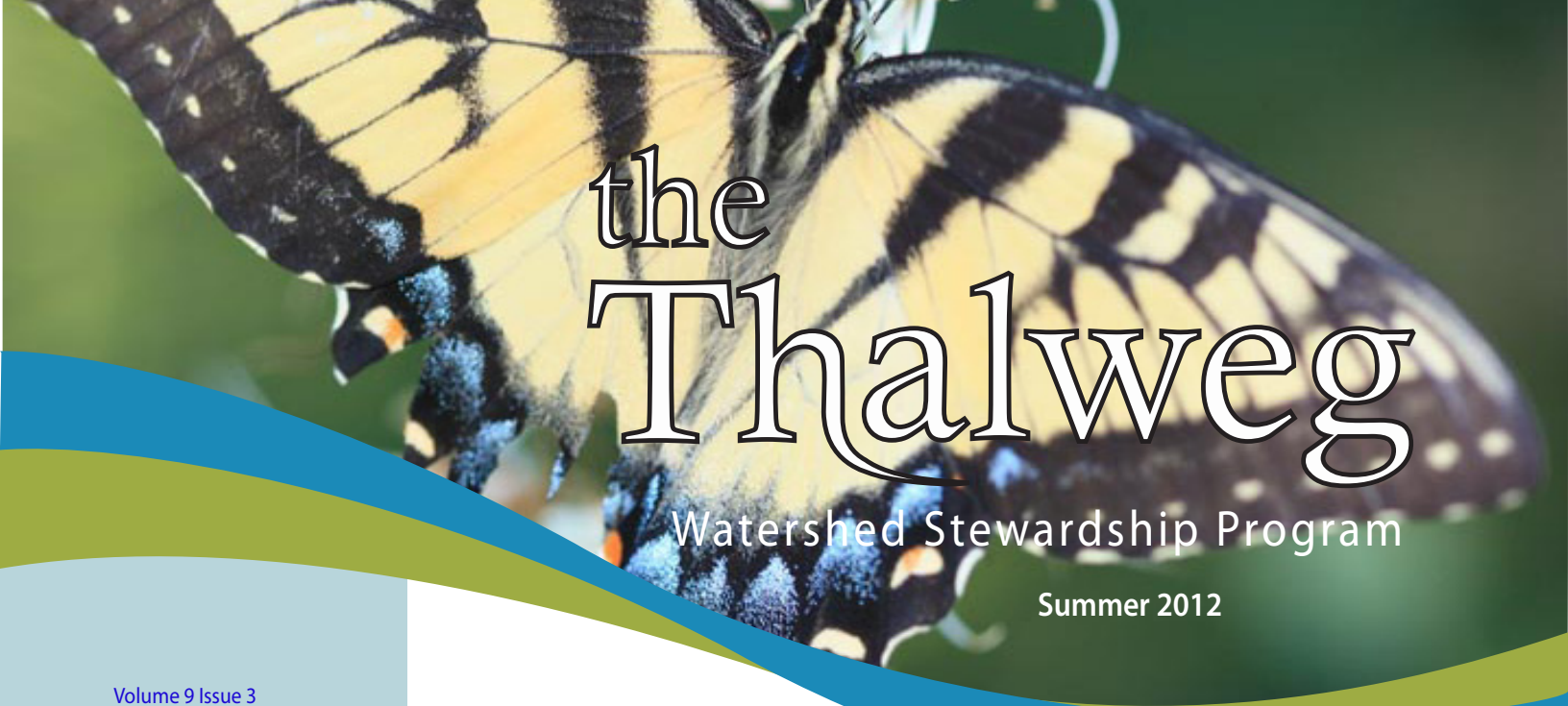

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Watershed Stewardship Program

Summer 2012

Volume 9 Issue 3

Cobb County
Watershed Stewardship
Program

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Inside the Watershed

Many of you have worked with our program in multiple capacities over the years and are aware that we facilitate a variety of educational projects for Cobb County including community programs, volunteer opportunities, and school outreach. In the schools, we provide hands-on programs working with students both in the classroom and outdoors.

As the school year ends, we would like to a share our school outreach accomplishments. We provided 298 instructional hours of free environmental education to local schools. Our staff reached over 10,000 students in 479 classrooms and visited over 70 elementary, middle, and high schools this year.

Our most requested elementary school programs are "What is a Watershed?" and "Eco-regions of GA." Both cover grade-specific curriculum requirements and focus on local ecology. We also facilitate a 3rd grade assembly program, "The Brook and Branch" puppet show. Over 5,000 students saw the performance this year and learned about water quality, pollution prevention, and biodiversity in the watershed. The most popular programs in middle and high schools are the Adopt-A-Stream Monitoring Programs (chemical, bacterial, and biological). Teachers and their students can become certified to monitor waterways near their campus. We support classrooms and student clubs to accomplish their water education or monitoring goals by working with them inside the classroom and at their monitoring sites.

To learn more about our school outreach programs, visit our website, click on initiatives, then school programs to view our environmental exploration for students brochure.

Dragonflies - Indicator Species of Environmental Health

Article by Michelle Simon
Earth Times

Delicate fluttering wings, fascinating hovering motions, dainty, beautiful yet extremely precious in indicating the health of ecosystems, and overall environmental quality, dragonflies are one of nature's many precious species giving us a physical sense of our damage or care.

Not only are they precious today, but they are prehistoric, dating back to 300 million years ago, once giant insects with wingspans of up to 65 cm, which makes them extremely magnificent and fascinating.

Scientists have theorized on the prehistoric oxygen level conditions, existing at the time, at almost 50% more than O2 levels today, which were ideal for the ancient dragonfly and may have promoted their larger growth. Whilst humans have a single tracheal system inhaling O2, insects have a multiple tracheal tube system. Other theories on their physiological size reduction include predation by prehistoric birds.

Such ancient creatures deserve more respect than we give them by destroying their habitats. Not only are they an indicator for healthy biophysical environmental conditions but lead to an indication of other species in an aquatic environment and the general biodiversity. Spending most of their lives underwater in rivers, streams, ponds, lakes, their presence in aquatic environments do signify water quality due to dragonflies and damselflies requiring clean water to thrive.

Meganeuridae; Credit: © Hcrepin

Their survival also requires healthy indigenous vegetation to provide oxygen and clean the water but also helping them to hide and for their transformation process from nymphs to adult fliers. If dragonflies are absent from or near a water body, the potential issues may be pesticides and excessive nutrients from agricultural landscapes, siltation from soil and bank erosion, various water contaminants from human settlement and industry or urban landscapes.

According to the EU Red Data List, with about 5,680 species, the dragonflies constitute a relatively small insects order and most species are found in the tropics. Their sensitivity to habitat quality and their amphibious life cycle make dragonflies well suited for evaluating environmental changes.

Dragonflies are also beneficial to potential human health risks by consuming mosquitoes and their larvae; they also eat a range of other insect life at various metamorphic phases. Damselflies are their close relatives but differ in that the dragonfly's forewings differ from their hind ones and both sets remain open at rest unlike the damselfly. The larval stage of the dragonfly is spent underwater and creates a risk from predators such as frogs, fish, newts and other invertebrates.

From ancient giant form to present day fairy like physiques, these creatures play such an enormous role in the environment and are our flying 'green' flags of good environmental quality.

Article published on www.earthtimes.org on June 11, 2012

Facts and Myths About Dragonflies

There are lots of fun and interesting facts about dragonflies. Some facts about dragonflies are scientifically proven facts and some are actually myths about dragonflies that have been around for as long as hundreds of years. Can you tell the difference between the myths and the facts about dragonflies?

A bee flaps its wings about 300 times per second, but a dragonfly flaps its wings at only about 30 beats per second.

Fact, dragonflies have two sets of wings so they don't have to beat them as much to fly.

A dragonfly is a very strong and good flyer, and can fly at speeds of up to 36 miles per hour.

Fact, but not all dragonflies are that fast – one was clocked at this speed in Australia.

There were huge dinosaur dragonflies that lived 300 million years ago.

Fact – the largest fossil found had a 2 ½ foot wingspan, and currently there are dragonflies in Costa Rica that measure 7 ½ inches across the wings.

Dragonflies have huge stingers and some people are allergic to their stings and can die.

Myth – the thing that looks like a stinger on a dragonfly is actually called a clasper and the male dragonfly uses it to hold onto the female when they are mating.

There are about 5,000 different species of dragonflies all over the world except in Antarctica. 450 of the species can be found in the United States and about 80 species in British Columbia.

Fact, most of the 5,000 species are found in remote, tropical areas.

A dragonfly's eyes have about 30,000 lenses and a dragonfly can see all the way around it, but they don't see details very well.

Fact, a human eye only has one lens and sees better than a dragonfly, but only to the front and side.

From the time a dragonfly egg hatches, it can live anywhere from six months to six years, but only about two months as an actual dragonfly.

Fact, most of the time spent is as a nymph in the water before the dragonfly's metamorphosis into a full grown dragonfly.

A dragonfly's scientific name is Odonta, which comes from the words "tooth-jawed" because the entomologist (insect scientist), Johann Christian Fabricius, who named them studied the dragonflies' mouths in order to distinguish the different species. Now their wings are studied as well to classify dragonflies.

Fact – other names for dragonflies around the world are water dipper in England, old glassy in China, and the ancient Celts called dragonflies big needle of wings.

FEATURED ARTICLE

Roadkill Survey Turns Cyclists into Scientists

In hopes of protecting more wildlife from automobile traffic, a new web project is recruiting 'citizen scientists' to report roadkill from their bicycles.

Article by Russell McLendon
Mother Nature Network

END OF THE ROAD: A conservation group is asking cyclists to help it keep tabs on all kinds of roadkill, such as this willow flycatcher found dead near Ithaca, N.Y. (Photo: Seabamirum/Flickr)

The open road is a dangerous place, especially if you're not in a car. But thanks to a new "road ecology" project, people who defy these dangers on bicycles and on foot are uniting to help their carless counterparts in the animal kingdom, who often bear an added burden of not quite grasping the risks.

Led by Adventurers and Scientists for Conservation, the project seizes on the recent trend of citizen science, crowd-sourcing roadkill data from volunteers worldwide. While anyone can report a sighting — including people in cars — ASC executive director Gregg Treinish says cyclists and pedestrians have a unique appreciation for animals' vulnerability on roads, which many motorists treat as single-purpose car corridors.

"It's a scary prospect while you're road biking that you could get hit by a car," Treinish says. "And it happens. Maybe not as often as with wildlife, but it does happen."

By amassing so much data, researchers hope to learn which species are most affected by road traffic, as well as when, where and how often they're hit. This would not only reveal threats to individual species and populations, but may also identify potential "roadkill hotspots." If there are places where traffic is unusually deadly to animals, more data might build support for tackling the problem, whether by adding animal-crossing signs, building wildlife overpasses or simply lowering speed limits.

The ASC's Roadkill Survey expands on two smaller, state-level projects set up in California and Maine over the past three years, both developed by the University of California-Davis' Road Ecology Center. The REC opened in 2003 to study "the impact of roads on natural landscapes and human communities," and it's now working with the ASC to let citizen scientists "collect data anywhere there are roads," Treinish says.

It's also easy to report the data, thanks to an online form and a smartphone app designed by iNaturalist. Photos help, but they aren't necessary — organizers mainly want basic details about the animal, location and time. The ability to collect this kind of data so quickly and on such a large scale is a big deal, says UC-Davis ecologist and REC director Fraser Shilling, because it's paving the way for an unprecedented cache of information about wildlife, both living and dead.

"There are two stories here," Shilling says. "One is understanding what causes roadkill, where there might be more roadkill than other places, and where we can start doing something about it. The other story is that there are no large-scale wildlife observation systems in the world, no standardized protocols. This is that system, taking people's observations and mapping them out over space and time. If we do this over years and years, we can learn really important stuff."

The global survey is still in its early stages, but local research has already shed some light on roadkill in recent years, Shilling adds. The busiest highways have low roadkill rates because animals rarely try to cross, while urban roads are generally clear due to sparser wildlife in cities. Most roadkill occurs on "less busy, but still high-speed, rural highways and roads," Shilling says, adding that curvy roads are worse.

Raccoons were the most common roadkill in California last year with 1,693 reported, followed by striped skunks (1,372), ground squirrels (845), opossums (763) and mule deer (761). The top casualties in Maine were eastern gray squirrels (503), porcupines (447), raccoons (266), striped skunks (214) and wild turkeys (212). Nationwide, the REC estimates there are up to 2 million animal-vehicle collisions every year. And these aren't just bad for wildlife — striking big animals like deer can also hurt motorists, and Shilling points out many crashes occur when drivers swerve to dodge a collision.

Manmade wildlife overpasses can help some animals avoid roads, from common varieties like raccoons and white-tailed deer to endangered species like a recently spotted Canadian lynx. Walls and fences may also work, but in general, Shilling is skeptical that building new infrastructure will make a dent in roadkill rates.

"There's roadkill everywhere," he says. "There are very few hotspots. Hotspots are a convenient fantasy for conservation planners. They make it seem like you can solve the problem by building overpasses, but it's really a much broader problem about human behavior." No certain type of vehicle stands out as a top roadkill culprit, although most cars, trucks and SUVs that hit animals do have one thing in common, he adds: "The type of car that's most likely to cause roadkill is a fast-moving one."

"We are gathered at this place to remember our good friend, Robert ..."

Speed is often the deciding factor in all kinds of traffic accidents, and wildlife collisions are no different. Shilling doesn't entirely dismiss building overpasses, but he says focusing on driving habits instead would be more effective and produce broader benefits: "There are places in the world with speed limits for wildlife. When we have people driving 75 or 80 mph through the Sierra Nevada, we're going to be losing wildlife. If we want to protect wildlife, we need to address the problem."

And the first step in addressing a problem is understanding it — something that's much easier now with citizen scientists pitching in. "I still have an old box of roadkill observations that a fish and game biologist was recording, and it's all hard copy," Shilling says. "It's great data, but it's sitting in a box. It's really hard to share it, and a system like this makes it easy to standardize the reporting and share the data."

http://www.inaturalist.org/projects/asc-roadkill-observations

http://itunes.apple.com/us/app/inaturalist/id421397028?mt=8

http://www.mnn.com/earth-matters/animals/blogs/roadkill-survey-turns-cyclists-into-scientists

welcome

Norm Fagge will be monitoring Willeo Creek.

Harrison High School's Hope Club will be monitoring Allatoona Creek.

Ande Millsaps will be monitoring Sope Creek.

Oak Creek Stable will be monitoring a tributary of Willeo Creek & Hick's Pond.

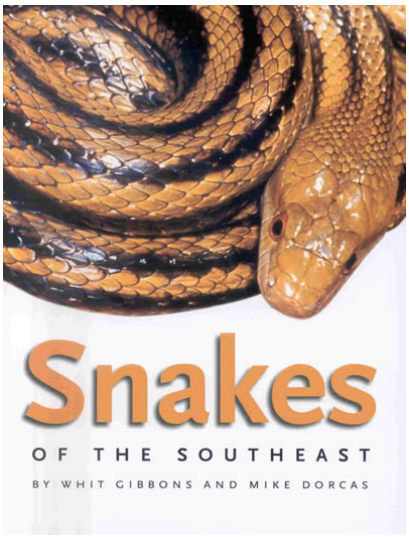
ANNOUNCEMENTS

Farwell to Hope Stewart & Sarah Overstreet

Hope and Sarah are off to new adventures. The ladies were the Watershed puppeteers for the 2011-2012 school year and taught over 5,000 students. They are incredible puppeteers and educators. Hope will be working as a summer camp counselor at Gwinnett Environmental and Heritage Center. Sarah will be working as a summer camp supervisor at Piedmont Park. Sarah and her husband will be joining the Peace Corp in the fall! Good luck ladies with the many adventures yet to come!

RECOMMENDED RESOURCE

Snakes of the Southeast
by Whit Gibbons and Mike Dorcas



Fifty-two kinds of snakes can be found in the Southeast, almost half of all species native to North America. Filled with more than 300 color photographs and written by two of the region's most renowned herpetologists, this is the most comprehensive educational guide to the snakes of the Southeast.

At the heart of the guide are its heavily illustrated, fact-filled descriptions of each species and its habitat. Also, included is a wealth of general information about the importance of snake conservation and the biology, diversity, and life cycles of snakes. Useful information about the interactions of humans and snakes is also covered: species that are likely to be found near houses, snakes as pets, what to do in case of a snake bite, and more.

Clearly written, cleanly designed, and fun to use, the guide will promote a better understanding of the habitat needs of, and environmental challenges to, this fascinating group of animals.

"Easy to read . . . An informative book for the general public aimed at educating those with a limited knowledge of snakes."
—Southeastern Naturalist

The University of Georgia Press

2012 River Rendezvous Was A HUGE Success!

After a nail biting weather watch—to rain or not to rain! We were able to hold the 6th annual River Rendezvous to celebrate Earth Day weekend! The event is a partnership between Sierra Club's Centennial Group and Cobb County Water System and provides a snapshot of water quality in the Rottenwood Creek watershed. Participants performed Adopt-A-Stream chemical and bacteria tests at 30 sites. Samples were brought to the Cobb County Water Quality Laboratory for more extensive testing including nutrients, metals, turbidity, and solids. Ten teams, each led by a certified Adopt-A-Stream chemical monitor, visited three sites for testing. They were supplied with test kits, sample bottles, maps, trash bags for site cleanup, and disposable cameras to document their work.

During the event, volunteers observed wildlife and noted any potential pollution problems seen at their sites. These records, compiled along with the field measurements and lab results, are shared with Georgia's Environmental Protection Division. We are still compling the data for the 2012 report and will have everything posted in the Georgia Adopt-A-Stream online database very soon. To view the report visit www.georgiaadoptastream.org, under data views/watershed surveys/ Rottenwood Creek.

As with previous events, all problems are subsequently reported to the appropriate agency (county and/or city of Marietta), typically to Cobb's Stormwater, Environmental Compliance, or Code Enforcement staff for follow-up, mitigating further environmental damage.

This year several representatives from Georgia Association of Water Professionals (GAWP) participated in the event. GAWP is a not-for-profit Association whose chief purpose is to educate and assist those who have an interest in the proper management and protection of Georgia's water resources. GAWP provides professional development and promotes sound public policy in the water resources and related environmental fields. Thanks for your help.

Besides the scientific aspect, everyone enjoyed helping the community and meeting other environmentally-minded people. The 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 opportunities.

OBSERVATIONS

If you have rotting logs, stumps, or rocks in your yard, you probably have Five-lined Skinks too. After breeding in the spring, the female lays 4 – 14 eggs and guards them until they hatch in early summer. The young have bright blue tails with five white or yellowish stripes down the length of their black bodies. At maturity, this species reaches 5 – 8½" long, the lines fade, and the whole body turns gray. To escape predators, skinks run fast and have tails that break off when necessary. This survival technique works well but means a loss of stored fat and protein until the tail grows back.

Linda May
Environmental Outreach Coordinator
Georgia DNR, Wildlife Resources Division

ECOPEDIA

Urban Ecology

The ecology of cities is critically important because we inhabit an increasingly urban world. You probably live in a city or suburb, though some of your great-grandparents may well have lived on farms and produced much of their own food. In most countries today, economic pressures are forcing huge numbers of people off farms and into cities. In America, whose population was once mostly farmers, this process has gone on for the past century; we now have only two million farmers, many of whom farm part-time.

From Ecology: A Pocket Guide

CONSERVATION TIP

Oil

Ask for re-refined motor oil the next time you change the oil in your car. The production of five quarts of high-quality re-refined lubricating oil uses only two gallons of used oil, whereas producing and refining five quarts of virgin oil requires two barrels of crude oil. If five percent of households began using re-refined oil for oil changes, 2.5 billion gallons of oil could be conserved per year.

From The Green Book

SEASONAL HAPPENINGS

Outdoor Romping & Creek Stomping

The Watershed Stewardship Program is partnering with Cobb Parks, Recreation and Cultural Affairs again this summer to offer family adventure sessions

Time: 9am-11am Cost: $2.00/person

Mark your calendars!

-Scavenger Hunt, July 11th, Heritage Park

-Creek Hike, July 18th, Covered Bridge Rd

Contact: Karen.faucett@cobbcounty.org

Adopt-A-Stream Super Stars: Excellence in Data Collection

(Groups submitting each month during the previous quarter)

We would like to start recognizing volunteers who consistently monitor their sites.
The following volunteer(s) submitted data every month during the March, April, and May quarter:

Lassiter High School monitoring Rubes Creek (Chemical, Bacterial & Biological Monitor)
Harrison High School's HOPE Club monitoring Allatoona Creek (Chemical)
Sierra Club monitoring Rottonwood Creek (Chemical, Bacterial, & Biological)
McCleskey Middle School monitoring Rubes Creek (Chemical, Bacterial, & Biological)
Sally Brooking monitoring Sope Creek (Chemical)
Simon Locke monitoring Butler Creek (Chemical
Denise Gadd monitoring Powder Springs Creek (Chemical & Bacterial)
Angie Bolton with Keep Smyrna Beautiful monitoring Laurel Creek (Chemical)
Joe Lukas with Keep Smyrna Beautiful monitoring Nickajack Creek (Chemical)
Mike Seeley monitoring Noonday Creek (Chemical)
HoneyFern School monitoring Olley Creek (Chemical & Biological)
Tim Phillips & Stacey Haire monitoring Rottenwood Creek (Chemical, Bacterial, & Biological)
Pam Subalusky monitoring Willeo Creek (Chemical & Bacterial)
Tritt Elementary River Kids monitoring Chimney Springs Creek (Chemical, Bacterial, & Biological)
David Zandstra monitoring Rubes Creek (Chemical & Bacterial)
Three Forks Alliance monitoring Nickajack Creek (Chemical, Bacterial, & Biological)
The Walker School monitoring Noses Creek (Chemical)
Morning Washburn monitoring Mulberry Creek (Chemical, Bacterial, & Biological)
Ina Allison monitoring Rottonwood Creek (Chemical, Bacterial, & Biological)

Keep up the great work!
We hope the list continues to grow.

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

10 Summer Library Series • 11am - 12pm • Powder Springs Library
11 Summer Family Program - Scavenger Hunt · 9am - 11am · Heritage Park · contact: Karen.Faucett@cobbcounty.org
12 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
12 Summer Library Series • 11am - 12pm • Kemp Library
18 Summer Family Program - Creek Hike · 9am - 11am · Corp Property · contact: Karen.Faucett@cobbcounty.org
19 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
24 Rain Barrel Workshop • 10am - 11am • Cobb County Water Quality Laboratory
26 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
26 Adopt-A-Stream Chemical Monitoring Workshop • 6pm-8:30pm • Larry Bell Park
31 Summer Library Series • 10:30am - 11:30pm • Sibley Library

August

2 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
7 Adopt-A-Stream Bacterial Monitoring Workshop • 6pm-8:30pm • Larry Bell Park
9 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
16 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
23 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
29 Rain Barrel Workshop • 12pm - 1pm • Cobb County Water Quality Laboratory
30 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory

September

6 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
6 Adopt-A-Stream Biological Monitoring Workshop • 5:30pm - 8:30pm • Larry Bell Park
12 Rain Barrel Workshop • 5:30pm - 6:30pm • Cobb County Water Quality Laboratory
13 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
20 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory
27 Garden Work Day • 9am - 11am • Cobb County Water Quality Laboratory

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