



The Little Red Microscopes

I smiled when I walked into Patti Merritt's classroom at Shell Point Elementary and saw six red field microscopes on the table. Any one of the more than 300 people who have taken LCI's Master Naturalist course would have recognized them as well. The beauty of this microscope is its simplicity and ruggedness. It requires no electricity, can be taken anywhere and provides many years of dependable use.

LCI doesn't spend its funds supplying schools and children with materials. Rather, we focus on "training the trainers" in a way that creates passion for learning, as well as providing factual knowledge. This passion is often contagious and spreads to others. Red field microscopes are now showing up in many local classrooms because they represent the hands-on learning every Master Naturalist in LCI's program has experienced. During the next decade thousands of small hands will grasp them, and hours of "wow!" and "cool!" will be heard.



Teachers Matthew Hunt of Whale Branch and Cynthia Laizer of Red Cedar Elementary School use LCI's red field microscopes to observe invertebrates found living under floating docks.

How do you create a "passionate" experience with a red microscope? The recipe requires combining the right staff, the right place and the right resources. The most important ingredient is having the right staff. Each of our staff has what I call "disciplined enthusiasm." Enthusiasm for one's subject is an essential quality of an instructor, but he or she also must possess the mental discipline to plan, prepare and execute the lesson that has been planned. This unique combination of enthusiasm and discipline is what has made our LCI staff so effective.

The "right place" is the Lowcountry. Where else can a group of people identify ferns in a maritime forest, net salamanders in a freshwater wetland, watch squadrons of dragonflies cruise over broomsedge fields, scope galleries of egret nests along a golf course fairway, muck through salt marshes with mobs of fiddler crabs and look under floating docks into a hidden marine world all in a single day? These kinds of experiences stir the imagination and get people excited about nature. Their excitement inspires them to share their experiences with others. Creating this excitement is like making an investment in a company that returns dividends for years to come.

Finally, the "right resources" include a facility like the Mobley Nature Center, vehicles for transporting classes and having the basic supplies needed for nature study. Thanks to the strong support of our donors, LCI now has all three essential ingredients needed to help people interested in nature become more effective at making a difference – the staff, the place and the resources. These people include teachers, young professionals, and retirees who are active in their communities. Little red microscopes are just the tool to introduce others to nature and to show them a world they never knew existed.

Chris Marsh



LCI Promotes Conservation of the Port Royal Sound Area Through Hands-on, Experiential Education Programs

The Lowcountry still faces the imminent threats of loss of habitat, unrestrained development, and degradation of our coastal waters. Education is one of the keys to promoting the conservation of our land and waters. In order to fully appreciate our surroundings, we must know and understand the land and its inhabitants. What we learn to appreciate, we want to protect and preserve. The LowCountry Institute’s approach to educating the public about the unique characteristics of the Port Royal Sound ecosystem focuses on hands-on, experiential learning that empowers and inspires the learner to discover more. We also utilize a “train the trainer” approach, where we focus our work on teachers and decision makers who will then have an impact on the greater community.

Through the educational efforts of LCI staff and volunteers, we have reached over 1600 adults and children in the community this year. Here are a few of the organizations we worked with:

- Bolden Elementary (field trips)
- E.C. Montessori School (field trips)
- Shell Point Elementary School (field trips)
- Whale Branch Middle School (partnership)
- St. Helena Elementary School (partnership)



Educators from Georgia Southern University learn about freshwater wetlands and their inhabitants.



Students from Bolden Elementary observe a small American alligator basking while on a field trip to Spring Island.

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- Lowcountry Natural Resources Summer Institute (field trips)
- Beaufort County Soil and Water District (summer eco camp)
- South Carolina Center for Nature-based Tourism (tour)
- Beaufort County Senior Leadership Council (tour)
- Beaufort County Public Library (educational programs)

Here are some program highlights:

- On Saturday August 29, eleven educators from the Georgia Southern Center for Wildlife Education at Georgia Southern University spent the day on Spring Island with LCI staff as part of their training. The center in Statesboro, Georgia hosts tens of thousands of school children every year and con-

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ducts educational programs for Georgia and South Carolina schools.

- LCI has developed another partnership with two local schools (Whale Branch Middle and St. Helena Elementary) to enhance and develop their campuses as outdoor classrooms for students. LCI staff will work closely with teachers and school administrators to set up learning areas in the natural areas

around each school.

- LCI staff conducted special live animal talks for each of the five libraries in Beaufort County as part of the summer reading program. Hundreds of children and families attended these educational events and learned about wildlife in Beaufort County.

- Tony Mills continues to write a biweekly nature column for the local newspaper "Bluffton Today" focused on the wildlife of Beaufort County.

LCI Receives Grant

This fall, Kristen Mattson and Tony Mills applied for and received a \$2,000 grant from SCDHEC's *Champions of the Environment Program* to complete a project with Whale Branch Middle. The project will enhance habitat to attract native bird species to the school campus. Students will build nesting boxes, plant bird-attracting native plants, and utilize the new outdoor laboratory to increase their science and math skills.

Master Naturalist Program a Continued Success

The Master Naturalist Program continues to be one of LCI's most successful education programs. The spring 2009 session introduced a new format for the Master Naturalist class—a seminar format in which the classes were held 3 consecutive days for 4 months. The content of the course is the same, but the format is well-suited for those who travel frequently or who cannot regularly take time away from professional obligations. This past spring LCI offered the Master Naturalist class in 2 formats,

and more than 50 individuals completed the program. Several educators became the first graduates of the Teacher MN program this summer, and this year the program has been expanded to include teams of teachers from three new schools: St. Helena Elementary, Red Cedar Elementary, and McCracken Middle. The fall Master Naturalist class also recently began with a visit to Spring Island to learn about the unique qualities of Port Royal Sound and Lowcountry habitats.



Left: Tony Mills teaches the spring 2009 Master Naturalist class about river frog tadpoles netted in a pond at Webb Wildlife Center. Right: Participants on a hike to see the largest trees in the state in the Congaree National Forest. (Photos by John Fisk)



LCI Works to Promote Conservation in the Lowcountry

Research and conservation projects funded by LCI are selected specifically to fulfill our mission of promoting the protection of the Lowcountry's natural resources. By learning more about our local ecology, we can encourage better decision-making and land-use practices.

Teaching Old Gators New Tricks

Nuisance gators that have lost their fear of humans are routinely removed from residential communities throughout the region. In a groundbreaking study, retired DNR biologist Tom Murphy and assistant George Rock are studying the effects of capturing and tagging on gator behavior. Murphy and Rock have been trapping gators on Spring Island this summer and observing how gators that have been captured react to people after their release. The results have been surprising. Gators that have been captured are extremely wary around people, often retreating under water when a person gets within 100



Researchers Tom Murphy and George Rock tag and measure a captured gator on Spring Island.

yards. The preliminary results of this study suggest that gator behaviors can be modified. This will hopefully reduce the number of negative gator interactions within residential communities. We are planning on expanding this project next year to include other surrounding areas to try and replicate these results.

Ospreys Serve as Environmental Indicator

The LowCountry Institute started a Beaufort County osprey survey this summer using volunteers from the Sea Island Fly Fishers Club, Parris Island, and the Fripp Island Audubon Society to monitor nests throughout the county. Ospreys can serve as an environmental indicator because they require a healthy fishery to survive. The distribution of nests and the reproductive output (i.e. the number of chicks) likely are correlated with the quality of the habitat. For example, ospreys in a high quality ecosystem with a healthy fishery should have a higher nesting success rate than in a degraded ecosys-



An osprey perched with its catch. (Photo by John Fisk)



Left: Jessica inspects a painted bunting nest. Right: A male painted bunting. Buntings are neotropical migrants that nest in the Lowcountry. (Photo on right by Wayne Irvin)

tem. When coupled with other monitoring programs, such as oyster testing coordinated by DHEC, the osprey nesting project provides another indicator to track the quality of our environment.

Grad Student Studies Painted Buntings on Golf Courses

Clemson graduate student Jessica Gorzo is working on ways to help golf courses manage for painted buntings. Working under the guidance of Dr. Pat Jodice, Jessica spent the summer studying buntings at Chechessee Creek Club. Next summer she plans to survey a number of golf courses to correlate painted bunting presence with vegetation characteristics. Jessica hopes that her project will yield results applicable to land management techniques by providing ideas about how golf course personnel can maintain populations of this beautiful bird. Special thanks to Mark and Ann Hawley for allowing Jessica to stay in their guest cottage for the summer.

Widgeon Point

The LowCountry Institute is helping to restore the habitat at Widgeon Point, a nature preserve near the Broad River Bridge that is jointly owned by Beaufort County and the Beaufort Open Land Trust. The res-

toration plan involves re-establishing the native vegetation community by using prescribed fire and selective herbicides in this area that was previously a horse pasture. In February 2009, LCI ecologist David Bishop coordinated a prescribed burn with the South Carolina Forestry Commission, a story that made the front page of the *Beaufort Gazette*. Burning close to a major highway, such as Hwy 170, requires careful planning and the right weather conditions to prevent smoke from blowing into traffic. Habitat restoration takes time, but over the next few years we should create great habitat for many Lowcountry species.

You're Invited

As a supporter of LCI, we cordially invite you to an open house at the Mobley Nature Center on

the fifth of November from 8AM-5PM

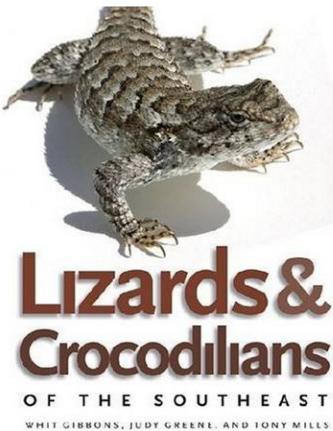
Please bring your guests to enjoy our live animal exhibits and natural history displays. Thank you for continuing to support our mission!



LCI Debuts New Website

On October 1st, LCI's newly redesigned website went live! The new website is designed to be more user-friendly and interactive than it was previously. You can read our blog, follow us on Twitter, and find out more about our programs. Check it out at www.lowcountryinstitute.org. The new website was designed by Jillison Parks of Savannah and features photos by Eric Horan.

Lizards and Crocodylians of the Southeast Hits the Shelves



The LowCountry Institute's very own Tony Mills has co-authored the latest book in a series on reptiles and amphibians of the southeast with Dr. Whit Gibbons and Judy Greene of the Savannah River Ecology Lab. The book is a reader-friendly, well-illustrated, and conservation-oriented field guide to the many native

and nonnative species of lizards and crocodylians found throughout the southeastern states. The book debuted in June to excellent reviews.

Mobley Nature Center Renovated

A generous donation from the Banbury Fund allowed us to give the Nature Center exhibit areas a much-needed facelift. A fresh coat of paint on the walls and cabinets and new countertops have really spruced things up. We had the natural grain of the wood floors restored and coated with Danish oil to protect them from future wear. We tiled the floors in the animal room and both bathrooms with large rustic tiles. Some new exhibits were added, including new cages and tanks in the Animal Room and large photographs of Spring Island habitats. Jere Smith also hand-crafted a beautiful table to display a new exhibit sponsored by the photography club that will be installed soon. These touch-ups have helped to revitalize an already beautiful building and attraction. Stop by and see the nature center staff for a quick tour.

Thank You to our Donors!

The work of the LCI is made possible by tax-deductible donations from supporters like you. In early November you will receive a request for your continued support. Your 2009 donation will allow the LCI to help meet the many challenges confronting the Lowcountry in 2010. There is still much work to be done. We hope you will give as generously as you can.



Renovations to the Nature Center include new exhibits, fresh paint, new counters, tile floors, and refinishing of the hardwood.



Protecting Water Quality Essential to Health of Lowcountry Fisheries

When LCI became involved in water quality protection nine years ago, Dr. Chris Marsh attended a lecture given by Dr. Fred Holland, Director of NOAA's Hollings Marine Lab located in Charleston. Dr. Holland's message was clear and direct – too much stormwater is causing a gradual and continuous degradation of Beaufort County's water quality by lowering salinity of tidal creeks. As a scientist, Dr. Marsh recognized that Dr. Holland's data showed that local saltwater fishing would be hurt unless immediate action was taken. In response, LCI developed a program called "What Makes Port Royal Sound Unique?" and LCI staff and volunteers have presented that program to several thousand people over the years. Our approach won the trust of key Beaufort County staff and therefore we were able to coach them as they thought through how to handle stormwater-related issues.

Water quality issues in Beaufort County came to a head when SC DHEC announced that oyster beds in the May River might be closed due to water pollution. May River oysters are a source of local pride, as well as being a small scale industry. Local leaders scrambled to address the issue. Dr. Marsh was asked to speak at countless committee meetings and give his opinion about what should be done. Thanks to strong leadership by Beaufort County's Council Chair Weston Newton and County Manager

Gary Kubic, controlling stormwater runoff has become a top priority for the County.

Stormwater management is dictated by county and municipal ordinances, and therefore elected officials must understand this issue before they will pass more rigorous requirements. Twice this summer Dr. Fred Holland, now an LCI Board member, drove down from Charleston to make presentations to local officials. Both the Town of Bluffton Council and the County's Natural Resources Commission expressed their gratitude to Fred for his straightforward summary of the issue and what had to be done.

What's next? Later this fall, Beaufort County Council will be asked to pass a stormwater ordinance that requires all new developments to retain stormwater volume from 95% of the rain events that occur each year (even in nature the biggest storms create runoff that reaches nearby waterways.) This will prevent excessive fluctuations in salinity that harm developing marine organisms.

A "mega" shopping mall is proposed near Spring Island at the intersection of US 170 and US 278. LCI has begun a working relationship with City of Hardeeville, which has jurisdiction of this area. As

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we predicted, the County is finding elevated levels of copper in local waterways, presumably coming from private community ponds. Copper is the active ingredient in algaecides used to treat these ponds and is highly toxic to larval shrimp, crabs and zooplankton.

The good news is that both county staff and local leaders have been motivated to take action. Unlike the Chesapeake Bay area, these actions are being taken before water quality has been seriously damaged. It is possible that Beaufort County might be the first coastal community to demonstrate that well-designed developments can coexist with healthy marine waters.

The mission of the LowCountry Institute is to provide responsible leadership in the conservation and use of Lowcountry natural resources – its biodiversity, pristine waters and ecological landscapes – by fostering learning opportunities and helping local policymakers, landowners and residents make informed decisions.

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