

the Thalweg

Watershed Stewardship Program

Summer 2013

Volume 10 Issue 3

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Do You Believe in Fairies?

"When the first baby laughed for the first time, its laugh broke into a thousand pieces, and they all went skipping about, and that was the beginning of fairies. And now when every new baby is born its first laugh becomes a fairy. So there ought to be one fairy for every boy or girl." (Peter Pan, James Matthew Barrie)

Imagine you are sitting in the woods on a perfect, summer day. As you sit quietly, relaxed and lost in thought, you hear the wind rustling the leaves in the trees and a ray of sunlight breaks through the canopy and warms your skin. A tufted titmouse is whistling *peter-peter-peter* nearby. Then, as you feel your eyes getting heavy, you suddenly see an orb of light flicker in the distance. But, when you investigate, there is only a butterfly resting on a log. While you may or may not know it, you just caught a glimpse of a fairy!

If you are curious, inventive, and imaginative and have respect for fairies and the natural world, then please join us at an upcoming *Fairy House* workshop! This summer, the Cobb County Watershed Stewardship Program, in partnership with the Cobb County Parks, Recreation, and Cultural Affairs Department, is pleased to offer two *Fairy House* events as part of the Outdoor Romping and Creek Stomping Summer 2013 Series.

Fairy houses are small, temporary structures made from natural materials that are built to attract fairies and woodland creatures. During each workshop, we will explore and scout out sites for our fairy houses, such as tree hollows and stumps, and then gather natural, local, and non-living building materials. After everyone has built their fairy houses, we will take a "tour of homes". And since fairies like to spend time in forts, we'll be building some of those too!

The first *Fairy House* workshop will be held on **Wednesday, June 19, 2013** from **9:30 to 11:30 AM** at the **Wright Environmental Education Center**. The second program will take place on **Wednesday, July 24, 2013** from **9:30 to 11:30 AM** at **Heritage Park**.

There is a cost of \$2.00 per person, and registration is required. To register or for more information, email Karen Faucett at karen.faucett@cobbcounty.org or call 770-528-8803. You can also find out more about this program and the Outdoor Romping and Creek Stomping Series by visiting the Watershed Stewardship calendar at www.cobbstreams.org.

Finally, to get into the spirit of fairy house building, we recommend these three classics: [Peter Pan](#) by J.M. Barrie, [The Coming of the Fairies](#) by Sir Arthur Conan Doyle, and [Flower Fables](#) by Louisa May Alcott.

We hope you'll join us for this opportunity to explore the natural world, use your imagination, and become a better steward of the land.



www.fairyhouses.com

Snags as Wildlife Habitat

In ecology, a snag refers to standing dead and dying trees left upright to decompose naturally. Snags occur in the wild as a result of disease, drought, fire, lightning, animal damage, an excess of shade, root competition, and old age. Surprisingly, snags, along with live trees with hollow trunks and cavities, dead branches, and logs, provide essential habitat for birds, small mammals, and other wildlife.

In the United States, more than 1,000 species of wildlife depend on dead and dying trees to nest, rest, court, preen, eat, store food, hibernate, perch, and roost. Snags along shorelines also have the potential to fall into waterways and provide woody debris to the aquatic habitat, supplying food and shelter to aquatic macroinvertebrates, fish, and amphibians. All trees of all sizes can become snags, but unfortunately, many are cut down and removed for pest management, aesthetic, and safety reasons. By some estimates, the removal of snags and similar structures from the environment can result in a loss of habitat for up to one-fifth of animals in an ecosystem. For snags that remain in the environment and are managed in a way that minimizes risk, these dead and dying trees can continue to provide food, shelter, and life.



*A standing snag among other living fir trees.
Photo courtesy of Cacophony. www.wikipedia.org*



*Great horned owl sleeping in a tree hollow.
Photo courtesy of Kasia. www.wikipedia.org*

Wildlife and Snags

Wildlife species use nearly every part of a dead tree in every stage of decay for various purposes. The following are a few examples of wildlife that use snags and logs and how:

- Many animals, such as birds, bats, squirrels, and raccoons, build nests in hollow cavities and crevices in snags.
- The space between partially detached bark and the tree trunk is where tree frogs, several species of bats, beetles, and butterflies find shelter.
- Grouse use the bare soil where trees have uprooted to take dust baths during the dry months.
- Squirrels and deer mice store food in fallen trees and decomposing logs.
- Brown creepers, bats, and other small animals roost behind loose bark and bark slits during the winter for warmth and shelter.
- Hollow snags provide squirrels, raccoon, and owls a place for denning and roosting.
- Hawks, eagles, and owls perch and search for prey from large snags up to 12 inches in diameter and 15 feet tall.
- Large snags also provide resting perches for swallows, band-tailed pigeons, mourning doves, and other birds; food storage areas for mice, squirrels, woodpeckers, and jays; and song perches for tanagers and flycatchers.
- Bluebirds, hummingbirds, and other songbirds sing from small snags in order to attract mates and proclaim nesting territories.
- Birds search for insects such as beetles, spiders, and ants in the outer surface of the bark.
- Woodpeckers eat larvae and pupae of insects from the inner bark, and mammals such as raccoons and black bear can tear into these areas to catch and eat insects.
- Mosses, lichens, and fungi that grow on decaying trees and logs supply nutrients to the soil through the nitrogen cycle. Seedlings also grow from decaying logs on the forest floor.

Snags in Your Landscape

You can incorporate one or more snags into your landscape by keeping old and damaged trees whenever possible. Signs of a future snag include sap runs, splits in the trunk, dead main limbs, fungi on the bark, and evidence of animal use, such as woodpecker holes. Leave trees and tall shrubs near the planned snag to protect it from wind and to provide a healthier habitat for animals.

In some cases, snags pose a risk to life and property. Do not allow dead wood to rest against your home, and remove any trees that may fall on a home or building. In urban areas, snags are best located away from high activity areas. An alternative to removing the entire tree is to cut off only the dangerous sections. Consult with a certified arborist with experience in wildlife snags who can assist you in determining hazards and provide you with management options.

If there are no natural snags in your yard, consider creating artificial ones by trimming branches on live trees or by setting up nesting boxes. In general, most areas require three snags per acre, but check with your local wildlife management authority for specific recommendations. For Georgia, contact the Wildlife Resources Division of the Georgia Department of Natural Resources: <http://www.georgiawildlife.org/>.

Sources

Carol, S. (2003, February 09). *Snags and downed trees are good habitat for wildlife*. Retrieved from <http://extension.oregonstate.edu/gardening/snags-and-downed-trees-are-good-habitat-wildlife>

Attracting wildlife with dead trees. (n.d.). Retrieved from <http://www.nwf.org/How-to-Help/Garden-for-Wildlife/Gardening-Tips/Attracting-Wildlife-With-Dead-Trees.aspx>

Snags - the wildlife tree. (2011). Retrieved from <http://wdfw.wa.gov/living/snags/>

Pileated woodpecker

Photo courtesy of Joshlaymon. www.wikipedia.org



This snag provides nest cavities for birds.

Photo courtesy of Walter Siegmund. www.wikipedia.org

Woodpeckers: Hard At Work

Woodpeckers such as the northern flicker create new cavities in snags and are thus referred to as “primary cavity nesters.” They have thick-walled skulls supported by powerful neck muscles, and a beveled, chisel-like bill. A woodpecker’s strong, grasping feet with sharp, curved nails form a triangular base for support in the vertical position along with specially adapted tail feathers. The woodpecker’s barb-tipped tongue and sticky saliva help it get insects from deep crevices. Unlike other cavity-nesting birds, woodpeckers rarely use nest boxes because they are biologically conditioned to dig their own cavities...

Woodpeckers excavate several holes each year and rarely nest in the same one in consecutive years, thus creating many cavities for secondary cavity nesters such as bluebirds, tree and violet-green swallows, chickadees, nuthatches, house wrens, wood ducks, squirrels, and owls who cannot excavate cavities themselves. Secondary cavity nesting wildlife are highly dependent upon the availability of these abandoned nest cavities.

Source: *Snags - the wildlife tree.* (2011). Retrieved from <http://wdfw.wa.gov/living/snags/>

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Green Roofs

Stormwater Treatment Practices for Low-Impact Development

Prepared by William F. Hunt, Ph.D., P.e., Assistant Professor and Extension Specialist and Laura L. Szpir, Extension Associate, Biological and Agricultural Engineering, North Carolina State University

Published by the North Carolina Cooperative Extension Service

What are they?

EPA's Region 8 Headquarters.
www.epa.gov

Green roofs or vegetated rooftops have been extensively used in northern Europe since the 1970s and are now gaining popularity in North America. Also called landscaped roofs, roof gardens, and eco-roofs, green roofs consist of waterproofing and drainage mats, a special growing media, and plants able to withstand extreme climates. They offer several real and potential benefits, including reduced runoff, increased evapotranspiration, prolonged roof life, reduced roof temperature, decreased energy costs, and reduction of the urban heat island – the area of higher temperatures that exists around intensely developed and densely paved urban areas. Green roofs also help to meet aesthetic and landscaping requirements, and they can create additional living space if constructed to bear the weight of people and their outdoor activities. The possibilities of so many benefits – particularly in urban, high-density environments, such as uptown Charlotte and downtown Raleigh – have triggered the use of green roofs.

The main drawback to green roofs is their construction cost, which ranges from \$12 to \$25 per square foot more than conventional roofs. Costs are high for green roofs because the materials used are expensive and difficult to transport onto the building, and they require more structural reinforcement than other roofing materials.

There are two general types of green roofs: extensive and intensive. An extensive green roof can be thought of as a vegetated carpet. This roof type is covered in engineered soil (media), typically 3 to 5 inches thick, with low-lying vegetation growing across it. An extensive green roof is generally much less expensive to construct and maintain than an intensive green roof. It requires only a little maintenance, and it is not constructed to hold and support large groups of people.

Intensive green roofs are garden-like. They can be designed to grow trees and shrubs because of their deep soil layer, and they can carry pedestrian traffic. They are typically very expensive to construct and require more intense maintenance, such as irrigation and fertilization. Intensive green roofs often cover underground parking decks.

The most common type of green roof used in North Carolina is extensive. One concern with extensive roofs, however, is the type of plant that is able to survive on it. A rooftop is usually a dry and barren environment, making it very difficult for native N.C. plants to survive without supplemental irrigation. Succulents, relatives of the cactus family, can thrive on nonirrigated green roofs. But, because the vast majority of these species are not native to North Carolina, many potential users are wary of introducing non-native plants that might migrate to the ground and invade native vegetation. Those fears, however, should be minimized when considering whether to use a green roof. On the ground, where most soils are wetter and denser than on a roof, native N.C. plants can out-compete the succulents that survive on a desert-like rooftop.

How do they work?

An extensive green roof contains a mat underlying a 3- to 4-inch soil-like media composed of some natural soil and any of several lightweight ingredients, such as expanded (superheated) clay, shale, or slate. The media temporarily stores water between storm events. As rain falls, the soil media captures some of the water and later releases it back to the atmosphere through evapotranspiration – loss of water from the soil through evaporation and from plants through transpiration. Plastic cups underlying the media catch additional rain for later uptake by the vegetation.

Once the media is saturated, rainwater flows to the roof surface via a drainage network that takes it through gutters to the ground. In addition to reducing stormwater runoff quantity, the media and plants can filter and capture particulates deposited from the air, thus potentially improving the quality of runoff.



Traditional sod roofs can be seen in many places in the Faroe Islands.
Photo courtesy of Erik Christensen. www.wikipedia.org

How well do they work?

N.C. State University has conducted research on four green roofs – in Asheville, Goldsboro, Kinston, and Raleigh. Each green roof retained well over 50 percent of rainfall annually, and also reduced peak flows and large volumes of rainfall generated by storms. Releasing such a large fraction of water by evapotranspiration and reducing runoff volumes and peaks are both important ways green roofs help replicate predevelopment hydrology as required by low-impact development.

The outflow from green roofs has more nitrogen and phosphorus in it than rainfall, which is a problem for North Carolina’s nutrient-sensitive waters. Researchers attribute this to the composition of the soil media, and they continue to examine how changes in the media will help decrease nitrogen and phosphorus loading. Typically, limiting organics in the media does reduce effluent nitrogen and phosphorus levels.

To read the full article, titled “Permeable Pavements, Green Roofs, and Cisterns: Stormwater Treatment Practices for Low-Impact Development”, visit <http://www.bae.ncsu.edu/stormwater/PublicationFiles/BMPs4LID.pdf>.



*The undulating green roof of the California Academy of Sciences under construction in San Francisco in 2007.
www.wikipedia.org*

OBSERVATIONS

The next time you enjoy a juicy apple or munch on sunflower seeds, thank a pollinator! Pollinators are creatures that help fertilize plants by spreading pollen from one flower to another (of the same plant species). Without this service, the flowers of many crops would never turn into fruits, nuts, or seeds. Common pollinators include bees, butterflies, wasps, and many other insects. However, as many as 1500 kinds of mammals and birds also deserve credit. In some parts of the world, fruit bats pollinate banana trees as they search for dinner. Hummingbirds specialize in pollinating tubular-shaped flowers, receiving nectar in exchange for their hard work.

Linda May
Environmental Outreach Coordinator
Georgia DNR, Wildlife Resources Division



ANNOUNCEMENTS

Shallow Water Monitoring Kit Swap Out

Summer is here and it's time for the Cobb County Watershed Stewardship Program to inventory and clean our kits, ensuring they are ready for another year of monitoring. Our first and foremost responsibility is to make sure all our volunteers have the support and equipment they need to continue their data collection. The chemicals in our kits do expire, due to age, exposure to heat and elements, and bacterial contamination, which could affect the quality of your data. To prevent this, we give all our volunteers fresh chemicals each year.

The swapping will take place in July, so be on the lookout for an email from us to schedule the exchange. If you have a kit and don't hear from us, please contact Mike Kahle at 770-528-1482 or Michael.Kahle@cobbcounty.org.

Also, don't forget to check your Adopt-A-Stream recertification dates!

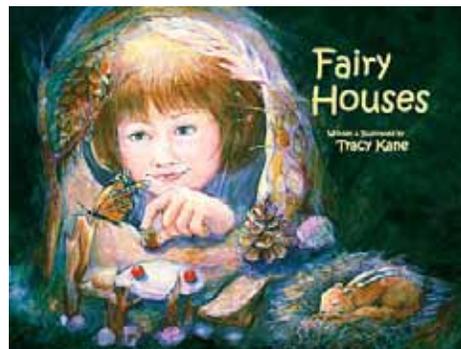
Here's to another year of successful monitoring!

RECOMMENDED RESOURCE

Fairy Houses

Written and Illustrated by Tracy Kane

Follow the story of a young girl building her special fairy house, observing its visitors, and discovering the magic of Nature. The story encourages children to experience fun, creative, quiet times with Nature and gain appreciation for its daily treasures. Fairy Houses gives tips on how to build your own fairy habitats made with natural materials. Transform a backyard, beach, meadow, or woods into a gold mine for fairy houses!



"What makes this a winner is the fact that kids immediately want to go outside and build their own fairy house." —Children's Book Sense 76 Picks, American Booksellers Association

Powell's Books

ANNOUNCEMENTS

2013 River Rendezvous

It was a cold, rainy day in Cobb County on Saturday, May 4th, but 23 dedicated monitors braved the weather to participate in the 7th annual River Rendezvous! This event is a partnership between the Sierra Club Cobb Centennial Group and the Cobb County Water System. Ten teams, each led by a certified Adopt-A-Stream chemical monitor, visited three sites in the Rottonwood Creek watershed for water quality testing. Each group was supplied with test kits, sample bottles, maps, trash bags for site cleanup, and disposable cameras to document their work. While in the field, participants performed Adopt-A-Stream chemical and bacterial monitoring at a total of 30 sites. Samples were brought to the Cobb County Water Quality Laboratory for more extensive testing, including nutrients, metals, turbidity, and total suspended solids.

The River Rendezvous provides a snapshot of water quality in the Rottonwood Creek watershed, and typically, the data collected represents baseline, dry weather conditions. This year, that was not the case! Before the event Cobb County received half an inch of rain, and many participants commented on rising water levels at their sites. The most significant difference in the data, compared to previous years, was the increase in *E. coli* bacteria levels. At all sites levels met, or exceeded, the typical Adopt-A-Stream red flag threshold of 1,000 cfu/100 ml, with the highest reading being 4,433 cfu/100 ml. Under normal weather conditions these findings would be a cause for alarm such as an indication of a sewer spill. In this case, because of the rain before and during the event, we knew this data was a perfect example of what happens during a heavy rain event, when pollutants from the land, such as pet waste, are carried to waterways via runoff.

The field measurements and lab results for this year's River Rendezvous are still being compiled and, once complete, the data will be shared with the Georgia Environmental Protection Division. The results will be posted on the Georgia Adopt-A-Stream online database. To view the report visit www.georgiaadoptastream.org, under data views/watershed surveys/Rottonwood Creek.

As with previous events, all issues have been reported to the appropriate county or City of Marietta agency, such as Cobb's Stormwater, Environmental Compliance, or Code Enforcement staff for follow up. This year monitors discovered excessive woody debris on a sewer crossing and a tire dump site.

Besides the scientific aspect, everyone enjoyed helping the community and meeting other environmentally minded people. We encourage you to join us in monitoring local waterways near your home and consider participating in next year's River Rendezvous! Visit our calendar of events for upcoming volunteer opportunities.

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



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

Biological Altruism

In evolutionary biology, an organism is said to behave altruistically when its behavior benefits other organisms, at a cost to itself... Altruistic behavior is common throughout the animal kingdom, particularly in species with complex social structures. For example...vervet monkeys give alarm calls to warn fellow monkeys of the presence of predators, even though in doing so they attract attention to themselves, increasing their personal chance of being attacked.



Okasha, Samir, "Biological Altruism", *The Stanford Encyclopedia of Philosophy* (Winter 2009 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/win2009/entries/altruism-biological/>>.

Coffee

When you buy ground or whole-bean coffee, look for varieties with organic, Fair Trade, Bird Friendly, or Rainforest Alliance certification seals. These labels represent coffee farms that practice sustainable agriculture to preserve or restore rain forest ecosystems. Just one household switching to certified coffee for a year is enough to protect 9,200 square feet of rain forest. If everyone in Seattle switched to certified coffees, a rain forest area the size of that city could be saved every year.

From [The Green Book](#)

welcome

Anne Ledbetter - Popular Creek
Frey Elementary - Tributary of Allatoona Creek
Interlaken Monitoring - Willeo Watershed
Jennifer Farace - Tributary of Allatoona Creek
Shakira Gavin - Nickajack Watershed

Stewardship Stars
Excellence in Data Collection

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

Andrea Searles - Chemical Monitoring in the Sope Watershed
Anne Ledbetter - Chemical Monitoring on Popular Creek
David Zanstra - Chemical & Bacterial Monitoring on Rubes Creek
Denise Gadd - Chemical & Bacterial Monitoring in the Powder Springs Watershed
Girl Scout Troop 2193 - Chemical & Bacterial Monitoring in the Willeo Watershed
Girl Scout Troop 2910 - Chemical Monitoring on Rubes Creek
Keep Smyrna Beautiful Adopt-A-Stream - Chemical Monitoring in the Nickajack Watershed
McClesky Middle School - Chemical Monitoring in the Rubes Watershed
Norm Fagge - Chemical & Bacterial Monitoring in the Willeo Watershed
Pam Subalusky - Chemical Monitoring in the Willeo Watershed
Rick and Sharon Donato - Anuran Monitoring in the Rubes Watershed
Sally Brooking - Chemical Monitoring on Sope Creek
Sierra Club Centennial Group - Chemical, Biological & Bacterial Monitoring on Rottonwood Creek
Simon Locke - Chemical and Bacterial Monitoring on Butler Creek

Thank you for your hard work and dedication!

Rainforest

In the rainforest,
 The water drops from the trees,
 It makes the sounds of drums,
 When it falls to the ground.

The water drops on the trees,
 And it makes the leaves bend,
 When it falls to the ground,
 The leaves follow it down.

And make the leaves bend,
 And the water drops,
 The leaves follow it down,
 In the rainforest.

Ian Sunny, grade 2
 Casa Montessori School
 2013 Georgia River of Words
 State Winner - Category I

SEASONAL HAPPENINGS

Outdoor Romping & Creek Stomping Series

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

Time: 9:30-11:30 AM
Cost: \$2.00/person

Mark your calendars!

July 10 - Creek Walk at Kennworth Park
 July 24 - Fairy Houses at Heritage Park

Registration required:
Karen.Faucett@cobbcounty.org



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 Family Program • Creek Walk • 9:30am - 11:30am • Kennworth Park • contact: Karen.Faucett@cobbcounty.org
- 10 Dig Into Reading! Children's Summer Library Program • 3:30pm - 4:30pm • Kennesaw Branch Library
- 11 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 16 Rain Barrel workshop • 10:00am - 11:00am • Cobb County Water Quality Laboratory
- 16 Dig Into Reading! Children's Summer Library Program • 3:30pm - 4:30pm • West Cobb Regional Library
- 17 Dig Into Reading! Children's Summer Library Program • 3:30pm - 4:30pm • Gritters Branch Library
- 18 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 24 Summer Family Program • Fairy Houses • 9:30am - 11:30am • Heritage Park • contact: Karen.Faucett@cobbcounty.org
- 24 Dig Into Reading! Children's Summer Library Program • 3:30pm - 4:30pm • East Marietta Library
- 25 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 25 Dig Into Reading! Children's Summer Library Program • 11:00am - 12:00pm • Kemp Memorial Library
- 27 Adopt-A-Stream Macroinvertebrate Monitoring Workshop • 9:00am - 3:00pm • Cobb County Water Quality Laboratory

August

- 1 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 8 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 15 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 21 Rain Barrel Workshop • 2:00pm - 3:00pm • Cobb County Water Quality Laboratory
- 22 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 22 Adopt-A-Stream Bacteria Monitoring Workshop • 6:00pm - 8:30pm • Cobb County Water Quality Laboratory
- 29 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory

September

- 5 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 12 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 19 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 25 Adopt-A-Stream Chemical Monitoring Workshop • 6:00pm - 8:30pm • Cobb County Water Quality Laboratory
- 26 Garden Work Day • 8:30am - 10:30am • Cobb County Water Quality Laboratory
- 26 Rain Barrel Workshop • 12:00pm - 1:00pm • Cobb County Water Quality Laboratory