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SOUTH CAROLINA WILDLIFE

March-April 1998 \$3.00

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SOUTH CAROLINA WILDLIFE

Dedicated to the Conservation, Protection and Restoration of Our Wildlife and Natural Resources, And to the Education of Our People to the Value of These Resources.



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THE COVER *by Phillip Jones*

Snowy egrets adorn the trees at Bear Island, part of the ACE Basin, one of the sites explored within the *South Carolina Nature Viewing Guide*. (See page 34.)

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DIRECTIONS

FOR THE LAST COUPLE OF ISSUES I have devoted most of this column to what we as an agency and a state are doing to protect treasured lands and habitat, such as the Jocassee Gorges (including the area known as the Horsepasture) in the Upstate, and many others. I've also emphasized our need to educate our children and grandchildren to the wonders of the natural world.

In this issue, it is my special pleasure to announce the availability of a guide to the Palmetto State's remarkably diverse flora and fauna, the *South Carolina Nature Viewing Guide*. The guide has been made possible by another great partnership effort, one involving Department of Natural Resources staff and a group of cooperators outlined in the article on page 34, "Nature To Go." By combining their resources and expertise, these cooperators have produced what I consider to be a "treasure map" to South Carolina's natural wonders. Residents and visitors alike will enjoy using the *Nature Viewing Guide* to increase their understanding and appreciation of our state's natural wealth, from the mountains to the sea.

Many visitors to our great state cite outdoor recreation as one of the principal reasons for coming to South Carolina, and this guide will make it easier for all of us to enjoy and learn more about our natural resources. And the more we as citizens and visitors know about these living wonders, the more we will appreciate them and work to ensure that they are sustained for future generations to appreciate. Identifying and learning about the plants and animals one sees can increase the enjoyment and understanding of the interconnections among all living things and can remind us of our stewardship responsibilities.

I hope you will take time to read "Nature To Go," then get a copy of the guide and use it. I know you will enjoy it.

— Paul A. Sandifer
Director, SCDNR

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The South Carolina Department of Natural Resources is the advocate for and steward of the state's natural resources.

The Department of Natural Resources develops and implements policies and programs for the conservation management, utilization and protection of the state's natural resources based upon scientifically sound resource assessment and monitoring, applied research, technology transfer, comprehensive planning, public education, technical assistance and constituent involvement. The Department of Natural Resources is pro-active in protecting the state's natural resources for use and enjoyment by future generations of South Carolinians.



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EVENTS

Spring into South Carolina's outdoors, through live animal displays, art exhibits,

new hunting and fishing equipment and more at the **Palmetto Sportsmen's Classic**, March 27-29.

MARCH-JUNE.

"Hooked On Fishing, Not On Drugs"

Fishing Rodeos. Held in eight SCDNR law enforcement districts. Parents and kids 15 years old and under enjoy a day of fishing together; baits and poles provided; free to the public; prizes; awards; food.

Locations and dates: **May 2** — Star Fort Pond, Ninety Six, Capt. Stanley Smith, (803) 637-3397; Johns Creek, Union Co., First Sgt. Wayne Hutchinson, (803) 684-4078, or Alice Riddle, U.S. Forest Service, (864) 427-9858; **May 9** — Lick Fork Lake, Edgefield, Capt. Stanley Smith. This program is sponsored by the DNR and the Harry Hampton Memorial Wildlife Fund. Contact district captains or Law Enforcement Division for additional dates and locations at SCDNR, P.O. Box 167, Columbia, SC 29202-0167, (803) 734-4002.

MARCH 27-29.

Palmetto Sportsmen's Classic. State Fairgrounds, Columbia. Three-day event for outdoor enthusiasts of all ages with wildlife art exhibits, equipment on display and for sale, seminars by Jim Fowler of *Wild Kingdom*, Okefenokee Joe and others, deer rack scoring/display, games and fishing booth for kids, hunting dog retrieving and wildlife-cooking demonstrations, state duck-calling contest, Running Wild 5K road race, Buckmasters Indoor Bow Qualifier competition for men and women, 5,500-gallon "Hawg Trough" aquarium, auctions, fishing booth for kids, door prizes, SCW's outdoor photography print exhibition, live animal displays, entertainment, recycling, food; fee. Contact PSC, P.O. Box 167, Columbia, SC 29202-0167, (803) 734-3888.

MARCH 28.

Kids Day. Finlay Park, Columbia. Family-oriented festival with exhibitors, games, arts and crafts, food vendors, and lots of other activities for children. Contact Columbia Action Council, 722 Blanding Street, Columbia, SC 29201, (803) 343-8750.

APRIL 3, 10, 17, 24.

Coastal Kayaking. Hunting Island. Explore Hunting Island lagoon, search for seashells, observe wildlife from a kayak;



"Men In Boat" by Darrell Weston, Chapin; from the 1997 South Carolina Wildlife/Palmetto Sportsmen's Classic photo competition.

equipment provided; bring drinking water, a snack, and suitable clothing; fee; pre-register. Contact Hunting Island State Park, 2555 Sea Island Parkway, Hunting Island, SC 29920, (803) 838-2011.

APRIL 4.

Flyfishing Workshop. Columbia. Sessions on equipment, flycasting, artificial flies, boats and great fishing spots; fee; register by March 31. Contact Sesquicentennial State Park, 9564 Two Notch Road, Columbia, SC 29223, (803) 788-2706.

APRIL 4-5.

21st Annual Spring Jubilee. Pendleton. Arts and crafts, historic tours, bike rides, entertainment, food. Contact Pendleton District Commission, P.O. Box 565, Pendleton, SC 29670, 1-800-862-1795.

APRIL 18.

National Boykin Spaniel Society Hunting Test. Rimini. Boykin spaniel competition featuring open, intermediate, novice, and puppy classes, including tests on both land and water; a children's handling stake competition; fee; awards. Contact Boykin Spaniel Society, P.O. Box 2047, Camden, SC 29020, (803) 425-1032.

APRIL 24-26.

NatureFest 1998. Columbia. Nature programs and guided walks through the Congaree Swamp National Monument; pre-register. Contact Park Naturalist Fran Rametta, Congaree Swamp National Monument, 200 Caroline Sims Road, Columbia, SC 29061, (803) 776-4396.

APRIL 25.

1998 National Timber and Wildlife Expo. Saluda. Arts, crafts, photo contest depicting Saluda County and its wildlife, logging demonstration, turkey-calling contest and other activities. Contact Pamela Webb, Saluda County Chamber of Commerce, Law Range Street, Saluda, SC 29138, (803) 445-3055.

APRIL 26.

Blessing of the Fleet and Seafood Festival. Mt. Pleasant. Arts and crafts show and sale, blessing of the fleet, shrimp-eating contest, educational displays, entertainment. Contact Mt. Pleasant Recreation Commission, 391 Egypt Road, Mt. Pleasant, SC 29464, (803) 884-2538.

MAY 1-29.

H.L. Hunley Exhibit. Moncks Corner. Learn about the first submarine to sink a ship in battle. H.L. Hunley display, part of the State Museum's Traveling Exhibit, includes an underwater video of the wreck, a historical collage and a scale model of the ship. Contact Mary Bell, Old Santee Canal State Park, 900 Stony Landing Road, Moncks Corner, SC 29461, (803) 899-5200.

MAY 2.

Lowcountry Shrimp Festival. McClellanville. Seafood dishes, blessing of the fleet ceremony, live entertainment and other activities. Contact Archibald Rutledge Academy, P.O. Box 520, McClellanville, SC 29458, (803) 887-3323.

NOTE: Dates are subject to change, so call before traveling to an event. To list an event, send information three months in advance of the magazine's publication date to Tricia Way, South Carolina Wildlife, P.O. Box 167, Columbia, SC 29202-0167, (803) 734-3972 or e-mail TriciaW@scdnr.state.sc.us.

FORUM

Our Pleasure

Thank you for the excellent piece on the Sewee Educational Center in your January-February 1998 issue. (See "Field Trip.") As a member of the board of directors for the S.C. Center For Birds Of Prey, I was especially pleased to see the favorable comments you made about our program in the article.
Sam E. McCuen
Lexington

Cotton Matters

I want to tell you how much I enjoyed your article on railroads in South Carolina in the November-December 1997 issue. I was particularly interested in the panoramic picture of the bales of cotton near the Southern Cotton Oil Company in Columbia.

Having been in the cotton business since 1950, it struck me as to the condition of the 1,500 or more bales of cotton that appeared to have been burned or damaged by fire. In the background one could see some cotton sheds that had burned. Also, there were piles of loose cotton that had been picked from the bales. The leaning bales or rows of cotton lined up were all smoked.

I know from my experience this problem occurred often. The article brought back many memories of those days.
W.F. Thompson
Thompson & Wallace
Cotton Co.
Marion

Fire For Flowers

I enjoyed reading "Up From the Ashes" in the September-October 1997 issue of *South Carolina Wildlife* magazine. I am a forester with the S.C. Forestry

Commission (SCFC) and have worked with Johnny Stowe of the state DNR in conducting controlled burns on two Heritage Preserve tracts in Lee County. One was the Lynchburg Savanna, which was featured in the article with beautiful floral photographs.

This opportunity to work with Johnny has been like a refresher course in botany — my undergraduate degree. To manage these fire-dependent coastal savannas and to explore and discover various wildflowers, such as pitcher-plants, orchids and sundews, has been very rewarding.

This relationship, SCFC with SCDNR, has proven beneficial not only for the two natural resources agencies, but also for these coastal savannas with their fire-dependent flora.
Michael Bozzo
Wedgfield

Come On Down!

I would like a copy of your March-April 1997 magazine. The Shore Village Museum of Rockland, Maine, says that issue of your magazine has an outstanding 10-page feature titled "Carolina Lights." I plan to visit some of these lighthouses next April. (I have seen more than 525 lighthouses around the country so far.)
Charles G. Beckstead
Adams, NY

Too Much Hunting

My wife and I picked up an issue of your publication in a doctor's office one year ago. We really liked the magazine, and being new to South Carolina, we signed up for a year. Over the year there have been many articles that we have enjoyed,

and we have learned many interesting facts about our new state. You have also filled our weekends with many trips to places that we have found through your magazine.

However, we are going to discontinue our subscription to *South Carolina Wildlife*. We feel that the amount of space spent on hunting articles is not to our benefit. We do understand the role of hunting in South Carolina, and your magazine does an excellent job explaining the need for the sport. I have never been a hunter (unless you count catch-and-release fishing), and I have never understood the want to kill an animal for sport. I find it somewhat disturbing to see a magazine show pictures of animals on one page, then show hunters killing them on another. I am not an animal rights activist, and I do realize that hunters are a group of people that really do care about the outdoors and the preservation of wildlife. I just do not want to read a magazine that has articles on hunting and see pictures of the activities.
S. Fidrych
By e-mail

Editors' Note: We wonder to what pictures you refer? South Carolina Wildlife is a publication of the state Department of Natural Resources, which is charged with conserving, managing, using and protecting the state's natural resources. The agency regards hunting as not only a traditional and popular sport but also a wildlife management tool. We promote hunting in South Carolina as one of the many outdoor activities available to, and enjoyed by, a majority of our

readers. However, we do not run "kill shots." Instead, we use photographs of animals, people and landscapes to illustrate our articles in a way that all readers may enjoy.

Familiar Refrain

I have really enjoyed my gift subscription to SCW over the past year. I grew up in South Carolina and return often for visits. There is no place like home, and South Carolina is so beautiful and has so much to offer. The magazine is a wonderful way to keep in touch with the beauty of our wonderful state!
Inez Lambert
Universal City, TX

Capers' Caretaker

A couple of years ago while visiting Capers Island with friends from Summerville, I encountered a delightful 80-something-year-old man named Mac McCaskill. He was on a tractor mowing the foot paths. Evidently this old guy was, and still is, the DNR's custodian for the island. Just who is Mac McCaskill?
Bill Norris
Wilmington, NC

Editors' Note: McCaskill, a former law enforcement officer who served in Horry and Charleston counties for 46 years, has been the DNR's "park ranger" on Capers Island since 1980. He splits his time between Capers Island and his home in Awendaw near the Francis Marion National Forest. In 1987 when McCaskill was 72 and facing pressure to retire, laser beam inventor Charles Townes toured the island and intervened on his behalf on the mandatory

retirement issue. He will remain at Capers (to the benefit of the DNR) until he decides it's time to stop his work there.

In Search Of The Falls

While visiting Oconee Station State Park last week, we looked into exploring waterfalls in the area. We used a S.C. Wildlife publication called *Finding the Falls — A guide to twenty-five of the upstate's outstanding waterfalls*. Our version was printed in 1992. We found several errors but managed to find some of the falls. Is there an updated version of this guide? *Mary Jane Shuler York*

Editors' Note: Our staff is currently working on a correction sheet to accompany the Finding the Falls guide printed in 1997. The guide itself will be updated in the next year.

Oops!

Our January-February issue featured artwork on the cover and accompanying the article "The Changing Face of Hunting." We inadvertently left out the proper credits for the illustrations used with the article. They were provided courtesy of the artists, David A. Maass, Jim Kasper and Robert K. Abbett, and Wild Wings Inc., Lake City, Minnesota 55041. For information on these and other fine art prints call 1-800-445-4833.

Litter Problems Mar Beauty

I am a proud native of Greenwood, South Carolina. Although my career has taken me out of the state for many years now, I look forward to my

trips back home to visit my parents who still reside in Greenwood. On a recent visit over the holidays we had an occasion to take a lengthy tour through parts of Greenwood and Abbeville counties. I was astounded by the litter along the roadsides. An otherwise beautiful countryside was marred and spoiled by what looked like an almost continuous trash dump along most of the roads we traveled. My pride in the area was shaken by what I saw.

This recent experience was a painful reminder of a chronic and persistent problem. From 1980 through 1985, I lived and worked in Darlington County. My job there periodically involved recruiting professionals to the area. These recruiting activities usually included tours of the community and outlying areas. During those tours, I remember a sense of embarrassment at the amount of litter along the roads.

I am sure this is not a problem that has gone unnoticed by the state's citizens. I also know it is not a problem that is quickly or easily solved. It requires the difficult job of changing attitudes and creating respect for others and the environment we live in. Aggressive enforcement of tough anti-litter laws along with education at all age levels is needed. However, little will happen until enough people with enough concern demand a change. As a native son who still calls South Carolina home, I urge the state's citizens to express their concern and get involved in the solution. *T. Marvin Goldman Sheridan, WY*

IN OUR NEXT ISSUE . . .

ENTERING ITS TENTH SEASON IN 1998, the Governor's Cup Series has radically changed offshore fishing, setting a conservation example for all saltwater fishermen by rewarding the tag and release of billfish. Now 75 percent of billfish caught in tournaments off the coast of South Carolina are released, most with tags like the marlin below. Tag and release ethics also benefit other species, such as dolphin, tuna and wahoo, and spill over into non-tournament fishing, where anglers release 95 percent of billfish caught. Read about the Governor's Cup's ten-year sustained voice for conservation in *South Carolina Wildlife's* May-June issue.



PHILIP JONES

PLUS . . .

View the bounty of fresh-from-the-farm produce at roadside markets from the Upstate to the coast . . . learn the difficulties confronting an amateur photographer in the great outdoors . . . meet the baitman, who works deep into the night to provide fishermen with the live bait stripers can't resist . . . get up close to see how some common plants wear their hair . . . and celebrate another natural resources milestone: the golden anniversary of the state DNR and the U.S.D.A. Forest Service team, and the subsequent birth of the state's Wildlife Management Program.



A L I E N S



PHILLIP JONES

A M O N G U S

They may not be from outer space,

but they're aliens in the true sense of the word: exotic species,

those that have invaded areas outside their natural homes.

by Emily E. Clements

At mention of exotics, few of us envision our neighbor's flop-eared hound or the cat that savors mouse parts on our porch. In fact, the hapless rodent is probably descended from exotics. As are the neighbor, his dog, and our tabby! Exotic, you see, is science's name for any non-native species. Nearly all our domesticated animals are descended from exotics; many of our plants and bacteria, too. Stir us humans into the mix, and South Carolina seems quite an exotic place.

Of course, the story is similar everywhere. Species have always wandered over borders, crossed oceans, jumped fences. Most, in fact, have been aided in their journeys by humans. And while there have been few problems with most of the 6,300 exotics in the nation today, nearly 1,000 play havoc with our lifestyles and have cost us nearly \$100 billion since early in the century.

Take kudzu. ("Please!" the comedian would say.) It was aggressively touted in the 1940s by a well-intentioned U.S. Department of Agriculture hoping to curb erosion in the Southeast. Officials knew the Japanese plant could cover and stabilize ground; what they did not know was how voracious the weed would be.

How bad is kudzu? Take a drive down any country road. Watch for the healthy, big-leaved plant as it nearly visibly creeps up full-grown trees, over and around abandoned

houses, across ditches, fields and fences — and whatever lingers in its path. See anything else of value growing there? Wildflowers? Grasses? Cattle? Horses? Goats? Well, there you go. Nothing thrives where kudzu thrives. And there is just so darn much of it — covering millions of acres, the size of some small countries!

Of course, kudzu is not the only culprit. Japanese honeysuckle was promoted as an *attractive* erosion controller that would also serve as a wildlife enhancer. Planted lavishly along roadsides and railroads, it soon encircled and weighed down existing growth, won battles with other root systems, and generally cleaned house in areas favored by native flora. A plus for honeysuckle, though, is that it does provide the expected food and cover for wildlife. Consider its sabotage of the natives, however, and its pluses fizzle quickly.

Despite early welcomes as windbreaks and ornamentals, other exotic terrestrial plants wreak environmental ruin in our state. Privet hedge grows so thickly in flood plain and forest it strangles native growth. Russian olive trees have severely affected endangered native trillium along Savanrah River bluffs. Fallen leaves of Chinese tallow trees release toxins that negatively alter soil chemistry. Tamarisk trees, desert moisture gluttons, disturb water levels in our own riparian forests. Multiflora rose, once heralded for erosion

Do they threaten life as we know it? Probably not, but alien species, including a number of plants, have infiltrated every corner of our state. Tamarisk, below, and Chinese tallow (or “popcorn”) trees, at right, have spread through the coastal counties, and kudzu and honeysuckle, on the previous pages, literally know no bounds!





PHILLIP JONES

control and as a pretty “living fence,” quickly covers acreage, choking valuable crops and woodlands. Johnson grass, witch-weed and tall fescue create enormous problems for farmers by out-competing bean, cotton and grain crops for soil and nutrients. In the case of tall fescue — once planted, as was johnson grass, for winter forage — a piggyback exotic fungus has sickened grazing livestock. Although persistent chemical application helps control the weeds, costs so far are tickling the billion-dollar mark.

A recent invader from South America, the fast-growing tropical soda apple has been called kudzu with thorns. The hardy weed is not palatable to livestock and carries a further threat by harboring viral pests of garden crops. Bert Pittman, botanist with the S.C. Department of Natural Resources’ Heritage Trust Program, is dismayed but not surprised by the amount of noxious exotic growth in the state.

“Any time you create an artificial environment, as we’ve done with fields, pastures and lawns, it’s only natural for aliens to gain a niche,” he says. “Natural predators that keep such growth in balance are often not present, and the exotic thrives relatively unchecked.

“Another point to consider is that ‘noxious’ and ‘weed’ are subjective

terms and change, depending on who’s talking. Farmers have one definition of pest; hunters another; wildlife watchers and suburban landscapers have others. One of the big problems in controlling any exotic has always been that conflict.”

Were noxious exotic terrestrials the state’s only plant problem, we might be able to relax. There are many non-native aquatic plants out there, however, creating tremendous havoc in our waters.

Some of their names sound innocent enough: water hyacinth, water primrose. Others have an exotic flair: Brazilian elodea, Eurasian watermilfoil, slender naiad, hydrilla. A couple sound downright menacing: phragmites and alligator-weed. As with their terrestrial cousins, most of our exotic aquatic plants were purposefully imported from Asia, South America and Europe — some for aquaria, others as ornamentals. They soon overran their welcomes, however, producing copious root systems, snuffing out other growth, providing little or no nourishment for fish and waterfowl, and growing like, well, weeds. To add insult to

Aquatic exotics like the phragmites shown below proliferate so efficiently that they overrun their new homes and crowd out the native residents.



PHILLIP JONES

MIKE CREEL



PHILLIP JONES

injury, their thick tangles invite various mosquito species and provide safe havens from insecticides.

As expected, public and private expenditures are mounting in the battle against noxious exotic plants. It costs to clear waterways for recreational and commercial ventures; to stay the loss of habitat of native and endangered species; to regain fields, pastures and woodlands in agribusiness pursuits; to clean ponds, lakes and other man-made waters after exotics have taken hold; to control the resulting erosion when shores and banks are weakened; to stop the general withering of what is ours in nature.

But the bad news creeps even farther afield, with unwanted exotic furbearers, insects, birds, mussels, freshwater fish and bacteria. Throw in domestic animals that run amok — feral descendants of exotics — and the party really gets out of hand. Fortunately, South Carolina wrestles only mildly with unwanted exotic reptiles. So far.

“We have horned lizards that live in dunes flora on our barrier islands and a few red-eared sliders, relatives of our yellow-bellied turtle,” DNR Wildlife Diversity biologist Steve Bennett says. “Other than those, our only real problems with non-native reptiles are the so-called pets people tire of.”

“They see this cute little python in the pet store and bring it home. At first, all it needs is a small space and a little food. Then it grows, sometimes as large as fourteen feet and more than a hundred pounds. It needs a large space and more food, and suddenly it isn’t cute anymore. Some people



PHILLIP JONES

Coyotes, found historically in the western United States, began expanding their range into South Carolina in the 1970s, their predatory habits inspiring alarm among livestock producers concerned for their flocks and herds. Fallow deer, a European species not legally possessed in the state, represent a threat to the genetic integrity of our native white-tailed deer, say wildlife biologists.

just turn them loose — people who wouldn’t dream of turning loose a lion or tiger — and the reptile either dies in our non-tropical environment or finds a warm place to survive, often under someone’s house near the heating system.

“While the problem of a python living under your house is a nuisance at best and a dangerous situation only remotely, the real problem with exotic species in general,” Bennett says, “is the long-term change and possible harm to the gene pool of native species.”

In the state’s exotic furbearer arena, only coyotes cause significant environmental harm, although the presence of fallow deer, a European species with palmate antlers, has biologists concerned for the genetic makeup of future native deer populations. Flathead catfish are our only current exotic freshwater fish threat. With the catfish, however, the old “good vs. evil” argument is raised; some fishermen praise the sport fish as others decry its appetite for native and endangered fish.

While state scientists diligently watch our coast and waterways for the destructive, fast-traveling zebra mussel, the Asiatic clam is the only mollusk

giving our environment fits at this time. Although seemingly harmless, the exotic round-shelled mussel clogs power plant water-intake structures and feeds on nutrients favored by native freshwater life.

Good-eating and welcomed by anglers in inland rivers, flathead catfish wore out that welcome when they invaded South Carolina's coastal blackwater streams. Flatheads' voracious appetites for redbreasts have aroused the ire of some fishermen.

Bird-lovers everywhere know the habits of the problem trio in "birdland." Just put out seeds, houses or gourds, and house sparrows, pigeons and starlings will come. A few of the feathered bullies might be welcomed; extended families and generations are burdensome.

"Pigeons have been here since the founding of our country,"

says John Cely, DNR Wildlife Diversity biologist. "The biggest problems with them are their numbers and the sanitary nuisance they create in public places.

"Starlings and sparrows, however, were introduced in the late 1800s, supposedly by folks who wanted our area to have all the birds mentioned by Shakespeare. They've been the

bigger menace because they've just about decimated our red-headed woodpecker, purple martin and bluebird populations."

Before World War II, bluebirds were plentiful in the South, building homes in ubiquitous fence posts. With the landscape going more urban and suburban, however, homemade bluebird boxes offer our best alternative attraction.

"Eventually sparrows take them over, though," Cely says. "It happens every time, since they're so aggressive and about the same size as bluebirds. Sparrows will also commandeer purple martin gourds, although starlings are the bigger culprit here. And they'll both carry off young martins and poke holes in martin eggs."

Itty-bitty nuisances — bugs and parasites — are widespread in South Carolina, but certainly, not all are exotic. The non-native varieties, though, are most times the ones that make us sickest, hurt us most, and cost us an arm and an infected leg.

For example . . .

Fire ants, those irksome pests that entered the United States from South America in the 1940s, flourish in even well-tended lawns; their stings hurt, itch, cause swelling and sometimes result in more serious ailments. Boll weevils, thought to be travelers from Mexico, were the bane and ruin of Southern cotton farmers in the early 1900s. Brown recluse spiders hitched rides, probably in moving boxes from the Midwest, and thrived; their bites leave disfiguring flesh holes, and that's after treatment and recovery. In



TED BORG

They're everywhere! They're everywhere! Or so it seems . . . starlings fly, roost, call, nest, walk, feed, and generally make nuisances of themselves in incredible numbers. Overwhelmed purple martins, bluebirds and some woodpecker species have been forced to surrender their habitat niche to these European interlopers.

the wilderness, it only takes a sip or two of natural water to know firsthand the gastric misery caused by *Giardia lamblia* parasites.

The list of unwanted exotics can and, unfortunately, will grow, since we humans are a traveling lot, adventurous and curious by nature, encountering and spreading other species, both voluntarily and not. The names on the list will change, of course; as we chase one nagging nuisance away, two come sneaking in.

Since most exotics are hardy and too widespread for eradication, remedies must, of necessity, focus on control, prevention and monitoring. The experts advocate laws banning or controlling exotic species introduction, diligent and responsible releases of chemical or biological enemies, physical action such as cutting, pulling, burning or a combination thereof in the plant kingdom — and others.

The challenges with the aliens among us lie in realizing there is a problem, deciding which exotic species are harmful, and taking action for the common good. ♣

Emily Clements is a free-lance writer living in Newberry County's Little Mountain.



PHILIP FANES

Swift and amazingly beautiful, once almost vanished from our wetlands, "Carolina's ducks" now abound, in great measure because of the Statewide Wood Duck Nest Box Project.



WOODIES

BY THE BOXFUL

by Jeff Samsel
 photography by Phillip Jones

Counting aloud, the seven-year-old "wildlife manager" stops at eight, pausing to sort through wood shavings in search of any pieces hidden from her sight. Discovering just one more egg membrane, she proudly announces her findings. "Nine, Daddy."

"Any unhatched?" he asks.

"No, sir."

The man dutifully notes the results while his daughter pulls remnants of a recent hatch from inside a wood duck nest box. She peeks around as she works, knowing that hidden somewhere nearby in the dense vegetation is a hen wood duck, likely in the company of at least nine tiny ducklings that hatched from a box the youngster helped her daddy put up the previous winter.

Each spring, amid forested wetlands of many types across the Palmetto State, thousands of wood ducklings hatch in cypress boxes that were built by employees of the S.C. Department of Natural Resources and erected by private landowners. By checking the nesting boxes for use, those folks who put them up get to see firsthand the fruits of their conservation efforts.

Wood ducks, by far the number one species in South Carolina waterfowl hunters' bags, were once much less abundant than they are today. In fact, their populations were nearly decimated in the early 1900s. The brilliant

Simple tufts of yellow their only adornments at hatching, male and female wood duck babies (below in nest box) closely resemble each other. Males mature to brilliance (facing page), while females retain a more muted coat.



plumage of wood ducks brought big dollars to market gunners, and the cutting of old-growth trees around forested wetlands robbed the cavity-nesting ducks of the spaces they depend upon for successful breeding.

While the subsequent comeback of wood ducks has many aspects, the addition of nest boxes to wetlands that offered otherwise-suitable breeding and brood-rearing habitat has been a major boon for the woodies. The boxes imitate cavities in large trees around wetlands and provide the ducks a place to lay their eggs.

Inside these foot-square boxes, so abundant today that they almost seem like a natural part of the South Carolina wetland landscape, hen wood ducks lay their eggs, one per day, and incubate them for about a month. Within twenty-four hours after hatching, the little woodies leave the nest box for good.

The Statewide Wood Duck Nest Box Project began in 1982 when the South Carolina Legislature authorized the state migratory waterfowl stamp. "One of the things we wanted to do was to include as many landowners as possible in a waterfowl management program," says Bob Perry, DNR project supervisor.

Involvement is the key word in the operation and the success of the project. Landowners must apply to become cooperators, pick up the boxes, erect them in their wetlands, and agree to maintain and monitor every unit in subsequent years.

Instead of just writing a check or making a call, landowners, along with any friends or family members they are able to wrangle up, get out among the tupelos and turtles and invest time and effort. When spring comes and they discover broken eggs in a box, indisputable evidence of a brood of ducklings recently departed, they know they played an active part in that occurrence.

"I see the wood duck nest box project as an excellent hands-on wildlife management effort for the private landowner," says Kenny Williams, regional biologist for Ducks Unlimited. "He can be involved in the entire process and see highly visible results."

Since the inception of the project, more than 24,000 nest boxes have been



allocated to 3,000-plus private land cooperators. For the past several years, distribution has leveled out at roughly 1,500 new boxes per year.

Landowner involvement begins with a written application, available from all DNR regional offices. Applications are reviewed each fall, either by phone or through a site visit. Before allocating boxes, biologists determine that the applying landowner's habitat is suitable for wood duck nesting and brood-rearing and that the applicant understands the labor-intensive nature of the project.

Once applications have been approved, landowners chosen for allocation of boxes are contacted and a pick-up date is arranged. For each unit, a cooperator gets a box, a ten-foot, four-inch by four-inch post, a pre-constructed predator shield, a packet of hardware, a set of instructions and data-collection sheets.

Instructions tell not only how but where to put nesting boxes, noting the importance of avoiding shortcuts like putting two boxes on one post. Wood ducks are solitary nesters, and when circumstances force them to nest in a colonial setting, nesting efficiency typically goes down.

Boxes are distributed during late fall for two reasons, Perry notes. First, interest is high, with duck hunting season fast approaching and nesting season not far behind. Second, the weather accommodates getting out in the swamps and pounding posts and nails much better during winter than during any other time of the year.

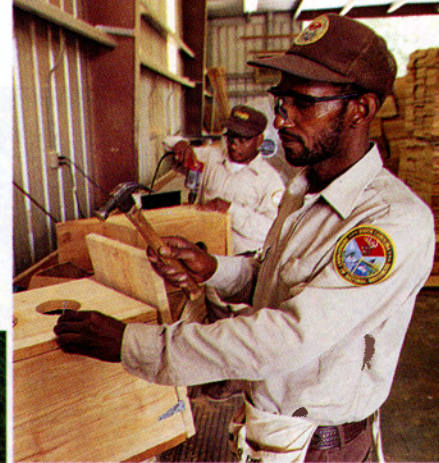
As new boxes go up, existing cooperators get busy maintaining established units and preparing them for the nesting season ahead. While the DNR uses high-grade lumber and rust-resistant hardware, the boxes stand against the elements through the year, and in time tops crack, predator guards slip and poles begin leaning. A nail here or there is sometimes needed.

Also, nesting materials may need replenishing and nearby vegetation may require trimming. Imposing button bushes or willow branches that stretch too high or too close to a box can become a bridge over which a rat snake or raccoon can bypass a predator shield during the spring.

"We suggest that all boxes be erected, and previously erected boxes be maintained, by early February, because we often see nests initiated and eggs laid in late February all around South Carolina," Perry says.

Through nesting season, which peaks in late March or early April, cooperating landowners are encouraged to check

Shortly after hatching, baby wood ducks take a leap of faith: Their mother waits below as each chick jumps from the nest to the water's surface (at left). At Santee Coastal Reserve, Calvin Shepard (right, front) and Isaac German construct boxes to be distributed across the state to wetlands such as the pond below, at Kensington Plantation in Georgetown County. DNR biologist Dean Cain checks one of several nest boxes there.



the boxes as often as their schedules permit. Once per season is the minimum and is adequate, Perry notes, but checking them more often allows for much more accurate reporting — along with providing much more personal satisfaction.

“Checking wood duck boxes is a wonderful family project because it provides so many aspects of conservation education,” Perry says. “We encourage parents who are hunters or fishermen to stop and check the boxes when they are fishing with their children on ponds during the spring. Young people can see how they are helping contribute to the huntable duck population.”



A noisy approach works best for checking wood duck boxes. If a hen hears someone coming, she will normally flush from the nest but return soon afterward. If a hen is using a box but won't flush, she probably has eggs that are hatching, are about to hatch, or have recently hatched. In such a case, it's best to just leave her alone and check that box another day.

For counting eggs, it's OK to handle them gently, as some of the eggs or the soft down that helps keep them warm may need to be moved to get an accurate count. “Just handle everything carefully and replace it when you're done,” Perry says.

In addition to wood ducks, hooded mergansers, screech owls and various songbirds, including flycatchers and Eastern bluebirds, also use nesting boxes and may provide a bonus for folks checking boxes. Songbirds typically nest later in the spring than wood ducks, so it's not uncommon for a woodie to hatch a brood of ducklings, move out and be followed by a bluebird, which will build a neat little nest for its eggs in the corner of the box.

While checking nest boxes and reporting nest box productivity is voluntary, the DNR reminds active cooperators of their part in the process each year and provides new forms for reporting. Estimating from reported hatches alone, the Statewide Wood Duck Nest Box Project can boast a

minimum of 300,000 wood ducklings hatched over the 16-year span of the project.

Data from the 1997 nesting season estimate a minimum of almost 40,000 ducklings, the highest in the history of the project. The previous high, estimated at about 37,000 hatched, occurred in 1995.

Recent data also suggest that if only 60 percent of the allocated nest boxes were available during 1997, the actual hatch of wood ducklings could exceed 95,000, an astounding number of waterfowl from a state not located in the North American prairies.

When the nest box project was initiated, the DNR anticipated interest being saturated after about ten years, but that has not occurred. “Interest remains high, and for the foreseeable future we anticipate construction of about 1,500 units each year,” Perry says. “We are delighted that landowner interest has not bottomed out on this project.”

DNR staff construct nest boxes at Santee Coastal Reserve, near Georgetown, while the predator guards are fabricated at the Wateree Correctional Institute, near Camden, under the supervision of Warden John Carmichael.

The South Carolina Waterfowl Association also cooperates with the DNR on this project. Along with carrying out its own wood duck nesting box program, SCWA maintains and checks many state-issued boxes for private landowners and submits annual reports. “Many of our projects have nest boxes from SCWA and the DNR,” said Mike Kugler, chief biologist for SCWA. “We check all boxes and report data to the DNR.”

Landowners who want to get involved or learn more about the Statewide Wood Duck Nest Box Project should call (803) 546-9489 or their DNR regional office. Applications for nest boxes should be received by July 1 for fall participation. 🦆

Jeff Samsel is a free-lance writer who lives in Clarksville, Georgia.



Sleep like a log in a quaint inn, rise to a hearty repast served with flair,

then hike or paddle till your muscles cry "Uncle" —

you're experiencing a South Carolina-style B&B adventure.

BED, BREAKFAST AND THE GREAT OUTDOORS

by Beverly Shelley

START WITH a picture-perfect place to spend the night, an architecturally impressive, sometimes even historic, home. Add intriguing hosts and a delicious breakfast. Mix those ingredients with an exciting — and in some instances physically challenging — day of outdoor adventure led by a knowledgeable, personable guide. And presto! You have the formula for a new trend emerging in South Carolina, one that links bed and breakfast stays with nature-based experiences.

An unscientific survey of several such "packages" yields a notable finding: though their basic ingredients may be the same, the many variables inherent with each experience make each one unique. There's the divergent architecture, history, furnishings and settings of the bed and breakfast inns (known universally as B&Bs), the varied personalities of the innkeepers, and the types of nature-based activities available. Even the state's diverse geographic landscape helps shape the experiences.

In South Carolina, you can shoot the rapids of a whitewater river or hike a mountain trail by day and relax in a tranquil foothills mansion by moonlight. Fill a morning with a visual feast of flora and fauna while kayaking a coastal blackwater river, then pass the afternoon on the piazza of a Charleston single house, reading a book, sipping coffee or just listening to the sounds of the city. The Palmetto State is richly blessed with an array of opportunities similar to these just waiting to be explored. A vicarious journey to several South Carolina B&Bs offers a glimpse of a few of the opportunities that await those with adventurous souls in need of soothing.

Close to the Border

First stop, *Latta*, a dot of a town off I-95 near the North Carolina border, where innkeepers Mike and Patty Griffey operate the opulent Abingdon Manor, a Greek Revival mansion built between 1902 and 1905 by James Manning, the first person from Dillon County to serve in the State Senate. Their 8,000-square-foot mansion (with its additional 2,000 square feet of porches) is the largest in the county.

My room for the night, the Manning Suite, is like all the other guest rooms in this AAA-rated four-diamond property — a *Better Homes and Gardens* picture. Other guest rooms are named for their color schemes: the blue room, the red room, the green room, the yellow room. Curious items sure to start conversation rest on mantels and dressers in each room. In the red room, a vintage '20s red and black beaded bag belonged to Mike's mother. In the blue room, a set of nesting dolls, those wooden figurines

that stack one-inside-the-other, were a gift sent from their native Moscow by previous guests who thought the dolls' color was perfect for the room.

Griffey coordinates a half-day kayak trip along the Lumber River, a tributary that feeds into the bigger Little Pee Dee River, with Danny White, a river regular and proprietor of RPM Outfitters. We put in at Rice Field Cove to begin a two-and-a-half-hour trip down the slow-moving Lumber to Fork Retch, just beyond the point where the Lumber meets the Little Pee Dee. That we drive along Drowning Creek Road to reach the public landing piques my interest, as does the name of the oxbow lake we pass — Widow's Lake. Like roads and lakes and communities throughout the region (and the state), there is a story behind their names, White tells us.

Drought conditions have the river at a serious low, with no more than two or three feet of water in many spots. With such a low water level, the white sand of the riverbank is pronounced and shimmers against the dark water. Our attention moves from one attraction to the next. A pair of hawks lead us down the river, disappearing around each bend, only to circle back and meet us again. In the distance, we hear the occasional cry of a rail hen and the echo of a woodpecker hammering a tree. Tiny yellow butterflies dance on the still air, and wildlife too far away to discern slip into the water to take cover from us — the oncoming intruders.

We see the curious work of beavers: tree limbs, the bark peeled away, bunched up in the water; skinny cypress stumps stripped clean and finished with pencil-point tips jutting from the water. Like a piece of sculpture, one lone tree has a perfect notch in it where a beaver has gnawed away the wood.

Nighttime at Abingdon Manor is as tranquil as the river, and breakfast as delicious as the innkeepers' hospitality. Fresh juice and fruit, a confetti omelet of artichokes, peppers and onions, and rich coffee with a hint of cinnamon served on family china comes dressed with silver utensils, linen napkins and a mini-bouquet of fresh flowers from the Griffey's garden.

Mountain Air and River Rafting

Next stop, *Walhalla*, where Dedra French runs the Liberty Lodge, a Victorian Manor house on a twelve-acre site in the foothills of the Blue Ridge Mountains. A wrap-around porch bedecked with mammoth ferns, a porch swing, rocking chairs and Adirondack chairs beckon visitors to take a seat and enjoy the cool evening air and a symphony of insects.



MICHAEL FOSTER

Abingdon Manor, Latta

history. Built about 1886, the house is said to have been a wedding gift from a governor of South Carolina to his daughter. Others say they recall the house was built by a Civil War veteran and engineer named John Verner Stribling who designed and built the first automobile in 1881, twenty-seven years before Henry Ford changed the world with his Model T. The house has had several owners, including a doctor who turned it into a country club around the turn of the century. The six guest rooms and a cottage, formerly the smokehouse, are decorated with antiques and reproductions from around the world accumulated by French, formerly an antiques dealer.

Restful moments on the porch and a full country breakfast of fruit, fluffy eggs with cheese, blueberry pancakes with blueberry syrup, and the complement of coffee and juice make the perfect prelude to a busy day of whitewater rafting on the Chattooga River with Wildwater Ltd., one of three outfitters running excursions on the Chattooga from Long Creek community, deep in Oconee County.

For trip leader Steve Bordonaro and his contingent of four guides, the day is about safety. For everyone else, it's a day of just plain fun. Bordonaro mixes rafting and safety instruction with humor. When rafting, he explains to an eager group of thirty, it's crucial that one person be in charge and that everyone else follow the instructions, whether the command is "All forward!" or "All back!" or an advanced command such as "Right forward, left back!" (a technique used to turn the raft).

As for the rafting humor: What do you call a run when the guide falls out and the passengers don't? A guided swim. What do you call a run when everyone falls out? A dump truck. And what do you call a run when everyone except the guide gets dumped overboard? A perfect run.

Over the course of the eight-hour day, our favorite command from Maura, the guide in our raft, became "drift." A geology major in her third year at Appalachian State University, Maura

Magnolia House, Sumter



PHILIP JONES

Liberty Lodge has a measure of interesting, if conflicting, local lore coloring its

igneous rock has an isoclinal recumbent fold in it that helps form the profile of the raven. Right. If she says so. Other highlights of the trip: we saw Long Creek Falls, one of oodles of waterfalls in the Upstate; a harmless, banded water snake shared its turf with us just before lunch; and best of all, no one in my raft took a dive on any of the rapids, including the big one, Seven-Foot Falls.

The trip leader, a full-time businessman from Atlanta, works the river for two reasons. It's a great way to relieve stress, and it's his way of influencing others to take care of the environment. "If I can convince at least one person a season of the importance of keeping nature trash-free, I feel good," he says.

A final note about the Chattooga. No matter how many times one might read or hear that the Chattooga is federally protected as a National Wild and Scenic River, the designation doesn't mean much until you've been there. Then, you see for yourself that for a half-mile on either side of the river in South Carolina and in Georgia, there is no development. None.

A Coastal Excursion

This Lowcountry B&B is a dream-come-true for anyone who has ever wondered what it's like on the inside of one of those ivy-covered fences surrounding the mystical gardens and homes in historic Charleston. A weekend at the East Bay Bed & Breakfast is a perfect way to satisfy your curiosity. The three-and-a-half-story single house, replete with magnificent architecture, history, eclectic furnishings, two piazzas and a wondrous garden, can be your own — if only for a few days. Of course, the property really belongs to Carolyn Rivers, whose love of Charleston is reflected in the art work, books and other accouterments that adorn the Federal Style single house. The house was built between 1811 and 1816 by a Charleston merchant named Moses Levy, or perhaps by his son, Jacob. Later, Phoebe Pember, author of *A Southern Woman's Story*, was born in the house. The Historic Preservation Society, which has easements on the interior and exterior of the house, describes it as one of the finest examples of Adamesque gougework in the city. A button on the circular portion of the balustrade is one of many history lessons available in the house. Way back when, a button placed in the newell post, called an amity button, meant the house was paid for.



Porch at Liberty Lodge, Walhalla



In a house decorated not to recreate the past but to satisfy the whimsy of its owner, one curious item after another draws the eye. One in particular is Rivers' seashell collection — a wide, wooden bowl full of partial shells, each tinted with shades of purple, each rubbed smooth by the ebb and flow of an ocean.

Breakfast at East Bay is continental: fruit, croissants, muffins, coffee and juice with silver service in your room or, weather permitting, on one of the piazzas. Rivers doesn't want guests to feel they have to mingle or keep anyone else's schedule.

This weekend's adventure takes us to the East Branch of the Cooper River, where Anne Gould, owner of Coastal Expeditions, leads us on a two-and-a-half-hour kayak trip. We put in at Huger Creek, about 25 minutes inland of Mt. Pleasant in the Francis Marion National Forest, and take out at Quenby Creek Landing. The environment is pristine. No people, no trash, no noise.

Like her colleagues in the Upstate, Gould sees herself as an environmental educator. "The more people I can expose to the wonders of our environment, the more people who will take care of it," she says.

After a review of kayaking techniques, we're on the water. This outing offers more color than my previous two, with more flowering plants: patch after patch of purplish-blue wild asters, succulent water hyacinths with purple blossoms, stems of goldenrod poking up along the river's edge. Masses of burr marigolds and the occasional red dot of cardinal flowers tucked behind other plant life. More purple from pickerelweed and the earthy tones of wild rice going to seed in the distance. The delicate dogwood-like petals of the wapato, or duck-potato, flower. A lone dead tree wearing a robe of Spanish moss.

Plenty of wildlife to see, too. A great blue heron, a bald eagle, a turkey vulture, and the most impressive of all, a lime-green tree frog that joins us for lunch as we tuck our boats into the weeds to steady ourselves and take a break. Its coloring is Kodak-vivid: golden metallic stripes along each sleek green thigh and around its lips.

The Cooper River trip is one of several offered by Coastal Expeditions. Gould takes excursions to Capers Island, into the ACE Basin, and to other destinations. She, like many of her counterparts around the state, will customize a trip to meet a



Kayaks slide between earth and sky on the green-fringed East Branch of the Cooper River. Guide Anne Gould of Coastal Expeditions takes guests on a magical cruise, gliding through reflections of dumpling clouds and shimmering treetops to end up asleep beneath the delicate canopy of a four-poster bed at Charleston's East Bay Bed and Breakfast.

client's specifications, including all-day and overnight outings.

"It's a great way to get away from things," Gould remarks. She thinks a moment and corrects herself. "That's hardly the way to put it. It's really a great way to get in touch with things, isn't it?"

Secrets of Sparkleberry Swamp

The Magnolia House in Sumter, another Greek Revival mansion, was named for the large magnolia tree planted out front in the '20s or '30s by a previous owner. The magic of the Magnolia House, circa 1907, in addition to its down-home owners Buck and Carol Rogers, lies in the variety and quantity of antiques and other items that fill its large rooms — neat stuff like a spinning wheel, a Heim German carousel pony, old hatboxes, and luggage.

Carol, formerly an antiques dealer who still loves the hunt for a good find, acknowledges, "We've got furniture gridlock," and that she has to rotate some of her other favorite things into the house from a storage area. While there's plenty to ooh and ah over, the house isn't crowded, and the Rogerses are happy for guests to inspect, touch and enjoy their treasures.

The five guest rooms are furnished around different themes, and each holds antiques from different periods of history. My room, Victoria's Retreat, has a Victorian theme with floral patterns and shades of pink and green. Another, the British Safari room, is furnished around an antique British safari tea set, with twin beds, kangaroo and New Zealand opossum hides, and other masculine fixtures. Meanwhile, Luta's room, named after one of their first and most frequent guests, carries a French motif, with a French Polynesian four-poster bed and a heavy, dark wardrobe.

Like the breakfast at Liberty Lodge, the morning meal at the Magnolia House is hearty and served in the formal dining room. A fruit cup, eggs strata, and home-baked English muffin bread provide ample fuel for a three-hour paddling trip in Sparkleberry Swamp. We put in at Sparkleberry Landing under the able direction of Randy Ward, owner of Great Wide Open Outfitters in Sumter. Our group of ten includes experienced and novice kayakers, so Randy doesn't push us to make the destination he has in mind. If we make it, fine; if we don't, that's okay, too, so long as we're all enjoying ourselves. "I want first-timers to have a good experience and not get over-tired," he says.

The swamp, in the upper reaches of Lake Marion, is as you might imagine — cypress knees and cypress trees, swamp tupelos, dark water and wide open space, at least at first. Then, single-file kayaking through dense, obstacle course-like areas covered by thick canopy. Unlike the other estuaries we've been on,



Sparkleberry seems active with fishermen in small, flat-bottomed boats winding their way to secret spots in the swamp. They're courteous to us,

motoring slowly past and acknowledging us with a slight nod or a quiet hello.

An abundance of blooming things fill the swamp: mass after mass of yellow flowers with dark centers called beggar ticks, purple feathery plants called knotweed, and another with tiny white blossoms called climbing hempweed. Clumps of large elephant ear-looking plants known as arrow-leaved arum are mounded here and there, sprouting yellow blossoms that resemble the blooms of a peace lily.

Another frog pays a visit. It has gold stripes on its legs and lips, as does its coastal cousin, except this one's skin is greyish-tan, not lime green. This time the visit is personal — right on the front of my life jacket, so close I could bend my head slightly and kiss the little guy. But I already have my prince, so instead, I ask for help moving my passenger to more appropriate terrain.

Whether you choose kayaking, rafting, hunting, fishing or hiking to waterfall sites, a huge variety of outdoor adventure opportunities exist in our state. Mike Griffey in Latta, for example, has arrangements with area landowners if a guest wants to go hunting or fishing. Anne Gould in Charleston, Randy Ward in Sumter, and other outfitters around the state will customize half-day, day and overnight packages in most areas of the state. And Dedra French in the Upstate can coordinate a waterfall tour and other hiking expeditions.

To line up your own B&B/outdoor vacation, contact an outfitter or bed and breakfast in an area of the state that interests you. If you call the B&B, ask the innkeeper about area outfitters. If you start with the outfitter, ask for bed and breakfast recommendations. You can also consult the South Carolina Nature-based Tourism directory available from the South Carolina Department of Parks, Recreation & Tourism. Call PRT at (803) 734-0122 or write PRT's main office at 1205 Pendleton Street, Suite 110, Edgar A. Brown Building, Columbia, SC 29201. 🐾

Beverly Shelley is a deputy spokesperson for the South Carolina Department of Parks, Recreation and Tourism and a free-lance writer.



A FOREST FOR MORE THAN TREES

*What happens on a tract of land
when management priorities shift?
At Palachucola WMA,
wildlife has replaced timber as the primary goal.*

*by Walt Rhodes
photography by Phillip Jones*

With an earsplitting buzz, the saw's mighty steel blade severs a loblolly pine in mere seconds. A skidder, looking like an earth-bound lunar rover, grabs the fallen tree and lumbers on over-sized tires toward an awaiting log truck.

This commotion in the forest creates a cornucopia of sounds: the drone of the machinery's diesel motor, that annoying "backing up" alarm, and the pops and crashes of trees falling to the ground. The ruckus does not go unnoticed.

In the distance, a wild turkey searching for acorns takes note, a red-cockaded woodpecker scaling the side of a pine monitors the noise to see if it moves closer, and a white-tailed deer quietly bedded in a swampy switchcane patch feels the earth tremble from the vibrations.

Anything out of the ordinary? Not really. It is just another day of logging trees in one of the Palmetto State's productive forests.

Pine trees are a major cash crop in South Carolina. To gain even more monetary benefit from the land, many managers routinely employ wildlife management techniques in an effort to bolster game populations, primarily deer and turkeys. In turn, landowners can lease hunting rights to sportsmen to augment timber revenues, a win-win situation for all parties involved.

Viewed from the air, Palachucola's patchwork of different-age pines, hardwoods, and clearings planted with foods preferred by wildlife illustrates the direction taken by DNR managers. Just as the iridescent feathers of wild turkeys (previous pages) reflect the bright sunlight, their growing numbers reflect biologists' desired outcome.

But what happens when management goals of the land are reversed? Assume that, instead of timber as the primary objective and wildlife secondary, wildlife becomes the focus. Is a win-win situation still possible? The answer is yes, and one of the state's wildlife management areas in Hampton and Jasper counties serves as a model example.

"Prior to our management involvement with the land that now makes up Palachucola Wildlife Management Area, or WMA, timber was the main focus of the property," says Tom Swaynham, a regional wildlife biologist for the S.C. Department of Natural Resources. Swaynham is in charge of management on the WMA and has his headquarters at the neighboring Webb WMA. "The land was used primarily for pulp production, with less emphasis on wildlife. Now the emphasis is reversed — we are focusing on wildlife while still maintaining a level of timber production."

To understand what this switch involves, a look at the property's history is needed. According to Swaynham, three tracts of land, totaling 6,757 acres, compose the WMA. Private individuals and Westvaco Timber Corporation were former landowners. Prior to this, the majority of the property belonged to Continental Can, Inc.

Management on the different tracts varied. The 5,878-acre Westvaco tract was professionally managed for pulpwood. This management type is characterized by a loblolly pine forest that has a large number of trees per acre, known as its stocking density, and the thick underbrush common with the exclusion of fire. Stands of this type are usually cut and replanted about every thirty years.

"One of the private tracts (582 acres) had largely been clear-cut for pulpwood when the landowner purchased it," Swaynham explained. "The land was left to naturally regenerate, and trees that were too small at the initial cutting were thinned as they matured.

"The other private tract (297 acres) had very little cutting, and therefore featured a mature longleaf pine forest. Also, the





Food, water, cover — diversity makes the difference on any property managed with the goal of providing habitat for wildlife. Palachucola offers small wetlands, like the oxbow known as Blue Hole Lake, at left, along with mature, open woodlands and the thick new growth of a forest in the works.



property had several agricultural fields that were planted annually.”

Wildlife management efforts on all three tracts were limited. Much of the area was leased to private hunt clubs whose techniques mostly consisted of pouring out shelled corn for wildlife to eat. The tracts did contain a few wildlife openings and fields, each about an acre in size, that were planted, but so few openings provided scarce benefits.

Little is known about wildlife population levels other than those of game species. Each tract supported a good turkey population, and the deer harvest was known to be high, says Swaynham. A shift in the land management would improve these populations while still maintaining a healthy and productive forest.

The change came about when the three tracts were purchased by the U.S. Army Corps of Engineers in 1993 and 1994 as part of the wildlife mitigation plan for the construction of the Richard B. Russell Dam and Lake project. While ownership would remain with the Corps, the responsibility for managing the property was given to the DNR.

“Our objective is to intensify management for all wildlife, particularly game species, and to maximize public outdoor recreation opportunities,” Swaynham says. “We are also managing for red-cockaded woodpeckers (RCWs), whose population is currently limited due to immature timber stands.”

Topography and soil type often play a role in deciding on a plan of action to accomplish such objectives. The Palachucola property contains a few one- to five-acre oxbows, small wetlands formed when a river changes course and cuts a new channel. Of more consideration is the soil type, which





Swaynham describes as wet, sandy loam, typical of flat coastal sites. Where drainage is good, he says the long-term plan is to manage for longleaf pines. On wetter sites, the biologist and his staff will maintain hardwood species.

Meeting the wildlife objectives is fairly simple and cost-effective. Swaynham explains, “The first thing we’ve done is thin the thick timber stands.” This process of selective tree harvest that reduces the stocking density serves two purposes, he says. “It maximizes tree growth, which is important for the woodpeckers, and it opens the forest floor to sunlight, which improves food production for species from songbirds to deer. Since we have managed the property, over 1,400 acres have been thinned.

“We also have lengthened the time period, called rotation length, that a pine stand is managed before final harvest. The

rotation length on Palachucola has been increased from thirty to eighty years, which is a big change. This process produces trees of different ages within the forest and allows for several thinnings of smaller trees during the life of the stand. Older and regularly burned pine stands will provide a diverse ground cover with a variety of food and cover for wildlife.”

In other areas of the WMA, hardwood stands have been maintained. “Keeping hardwood stands in mature trees helps maintain acorn production and produces den sites for cavity-nesting species like squirrels, wood ducks and some songbirds,” says Swaynham.

“In some areas we have clear-cut the forest and replanted the area in longleaf pine. To date, 280 acres have been converted. The longleaf is more beneficial for quail and RCWs, is fairly disease- and bug-resistant, and can be burned during its entire life cycle.”

Wildlife large and small, such as white-tailed deer and bobwhite quail, attest to the success of maximizing food sources and adequate cover, proving that timber production and wildlife management can be compatible.

Using fire as a management tool has been met with criticism in the past. In many Southeastern habitats though, prescribed burning has its place. Used to mimic fire from lightning strikes or those started by Native Americans when the landscape was “natural,” prescribed burning reduces undesirable vegetation and returns valuable nutrients to the soil.

Prescribed burning is a cheap management tool that has a big impact on the habitat, Swaynham says, one that allows managers to treat a large number of acres economically and quickly. In all, some 3,000 acres have been burned on Palachucola since the DNR took over management.

Imagine for a moment what it would be like to look down on a pure pine woods. The scene may look sterile and boring, with nothing to break up the image. This lack of landscape diversity can limit some wildlife populations. Most wildlife in our state thrive in a mixture of habitat types. Thus, it pays to add a little something different to the pine woods. It’s similar to your favorite restaurant varying its menu: you notice that. If they only offered one entree day in and day out, you’d probably get bored and go someplace else.

To help add diversity, Swaynham and his staff have established twenty-seven 1.5- to 2-acre wildlife openings. “The openings are planted in a variety of wildlife foods,” he says. “Additionally, we have planted over three thousand soft mast trees, such as dogwood, plum, persimmon and crabapple, at old logging-deck sites and in smaller openings.”

While it is still early in the management timetable, results have begun to appear. The turkey population has increased slightly, and the average spring harvest is around fifteen birds, which is respectable for a public hunting area. The deer harvest has steadily climbed, reaching 186 animals during the 1996-97 season, and the condition of the deer herd, in terms of body weights and rack sizes, has improved. This is no doubt in response to a greater variety of desirable food sources.

Management of bobwhite quail in the Southeast has remained a challenge for biologists. Quail need “edge”

habitat, with a mixture of grasses for food and cover, and timber land generally doesn’t offer that. However, the combination of burning and thinning that has been implemented on Palachucola appears to be helping the quail population. “We are starting to see quail where there were almost none,” Swaynham adds.

As yet, little is known about the reptile and amphibian populations on the property. DNR Wildlife Diversity Programs biologist Steve Bennett is surveying these



communities to determine animals present and preferred habitats. From this information, the DNR will be able to tailor management assistance to benefit another group of area species.

The results seen at Palachucola have come with very little effort, using techniques and practices that any landowner in the state can incorporate on his land. “The main thing that someone needs to keep in mind when managing land is to formulate a written plan with objectives and to follow it,” stresses Swaynham.

Mesh-topped tree protectors, below, keep rabbits and deer from browsing on tender young persimmons set out by managers. When mature, such fruit-bearing hardwoods supplement other plantings, such as the mixture of grain sorghum and Egyptian wheat at right.



The management plan for Palachucola has been developed by personnel from the DNR and the S.C. Forestry Commission. Forestry and wildlife personnel met and discussed the objectives for the land. From there, management techniques needed to reach the objectives were decided upon and implemented. This same service is available to landowners through the agencies' Forest Stewardship Program or by merely requesting technical assistance from your local regional biologist's office. For information, write DNR Forest Stewardship, P.O. Box 167, Columbia, SC 29202-0167, or contact the Forest Stewardship biologist, Carmen Dickover, at (803) 734-3942 or e-mail dickoverc@scdnr.state.sc.us.

The land is a dynamic object that is able to produce numerous and varied returns. However, one must know how to correctly massage the earth for it to reach its full potential. For those who relish the sights and sounds of wildlife on their land while still maintaining an active and productive timber program, Palachucola WMA demonstrates that philosophy is possible. It is the perfect example of seeing the forest for more than just the trees. 🐾

An award-winning outdoor writer and photographer, Walt Rhodes has been a part-time free-lance writer since 1992. His full-time job is serving as the Alligator Project supervisor for the DNR.



NATURE TO GO

YOUR NATURALIST COUSIN and his family are visiting from Michigan next week and they want to see something besides snow and mud. A business associate from another part of the country is flying in for a conference and will be with you for the weekend. You know he's an

amateur botanist, but have no clue where you might take him for a spectacular wildflower show. Or you made the mistake of saying the next scout camp-out should be somewhere new . . . now guess who's in charge!

To my chagrin, I've been in each of these situations, with little to rely on but my own poor memory and the ideas of friends. Thus I was delighted to learn that a coalition of federal and state agencies was planning to produce a "Nature Viewing Guide" for South Carolina and even more delighted when I was selected to write the book's text.

Similar to the wildlife viewing guides created for other states, but with a greater emphasis on plants and scenery, the *South Carolina Nature Viewing Guide* includes more than ninety superb spots to enjoy nature in the state, all illustrated with color photography. Arranged by region, the sites stretch from the Savannah National Wildlife Refuge in the southernmost point of

the state to the Rock Hill Blackjacks Heritage Preserve on the opposite side of the state. They include the headwaters of Lake Juniper in the state's oldest park (Cheraw) and a description of the state's newest public property: Jocassee Gorges.

Included in the guide are areas known for wildflowers and other plant life, habitats for endangered or threatened species, great bird-watching spots, sites that spotlight game animals, and facilities such as the Walhalla State Fish Hatchery that reveal a unique aspect of wildlife management in the state. Several entries, such as Keowee-Toxaway State Park, Kings Mountain State Park, Pacolet River Heritage Preserve, Landsford Canal State Park and Old Santee Canal State Park, feature the state's cultural as well as natural history. Many locations are situated along the Palmetto Trail or in the state's Heritage Corridor.

Because of my own experiences traveling with small children and, yes, cub scouts, I tried to indicate which sites were especially well suited for children. These



Been waiting for a comprehensive guide to scenic spots, flora and fauna in the Palmetto State? Your wait is over!

by Patricia L. Jerman



places generally have restrooms, shorter trails, and interpretive material that can help adults explain the significance of the site to their young charges.

Each entry includes directions, hours of operation, and a brief description of the site and its natural features. Extras such as the availability of tours are noted. Symbols indicate the presence of facilities such as restrooms, picnic areas and boat-launching facilities.

THE GUIDE CONTAINS general information about the state's geography, along with tips for successful "wildlife-watching" ventures. It offers suggestions for greater involvement in conservation of the state's resources, and includes special information about Teaming With Wildlife, an initiative to create permanent funding for "watchable wildlife" projects.

Development of the guide was made possible by a grant from the U.S. Department of Transportation. Federal and state agencies that collaborated in the production of the guide include the U.S.D.A. Forest Service, the U.S. Army Corps of Engineers, National Park Service, U.S. Fish and Wildlife Service, the S.C. Departments of Transportation, Natural Resources, and Parks, Recreation and Tourism, and the S.C. Forestry Commission.

OK . . . in case you're wondering: We took our cousin to Poinsett State Park, where we saw vegetation typical of both the mountains and the coastal plain, then drove a short distance to the Santee National Wildlife Refuge, before returning home via the interstate and a stop at Congaree Swamp National Monument. My associate from D.C. got treated to a hike at Forty-Acre Rock/Flat Creek Natural Area. (See Field Trip, page 44.) The next scout excursion will be to the fish lift at St. Stephen, with camping in the Francis Marion National Forest and hiking and canoeing in Old Santee Canal State Park the next day. Along the way, the kids will learn something about wildlife management, power generation, wetlands, and the brief heyday of canals in South Carolina. 🌲

Trish Jerman manages the Sustainable Universities Project, an effort by Clemson University, the Medical University of South Carolina and the University of South Carolina to enhance environmental understanding in higher education.



Natural beauty beckons, from the ACE Basin to Kings Mountain State Park to Laurel Fork Falls in the Jocassee Gorges. Visit with the help of this new guide to outdoor South Carolina. Copies of South Carolina Nature Viewing Guide are available through South Carolina Wildlife's Wildlife Shop and other outlets. Call 1-888-644-9453 to order.

RAINBOWS & ROCKFISH

Dancing trout and diving stripers, mixed with a school of other piscine possibilities, keep anglers guessing below the Lake Murray Hydro Plant on the Lower Saluda River, while researchers work to improve the river's dissolved oxygen levels, vital to this unique tailrace fishery.

by Malcolm Leaphart

photography by Michael Foster

With an indignant flip of its tail, the brightly colored trout gave me a parting show of strength, splashing water in my face as I released it back into the Saluda River. During a low-water period when the Lake Murray Hydroelectric Plant was not releasing water into the river to generate power, I was fly-fishing and wading one of the rocky, shallow sections late one summer evening. I had managed to fool the twelve-inch rainbow with an offering of a soft hackle fly to imitate a caddis pupa rising to the surface. The trout struck at the moment when I slowly raised the fly at the downstream end of my drift to suggest that the caddis was about to escape to the surface. After a few spirited jumps and a long run downstream, it came quietly to my net.

Two more trout continued to feed in the pool after I caught and released the first. As I surveyed the currents looking for the best angle to cast my fly to them, I caught a glimpse of a large, silver shadow that swept into the deeper water at the head of the pool. I quickly switched from the small soft hackle fly to a Dahlberg Diver, a large deer-hair pattern, in hopes that a fish this size would want a big meal.

I cast upstream from where I had last seen the big fish and began stripping line to make the floating fly dart under the surface with a wobbling action like an injured minnow. A large





hard strike that streamers provoke, the question of which species has hit heightens the excitement. The quick runs and aerials of the rainbows as opposed to the strong underwater runs of the striper usually answer that question quickly. Still, the occasional brown trout has fooled me, fighting beneath the surface like a striper. The possibility of hooking an occasional largemouth bass, redbreast bream, chain pickerel (jackfish) or yellow or white perch makes the Saluda a real “smorgasbord” fishery.

form appeared beneath and behind the fly, crumpling the water’s surface as it surged to catch and inhale the fly with a loud splash. Setting the hook, I came to the brilliant realization that I had not changed the tippet at the end of my leader when I tied on the larger fly. I was hooked to a big fish with a fly tied to a piece of monofilament testing only three and a half pounds!

This fish was not another trout, as I found out quickly. A large striped bass, or rockfish, as it is sometimes called, sped downstream, passing within only a few feet of me. Apparently intent on swimming back to the Santee-Cooper lakes with me in tow, it moved like a locomotive, pulling out line. Knowing that the light leader wouldn’t let me apply much pressure without a break-off, I let it go.

The six-weight fly rod required that I play the fish patiently and with a light hand. Twenty minutes and some luck later, I brought the exhausted striper to my net. I would have preferred to have hooked and fought this fish on a heavier, eight-weight fly outfit, but that is one of the challenges of fishing this state-designated Scenic River, with its many varieties of fish. Measuring just over thirty inches and weighing more than ten pounds, the rockfish required nearly ten minutes of reviving before I could safely release it.

Many years of fishing on the Saluda have taught me this river is a special place, a natural oasis in the heart of urban Columbia that provides a rare opportunity: angling for both striper and trout. When fishing with small streamers to imitate the plentiful shad and other minnows in the river, I have often caught rockfish and rainbows on alternate casts in the same stretches of water. In addition to the thrill of the

Recognizing its value, the S.C. Department of Natural Resources stocks the Saluda with rainbow and brown trout throughout the nearly ten-mile stretch below Lake Murray Dam. Each year from December through June more than 70,000 fish arrive by truck from the state trout hatchery located above Walhalla. The trout measure from five to ten inches in length, with a few reaching fourteen inches. Hal Beard, DNR district fisheries biologist, says helicopter stockings made annually since 1994 have greatly expanded the areas stocked from the traditional road access points used since the early 1960s, when the Saluda trout stocking program began.

Hatchery trout usually stay in the area where initially stocked and tend to school together as they did in the close confines of the hatchery raceways. Fed by man at the hatchery, these trout lack the wariness of wild trout and are usually not difficult to catch, hitting a variety of natural baits, spinning lures and flies. Sometimes just a bright-colored lure or bait or an active presentation brings on a strike. But given time and a second chance by fishermen who practice catch-and-release, they begin to spread out in the river and to feed on the natural food sources. Aquatic insects such as mayflies, caddis flies, midges and stoneflies soon become staples of their diets. They also learn to feed on the small freshwater shrimp called scuds, crayfish, aquatic worms, minnows, and land-based terrestrial insects, such as ants, grasshoppers and beetles, in the warmer months. As they become attuned to the natural life cycles of these aquatic organisms, the stocked trout change from curious, indiscriminate feeders to wary predators that react with suspicion to any artificial offering that looks or moves unnaturally.

In a river that encompasses many possibilities, the Saluda's shallow riffles (preceding pages) dump into pools where trout lie in wait for food, then give way to deeper, calmer stretches with larger fish of other varieties. All enticing to an angler with a selection of flies, the river's varying characteristics may offer rainbow trout and striped bass on alternate casts.



In the Saluda, the larger predatory game fish thrive on a forage base of threadfin shad with runs of larger gizzard and American shad and blueback herring at different times of the year. As the trout grow larger than twelve inches in length, they learn to feed on this large forage base, which is also the staple of the striped bass's diet.

This readily available food supply probably facilitated the growth rates among Saluda River trout of up to an inch a month that members of the Saluda River Chapter of Trout Unlimited recorded in their fishing logs in the late 1980s.

These logs were analyzed and summarized in a marked trout study by biologist Gerrit Jöbbs for the Fisheries Section of the DNR's Wildlife and Freshwater Fisheries Division. Trout weighing more than one pound appeared routinely in the records, and one monster brown trout of more than ten pounds was photographed and weighed at a local tackle shop during the study.

Many fishermen are surprised to learn that trout grow that large, having only experienced them in mountain trout streams where a much smaller food base and colder winter

Stocked trout school at first, feeding on anything they find, then learn to be wary predators. The survival of the Saluda's trout fishery depends on their adaptability and the continued efforts of natural resources agencies to maintain water quality in their new-found habitat.

water temperatures limit growth. Large impoundments like Lake Jocassee in Upstate South Carolina, and tailrace fisheries like the Saluda, provide a forage base of shad that allows freshwater trout to grow larger than they would in smaller water bodies where food is less abundant. The current record trout in South Carolina, a 17-pound, 9-ounce brown, came from Lake Jocassee in 1987.

Striped bass head upstream in large numbers each year in the late spring and summer as they seek the cold water of the Saluda as a thermal refuge after spawning in the Congaree River. Averaging 57 degrees Fahrenheit as it flows out of the depths of Lake Murray, this colder water provides more favorable habitat for stripers than the Congaree, which has much warmer water. Striped bass, a coolwater species normally found in coastal waters, are invigorated by the colder water after the rigors of spawning. Water temperature is a critical factor to their survival, and South Carolina's rockfish spend much of their summers seeking areas with cool water temperatures and high levels of dissolved oxygen. Knowledge of this is crucial to those who pursue the fish year-round, as it is a key element in their movement patterns.

Most of the Saluda's stripers swim up from the Santee-Cooper lakes in a spring spawning run, but many have been tagged and released year-round in the rivers, especially where the Broad and Saluda rivers flow together to form the Congaree below Riverbanks Zoo. According to Jim Bulak, a DNR biologist who has studied these fisheries intensively for more than ten years, some stripers stay in the Saluda, Congaree and Wateree rivers during the summer months instead of migrating downstream to the Santee-Cooper lakes.

The Saluda reigns as the habitat of choice in the late spring and early summer as anglers report striper catches all the way up the river to the Lake Murray Dam. During this time, anglers can enjoy the thrill of "rainbow and rockfish" fishing, and the key is usually finding the schools of shad.

This unique fishery is found at few other places around the Southeast, most notably in the Clinch River below Norris Lake and the tailrace waters below Percy Priest Lake and Lake Hiwassee in Tennessee. The Cumberland River below Lake Cumberland in Kentucky also offers river fishing for both species. The Savannah River below Lake Thurmond on the South Carolina/Georgia border is now being evaluated as a potential trout fishery by the natural resources departments of both states and also has an annual run of American shad.

Despite its striking beauty and diverse angling opportunities, the Saluda River has ecological problems. Fishermen for years have noticed a dramatic change in water quality in midsummer to early fall. The water would often flow directly from Lake Murray into the river with a tan color and a definite "rotten egg" or stagnant water odor. This condition prevailed for weeks, sometimes even months, before color and odor cleared up. Fishing success dropped both before and after this occurrence for all species, but especially for the trout, which, when caught, fought poorly and were obviously weak. The stripers also disappeared at this time, apparently returning to the Santee-Cooper lakes.

The addition of dissolved oxygen monitors by the U.S. Geological Survey at the request of the DNR and Trout Unlimited resulted in data that have shown the water problem resulted from oxygen deficiency.

Little, if any, dissolved oxygen exists by late summer or early fall in the deeper water around the intakes of the Lake Murray Dam. As waters warm, Lake Murray stratifies into layers with surface waters being warmer and deeper waters remaining cold. Oxygen in the deeper waters is used up by natural processes, and because there is no contact with air, the oxygen supply of deeper waters is not replenished. By the summer's end, oxygen near the bottom of Lake Murray is insufficient to support most aquatic life. This water is drawn from the reservoir bottom through intakes to the turbines for electrical generation before being discharged into the river. Insufficient dissolved oxygen stresses or kills fish in the river, causing them to seek refuge in feeder springs, tributaries, and stretches downstream where the water has picked up some oxygen from flow around rocks, logs, and other disturbances in the water.

The Saluda has an additional complicating problem when all five turbines are opened for generation at the same time. A study by Hank McKellar of the University of South Carolina's School of Public Health has shown that at high flows, re-oxygenation to the state water-quality standard does not occur until the Mill Race Rapids, approximately seven miles downstream from the dam. High flow raises the water level above the rocks and other obstructions, which are responsible for re-aeration.

Lack of dissolved oxygen limits the potential of tailrace fisheries such as the Saluda as fish are killed or move great distances downstream, abandoning the stretches in which they cannot survive. Though trout in the Saluda can't live in the



PHILLIP JONES

use the new vents to meet the South Carolina water-quality standard — a daily average of five milligrams of dissolved oxygen per liter for the Saluda. Until solutions are implemented, the fisheries will continue to be stressed each year, not reaching the potential that suitable year-round water quality would provide not only for the stripers and trout, which are most sensitive, but for all of

tributaries or the Congaree because higher water temperatures in the late spring to fall prohibit their survival there, some fishermen believe there is still some holdover of trout, based on catches in the winter after the water quality improves. According to DNR Fisheries Chief Val Nash, a study under consideration now will look at holdover rates to determine the impact of the lack of dissolved oxygen on fish populations for an extended period of time.

Most of the Tennessee Valley Authority (TVA) dams in the southeast have addressed the dissolved oxygen problem with solutions such as turbine venting and baffles, oxygen injection, and weir dams to increase the amount of oxygen in the water released into the rivers below their operations. The U.S. Army Corps of Engineers has improved the dissolved oxygen in the world-class White River trout fishery below Bull Shoals Lake in Arkansas by applying several of these methods. The Corps also injects liquid oxygen into the water releases from Lake Russell into Lake Thurmond on the Georgia/South Carolina border to maintain water quality suitable for aquatic life from midsummer to late fall. The South Carolina Electric and Gas Company (SCE&G) installed turbine venting pipes in four of their five generators at the Lake Murray Dam in 1997. Testing of the vent pipes in the fall of 1997 determined oxygen can be enhanced under some, but not all, operating scenarios. SCE&G plans more testing in 1998 to determine how best to

the other species of fish and aquatic organisms in the river.

A dramatic change in the appreciation of both the Saluda's natural beauty and recreational opportunities has led to increased efforts to protect its water quality in the past ten years. The Riverbanks Zoo has opened its Botanical Gardens across the river with a natural design to protect both the flora and fauna and the historical site of the old Saluda River Factory, burned in the Civil War. The River Alliance, formed with private and government support, is actively working for appropriate and limited commercial and residential development along the Saluda, Broad and Congaree river corridors that ensures scenic integrity while providing public access through greenways and parks. The Irmo-Chapin Recreation Commission has been working for many years to develop the 260-acre Saluda Shoals Park, which will not only protect a large section of the corridor but also provide for natural resource education opportunities and safe recreational access.

Whether we're inclined to take advantage of its offerings or not, we can all take pride in our community's continued good stewardship of this special river resource. Future generations may even enjoy better access to all the possibilities a day of angling on the Saluda can provide. 🐟

A life-long fly fisherman and founding president of the Saluda River Chapter of Trout Unlimited, Malcolm Leaphart speaks and writes on conservation issues in South Carolina.

River Otter



Our cat plays soccer on the kitchen floor. The game goes like this: she scoops a new potato out of the basket by the fridge, bats it across the floor, scampers after it and performs a rolling tackle on it before it reaches the far wall. I'm reasonably certain she's not keeping score, but then again, I wouldn't bet on it.

Still, with the cat, play seems to have a real function: it's practice for mouse-chasing. Same thing with dogs and their wild relatives. They do a lot of tussling and nipping and cavorting, which has little immediate value but teaches skills

that will come in handy for hunting and mating.

Not so with river otters, whose recreational specialty is a mudbank version of the Alpine slide. It is, in one sense, an offshoot of the otter's use of sliding as a means of fast, efficient locomotion in snow and ice. Here, though, an otter — more often than not a juvenile — will climb to the top of a steep bank overlooking a pool, say in the bend of a creek or river, fold its short forelegs along its sides and its back legs straight behind it, and slide on its belly into the water. And it will do that over and over again. You can almost make out the look of

senseless otter glee on its broad face.

"It's a behavior that has no real function," says Billy Dukes, a wildlife biologist with the furbearer project of the S.C. Department of Natural Resources. "They do it purely for enjoyment."

If you've witnessed the spectacle in South Carolina, you might want to thank a beaver. River otters, like so many other animals, were hunted and trapped nearly to extinction by the start of the 20th century. This century's hunting and trapping regulations, along with sound management, have helped remnant populations to thrive, but it's beavers, likewise on the rebound, that have created greatly expanded habitat for the otters.

River otters now inhabit virtually every major river system in the state. Casual outdoorspeople, though, may never see anything more than those riverbank slides, or perhaps prints from an otter's clawed, webbed feet in the mud along a pond or streambank. A quiet canoe trip early in the morning or late in the evening is a much better bet for spotting one.

Many of the DNR's calls about otters come regarding their appearance at farm ponds, says Dukes. Most of the fish otters consume are the slower nongame species, like carp, suckers and catfish — they eat frogs, crayfish and a variety of other small animals as well — and they are so mobile that they don't stay long enough to deplete a pond. Thus, they are generally not a major threat to game fish. The aquaculture practice of using cages to raise catfish, though, can prove very tempting to otters, which will often take out more than they can eat. They have raccoon-like intelligence when it comes to gaining access to food, and they can chew through plastic mesh. With proper monitoring and otter-proof tarps, their damage can be minimized, and the DNR provides free permits for taking them out of season in certain cases.

One of the bigger members of the weasel family (its relatives include the mink, marten, badger and skunk), the river otter can grow to more than three feet in length and weigh twenty pounds or more. Its thick, dark brown fur, long prized by the fur industry, has a silvery sheen on the animal's underside.

For its size, this is one quick critter. Graceful and swift underwater, it has the speed and agility to outswim and catch a trout, although usually only under high concentrations such

River Otter, *Lutra canadensis*

Description: *To four feet in length, including 12- to 16-inch tail, tapering from a thick base; weight 10-25 pounds. Thick, dark brown fur, silvery muzzle and chest.*

Range and Habitat: *Most of the U.S. and Canada, except the desert Southwest. Most South Carolina streams and lakes, particularly in wooded areas.*

Young: *Generally 2-3, born winter or early spring, after delayed implantation.*

Viewing Tips: *Nonpolluted, quiet bodies of water. Mornings and evenings are best.*

as in a hatchery or on a spawning run. The otter swims in an undulating fashion, often with just its head above water, and can travel hundreds of yards underwater without surfacing. In winter, even under ice, it can swim comfortably, since its fur traps air next to its skin and prevents the water from touching it. Sensitive whiskers help it locate prey even in the murkiest waters, and the ears and nostrils can be closed underwater.

An otter may take shelter in a comfortable spot amid tree roots, in a hollow log, or among rocks or driftwood, but it will generally occupy a den excavated by a beaver. It will use sticks, leaves and grass to form a nest.

Mating occurs in late winter or early spring, and a process known as delayed implantation makes the gestation period a long one. The embryo, in an

early form known as a blastocyst, ceases development for eight to ten months before implanting in the uterine wall and developing normally for eight to ten weeks. Birth — there are generally two or three young — takes place the following winter or early spring. The young are breast-fed, and it is two months before they are mature enough to swim, a skill they learn under the watchful eye of their mother, who will help those that struggle until they learn. Otters appear to remain in family groups through the fall, with the mother using a quick snort or grunt as a warning when necessary.

Adult river otters have little worry from predators, but internal parasites and diseases such as distemper take their toll. Human activity, particularly development and pollution, usually determines the strength of otter populations in a given waterway. Currently, South Carolina's population is strong enough to allow regulated hunting and trapping seasons. What's more, at various times otters have been trapped here to help re-establish populations in other states, including West Virginia, Tennessee and North Carolina.

Even though otters are relatively abundant in South Carolina, seeing them may require stealth and patience. The effort, though, will be rewarded with a view of the one South Carolina mammal that plays just for fun. 🐾

— Rob Simbeck

Rob Simbeck is a free-lance writer who lives in Nashville, Tennessee.



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Botanists love the special diversity that flourishes at Forty-Acre Rock, this unique spot where the South Carolina piedmont meets the upper coastal plain. But you don't have to be a scientist to appreciate its Eden-like beauty or the feeling that you're visiting a place like no other place you've ever been.

To get there, from Lancaster, take SC Highway 903 about 13 miles to where it meets US Highway 601. Go north on 601 about 1.5 miles and turn left onto S-29-27. (A sign on 601 for Flat Creek Heritage Preserve directs you.) Go 2.4 miles, passing the parking area for Flat Creek Heritage Preserve on your left, and proceed directly to Conservancy Road. Turn left and follow the road to a gate and parking area. Walk the rest of the way to the rock, about a quarter-mile on a dirt road.

At your first view of the rock, the earth seems to tilt. The open, dome-shaped face veers off in all directions at gently curving angles, dropping at the far edge toward a precipice dangerous in places. Proceed from the dirt road to the rock's near edge, but avoid any wet areas or pools harboring vegetation, which may be endangered. Plant communities on the rock face exist in a delicate balance, and disruption by humans can destroy them, so site managers encourage visitors to take care where they walk.

Exploring the rock's open expanse is almost irresistible, and you'll want to take in the unblocked view of the rock with its scattering of colorful pools before moving on. But this field trip begins at a trail running down the side of the rock and plunging down to a waterfall, comes near and crosses a narrow stream, and eventually leads back onto the rock's surface at the far end, then back to the road on which you arrived.

Many opportunities for side trips and interesting diversions appear along the way, and trail maps from the state DNR's Heritage Trust Program detail longer trips for more serious hikers. But even in this moderately strenuous approximately

1.5-hour walk, there is plenty to see. You will want to carry field guides for wildflowers and trees, insect repellent, sunscreen, water, and perhaps lunch, and wear good walking shoes or boots.

1 After arriving at the rock and taking in the initial view, walk down its face, hugging the tree line on the left edge. Near the base, the trail departs through the woods, leading through a bed of wildflowers — beardtongue, flowering spurge, and Carolina pink — closely following the sunny edge of the trees and passing an exposed root ball on the right. As soon as you leave the rock face, notice the change to the moist, shady environment leading to the waterfall. Proceed carefully, looking for rocks in the trail that might trip you up, and avoiding the many trees in the area that have fallen, a result of taking root in a place without enough deep soil to securely anchor larger trees. The trail, marked by blue, red or yellow rings on trees, forks shortly after the trip begins. Bear right toward the tree with the yellow band.



Bird-foot violet.

TED BERG

Ahead, look for the thick roots, like a giant octopus, of a leaning chestnut oak tree, and walk beneath the tree's trunk, dotted with resurrection ferns, to proceed. Begin listening for the sounds of falling water. Use a field guide to identify the small drooping flowers of Solomon's seal, a piedmont and mountain flower, and false Solomon's seal, from the lily family.

2 The waterfall is a wide rock face with dripping green mossy areas. It's tempting to climb across it and touch the dripping water, but the rocks are very slippery! The area, cool and damp, with small tendrils of sunlight slipping in through the tree canopy, provides the perfect spot for a basking skink. Look around the rocks, which are also very good for sitting and taking in the waterfall and having lunch, for these colorful reptiles. They are shy, but numerous, and you're likely to spot one. Small brown toads also enjoy the cool, moist air near the creek.

Of further interest here is the cave in view behind the falls. Past a narrow opening, a good-sized cavern opens to a space large enough to hold two people comfortably. Some folks have

PHOTOGRAPHS BY MICHAEL FOSTER



Beneath cooling shade trees, the trail drops gently downward beside a small waterfall where shy creatures like the skink below may be sunning on rocks and trees.



obviously been here, as evidenced by the garish graffiti covering the damp walls inside. (In fact, Forty-Acre Rock itself has become a canvas, in places, for disrespectful people with spray paint.)

3 Follow the creek from the waterfall to the right over a small footbridge. With the creek to your left now, follow the trail a short distance to another small footbridge and cross it again. The bridges, maintained by the Heritage Trust's preserve manager, are well-built and stable and allow hikers to negotiate the trail without getting their feet wet. Note the numerous large trees fallen along the trail, victims of Hurricane Hugo's inland winds. Slowly rotting and returning nutrients to the rich soil, these trees already provide habitat for insects and birds, which burrow into the decaying wood for food and shelter. Neat rows of holes in the tree's trunk show evidence that a hungry yellow-bellied sapsucker has dined here. Smaller plant communities, including several varieties of ferns, have



Delicate red elf-orphines flourish when rainwater collects in shallow depressions in the rock, scattering the grey face with ephemeral patches of color.

already sprung up on and around the downed trunks.

A third wooden bridge takes walkers along the winding path across the creek, up a hill and along a group of boulders on the right. As the trail drops again toward the creek, a beautiful bank of lady ferns brightens the area, with Christmas ferns and jack-in-the-pulpits nearby. Bright and delicate pink blooms on the opposite bank are chest-high wild azaleas, in full bloom in late March or early April. Minnows in the deeper, sandy pools on the inside of bends in the creek hold steady in the light current and dart upstream from time to time. They blend in so well with the creek bottom, you have to look closely to see them. Opposite the ferns, the bank above the trail rises sharply.

Wildflower enthusiasts should stop here to observe the colorful blooms hidden among the downed vegetation. Look for bird-foot violets hiding beneath other plants, their purple blooms partly concealed. Also, a sharp eye will find other plants that keep lovely secrets. Little sweet Betsy and Catesby's trilliums hide delicate flowers demurely among sheltering leaves, and wild ginger, with its dappled, heart-shaped leaves, also conceals its bloom. Gently raise the leaf to see the single brown urn-shaped flower at its base. May-apple, bloodroot and sweet shrub also grow in abundance along the path.

4 Ahead the trail becomes steeper, leading toward another rock outcropping. As the sounds of the waterfall fade, listen for other noises of the woods. Birds, including tanagers, warblers, vireos and woodpeckers, note your presence, remaining hidden in the canopy and calling to each other. Beneath your feet, look for the fallen orange-yellow blooms of the tulip poplar trees common in the area. Duck under another fallen tree across the path and note the clearing on your left featuring a huge rock face, like Forty-Acre Rock, but smaller. Preserve managers ask that hikers stay on the trail here and leave the natural communities thriving undisturbed. Off to the right, a trail leads up the steep slope, but go straight instead, crossing the fourth footbridge, then right, following the creek. The creek is back on your right now, and the sounds of falling water again become audible. Small yellow green-and-golds, another member of the sunflower family, add color to the trail side.

At this point the stream bed turns from flat and sandy to rocky and runs along the base of a sheer rock face on the right side of the trail. Cross the fifth wooden bridge, and head away from the stream and up the slope as the trail climbs. Look for red paint marking the trees along the trail, which becomes quite

steep here, requiring not-so-experienced hikers to pace themselves carefully. The trail leads you back onto the surface of Forty-Acre Rock, and as you emerge, head straight through the clearing ahead, through a stand of trees, and out to the other side into the clearing. At this point, turn left and walk to the top of the rock, following the treeline at the back edge (on your left). Walking straight ahead will take you back to the dirt road on which you came.

5 Too tempting to leave right away, the rock, impressive in its naked expanse, is a granite flatrock outcrop, called a monadnock by geologists. It was once a magma flow far beneath the earth that cooled and formed a solid mass of granite. Over millions of years, this mass rose to the surface and was exposed by erosion.

Though it seems to be 40 acres, it actually encompasses an amazing 14. Besieged through time by tiny lichens establishing colonies that begin the process of converting stone to soil, the rock dominates the landscape and dictates the surrounding plant communities. As it breaks down over millions of years, the rock turns to soil, nurturing across its face and along its fringes numerous plant species, with nearly a dozen rare, threatened or endangered ones included.

Intimate spaces framed by trees and shrubs border the rock and feature walls of privet, honey locust, sparkleberry and cedar. Clinging to the edge of the rock face, bright green hair-cap moss, dotted with small white flowers of arenaria, in the carnation family, draw the eye. Lower yet are the grey-green lacy lichens that actually are two separate organisms in a complex symbiotic relationship. Lichens, made of fungi, which provide structural integrity, and algae, which make food, are pioneer species, the first to colonize the rock face and start breaking it down. True mosses, green in color, come next, and continue the process. Soil increases as the tiny plants do their work, providing opportunities for larger plants to establish themselves on the rock.



Lichens and mosses carpet the rock beneath a cedar tree (above). Natural floral arrangements reflect the diversity of plant life in the fleeting pools.



As a result, a specialized plant community thrives in a seemingly inhospitable habitat. Wide-open, unprotected spaces on the flat surface develop weathered depressions formed when rain dissolved minerals in the rock face. Dotting the tilted rock surface, these shallow crevices collect pools of rainwater in the spring, supporting natural plant collections that form defined zones of vegetation: lichens, lacy and low to the rock, bright green pigeon moss, pink diamorpha or elf-orphines with tiny white blooms, honey-colored broom sedge, and in the center, the taller, yellow-flowered mules ear, from the sunflower family.

Small aquatic insects make their homes here, easy to spot as they swim along the delicate layer of mud at the bottom of the sunny pools. They serve the vital function of pollinating some of the aquatic vegetation. Flourishing as long as water remains, these natural gardens support red-stemmed elf-orphines as well as pool sprite, one of the rarest plants in the world.

It is for this plant and several other rare species that botanists with the DNR and The Nature Conservancy have protected this site, totaling 598 acres in

Lancaster County. Called Flat Creek Heritage Preserve, the area is now registered as a National Natural Landmark. The preserve, which is open from dawn to dusk daily, includes a system of trails built by the volunteer group Friends of Forty-Acre Rock. These trails wind through numerous distinct habitat types, with a beaver pond, waterfall and cave, Forty-Acre Rock and other smaller rock outcroppings, upland hardwood forest, and pine woodland along the way. But these last are for another day . . . 🌿

— Caroline Foster

With thanks to John Nelson, curator of the A.C. Moore Herbarium at the University of South Carolina.

For trail maps contact the DNR's Heritage Trust Program at 734-3894.

ROUNDTABLE



PHILIP JONES

Barrier islands with well-developed beach ridges and large tidal inlets occur on South Carolina's coast from Bull's Bay to the Savannah River, including the Isle of Palms, near Charleston, which, like other barrier islands, changes over time as the tides move sand.

MIGRATING ISLANDS STILL ON THE MOVE

Barrier islands, found between the mainland and the ocean, form a buffer against the sea's tides and waves. But did you know that these small islands may have been on the move for about 18,000 years?

"About eighteen thousand years ago, the shoreline extended some one hundred fifty to two hundred miles east of South Carolina's present coastline, and sea level was three hundred feet lower than today," explains state DNR geologist Ralph Willoughby. "After the glaciers of the last ice age peaked, temperatures began to rise and the glaciers began to melt. Some barrier islands probably formed between eighteen thousand

and six thousand years ago as sand ridges on the edge of the continental shelf."

Different theories exist on how the East Coast barrier islands ended up where they are today, but the most widely accepted theory states that as global temperatures warmed, the rising sea wrapped around sand ridges, and forests, marshes and river valleys retreated inland. Over time, the ocean tides and waves physically moved the barrier islands landward. This process has been termed "island

migration" by geologists.

Like fingerprints, no two barrier islands are alike. All made up of sand, silt and mud, the islands form in different ways based on their environment. Along shorelines where islands are more exposed to the sea and tide fluctuations are lower, barrier islands are long and slender (Winyah Bay or Garden City area). And along shorelines where the mainland curves inward and tides have greater fluctuation, the barrier islands are shorter and stubbier (Kiawah Island and Hilton Head).

These small, moving islands have formed on subsiding or fairly stable coastlines all over the world. As technology improves and studies are shared internationally, barrier islands are emerging as an important indicator of changes in the environment. In South Carolina, Willoughby and other DNR geologists are studying the influence of erosion, sediment buildup and sea level on barrier islands. These findings will soon add another piece to the puzzle of the islands' transient history. 🐾

Deadline for Camp Wildwood applications is May 15. Call (803) 734-3888 for information.



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STOP GAME AND FISH VIOLATORS

DISASTER AVERTED

You might not have known that 85,000 gallons of jet fuel spilled into the ground water near Charleston in 1975, but the people living in nearby Gold Cup Springs neighborhood could smell it.

Now, 10 years after efforts began to clean up that environmental disaster, a study shows that the work has been successful. (For more on this topic, see "Disaster Masters," SCW, November-December 1995.)

A report released recently by the U.S. Geological Survey hydrologists who set up the unique system to clean ground water beneath the jet-fuel tank farm in Hanahan details the success of the system, which may have applications for cleanups elsewhere.

In the report, Don Vroblesky, lead researcher on the project, notes substantial decreases in dangerous elements of the jet fuel, including benzene, toluene, ethylbenzene and xylene, or BTEX.

The project was so successful it was highlighted in a book called *The Hidden Sea*, by USGS hydrologist Frank Chappelle, which discusses the history and lore of ground water and details ways scientists are cleaning up sites around the state and the country that have serious groundwater pollution problems. Also discussed in the book are groundwater problems and solutions at the Savannah River Site. The book is available through Geoscience Press, 1-800-795-1513. 🐾

ALL COUNTIES OPEN TO TURKEY HUNTING IN SPRING 1998

For the first time in nearly 60 years, turkey hunters will enjoy open season this spring in all 46 South Carolina counties.

According to state natural resources officials, the spring 1998 wild turkey season opens March 14 for hunters in 11 Lowcountry counties. The regular season in most of the state and on public lands begins April 1 and ends May 1. Hunters may take only gobblers.

As a result of the statewide restocking of 3,400 birds on 196 turkey restoration sites since 1977 by the state DNR, turkeys now wander wild in huntable numbers in all South Carolina counties. "This is a significant benchmark for the turkey restoration project," says Brock Conrad, DNR deputy director for Wildlife and Freshwater Fisheries. "We have used strictly pure-strain South Carolina wild stock to restore this noble game bird once more to huntable populations."

The S.C. Natural Resources Board last fall approved expansion of the 1998 spring turkey season to "completely open all counties in the state with the exception of the Savannah River Plant Site and recently restocked restoration sites." About 30 wild turkey restoration sites stocked in the past five years will remain closed by agreement with the landowners and will be opened as soon as the population will support hunting. Turkey



Since turkey restoration efforts began in 1976, DNR project leader David Baumann (left, with Richard Vanderhorst) and others have stocked more than 3,400 turkeys on 196 different sites.

populations on the Savannah River Site are protected as a source for restocking other areas.

Areas previously closed to turkey hunting in the state's Pee Dee region will be open for the spring 1998 season. The season for all of Florence, Marlboro, Dillon and Horry counties will be April 1 through May 1, with a limit of two gobblers per season. The new areas open to spring hunting include lands in Florence, Marlboro, Dillon and Horry counties.

"To restore the wild turkey to all suitable habitat in South Carolina and to have a spring turkey season in every county were initial goals of the turkey program," says Conrad, who started the program. "We have

finally attained that goal, much to the credit of this department's staff, who trapped, stocked and monitored the birds, and of cooperating landowners, who helped protect the new flocks stocked on their lands."

Though the 1997 summer hatch of South Carolina wild turkeys was less than wildlife biologists had hoped, "we've had four good years in a row leading up to this year, so one below-average year is not going to hurt," says Dave Baumann, DNR Turkey Project supervisor. "South Carolina should have another outstanding gobbler season this spring. We've got a lot of adult gobblers out there from a string of good summer hatches." 🐾



PHILLIP JONES

Congaree Creek Heritage Preserve's 627 acres in Lexington County envelop three significant archaeological sites, a town that was a precursor to Columbia, and a rare plant community.

WILDLIFE AND CULTURE SAFEGUARDED BY STATE HERITAGE TRUST

Twelve rare plant and animal species and an important Civil War battlefield were protected by the state DNR's Heritage Trust Program, with land acquisitions totaling 3,755 acres, during the last fiscal year.

"Heritage preserves are a real boost in terms of quality of life for all South Carolinians," said Stuart Greeter, land protection coordinator with the Heritage Trust. "In addition to protecting scenic vistas and unique plant and animal species, heritage preserves offer numerous recreational opportunities. From hiking and canoeing trails to botanical and archaeological field trips, there is something for everybody."

Heritage Trust spent about \$2 million in South Carolina during fiscal year 1996-97 to acquire five different properties. Property donated to

Heritage Trust during the fiscal year was valued at more than \$1 million. Heritage Trust has now protected almost 73,000 acres of wildlife habitat and cultural sites statewide on 51 heritage preserves.

Among the new preserves is Fort Lamar Heritage Preserve in Charleston County. Documented as the second most important Civil War site in the state (behind Fort Sumter, where the war began), this 14-acre parcel was the site of an 1862 battle in which 1,250 Confederates defeated 3,500 Union troops advancing on Charleston. An M-shaped earthen battery built by Confederate forces on the upland is still in existence there.

Other new preserves include Longleaf Pine Heritage Preserve in Lee County, Laurel Fork Heritage Preserve in Pickens County, Daws Island Heritage Preserve in Beaufort County, and Congaree Creek Heritage Preserve in Lexington County.

Heritage Trust is funded through a small portion of revenue collected from documentary stamps required in South Carolina property transactions. The funds may be used only for acquiring significant natural and cultural areas. A part of the state DNR, Heritage Trust searches the state for rare plants, animals, archaeological sites and other outstanding features of South Carolina's natural and cultural heritage. The goal is to protect permanently the best examples of these features.

For more information on state heritage preserves, write Heritage Trust, DNR, P.O. Box 167, Columbia, SC 29202, or call (803) 734-3894 in Columbia, or visit the DNR's Website at www.dnr.state.sc.us. 🐾

BAILEY ISLAND CLUB WINS HIGH PRAISE IN DNR PROGRAM

Bailey Island Club, on Edisto Island in Charleston County, impressed the state DNR with its efforts to protect the environment, earning the department's prestigious Stewardship Development award.

The only project to be honored by this program for 1997, Bailey Island Club joins the ranks of eight other stewardship developments that showcase top-notch environmental protection efforts. Along with Bailey Island, Stewardship Development sites now include Aiken's Constructed Wetlands in Aiken County, Brays Island in Beaufort

County, Chau-Ram County Park in Oconee County, Dewees Island in Charleston County, Duke Energy's Bad Creek Hydroelectric Facility in Oconee County, Fort Jackson in Richland County, Newpoint in Beaufort County and Spring Island in Beaufort County.

Stewardship Development recognition is an elite honor reserved for development projects that exceed environmental standards and show a dedication to conserving natural resources during planning, construction and maintenance of the project. To maintain eligibility in the program, projects are subject to periodic on-site inspection. Categories of developments are commercial or industrial, residential, community, and public projects.

"Clifton Kinder, developer of Bailey Island Club, has chosen an environmentally friendly approach to its design," said Alfred Vang, deputy director of the DNR's Land and Water Conservation Division. "Land disturbance due to this development will not exceed six percent, and the majority of the island has been turned over to The Nature Conservancy."

Applications for Stewardship Development recognition are accepted year-round, but they must be received by the annual deadline of August 31 to be included in that year's judging. For information or to receive applications, call Richard Scharf of the Stewardship Development Program at (803) 734-9135. 🐾

IN THE FACE PROGRAM EVERYONE'S A WINNER

Fundamentals of wildlife management emerged in counties across the state when youths prepared and planted their own wildlife food plots as part of the 4-H Club's FACE for Wildlife program.

For their efforts, some participants received recognition, along with cash awards, frameable certificates and subscriptions to *South Carolina Wildlife* magazine. This year's top winners included LeeAnn Hendrix of Westminster in the 5- to 8-year-old category, Christa Covington of Ravenel in the 9- to 13-year-old category, and Allison Kitchens of Orangeburg County in the 14- to 19-year-old category.

The FACE (Food and Cover Establishment) for Wildlife program, now in its 17th year, works through 4-H clubs to teach the principles of wildlife management through the planting of wildlife food plots. A total of 117 4-H members participated in 1997, representing 28 of the state's 46 counties. The program is sponsored jointly by the DNR, Clemson University Cooperative Extension Service and Quail Unlimited.

"In addition to benefiting wildlife, we feel that the FACE program is a valuable learning experience for the participants," says Billy Dukes, DNR wildlife biologist.

For information about participating in the 1998 FACE program, write to Billy Dukes, DNR, P.O. Box 167, Columbia, SC 29202, or call (803) 734-3886. 🍄

AT YOUR SERVICE: DOT WALKER

Like a game-show contestant, Dot Walker tackles a series of rapid-fire questions every day.



TED BORG

Her job consists of answering queries on topics from freshwater jellyfish to piranhas and cougars, among many others. If she doesn't know the answer herself, you can bet she knows who does, and she'll be ready the next time the question pops up.

For a quick introduction to Walker's job, set your stop watch for one minute, summon all your natural resources knowledge and get ready to test yourself:

What is the creel limit for striped bass on the Saluda River? When is turkey season, and how do I apply for turkey tags? I have a raccoon trapped in my garbage can. What should I do? Does a youth under the age of 16 have to have state and federal duck stamps to hunt legally? How do I apply for doe tags in the Piedmont region?

Walker, receptionist for the DNR's Wildlife and Freshwater Fisheries Division, is a pro at answering hundreds of questions like this each day.

Yet, no matter what time of day it is, each caller will hear

Walker's patient voice and each visitor will see her warm smile. Even on the busiest days of the year, when phone calls are flooding in for doe tags or when hunters are standing in line for goose permits, she remains cool.

"I try to keep the same personality and tone of voice from the time I come to work until I leave," she explains. "When I hang up that telephone, I want to know I have been helpful and the caller knows a little more than when they first called."

Many callers appreciate Walker's willingness to listen, especially in a fast-moving society that features phones with multiple lines that often ring at once. "I enjoy talking to people," she says. "I never make anyone feel like they are wrong or foolish for asking a question. And I have never had anyone be ugly or rude to me on the telephone."

In 1996, Walker received both her division's employee of the year award and the DNR's employee of the year award for her positive energy.

And that positive outlook doesn't stop when she's off the clock. On her own time she is a wife and mother and a member of a ladies' bowling league in Columbia, where she plays once a week.

Walker began working with the Wildlife and Freshwater Fisheries Division in 1991, but serving the citizens of South Carolina is nothing new to her. She began her career in 1954 working as a long-distance operator for Southern Bell. "I worked on a telephone system like the one in the State Museum, with the switchboard and headset," she smiles.

In 1976, she went to work with her husband, Charles, at his television repair shop in Columbia dispatching service calls.

Dot and Charles Walker have been married for 42 years. Their son, Chuck, and his wife, Cathy, have two children — Cassie, 16, and Courtney, 14. "Although there have been many years of happiness," Dot adds, "there has also been some sadness with the loss of our daughter, Kim, who died at age 13 in 1975 from leukemia."

Walker's positive attitude and warm personality shine through, and those who come in contact with her can't help but catch her contagious cheerful spirit.

So the next time you call or visit the DNR's Wildlife and Freshwater Fisheries Division, say hello to Dot Walker. Chances are, she has the answer you're looking for — and she just might brighten your day. 🍄

— Cindy Thompson

ROUNDTABLE

URBAN ECOLOGIST: *Woodpecker Woes*

This time of year I start getting phone calls from concerned, and sometimes irate, homeowners wanting some relief from house-attacking woodpeckers. As if to add insult to injury, some of these birds like to get an early start, say around 6:00 a.m., with a drum roll on the gutters that vibrates the whole house and gets everybody out of bed early on a Saturday morning. What's going on here?

Most of this behavior can be attributed to hormones and the season. Woodpeckers are starting another cycle of family life in March and April, and the males are staking out their territories. Most select a nice resonant dead limb, snag, or power pole as a territorial drumming post, but sometimes the eaves of your house or your rain gutters serve just as well.

Woodpecker drumming is the equivalent of songbird singing and probably has more than one function; we know that female woodpeckers like to drum too. The culprit species in South Carolina are usually the red-bellied woodpecker and common flicker. In more rural, wooded locations the crow-sized pileated woodpecker may also take up house depredations.

The red-bellied is one of the many birds with a name that doesn't fit. It actually has more of a red head (not be confused with the gaudy and uncommon red-headed woodpecker, which has an all-red head) than a red belly — the early bird taxonomists must have worked under dim light with thick glasses. The red-bellied is



MICHAEL FOSTER

With more red on its head than on its belly, the red-bellied woodpecker is one of the many birds with a name that doesn't fit.

probably the most abundant woodpecker in South Carolina, occurring from the mountains to the sea in a variety of habitats, including back yards, river swamps, pine forests, and farmland.

Flickers don't fit the typical woodpecker mold, being mostly brownish in color, a camouflage aid that helps with their ground-feeding habit of devouring ants. Flickers prefer more open surroundings than most woodpeckers, at least during the nesting season, and are about the only woodpeckers in our area that can routinely be attracted to a nest box. Flickers are the ones that sometimes like to make a nest box out of your house by excavating a nest or roost hole in the wooden siding, a behavior that includes pulling out the attic insulation!

Sometimes woodpeckers have more than love on their minds when they drill on houses. The resonant quality of window frames and wooden siding may sound like food chambers full of beetle grubs,

ants, and other such delicacies, and they start attacking accordingly. Cedar-sided houses, especially in new developments where much of the wooded growth has been removed, are prime woodpecker foraging habitats. A bird the size of a pileated woodpecker with a three-inch chisel of a beak can cause several thousand dollars' worth of damage in a short period of time when it thinks there is food under the siding of your house.

Keep in mind all woodpeckers are protected under state and federal wildlife laws when you're devising a plan to stop them. Quick action is the best remedy. If the birds seem to be concentrating on only one part of the house, putting up a temporary covering such as hardware cloth or plastic netting may provide sufficient discouragement. Helium balloons, plastic owls and rubber snakes have all been tried with varying degrees of success. One researcher found

that tenacious woodpeckers like to roost at night under an eave near the damaged area, and a squirt from a water hose can sometimes send them off for good.

Sometimes the old saying "If you can't beat 'em, join 'em" works for woodpecker control. For home-seeking flickers, a box erected nearby may lure them away from your house (but quick action is necessary since the birds become very attached to their excavated cavity). A flicker box should measure about 9 inches wide by 9 inches high and 14 inches deep with a 3-inch diameter hole. Put plenty of wood shavings or sawdust in the bottom. The box should be in an exposed location and nailed to a tree or post about 10 to 12 feet high.

Providing food may also keep the offending birds off your house. All woodpeckers love suet (beef fat) or peanut butter-lard mixtures.

As a last resort for persistent woodpeckers, kill permits may be issued through the concurrence of the U.S. Department of Agriculture's Wildlife Services Office in Columbia, (803) 786-9455.

Despite their occasional aggravations to homeowners, woodpeckers provide good natural pest-control benefits. And once in a while, woodpeckers attack a home because of a real insect infestation — carpenter ants, carpenter bees and even termites. In these cases they can help homeowners by alerting them to a problem before it reaches the serious stage. 🐿

— John Cely

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Wildflower Tee

\$14.95 each;

specify M, L, XL.

Totes to match!

Cotton duck, same designs as tees.

Hummingbird Tote

Wildflower Tote

Butterfly Tote

\$14.95 each.

SAVE \$5! Order a matched tee & tote set and pay only \$24.90 for the set.



Kids' Collection

T-rompers in 100% cotton;

3 styles on white, front and back design.

Infants' sizes only.



Turtles

Ducks

Frogs

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specify infants' 12 mos.,

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"Here Comes Trouble!"

Shark or alligator design on 100% white, pre-shrunk cotton. Kids' sizes only.



Alligator

Shark

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specify kids' 2-4, 6-8, 10-12, 14-16.

SCW kids' tees; 2 designs in white

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Dancin' Critters, white

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Hangin' Possums, white

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- Hawks**
- Trailside Birds**
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NEW:
Butterflies
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Waterproof, floatable and tearproof marked fishing maps. Choose from 7 S.C. lakes.

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S.C. Fish Identification Posters.
Full color; 24" x 36". --
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for all your
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NEW!



You'll want a full set of these for handy reference! With full-color illustrations, every FlashGuide depicts 50 to 100 or more species. Each laminated guide opens in a flash to two rows, 12 panels per side, and folds to a slim 4 1/2" x 8 1/2". \$7.95 each, or order any two for \$13.95 to save!

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