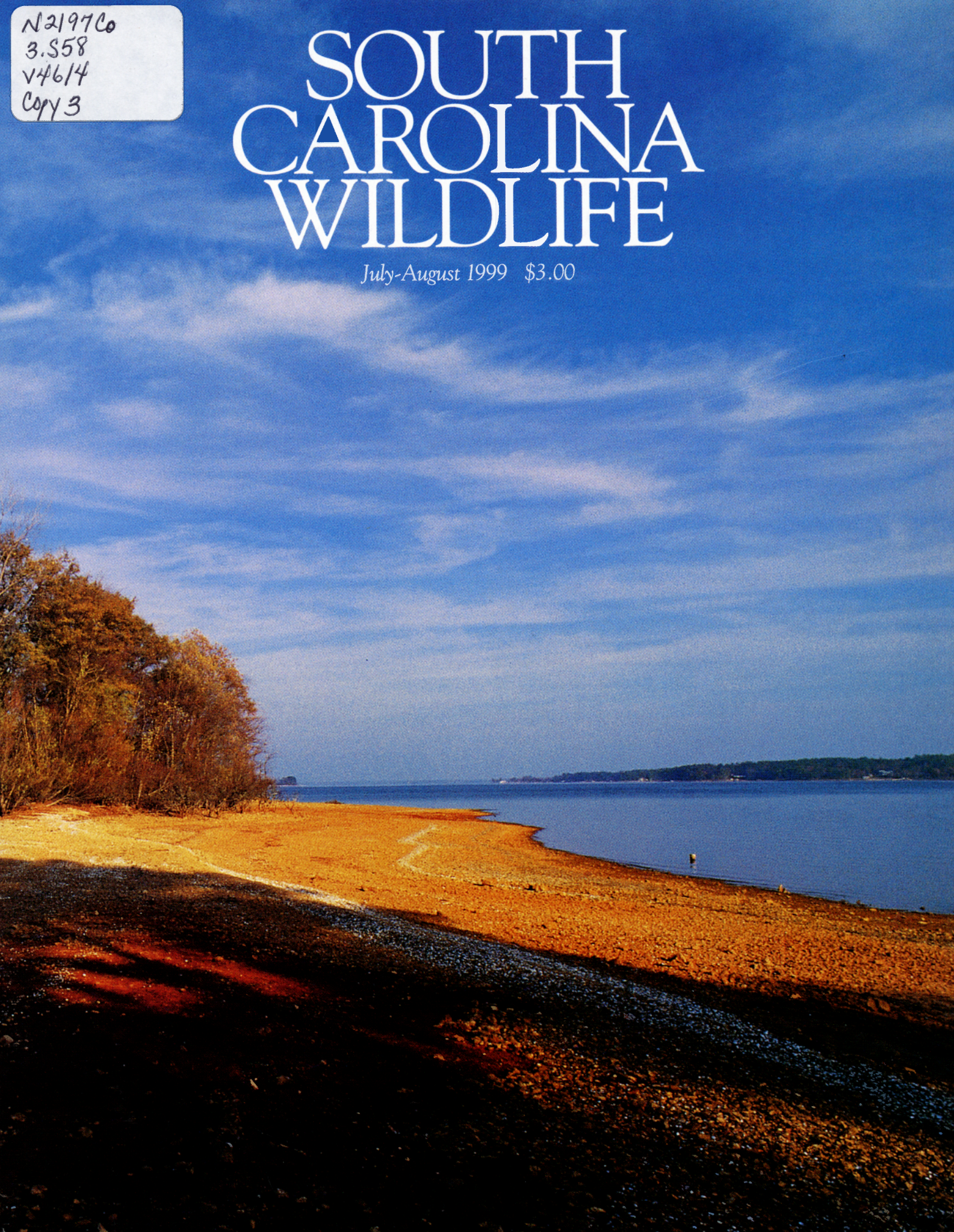


N2197C0  
3.S58  
V4614  
Copy 3

# SOUTH CAROLINA WILDLIFE

July-August 1999 \$3.00



# Daydreams

... of South Carolina's beauty  
become reality with SCW's  
exclusive outdoor art!

**F**ine posters from our Medallion  
and Sporting Series, shipped  
rolled and ready to frame,  
brighten your winter days.  
Each measures 22" x 30";  
\$9.95 each.

## Our newest!

**Bulls Island Poster**, latest in our  
Medallion Series, depicting Bulls'  
boneyard beach.

**Whitetail Buck Poster**, first of  
our Sporting Series, titled  
"Your Move."

## The first two Medallion posters:

**Waterfall Poster**,  
Greenville County's  
Rainbow Falls.

**Wetlands Poster**,  
a windswept  
Carolina bay.

\$9.95 each, or save!

**Medallion Poster Set**  
(includes Bulls Island,  
Wetlands and Waterfall  
posters), \$24.95.

See page 56 to order.



# SOUTH CAROLINA WILDLIFE

S. C. STATE LIBRARY  
AUG. 1, '6 1999  
STATE DOCUMENTS

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.



6

- 6 WALKING ON WATER *by Charlie Geer*  
Rickety structures of tacked-together, weathered boards, or elegant gazebos complete with benches and ceiling fans . . . docks come in many styles and see uses from crabbing to cocktail-partying.



28

- 12 THERMAL REFUGE *by John E. Davis*  
Summer heat creates special problems for Lake Murray's striped bass, but is the issue of catch and release biological or social in nature, and what can anglers do to help these great game fish survive?

- 14 HILLTOP ISLANDS *by Caroline Foster*  
Once overlooking farmland and woods, the hilltops that formed Lake Murray's islands when the lake was flooded now provide refuge in its open waters for wildlife and boaters alike.

- 24 LETTERS FROM OTHO  
For the three decades following his hiring by the state wildlife department in 1955, district fisheries biologist Otho May employed a straight-from-the-hip approach to dealing with constituents' concerns.

- 28 BEETLE MANIA *by Mike Creel*  
Beetles' clever physical adaptations for survival appeal to all five human senses, and the species' sheer numbers testify to their success.

- 36 SPORTSMAN'S BEST FRIEND *by Jim Mize*  
Wise and wily outdoor-folk won't leave home without consulting this indispensable tool that has more tips than a bookie and more strong points than a full quiver.



38

- 38 HANDS ON FOR SAFETY *by Lt. Michael E. Williams*  
Youngsters across the state are learning by doing when it comes to hunter education. Their instructors are learning, too, by giving teenagers positive role models.

## THE COVER *by Michael Foster*

Lake Murray's islands of clay and rock once rose as hills over the Saluda River valley. (See page 14.)

## MAGAZINE STAFF

Executive Editor Prescott S. Baines  
Editor In Chief John E. Davis  
Managing Editor Linda Renshaw  
Associate Editor Caroline Foster  
Editorial Assistant Tricia Garrett Way  
Art Director Linda Laffitte  
Photographers Michael Foster, Phillip Jones  
Circulation Director Jim Collier  
Product Marketing Gail Proctor  
Customer Service Mona Devito, Kendra Brunson  
Promotions Ginger DeHaven  
Business Manager Cynthia L. Woods  
Field Editors Mike Creel, Greg Lucas

## DEPARTMENTS

- |              |  |
|--------------|--|
| 2 DIRECTIONS | 42 FOR WILDLIFE WATCHERS: EASTERN RIVER COOTER |
| 3 EVENTS     | 44 FIELD TRIP: TABLE ROCK STATE PARK           |
| 4 FORUM      | 48 ROUNDTABLE                                  |

July-August 1999, Vol. 46, No. 4. Published by the South Carolina Department of Natural Resources.

South Carolina Wildlife (ISSN 0038-3198) is published bimonthly by the Conservation Education and Communications Division of the South Carolina Department of Natural Resources, 1000 Assembly Street, Rembert C. Dennis Building, Columbia, SC 29201. Copyright © 1999 by the South Carolina Department of Natural Resources. No part of the contents of this magazine may be reproduced by any means without the consent of South Carolina Wildlife. Manuscripts or photographs may be submitted to The Editor, South Carolina Wildlife, P.O. Box 167, Columbia, SC 29202-0167, accompanied by self-addressed envelopes and return postage. The publisher assumes no responsibility for unsolicited material. Subscription rate is \$10 per year. Preferred periodicals postage paid at Columbia, SC, and additional mailing offices. Subscription orders only: 1-800-678-7227. Circulation/Special Products: 1-888-644-9453; Editorial: (803) 734-3972; SCDNR Information: (803) 734-3888. POSTMASTER: Send address changes and inquiries to South Carolina Wildlife, Circulation Department, P.O. Box 167, Columbia, SC 29202-0167.

# DIRECTIONS

**HERO!** THE WORD CONJURES UP IMAGES of near-mythical figures of incredible courage and accomplishment, like Hercules, Davy Crockett, Sgt. York and, more recently, Gen. Colin Powell and Sen. John Glenn. But heroes are also just ordinary folks like you and me who somehow find the strength and courage to rise above dangerous or highly stressful situations to accomplish extraordinary things. It's not often that one gets to meet and work with real-life heroes, and when it happens it makes an indelible impression.

This summer, in a brief ceremony at the Statehouse, Gov. Hodges signed a new bill into law. Under normal circumstances, this would probably be of real interest only to dedicated government-watchers and some particular interests affected by the bill. But this bill was different, for this was "Drew's Law" — otherwise known as the South Carolina Boating Reform and Safety Act of 1999. This new law will increase the safety of every person who ever boats on South Carolina waters. (See Roundtable, page 49.)

And the real-life heroes behind the signing are Randall and Karen Smith of Lexington, the parents of Joseph Drew Smith, whose life was tragically ended in what should have been a preventable boating accident. In Drew's memory, the Smiths single-mindedly dedicated nearly two years of their lives to changing the state's boating laws to give officers better enforcement tools for getting dangerous boaters off our waters and to provide the resources to put more officers on the water. Despite obstacles that, at times, would likely have deterred even Hercules, the Smiths persevered, and on the very last day of the legislative session Drew's Law passed.

Although I never had the honor of serving in the military, I believe I know what the phrases "devotion to duty" and "conduct above and beyond" mean. I have seen them personified in Randall and Karen Smith, whose devotion and conduct will mean that many South Carolina families will never have to endure what they have.

Randall and Karen, the officers and staff of the DNR salute you.

— Paul A. Sandifer  
Director, SCDNR

DNR — Working for you, naturally.

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.



James H. Hodges, *Governor of South Carolina*

#### DEPARTMENT OF NATURAL RESOURCES BOARD

Dr. Joab M. Lesesne Jr., *Chairman*,  
429 N. Church Street, Spartanburg  
Danny L. Ford, 833 Bishop Branch Road, Central  
Ben Gregg, P.O. Box 12050, Columbia  
M. Russell Holliday Jr., 125 W. Highway 501, Galivants Ferry  
Dr. Julius L. Leary, 106 Liner Drive, Greenwood  
D. Malloy McEachin Jr., P.O. Box 337, Florence  
Dr. Douglas A. Rucker, P.O. Box 906, Lancaster

#### DEPARTMENT OF NATURAL RESOURCES

Dr. Paul A. Sandifer, *Director*  
Dr. James A. Timmerman Jr., *Director Emeritus*  
Cary D. Chamblee, *Associate Director*  
Larry D. Cartee, *Assistant Director for Planning & Development*;  
Jean E. Cowell, *Human Resources*  
Prescott S. Baines, *Deputy Director, Conservation Education and Communications Division*; Steve Bates, *Education*; Carole Collins, *Finance and Special Publications*; Mike Creel, *News*; John E. Davis, *Magazine and Photography*; Mike Willis, *Media Affairs and Video*  
John B. Reeves, *Deputy Director, Administrative Services Division*; Tony Bates, *Accounting*; David Busby, *Data Processing*; Terry Hughey, *Supply and Equipment*; Bill Pace, *Procurement*; James Duke, *Engineering*; *Migratory Waterfowl Committee*  
Col. Alvin Wright, *Deputy Director, Law Enforcement Division*; Lt. Col. Stanley L. Smith, *Assistant Deputy Director, Field Operations*; Maj. Van McCarty, *Staff Operations*; Maj. Alvin Taylor, *Marine Law Enforcement/Education*  
*Wildlife and Freshwater Fisheries Division*; John E. Frampton, *Wildlife Management*; Val Nash, *Fisheries*; Thomas S. Kohlsaat, *Wildlife Diversity*  
John V. Miglarese, *Deputy Director, Marine Resources Division*; David M. Cupka, *Office of Fisheries Management*; Dr. Frederick Holland, *Marine Resources Research Institute*; Donnie Kinard, *Administrative Operations*; Charles Farmer, *Office of Public Affairs*; Mike McKenzie, *Coastal Reserves*  
Alfred H. Vang, *Deputy Director, Land, Water and Conservation Division*; Danny Johnson, *Environmental Affairs*; Rodney N. Cherry, *Hydrology*; Dr. Michael Helfert, *State Climatologist*; Von P. Snelgrove, *Conservation Districts*; Charles W. Clendennin, *State Geologist*

#### CONSERVATION EDUCATION & COMMUNICATIONS ADVISORY COMMITTEE

Danny L. Ford, *Chairman*, Central  
Lorraine R. Conrad, Columbia  
Charles W. Harrison, Columbia  
Dr. Robert E. Livingston III, Newberry  
Jessie D. McCollough, Kingstree  
Richard Burton Peterson, Lake Murray  
Dr. Carolyn Fair Randolph, Blythewood  
Rennie M. Singletary Jr., Cross  
A. Pinckney Skinner III, Florence  
Charles L. Wyrick, Charleston

The South Carolina Department of Natural Resources, AN EQUAL OPPORTUNITY EMPLOYER, prohibits discrimination on the basis of sex, race, color, national origin, disability, religion or age. Direct all inquiries to the Office of Human Resources, P.O. Box 167, Columbia, SC 29202.

# EVENTS

Celebrate South Carolina's early heritage at **Jubilee**, August 20-21 in Columbia.

## JULY-DECEMBER.

**Exhibit: The Sculpture of Grainger McKoy.** Brookgreen Gardens, Pawleys Island. First major exhibit of Grainger McKoy's work in S.C. featuring his new bronze bird sculptures along with his bird wood carvings in a museum setting; fee. Contact Jessica Sasser, Brookgreen Gardens, P.O. Box 368, Pawleys Island, SC 29585-3368, (843) 237-4218, 1-800-849-1931.

## JULY-AUGUST 31.

**"The Magic School Bus: Inside the Earth" Exhibit.** Columbia. Kids and adults are entertained with five interactive environments: Ms. Frizzle's classroom features the study of rocks; In the Field allows visitors to explore the surface of the Earth's crust; the Mine Shaft shows Ms. Frizzle and class mining for rocks and minerals; Through the Volcano explores the forces that contribute to the ongoing changes in the Earth's crust; and The City shows the different ways people use rocks, from buildings to jewelry to art; hands-on activities, including rock drawing, fossil rubbing, strata puzzles, and rock and mineral testing, and even wearing a heat-resistant suit for volcano exploration; fee. Contact S.C. State Museum, 301 Gervais Street, Columbia, SC 29201, (803) 898-4921.

## AUGUST 7.

**Little Mountain Reunion.** Little Mountain. A road race, entertainment, arts and crafts, a parade, food, and other activities. Contact Robert Wicker, 486 U.S. Highway 176, Little Mountain, SC 29075, (803) 345-1194.

**River Race for Camp Kemo.** Columbia. Race in a canoe, kayak, raft, or tube to raise monies to benefit cancer children; seminars on watercraft; prizes and awards. Contact J. Alley, P.O. Box 1614, Columbia, SC 29202, (803) 772-3050.

## AUGUST 20-21.

**Jubilee: Festival Of Heritage.** Columbia. Music gala on Friday night, traditional arts and crafts, basket-weaving, blacksmithing, hands-on demonstrations for children, book signings, storytelling, historical tours, and food at Mann-Simons Cottage.



Mann-Simons Cottage.

Contact Historic Society of Columbia, 1601 Richland Street, Columbia, SC 29201, (803) 252-7742.

## AUGUST 28.

**Spring Water Festival.** Williamston. Children's activities, auto show, crafts fair, exhibits, live entertainment, one-mile fun walk; four-mile water run, and food.

Contact Sharon Durham, P.O. Box 401, Williamston, SC 29697, (864) 847-7361.

**Summerfest.** York. An exceptional crafts and food fair with a classic car show, live entertainment, arts, crafts, a 5K road race, children's activities, food. Contact Greater York Chamber of Commerce, P.O. Box 97, York, SC 29745, (803) 684-2590.

## SEPTEMBER 16-19.

**Shrimp Festival.** Yemassee. A boat ride, arts, crafts, battle of the shrimp contest, unique shrimp food dishes, and more.

Contact Laurie Poston, Town of Yemassee, 101 Town Circle, Yemassee, SC 29945, (843) 589-2565.

## SEPTEMBER 18.

**Catfish Festival.** Hardeeville. Arts, crafts, parade, street dance, food booths, and other activities on the Savannah River.

Contact Patsy Davis, (843) 784-6776 or 784-3606.

**Heritage Day.** Pickens. An outdoor festival of Upcountry music, dance, food, arts, crafts, and much more. Contact C. Allen Coleman, 307 Johnson Street, Pickens, SC 29671, (864) 898-5963.

## SEPTEMBER 24-OCTOBER 3.

**Moja Arts Festival.** Charleston. Arts festival featuring national and regional artists, performers and vendors; art exhibits, poetry and storytelling, dance, children's activities, film, humanities lectures, gospel concerts and crafts; Caribbean parade, band contest, inventions museum, heritage activities — stage performances, a marketplace featuring African and Caribbean fabrics, clothing, metal crafts, sculpture and traditional crafts, ethnic foods. Contact Moja Program Coordinator Elease Amos-Goodwin, Office of Cultural Affairs, 133 Church Street, Charleston, SC 29401, (843) 724-7305.

## OCTOBER 12-14.

**"Aquatic Nuisance Species: A Focus On The Southeast" Conference.** Sheraton Charleston Hotel, Charleston.

Environmental policy makers, resource managers and researchers should attend this conference focusing on existing aquatic nuisance species in the Southeast and identifying species that are likely to invade in the future; sessions on global and national perspectives, bioinvasions, research efforts, state and regional prevention, and future directions; register by August 20; fee; lunch; sponsored by DNR, U.S. Fish & Wildlife Service and other agencies. Contact Steve de Kozlowski, (803) 734-9114, or Janice Conner, DNR's Land Resources Division, 1201 Main Street, Suite 1100, Columbia, SC 29201, (803) 737-0800.

*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.*

## Fish Lesions

We have noticed a great increase in the sores on bream that we have been catching in the Cooper River, Bushy Park Area, in the past months. At least half of what we are catching have significant lesions. Any ideas as to what's up? I have checked with other fishermen at the boat landings and all have noticed an increase in the problem.

Gerald Mishoe  
Charleston, SC

*Editors' Note: Says fisheries biologist Scott Lamprecht, "We have had similar inquiries this spring from other sources and have examined some fish out of Goose Creek. The disease/ parasite problem has been caused by bacterial infection, a parasite (Epistylis), or a combination of both. Red lesions are quite common and usually reach their peak occurrence in the late spring. A fish's resistance to infection is lowest in the early spring and builds as seasonal temperatures increase. Year-to-year differences in the incidence of sores can be connected to fluctuations in annual temperature regimes, rainfall and resultant water quality. Some of these lesions can be attributed to spawning stress and handling (catch and release). Most fish can fight off the infections as the season progresses, and the incidence of lesions decreases accordingly.*

*"The fact that the fish are caught on hook and line indicates that the fish are functioning normally. The first thing to go*

*when living under stressful conditions is the appetite. The fish are safe to eat. However, I have seen some (over the years) that look so bad that I would be put off.*

*"There has been some wild talk about Pfiesteria piscicida. That is the problem that North Carolina has been experiencing in one of its estuaries. The key word here is estuary, which describes the area of mixing salt water and fresh water. Not only do Pfiesteria outbreaks require brackish water, they require highly enriched conditions, which do not occur in South Carolina. The Pfiesteria organism cannot in any way, shape or form affect freshwater panfish."*

*For more information about this and other fish diseases, contact DNR fisheries biologist Scott Lamprecht at LamprechtS@scdnr.state.sc.us.*

## One Horn Blast Or Two?

I feel I need to inform you of a mistake in the May-June edition of the South Carolina Wildlife magazine. In the boater education supplement *On the Water*, in the article "Which Course to Steer," Situation I talks about the use of lights, and the answer talks about use of horns. It's the part about the use of horns that has a mistake. One horn means the captain of the "Give Way Boat" intends to pass on his port. Two horns mean the captain intends to pass on his starboard. The article has it backward.

Jim or Diane Carroll  
By e-mail

*Editors' Note: The corrected passage on page 13 of the supplement should read ". . . Your vessel is definitely the 'Give Way Boat.' You should immediately slow down to determine if the other vessel is moving and in what direction. If the vessel is still moving across your bow, allow it to pass before you continue. If it is at anchor, or moving in the same direction as you are going, approach cautiously, allowing plenty of room to pass on its right or left. If it is underway, sound your horn, one blast if you will pass to its right, two if you intend to pass on its left. The other moving vessel should issue a similar sound signal indicating it is aware of your intent."*

## High Praise

This is a truly beautiful magazine, and, I think, the best of South Carolina, North Carolina or Florida wildlife magazines.

Marion Borg  
Lake Placid, FL

## A Loaded Thank-You

*Editors' Note: In correspondence concerning an article idea, a gracious reader from Columbia who now lives in Charlottesville, VA, told us how he came to subscribe to SCW. We thought it made an interesting story:*

*"A man from Columbia was referred to me here at the University of Virginia for a fairly risky operation on his aorta, which is the main artery of the body. Things went well for him (thank goodness), and*

he wanted to give me a gift of some sort. I gave him the same answer I give every patient who asks me about such things: 'I'd like a photo of you doing whatever it is that you most wanted to do again when you are well.' (This has generated some interesting photos, as you might guess.)

*"Anyway, a month or two later, I received a photo of this guy standing on the beach at Pawleys Island with a buddy and a bunch of fish. (I don't know if they really caught them, but it was a great picture.) The enclosed note from him echoed my admonition to him: 'This is why we did the operation . . . so I could live again.' I never, ever receive greater compensation for what I do than these notes and photos. Anyway, the envelope also contained a note saying that he had subscribed to S.C. Wildlife for me, partly so I could revisit my home via your pictures (which I have, indeed, enjoyed immensely)."*

Curt Tribble  
Charlottesville, VA

## And The Winner Is . . . Everyone!

Your article on WAIT (Wildlife And Industry Together) in the May/June issue described the program and its positive results in a very complete and informative manner — complete with beautiful, descriptive photos. We at the South Carolina Wildlife Federation have been

## IN OUR NEXT ISSUE . . .

REPLACING THE HOT BREATH OF SUMMER, autumn's cooling air and crisp, clear days appear, colored with shades of brown and gold and orange. Even the breezes smell different, foreshadowing the chilly winds of winter. Before those frozen days arrive, something stirs us to get out and behold Nature's beauty, and many of us take to the highways and byways to explore beyond our back yards. Roll down the car windows, inhale deeply, and join Dot Jackson to experience "Road Rapture" in SCW's September-October issue. Travel with her over four routes that offer a glimpse of the diverse faces of fall-season South Carolina.



## PLUS . . .

Jostle your way past the cotton candy and elephant ears of the South Carolina State Fair to learn about the heritage of this annual event . . . take a look at the innovative stewardship measures the State Parks Service has put in place to protect some special natural resources . . . read how property owners can solve the growing problem of trespassing to hunt or fish on their land . . . empathize with Editor In Chief John Davis as he stoutly disowns a lifetime's worth of misbehaving hunting dogs . . . and get acquainted with an astonishing donation to the State Museum.

very successful in promoting WAIT due to the excitement and increased morale that it creates at industrial sites. As mentioned in the article, there are only winners in WAIT. The program is also a perfect example of the benefits of teamwork and collaboration — not only within the industries themselves but also among the four partner organizations — SCWF, SCDNR, NWTF and Duke Power.

There are opportunities for all of your readers to be involved in the protection and enhancement of wildlife habitat through our Backyard Wildlife Habitat and Schoolyard Habitat programs. Additional information and resource materials can be obtained by contacting us at 2711 Middleburg Drive, Suite 104, Columbia, SC 20204, phone: (803) 256-0670 or at [www.scuf.org](http://www.scuf.org).

Keep up the good work!  
Angela Viney, Executive Director  
S. C. Wildlife Federation  
Columbia

### Woodpecker Wonders

I am a new subscriber to the magazine and wish to convey my compliments on its professionalism and wonderful, wonderful photography. My husband has been a *National Geographic* subscriber for more than 25 years and feels you are right up there with them!

Recently on your Web site, I came across Edward Pascoe's letter regarding woodpeckers

and wanted to share with you that we've been lucky enough to have both the red-bellied and red-headed birds in our yard. (We reside in northeast Richland County.) They both nested in dead trees in the empty lot behind our house, and each produced a set of young that we've been able to see mature as the weeks passed. We've provided suet for them since late winter, and one evening we were standing only a few feet from the feeder when two of the red-headed babies who were now flying came to feed, not at all frightened of us being so close.

The red-headed woodpecker has been in our area for the past three years and, now that we provide the year-round suet, seems to have made our yard its regular habitat. This is our second year for the red-bellied birds. Their antics provide us with many hours of enjoyable bird-watching, and watching the red-head in flight with its brilliant red, white and black coloring is a treat.

Paulette Kindler  
Columbia

South Carolina Wildlife welcomes your comments. Send letters to SCW magazine, P.O. Box 167, Columbia, SC 29202, or e-mail to [Carolinef@scdnr.state.sc.us](mailto:Carolinef@scdnr.state.sc.us). Please include your name, address and daytime telephone number. We reserve the right to edit letters for length and clarity. 🐿

# WALKING ON WATER

**RICKETY** STRUCTURES of tacked-together, weathered boards, or elegant gazebos complete with benches and ceiling fans . . . docks come in many styles and see uses from crabbing to cocktail-partying.

by Charlie Geer

**SEVERAL YEARS AGO** a buddy of mine was trying to come up with a good place to propose to the woman who is now his wife. This place, he said, had to be quiet and, of course, romantic, a place removed from the daily world and all its distractions. He didn't want to do the five-star restaurant thing. Way overdone, he said, and who wants to start a marriage anywhere near the words "Check, please"? As for his apartment, well, there wasn't anything romantic about that lair. I got to thinking. Quiet, removed places weren't so easy to come by anymore, even in Carolina, but I did know of at least one.

"How 'bout the dock?" I said.

He positively beamed. "The dock," he said. "Of course."

The dock was an old, creaky affair that complemented an even older, even creakier hunting cabin his great-grandfather had built on the upper Wando River some years back. The standing structure bridged twenty-some yards of marsh, teed into a modest fish-cleaning platform, and finally dropped to the river by way of a ramp set on a floating dock, or "floater." The treads of the dock were paled and splintered — more than a few of them in need of renailing — and the ramp hinges and wheels squeaked and groaned with the rise and fall of the tide. It wasn't much to look at or even terribly safe to walk on, but when we were growing up it was the only dock on that reach of the river, and we



PHILLIP JONES





PHILIP JONES

made plenty use of it.

Summer afternoons we took refuge from mosquitoes and grown-ups there, cut flips and cannonballs off the pilings when the tide was up, and netted buckets of blue crabs when the tide was down. Autumn nights we hooked speckled trout by the light of a Coleman lantern, made big talk about the next day's hunt. As we aged, we found the dock a good spot for sipping beer and pondering the mysteries of the unending sky, and not a bad

place to take a girl, either. A spirited breeze gusting up off the river, water lapping at the pilings, the only evidence of the modern world a trio of radio towers winking sleepily in the distance — there was nowhere else you wanted to be.

*All Docks* cultivate a certain spirit, even those built for the most practical of reasons. Merchant docks have been weaving lore for centuries. Consider the homecomings of the world's great explorers: Columbus, Alexander the Great, Vasco da Gama — the tales and celebrations those docks must have known. Consider, too, those whalers and explorers who never made it back to the dock — the waterside



MICHAEL POSTER



*Coastal docks, from Pawleys to Edisto, may extend out the beach house back door or span a stretch of marsh. Embarkation point for deepwater excursions, platform for casting a net, gathering place for a wedding-party gala — a dock melds land and water in a mystical connection of elements.*

vigils, widows quietly pacing the planks. Today, the dock where the trawlers tie up to unload their hauls is home to myriad stories and legends — some true, others stretched — and advice on everything from cogwheels to marriage. It's also a point of reckoning: the captain who's been telling everyone to stay in because he isn't catching anything can't hide a boatload of shrimp when it's shoveled out of the hold and the baskets are set on the dock.

Marina docks harbor their own mystique. Hitching posts for bluewater sailors and "Waterway Winnebagos" alike, they nourish a camaraderie among itinerant strangers. Here the traveler stops to repair his rigging or replace a fuel line, sometimes to simply take cover from rough weather, and he's not long in meeting others like him, fellow nomads bound for distant ports — ports he may know well, ports he may like to know one day. The marina dock is a place to recoup and recount, and, in time, a place from which to set sail again. It is a place where strangers who have but one thing in common — a love for the water — come together to trade stories and information. On streets and sidewalks everywhere, passersby scarcely look at one another, but a marina dock is, generally, a place of cordiality and respect: if two passersby don't at least greet each other here, something's up.

**I**N COLLEGE, a few of us used to go swimming up at a small, little-known lake in the northwest corner of the state. Fed by a deep mountain spring, the lake was always chilly, and the thing to do was swim out to the floating dock that lay waiting in the middle of the lake and bask in the sun for a while. I don't know who put it there, or why, but I doubt very seriously we would have made so many trips to the lake if it weren't for that dock. The dock was a destination, a place to get to, and,

ultimately, a reward. The old planks always felt warm from soaking up the summer sun — we'd pass whole afternoons doing the same.

It's not always easy to leave a dock. Anyone whose first (literal) taste of creek water came with a jump from a dock into a parent's open arms can attest to this. The child must be heartily encouraged, elaborately coaxed, to abandon the solid security of the dock for a fall into the unknown. The adult who loses a late-night, mid-winter bet knows the feeling, too, although his encouragement, more often than not, comes in the form of a friendly, if determined, nudge. Once off the dock, child and adult

alike submit to the same sudden imperative — to get back on the dock. There lies safety and warmth, the civilized world and all its courtesies. There we can sit on the water without getting wet. There we can all but walk on it.

**DOCKS ARE NOT WITHOUT** their controversy. It has been argued, from the wetlands to the hill country, that there are simply too many of them going up — or out, rather — these days. Like suburbs and strip malls, their proliferation threatens the uncluttered, easygoing way of life we South Carolinians treasure — a way of life, ironically enough, nurtured by docks. Another dock often means another boat, which means more traffic in our waterways, less peace and quiet around the old fishing hole. The new dock becomes symptomatic of a larger unpleasantness — unbridled growth.

To be sure, the lobby for tighter regulations in dock building has gained momentum over the past few years. In order to build a dock, one has to obtain a permit, and in order to obtain a permit, one has to not only design a dock that



PHILLIP JONES

PHILLIP JONES



*Mountain-lake dreamers and serious river-anglers value the peace and quiet a dock affords. With warm planks underfoot and placid water below, the invitation to spend just a tad more time can be impossible to resist."*

meets specific requirements of dimension and location but also survive a fourteen-day public review process, during which concerned citizens (i.e. neighbors) can raise objections, as well. Some developers have found an answer in the single, multi-purpose "community dock," an approach that makes sense both ecologically and socially: the community that docks together, stays together.

You have to really want — even fight for — a dock to get a dock, which is perhaps as it should be. The dock that is built frivolously or merely as a status symbol, that goes unused, is like a porch that hasn't known a sitter since the advent of air conditioning — a waste, and a shame. Because whether sunk in Lowcountry pluff mud or anchored to the sandy bottom of an Upstate lake, a dock has whole worlds to offer. Those who bless a dock with life — with good times, with hard work, with pause and reflection — will find themselves decidedly blessed in return. 🐾

*Charlie Geer lives in McClellanville.*

# THERMAL REFUGE

by John E. Davis

**M**idsummer on Lake Murray, air temperature soars into the high nineties; water surface temperatures aren't far behind. Fifty feet down, all is pitch black, and the water is cold, some 65 degrees.

Gayland Penny has dived there. He knows the claustrophobic feeling of the inky darkness, the head-numbing chill of the water. Though he has never carried down the powerful lights needed to illuminate the big silver fish holding in these cold waters, he knows they are there. In his mind he has seen these striped bass, suspended close together in this thermal refuge, gulping to pull more water past their gills, gaining every milligram of oxygen they can to survive within this cool zone of water they prefer.

Penny, a S.C. Department of Natural Resources fisheries biologist who has worked Lake Murray and other midlands waters since 1977, and District III Fisheries Supervisor Gene Hayes know this attraction to the cool, deep waters puts the fish in a precarious situation. While water temperatures may be in the stripers' preferred range, dissolved oxygen levels here are perilously close to the lower limits at which they can survive.

In deep lakes like Murray, reported to be some 200 feet near the dam, summer brings a phenomenon known as stratification. Upper level waters, called the epilimnion, are warm and relatively oxygen rich. Deeper waters, called the hypolimnion, are cold and oxygen depleted. Between these two extremes lies a layer of rapidly falling temperature and dissolved oxygen, the thermocline. Ranging from 10 to 25 feet in thickness, this dynamic layer of water may extend to more than 50 feet down.

At the surface's epilimnion, dissolved oxygen may reach nine milligrams per liter of water (9 mg/l). Fish normally prefer 5 to 9 mg/l. Fisheries biologists like Hayes and Penny know the stripers begin to weaken and suffer signs of stress at 2 to 3 mg/l, often losing weight and becoming more susceptible to parasites and diseases. In fact, they cannot stand dissolved oxygen levels at or below 2 mg/l for any great length of time.

If the summer is a hot one, the fish may run out of time as oxygen levels continue to fall deep in the lake. What can happen next is a die-off, with up to several thousand fish floating in the basin between the dam's intake towers and the Jim Spence Islands. The die-off may be hastened when South Carolina Electric and Gas, which built the lake for electric power generation, runs turbine number five. Biologists theorize the big turbine pulls water from the critical thermal refuge level where the fish hold. The company, in an effort to minimize impact on the nationally renowned fishery, limits its use of this turbine during the critical summer period.

"Last summer SCE&G ran turbine five only briefly during midsummer, and we had no extended periods of hundred-degree temperatures in the midlands," Penny said. "The fish moved out of the thermal refuge before dissolved oxygen levels fell too low for their survival."

So why would the Lake Murray stripers, which can move to any depth level, deliberately choose to lie there, suspended in the deep water, gasping for oxygen?

"We don't know for certain," Penny says, shaking his head. "While numerous studies have been done throughout the Southeast on stripers in lakes that stratify, very little of this type of research has been done on the fish in Lake Murray. We do know that adult stripers have a physiological need to remain at preferred temperatures. During summer, this need appears as strong or stronger than their need to select depths with higher dissolved oxygen levels. The stripers move down-lake in early summer, searching for thermal refuges.

Temperatures within Lake Murray's thermocline may drop as much as 2.2 degrees for every three feet of depth. Penny's theory is that the changes in temperature and dissolved oxygen within the thermocline create an environment that is not within the stripers' comfort zone. Instead, the fish often suspend just beneath the thermocline, in what Penny describes as a narrow zone of slightly higher oxygen, characterized by temperatures near 64 to 65 degrees.

**W**hat Penny knows from experience is that anglers find the stripers easy targets when the fish gather in this thermal refuge. Commuters crossing the dam between Lexington and Irmo during the June-through-August months can attest to the number of boats seen drifting, anchored or trolling in search of striped bass. Many of the thousands of boaters on the lake, including some of these anglers, do not understand that die-offs affecting all sizes of stripers have been documented since the early 1970s as a part of the history of the Lake Murray fishery. Some anglers attribute all dead or dying fish to the lake's current size limit restrictions, requiring that all stripers less than 21 inches in length be released. Indeed, angling pressure can affect striper mortality in terms of individual fish. However, biologists say these numbers are insignificant in terms of the lake's total striped bass population.

In fact, it is likely that reduced angling harvest of 18-inch and smaller fish has helped increase survival. Biologists have cut back on stocking from 1.5 million fingerlings per year to 1 million. Yet the number of stripers in the Murray system continues to climb, as verified by Hayes' data from experimental gill net samples. In 1990-91, 26 stripers were taken per 1,000 square yards of gill net set. Identical sets in 1998-99 showed 149 fish for the same amount of net.

"The fish also seem healthier than they've ever been," Hayes says with obvious pride. "In fact, this past season, fishermen tell us, was one of the best they've seen in years for bigger fish — fish in the fifteen-pound, twenty-pound and up weight class. Aging studies show these fish would have been stocked when the five-fish, twenty-one-inch size limit was initiated in 1991."

Before that time, Murray's anglers complained that larger fish were becoming more scarce as angling pressure increased. It was anglers, not biologists, who asked for a management technique that would bring larger-sized stripers back in Murray.

As one midlands angler noted, "It's the only game fish that can attain the size to make it a real trophy, comparable to saltwater species — an inland angler's version of offshore game fish."

## Summer heat creates special problems for Lake Murray's striped bass, but is the issue of catch and release biological or social in nature, and what can anglers do to help these great game fish survive?

From June of 1998 through September of 1998, DNR biologists, with the help of *South Carolina Wildlife* magazine and a small group of amateur and professional anglers, evaluated angling methods and release conditions that might affect Murray's summer stripers. Goals were to determine the condition of striped bass on release and to correlate depth, hook type, bait type, landing time and handling to the condition of fish at release. Biologists also gathered temperature and dissolved-oxygen data relative to striped bass habitat in Murray. Participating anglers kept logs on their catches, and biologists often rode along to observe and measure water temperatures and oxygen levels. The study's findings will lead to future, more extensive studies, but they also can be used now by anglers to minimize losses of undersized fish.

Penny stressed that the study confirmed the main factor affecting hooked fish mortality during the summer is water depth. The summer logs showed that anglers definitely go deeper for stripers during the hot months and that fish hooked in water 50 feet or deeper exhibited nearly twice as many problems on release as those hooked at 20 to 40 feet. Stripers taken from less than 20 feet deep showed no overt signs of stress such as bleeding, protruding air bladder, or floating.

"Anglers are going to fish where the fish are," Penny says. "But if you fish deep, you must expect to lose some fish, no matter how you handle them.

"Our records show that there are some things anglers can do

to increase release success. Fish have a better chance of survival when they are taken on tackle that allows the angler to get them to the boat as quickly as possible. And, when a gut-hooked fish is going to be released, the line should be cut as close to the mouth as possible while the fish is alongside in the water, rather than hoisting it aboard and handling it, or ripping the hook out. The hook will deteriorate, improving the likelihood of survival."

Penny also cautions anglers concerned with releasing fish to avoid deep trolling during the hot months. Logs show that stripers caught trolling, as compared to those caught by live bait methods, have 20 percent less chance of a normal release.

**SOUTH CAROLINA WILDLIFE** magazine, through the Wright McGill Company, supplied special Eagle Claw hooks called circle hooks to all 1998 study participants. (Circle hooks were developed for the offshore longline fishery, where fish must hook themselves on baited lines drifting free.) This evaluation of the hooks was one

of only a handful in the nation on freshwater game species. Claims by the industry that the circle design would dramatically decrease the incident of gut-hooked fish while actually improving the number of hookups were substantiated on Lake Murray.

The key to success with circle hooks is in not setting the hook. The fish does that as it takes the bait and turns to swim away. The hook pulls out of the gullet, then turns as it starts to exit the mouth, hooking either the lip or corner of the mouth. The angler simply picks up the rod and engages the reel drag. Do otherwise and the hookup is not likely to occur.

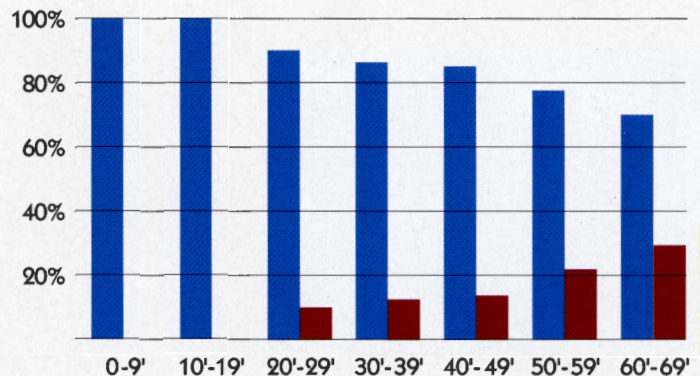
Though Penny noted that a few of the participating anglers did not like the hooks, he stressed that 98 percent of stripers brought in on circle hooks showed no injury or stress when released.

"I'd definitely recommend them, based on the comments received from our test anglers and our data," he says.

District III biologists and technicians began a striped bass creel survey in June on Lake Murray. It is scheduled to run through late summer. A follow-up telephone survey is planned for the fall to determine how anglers feel about the Lake Murray striper fishery and what they want there. A telemetry study by Clemson

*Anglers logged the condition of released striped bass caught at depths from 0 to 69 feet. The percents of their total catch at each depth show that the number of normal-on-release fish decreased when taken from greater depths; abnormal-on-release stripers increased with depth.*

■ Normal  
■ Abnormal (floating, bleeding, air bladder protruding)



University and the DNR will begin in spring of 2000. Stripers will be radio-tagged and followed through that summer to see where, when and how quickly the fish move within the system, to locate their thermal refuges — something both biologists and anglers want to know more about.

"We have a very healthy put-grow-and-take striped bass fishery in Murray," Hayes adds. "It's the envy of others in South Carolina and elsewhere. But, how large we let the fish grow before harvest is not a biological issue. It's a social one. We put in the five-fish, twenty-one-inch size limit because anglers said they wanted larger fish, and I believe it's paying off in those terms as well as from the standpoint of producing higher numbers of obviously healthy fish. Our first responsibility is to the welfare of the fish and their habitat, but if anglers want to be allowed to keep smaller fish, then that's what we'll manage for. It's as simple as that. We want to provide what the majority of the fishermen want." 🐟

# Hilltop Islands



Once overlooking farmland and woods, the hilltops that formed Lake Murray's

islands when the lake was flooded now provide refuge in its open waters for wildlife and boaters alike.

by Caroline Foster

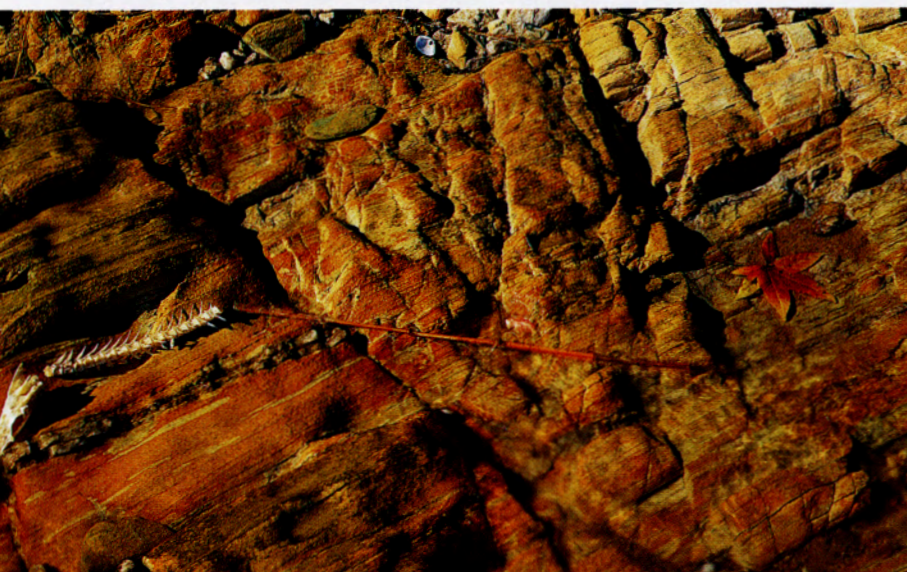


**F**rom the front porch of his family's weekend cottage, ten-year-old Elvin Smith looked out over woods and cultivated fields of cotton planted on the sloping countryside that rose from what had recently been the bed of the Saluda River. The river, backed up by a new dam put in for power generation purposes, had begun to swell, inching out of its banks toward the cotton crop still in the fields.

Sitting on the same porch seventy years later, he describes the filling of the lake. "It came up slowly, over two years. I remember the workers in the fields picking cotton, working hard to get the crop harvested before the water got to it," says Smith, recalling the years he was a young boy during the construction of Lake Murray. "People would walk down and check it regularly to see how far it had come up, then talk about it for the rest of the day."

As the lake rose, it swallowed up the fields, woods, houses and churches that had bordered the river. Eventually only the hilltops remained dry. Formed of the typical rocky red clay of the Carolina piedmont, the higher elevations, now islands, became more like flatland as the lake filled. Isolated fragments of the rolling landscape that once supported a thriving farming community, some islands still show evidence of terracing, where farmers cut layers into the hilltops to prevent the erosion of the fields. Mountain laurel, rare below the Upstate, still flourishes on one island, an out-of-place reminder of the former elevation of the land.

Columbians and visitors to the area have enjoyed the lake since its flooding, partaking of swimming, boating and excellent fishing from the very start. But for those who didn't own boats, the islands were always unreachable and fascinating, their perimeters beckoning bank fishermen and romantics to opportunities they could only dream of.



MICHAEL FOSTER



PHILIP JONES



MICHAEL FOSTER

◆ Rocky island borders expand and shrink with changes in water level, at ebb revealing remnants of ephemeral life. Volunteers clear away immediate human impacts like litter, their signs telling others the islands are cared for. On previous pages, a strange constellation of islands orients boaters on the lake like familiar stellar patterns guide amateur astronomers across the night sky.

One Columbia native told me how strong the attraction of the islands could be. Romantic on the horizon as he stood at the landing beside the dam with his girlfriend and a canoe, the islands looked like the perfect thing: a destination in the wide, open lake where a young couple could picnic together in their own little Eden. The islands in view, likely the Jim Spence group, seemed welcoming, exciting and reachable. But Lake Murray is large and protects the small mythologies surrounding its islands with more than 760 billion gallons of water.

Hours of grueling paddling later, this young adventurer made land, only to realize it was late in the day and the wind would be against him on his trip back to shore. A leisurely day on the lake was rudely intruded upon by a hot, sweaty reality sailors of old probably knew well: Distances are hard to judge across an expanse of water and objects can seem closer than they are. Years later, three Boy Scouts returning in a canoe from an island campout also misjudged the distance between the campsite and the mainland. All drowned when the canoe capsized far from shore.

Before and during the construction of the lake, the Lexington Water Power Company, which would later merge with South Carolina Electric and Gas, bought up farmland and woodlands belonging to many families who had owned the land since their ancestors came from Germany in the 1700s. The Smith family bought property near the river prior to the Depression years, and from 1925 through 1929, the river valley beneath their land was slowly cleared of trees. Pines and hardwoods alike were cut and milled right there in the future lake bed by portable sawmills whose proprietors were allowed to take as much wood as they could for the service of clearing the area of both trees and brush.



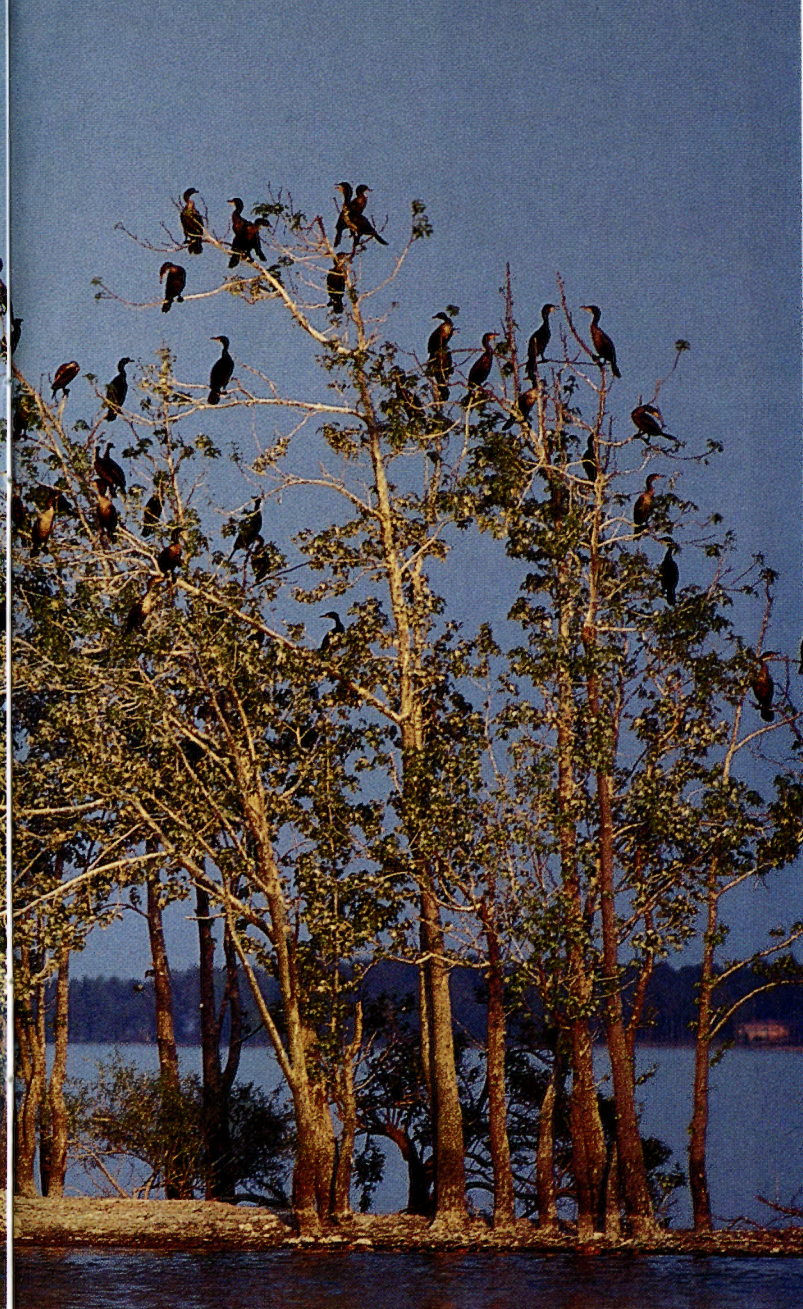
Today, the pines and hardwoods remaining on many of the islands provide shelter for abundant species of wildlife. All the islands have birds, either in residence or passing through, and most have a curious mix of reptiles and mammals, too. Most obvious are the geese and ospreys that nest in early spring, the ospreys on platforms built on some islands by members of the Lake Murray Association. As of April of this year, Bob Andrews, who spearheaded the nesting platform project, counted seven osprey nests around the lake, occupying about half of the available platforms. "We worked with biologist Tom Murphy of the S.C. Department of Natural Resources to design and build the platforms — the project has had a great success rate," says Andrews.

Squirrels, beavers and muskrats all occupy the islands, as do deer, which easily swim the distances to the islands from shore, forage and bed down there. "Once I saw what I thought was a tree with its roots sticking up floating in the lake,"

says Buck Sgt. Dudley Britt, one of the DNR enforcement officers who patrol Lake Murray. "When I got to it, it was three bucks swimming side by side — their antlers looked like roots."

Lake legend has it that herds of goats still live on a couple of the islands, though no one's quite sure how they got there or exactly where they are. Some say they retreated to the hilltops when the lake flooded and were stranded there; others say they were walked across to Goat Island at low water and have been there for years. Locals tell of a man they call Papa Goat who feeds and cares for the herds, though exactly who he is remains a mystery.

On Lunch Island or Doolittle Island, also called Bomb Island, hundreds of thousands of purple martins roost in the largest gathering of these birds in the world. Realizing the significance of the roost, SCE&G, the Columbia Audubon Society, and the state



◆ *Leashed as fishing birds in the Orient, cormorants at rest feign indifference as a less efficient angler motors by. A lone great blue heron stands sentinel at the waning of another day.*

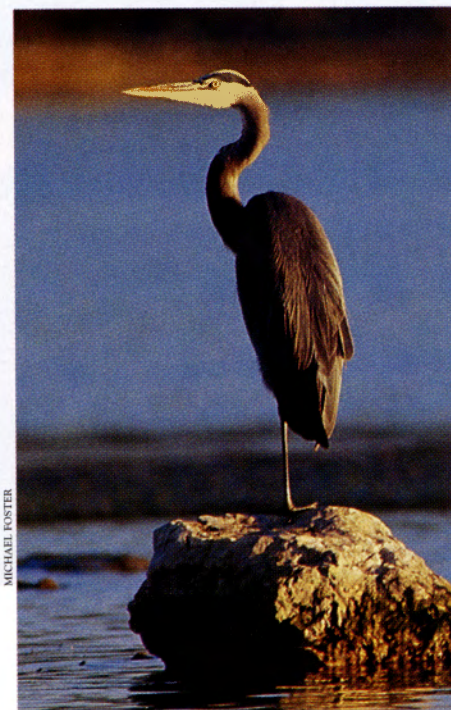
DNR agreed to protect it in 1995, making it a refuge during the summer months on the eastern end of the island where the birds roost. Ironically, this present-day wildlife refuge was once a bombing practice target during World War II. Visitors have noted the large round holes on the island, where the practice bombs, each filled with white sand that burst from its casing and marked the spot, hit the red clay. The bombing left few large trees on the island, but the birds seem to find what they need.

Though the island is off-limits to visitors, dozens of boats anchor nearby each summer night to watch the martins coming in to roost at sunset. Their swirling, diving flock grows denser as the sun drops, with birds flying in long, low lines toward their evening's repose. When at last it's too dark to see the tiny spots whirling in the sky, boaters ease off in all directions, returning to their own resting places.

The islands provide refuge for humans, too. "We find lots of people pulled up there in trouble — it's the first place we go in a search-and-rescue," says Britt. The officers plan out a strategy, each taking a section of the lake, and search each island looking for the missing person. "We tell people if they get in trouble to head to an island and stay put," he says.

Not long ago Britt and fellow DNR officer J.B. Barker rescued a group of girls from the island in Crystal Lake, a part of Lake Murray, where they had been camping. The group had a cell phone and called for help when the weather turned bad. "They were cold and wet, but they were safe because they had sense enough not to leave the island in their small johnboat in the storm," he says. "The winds had trashed their tents — the storm was so bad we were in a twenty-foot boat and water was coming over the bow."

Recreational meccas, the islands provide safe harbor for weekend campers, picnickers, and fireworks-watchers on the Fourth of July. "We like that because they're safe there," says Britt. Some people return to the same campsite weekend after weekend, year after year. It becomes their weekend



◆ Often surrounded by sandy shoals, Lake Murray's islands break rolling waves of open water into gentle ripples, rocking swimmers into a persistent calm.



MICHAEL FOSTER

house on the lake. "All in all, people take good care of the islands," he says. (It's the occasional thoughtless visitor that Britt and the other officers have to ticket for littering who may someday jeopardize SCE&G's willingness to give full access to the islands.)

Most owned by the utility company, with a few still in private hands, each island is unique. By far the most popular, Bundrick Island, also called Sandy Beach, hosts hundreds of people on summer weekends, swimming, picnicking and just relaxing. Campers also love Goat Island. The largest, a 340-acre state park connected to the mainland by bridge, is Billy Dreher Island, which offers public campsites, swimming, picnicking and fishing, all accessible by road. Shull Island, privately owned, hosts upscale residential neighborhoods. "We encourage people to use them," says Tommy Boozer of SCE&G's Lake Management Department. "They are one of the best assets we have." Indeed, along with the lake that surrounds them, the islands are also valuable to the Columbia area for the recreational opportunities they provide.

With such heavy use on some, maintenance could have been a problem when SCE&G officially opened the islands to public recreation. But this effort has been helped by most people's conscientious cleanups after picnics and camping and by a program organized through SCE&G and the Lake Murray Association. Called the Adopt-an-Island program, it allows different groups, both public and private, to be responsible for keeping an island clean. For their efforts they get a sign bearing their group's name and the satisfaction of volunteer public service.

SCE&G also carries out periodic prescribed burns on the islands to reduce undergrowth and help control insects such as ticks, which occupy the islands for obvious reasons. For onlookers who haven't heard of this practice, the sight can be disturbing. "We get a lot of calls when people see an island on fire," says Britt. "They don't realize it's a controlled burn and want us to get the fire departments out there."

MICHAEL FOSTER

◆ *A private curve of sand makes campers modern-day explorers, claiming lands, at least temporarily, where secrets still await discovery.*

Another thing folks don't realize is the extent of the shoals that surround some islands, he says. People going too fast have no chance to avoid trouble when the water goes from 75 feet one minute to one foot the next. Elvin Smith's son, Cleveland, who grew up boating on the lake, describes going out around the islands during the drawdown in winter of 1996. "On some of the shoals the earth looks furrowed, almost as if someone has plowed there. That's where people who don't know what they're doing have dug ditches with their propellers when they hit the shoal," he chuckles.

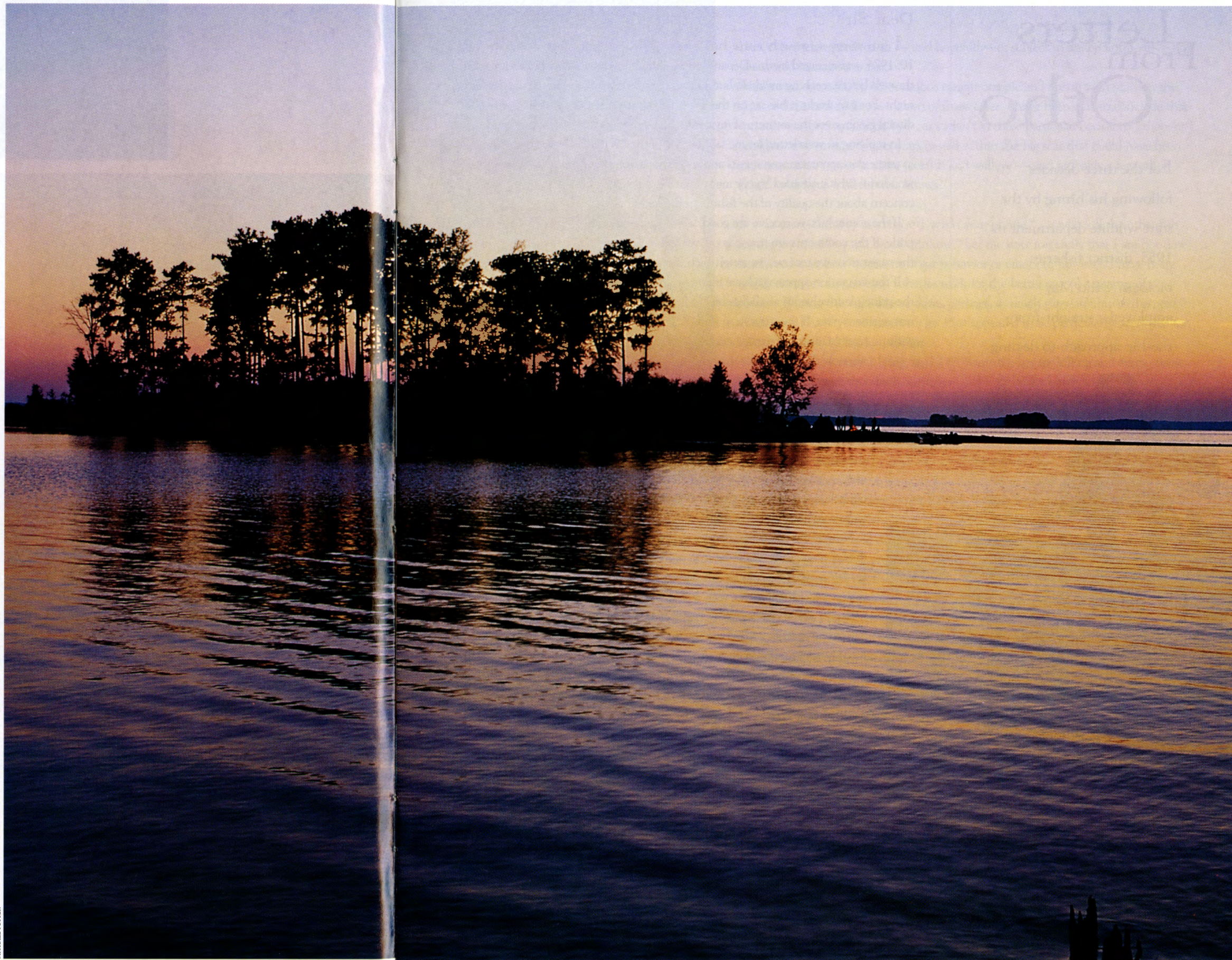
To a seasoned lake-area native, the nonlethal misfortunes of reckless or inexperienced boaters can be funny, but Britt notes that the shoals can be dangerous. "We encourage boaters to give them a wide berth to the outside. Sometimes the marker is in the middle of the shoal, leaving a wide shallow area on both sides of it."

With names like Susie Ebert Island, Jim Spence Islands, Sid Wessinger Island, Bundrick Island, Shull Island and Billy Dreher Island, a list of these small, exposed hilltops, now surrounded by water, reads like a directory of local folks, past and present. They are fitting acknowledgments of individuals who have lived in the area and enjoyed the lake or the land that forms its bed, keeping their namesakes in the mouths of today's lake users.

The Smiths can see two, perhaps three, islands from their viewpoint in Lexington County, but a flight over the lake reveals dozens of small, variously shaped mounds in the lake's flat surface. Capped with green and ringed with red-clay skirts, the islands look beautiful and plentiful. For boaters they are not only safe harbor during trouble but also separate worlds waiting for exploration, an opportunity to stop and feel as though they have discovered a land of their own. Here, temporarily anyway, they can stake a claim on a spot away from others to share a meal, an afternoon or a night in isolation from the real world still in view along the distant shoreline. 🐾

---

INFORMATION on Lake Murray and its islands can be obtained from Lake Murray Country, a regional tourism program for the South Carolina Department of Parks, Recreation and Tourism: Call 1-800-951-4008 or e-mail at [www.lakemurraycountry.com](http://www.lakemurraycountry.com).



MICHAEL FOSTER

# Letters From Otho

For the three decades following his hiring by the state wildlife department in 1955, district fisheries biologist Otho May employed a straight-from-the-hip approach to dealing



with constituents' concerns. Some "classics" from his correspondence file illustrate the methods that left his supervisors shaking their heads . . .

Dear Sir:

I am sorry so much time has elapsed since your letter of about November 10, 1974, was received by this Department. I don't know how many hands it passed through before reaching my desk, but for some two weeks it has haunted me day and night. For two weeks it has sat on the upper left-hand corner of my desk casting a dismal gloom over the entirety of my office. It has hindered my work to no end.

In replying to your letter, let me say that we of the "Wildlife Department," myself in particular, appreciate comments and suggestions from the fishermen who enjoy the wonderful fishing afforded by our many lakes — especially those who have a deep concern about the quality of the fishing in the lakes.

If the comments we receive are good, we — quite naturally — swell a little with pride. If the comments are not so good, we feel bad and do no swelling at all. As to the suggestions we receive, we weigh each carefully.

If the suggestion appears to have merit — and many do — we try, if application of the principle involved is at all feasible, to incorporate it into our overall fisheries management plan. If the suggestion sounds good — and many do — and we come up with no feasible means of implementing it, we usually put our pride aside and do as I am now doing — write the suggester for suggestions on implementing his or her suggestion.

Since the success of your future fishing trips might well depend on how we attack this gar problem, think with me on this problem of seining all the gars out of Lake Murray and its many tributaries. Our first consideration should be the physical features of the lake. Lake Murray has a surface area — when full — of approximately 55,000 acres. Its tributaries would contribute probably another 10,000 acres. In combined area, this figures out to be roughly 102 square miles.

Now, if the lake was a perfect square and had a bottom as smooth as a dinner plate, we could seine it in one colossal dip with a seine — allowing for sag — 10.5 miles in length and 85 feet in depth. A seine this size would contain 4,712,400 square feet, would weigh upwards of several thousand tons and would require more than a couple of boxcars for delivery. At a conservative cost of \$0.35 per square foot, the seine alone would cost roughly 1.65 million dollars.

Further, a seine this size would require a tremendous amount of manpower just to drag it through the water. While we of the "Wildlife Department" are a fairly husky breed and thought by some to be endowed with superhuman strength and pea-sized brains, I don't believe the entire Department work force, secretaries included, could accomplish the task.

We could go on and try to envision the equipment and manpower that would be required for the task if the lake was round, oblong, oval, half-egg shaped, a long, narrow, deep ditch, etc., but this would be of no avail because the lake is none of these. The lake is a very large body of water having a very irregular shoreline and an equally irregular bottom — full of stumps, trees, rocks, holes, and other assorted and sundry debris — and must be considered as such.

Frankly, I don't know how we could feasibly go about the task of seining out the gars. I can't envision how many men, boats, trucks, trains, front-end loaders, etc. would be required to seine, sort and load, and transport the gar to a fertilizer plant. In fact, I don't even know where the fertilizer plant is located. And to be equally frank,



*In the early 1970s, pioneer fishery biologist Otho May led studies to evaluate the survival rate of state-stocked striped bass in Lake Greenwood. May's entertaining correspondence betrays a wit as keen as his professional skills.*

I am extremely interested in — and hopefully not subject to disappointment — how you would manage this task.

Like you, I, too, have on occasions caught crappie and bream with scars on the sides of their bodies. In one or two of these cases, I have been able to conclude that the scar was, perhaps, made by a gar strike. On these particular occasions I thought I could see two rows of deeper scars nested within the big scar that could have been gar teeth scars; however, since jackfish and walleye — and probably a few other fishes — also have teeth, who knows?

**I was particularly intrigued with** your phrase “. . . who kill the other fish for the joy of killing and blood drinking.” Let me state forcefully that I am not now nor have I ever been a student of gar behavior or emotion; however, I have been engaged in various phases of fisheries work for the better part of a quarter of a century. During this time I have done, perhaps, as much gar-watching as the next fellow, and I have yet to observe a gar that appeared to be particularly overjoyed for having just killed a fellow creature.

Quite frankly, I cannot bring myself to blame the gar for killing and eating those fishes he can manage to catch. Let's face it, the gar is not nearly as smart as a human, and, perhaps, from his point of view it is the sporting fisherman who is encroaching on his livelihood rather than the other way around.

If we should decide it to be advisable to declare all-out war on the gar and strive with the best that's in us to eradicate all of them from Lake Murray and its tributaries, we should have some dignified motive to support our action. I am not sure what we should declare as our motive. To insure the livelihood of those who earn their living on the lake, to save the noble fisherman from the diabolical gar fish, or to save the stupid gar from the sadistic fisherman? To make the task easier, what would you say to a project to eradicate the sadistic fisherman, by shooting rather than seining from the lake?

Before closing, let us look at the brighter side of the picture. It appears that you are one of those rare individuals born with a natural affinity for attracting gars to their person. This is an extremely rare ability and it should not be taken lightly.

In the course of checking thousands of fishermen and their creels over the past twenty-five plus years, I have yet to come across a fisherman who appears so generously endowed with this quality — not even confessed gar fishermen. It is my suggestion that in the event we cannot come up with a feasible means of making the gar population extinct, you look upon this quality as an asset rather than a liability.

Just think. With this rare ability you could probably gain national recognition as the holder of the world's record gar catch, the greatest number of gar caught on consecutive casts, etc. There are all manner of possibilities for exploiting this rare ability — give instructions to fishermen interested in catching gar, lecture across the country on developing the ability to attract gar, etc.

And in the event you cannot cultivate a liking for gar and gar fishing, an interesting and probably profitable sideline would be to try to develop a gar repellent — something you could sprinkle on your bait or inject into the water that would cause all the gar in the immediate vicinity to seek places farther south, or north, or somewhere else. This should be a handy article in the tackle boxes of those fishermen who abhor gar.

As, perhaps, by now you can see, I have no practical, feasible means of accomplishing the removal of the gar from Lake Murray. Even if I did, I am not at all sure I would recommend it; however, as already stated, I — and others in the “Wildlife Department” — will carefully consider any future suggestions and/or arguments you wish to submit. If future suggestions appear good but we are unable to implement them due to their unfeasibility, I will unhesitatingly call on you again for clarification of the suggestion or for further suggestions.

Sincerely yours,  
Otho D. May Jr.

## Dear Sir:

**By way of introduction** let me state that I am a District Fisheries Biologist employed by the S.C. Wildlife and Marine Resources Department and have been so employed since 1955. Lake Murray has been in my district all of this time and since my beginning employment, I have fished Lake Murray. Let me further state that I am not responding to your letter of March 4, 1982, to Dr. James A. Timmerman in defense of or at the request of any member of the SCWMRD.

My response is as an individual and was prompted by the last paragraph of your letter and maybe, perhaps, just a bit out of curiosity. Your “Catch 22” paragraph makes it mandatory that someone responds. Mandatory in the sense that not to do so would allow you to proclaim to all fishermen that the SCWMRD is insensitive to the opinion of the fishermen of the state. This could not be further from the truth and I, for one, question your motives and the twisted logic employed to pen this paragraph.

Had you not added your last paragraph, I would not have wasted my time with this reply. And believe me, I consider it a complete and utter waste of my time, for I do not believe that anything I could say that is not in agreement with your thoughts would alter your preconceived notions.

By your own statement, you are an avowed Fanatic and you imply that you have gathered around you or attached yourself to a group of these people and are speaking on their behalf as well as for all fishermen and even all citizens of the state.

I, for one, am a fisherman and have considered myself as one for over fifty years. Further, I know quite a few other short-time and long-time fishermen, and frankly none of us had ever heard of you before I read your letter. I am positive that myself nor none of the fishermen I know elected you as our spokesman. In fact, we didn't even know the job was open and anyone was running.

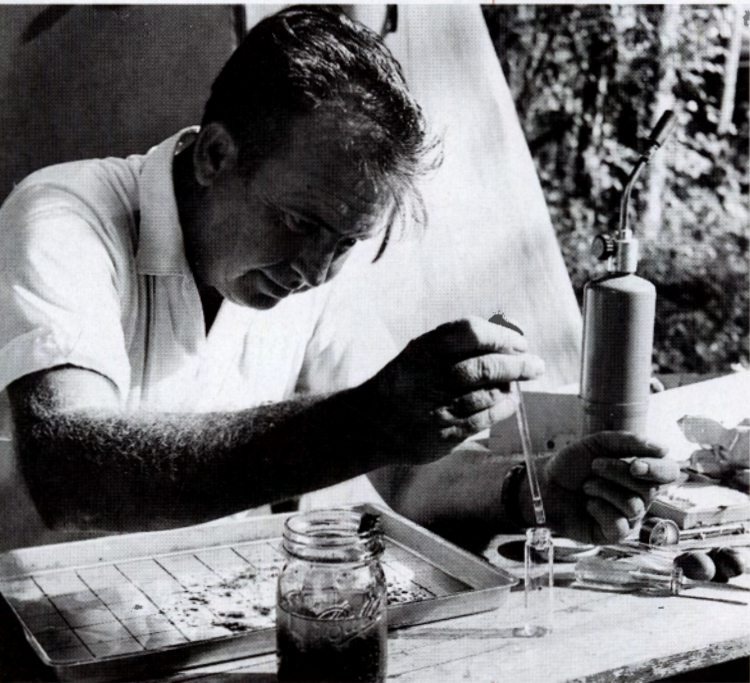
You may be a V.I.P. and well known in your part of the state, but here you are almost anonymous. Your ruse of implying that you are speaking on behalf of not only all fishermen in the state but all of the state's citizens has completely disrupted your credibility of speaking for anyone other than maybe a short portion of some small egotistical, fanatic group.

I do not know what connotation the term “fanatic” brings to your mind; however, it must differ greatly from that perceived by most. Yet, all things considered, you appear to wear the mantle well.

The image that springs to my mind is a person or group (usually thought of as a cult) with preconceived notions about something and these preconceived notions do not, necessarily, have to be based on fact or experience. Fanatics will usually refuse to discuss or even consider any fact or experience contrary to their preconceived notions. In short,



*Responsible for fishery management in more than a third of the state in 1962, Otho May sampled striped bass in the Congaree and Wateree rivers to learn about stripers' natural reproduction in those systems.*



fanatics are better ignored than argued with. Left to their own narrow, cultish enterprise, many recover before the disease becomes terminal.

From the dogmatic tone of your letter, I can only conclude that you and those of your particular persuasion feel that you have most, if not all, the answers to the fishery problems in the state. This could very well be true; however, since your letter is more or less limited to generalities, I am unsure of any conclusions I might draw from it.

You clearly imply that the stocking of "you-know-what" is detrimental to the native freshwater fisheries in our reservoirs, but you fail to mention what form this detriment assumes. You make no mention of which species you are primarily concerned about, and you offer no factual information to support this contention other than the vague reference "had the biologists begun fishing the waters of Lake Murray . . ."

Since you do not wish any more facts about "you-know-what," I am skeptical of the purpose behind your offer to help the Wildlife Department "look objectively."

**This offer of help that you so graciously extend** sounds impressive, and you could be correct in assuming that the Wildlife Department needs all the help it can get; however, your lack of details as to mode of objectivity leaves me somewhat in the dark. I, for one, would like to see an outline of exactly what you propose.

Will this objective look be based on conjecture? Will the study group include just fanatic sportsmen and the Wildlife Department or will nonfanatic sportsmen be allowed to participate also? Will citizens who enjoy fishing for "you-know-what" be allowed to attend, and, if so, will they be allowed to present facts and/or conjectures? Will the intent and purpose of the "look" be well publicized or kind of kept on the quiet side? Who will bear the expense of this "objective look"? Will the Wildlife Department play any role other than a sanctioning agency?

If you and the group for which you speak are sincere in your concern for the citizens of South Carolina who pay for these "you-know-what," why not sponsor a drive for a constitutional referendum in this fall's election? Adoption of such an amendment of our constitution would settle this matter, and there would be no further cause for petty bickering. The Citizens of the State would be protected from the Wildlife Department and from fanatics alike, and, perhaps, not all but some of us could live more happily everafter.

In closing, I can only apologize for those "Wildlife Representatives" whom you claim have made slighting remarks about the intellectual level of your group. I feel that this is a misconception on your part; however, in a few isolated cases, this might be a correct assumption.

I can only speak for myself, but I have always thought that any person who could outwit a fish had attained a level of intelligence worthy of respect and flattering attention. I and others in my profession are, for the most part, practical people. We are not prone to long-term foolhardiness. We know on which side our bread is buttered, and we know "from whence cometh our strength."

Sincerely,  
Otho D. May Jr.

*Otho D. May Jr. died in 1985 while serving as the state wildlife department's District II fishery biologist in Saluda and is remembered as a respected friend and mentor.*

# BEETLE MANIA

◆ *Beetles' clever physical adaptations for survival appeal to all five human senses, and the species' sheer numbers testify to their success.*

*by Mike Creel*

**G**od must have been especially pleased when he created the first beetle. Perhaps, upon seeing it, He decided to have some fun, creating hundreds more of all shapes, sizes and colors, kind of like doodling in three dimensions.

Today, one of every four animal species on our planet is a beetle, which includes more species than the entire plant kingdom. Though we have described some 350,000 worldwide, humans haven't even encountered all the beetle species . . . yet. Seeing a few familiar ones is enough to send our imaginations soaring: What about red striped beetles? Ones that dive, dance, march, or burrow? Ones with noses like elephants or rhinoceroses? Pink-and-black spotted beetles? Orange, yellow, blue, green, marbled, iridescent or luminescent ones? Ones with antlers? Round, oval, square or triangular ones? Tiger-striped ones? Ones with large, false eyes to distract predators? Beetles as tiny as sand grains or the size of a man's hand?

Then, with a bit of research we learn an amazing thing: these creatures aren't figments of anyone's imagination. They really exist! Under logs, around lights, in tall grass or dirt burrows, in flowing streams or quiet ponds, this uniquely colorful bunch lives right under our noses. Mostly, they go about their business, encountering man only by accident. Chubby brown beetles invade summer-night porch parties, drawn to the lights; fireflies, summertime residents of the beetle family, thrill each new generation with their nightly light shows. Bright green June bugs flown in circles on a length of thread passed for children's pets a generation ago, and whirligig beetles swimming at a pond's edge enliven still waters.



CLYDE S. GORSUCH



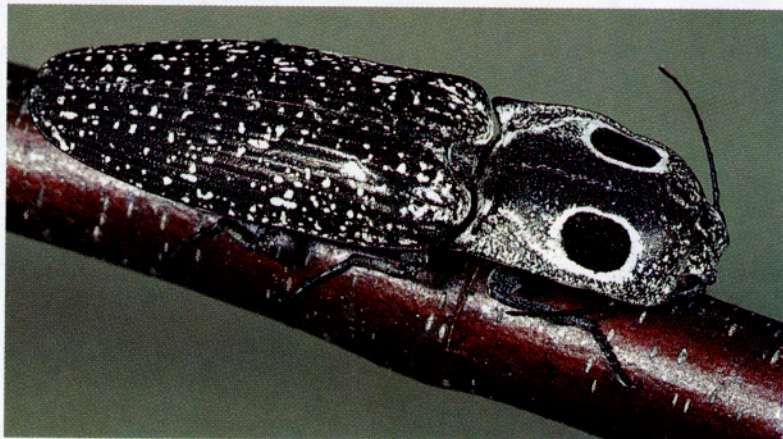


Many beetles unwittingly serve our causes by preying on insects we consider enemies. Those we welcome include *Calosoma* caterpillar hunters, which feed on gypsy moth caterpillars in trees. Others help to break down dead plant or animal matter by feeding on carrion, a few burying the decaying matter to hold their eggs. Dung beetles provide such a service feeding on, yes, dung, that they had to be introduced in

Australia once cattle ranching began there. Ladybugs, too, perform a service, eating up to thirty garden-destroying aphids per day. Often living in large groups, these brightly colored beetles are said to tend or herd the aphids like their own stock of beef cattle. But, while we think fondly of some types of

beetles, and even call some beneficial, others we call pests.

Unwelcome beetles come in many shapes and sizes, and encounters with these may range from inconvenient to disastrous. Weevils discovered in the pantry may spoil the corn meal intended for a Saturday fish fry. Boll weevils had a wide impact, once decimating cotton crops in the South. Hand-picking bean, potato and Japanese beetles from the garden is a nasty but necessary job. Occasionally, a beetle will threaten more than our livelihood and property. Blister beetles, often pests of crops, contain the chemical cantharidin, which can blister human skin. The lovely bright-green tiger beetle, as well as the



They're everywhere! Beetles account for nearly two-thirds of the world's insect species — about a hundred families in the eastern United States alone — and most don't even have a common name. Wildly diverse in color and form, South Carolina species include the long-horned beetle below, the tortoise, click and stag beetles at left (from top), and the iridescent green June beetles on the previous pages.



stag beetle, with large, threatening mandibles, will deliver quite a nip to intrusive fingers or toes.

But whether they fit into our world as help or hindrance, they fit into their own in amazingly perfect ways. From the moment the beetles, characterized by hard, armorlike forewings that usually meet in a straight line down the middle of the back, appeared upon the earth, they began to adapt to their surroundings, developing natural tools for survival. While most insects have four flying wings, the hard, front wings of beetles cover a set of rear wings many species of beetles use for flight. Chewing mandibles (some able to pierce human skin but none

poisonous) and a complete metamorphosis, in which the larvae do not resemble adults, also distinguish them from other insects.

For defense, food-gathering and reproduction, each species possesses amazing innovations, including use of color, sound, scent, and chemical defenses. The antennae of beetles often have special structures used for smelling, mating, touching, feeling and grasping food. Their legs may have adaptations for digging, pushing dung, or running to beat desert heat or predators. Quick retreat may also be handled by flight. Some use clever camouflage to elude predators, like flower-eaters that

PHOTOGRAPHS BY GERRY CARNER

Beetle expert Janet Ciegler has collected and cataloged specimens from around the world. Each occupies a particular niche in nature, with some viewed as beneficial and others as pests. The undesirable eating habits (from a human viewpoint) of the long-snouted pecan weevil, the blister beetle and the Japanese beetles at right earn them a rank among the latter in our state.



MICHAEL FOSTER

wear bright colors, and some defend themselves with their jaws. If turned upside-down, a click beetle will attempt to right itself by snapping a fingerlike spine on the underside of the thorax into a groove below the mesothorax, flipping itself into the air and making a distinct, clicking sound. If the beetle doesn't land upright, it will perform this action over and over again until it does. Many beetles, like the common ladybug, have a distinctive odor, noticeable when the insects are near.

For a creature on the menu of many others, especially insect-loving birds, the beetle has made some important defense adaptations, whether it fights, flees or hides. A whirligig beetle has two eyes with each divided into upper and lower parts, enabling it to view predators above and beneath the water simultaneously. Many beetles will drop to the ground to escape capture; put your hand or a net under them, and they will drop into it. Some beetles with chemical defenses will shoot a semi-poisonous liquid from their posteriors with such accuracy that they can hit a toad in the eye from about three feet away.

Though prey to birds and other foraging animals, many beetles in turn prey on other insects, especially the larvae. Not all beetles are predatory, however. The order Coleoptera, which includes all beetles, includes some predators, some scavengers and some parasites. They may eat leaves, bark, dung, or wool and other fabrics.

South Carolina, with its variety of habitats, and otherwise expansive insect population, makes prime beetle territory. The world of South Carolina beetles opened up for me when my brother discovered some ball-shaped growths as fragrant as overripe apples — and crawling with tiny beetles — on an oak tree in his Williamsburg County yard. Inquiring among biologists with the S.C. Department of Natural Resources' Wildlife Diversity Section as to the identity of the fungus and the beetles, I was referred to a husband-wife team of consulting experts, one with fungi and lichens, the other with beetles.

Seeking answers to my questions, I took the buggy tree knots, like small globes of habitation tucked into plastic bags, to Alex and Janet Ciegler, at their home/laboratory in West Columbia. I learned the growths on the oak tree were called sweet knot or *Globifomes graveolens*, and its insect residents included several species of beetles. The majority were sap beetles, *Nitidulidae*, attracted to the scent of rotting fruit. Janet Ciegler, a recognized expert on beetles who has collected specimens all over the world, added two of these to her already expansive beetle collection, drawer after drawer of neatly organized, preserved and mounted beetles. Cylindrical bark beetles, *Colydiidae*, also inhabited the fungi, along with one other species of bark beetle, *Scolytidae*.

A computer programmer retired from the U.S. Geological Survey, Janet Ciegler calls the study of beetles her lifelong hobby. She has collected beetles in South Carolina for thirteen years and has written a publication on tiger beetles in the state, as well as an upcoming book on 500 species of ground beetles. "South Carolina is a wonderful place to collect," says Ciegler. "One of my best finds was a little two- or three-millimeter beetle I could not identify that had come to five different light traps throughout the state. I was unable to key it out because the closest match was a beetle that had only been found in Texas and South Dakota. I sent it to Terry Irwin at the Smithsonian, and he verified it as that same species and a first collection for this state.

"I believe there are fewer beetles now than when we were young and growing up. So much habitat has been lost with the

land being turned into cities and shopping malls. We've had habitat loss where the diverse natural woods have been turned into monoculture pine forests or cotton and soybean fields. We've had draining of our swamps, spraying of whole cities for mosquitoes. All of this has most definitely contributed to loss in numbers of each kind and loss of the kinds."

But beetles are surely here for the finding. Anyone who is out looking specifically for beetles is likely to see the tiger beetles, because they run fast, they fly fast and they are colorful. Beginning beetle hobbyists will see the tigers, named for their predatory behavior, not their appearance, in open areas like sandy beaches, parking lots and driveways. Some sport a brilliant green and stand out like jewels along a woodland trail.

Many others found commonly in the state provide curious collectors with interesting specimens. South Carolina's largest beetle is the Hercules beetle, *Dynastes tityus*, reaching more than two inches in length. Some cousins to this portly fellow bear large "horns," on the head, as with *Phanaeus vindex*, another dung beetle recognized by its red and green coloring. Some of the long-horned beetles, which actually have no horns, but elongated antennae that resemble horns, have attractive, colorful spots. Some that collectors might want to leave alone are the predatory rove beetles, the Staphylinids, which look like roaches and behave like wasps but do not sting.

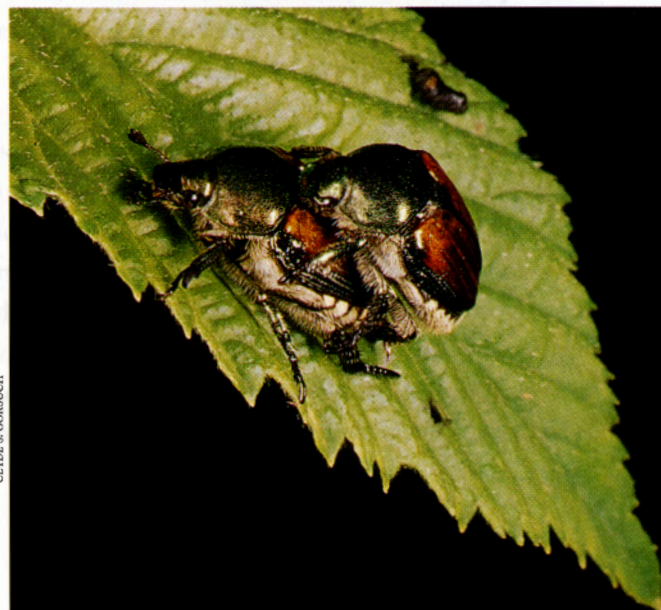
*Some South Carolina beetles* you might prefer not to find. One of the worst beetle pests, dermestid beetles, sometimes mistaken for clothes moths, can infest houses, eat your insect collection, and do a real number on your woolen socks and clothes, says Ciegler. The quarter-inch long grubs actually do the damage, living and breeding in cracks like those behind the baseboards of a house. Before the homeowner knows it, he can have a horrible infestation. Ciegler advises that the first



GERRY CANNON

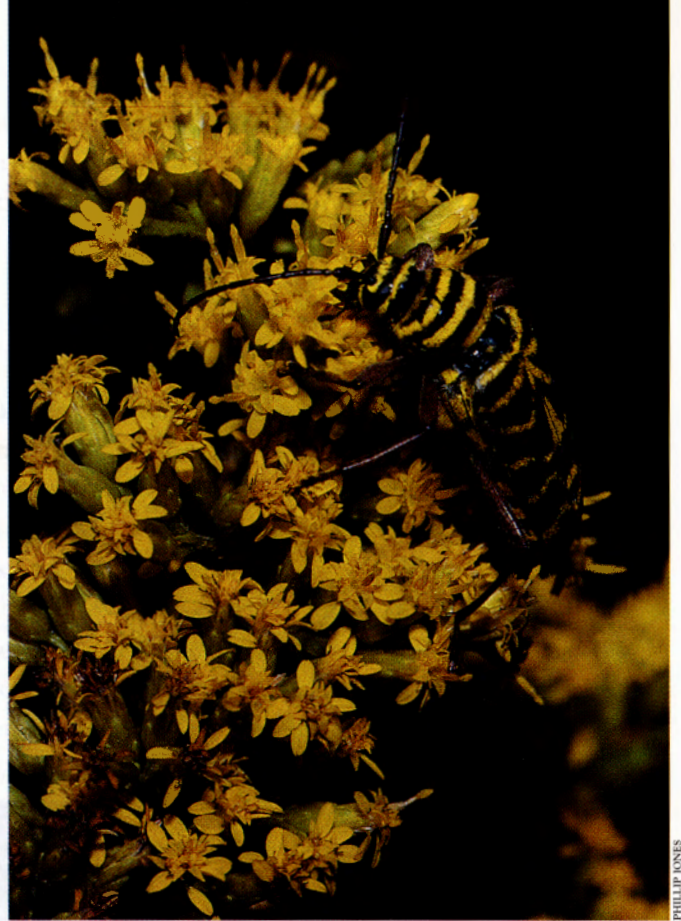


GERRY CANNON



CLYDE S. GORSUCH

Armed with a field guide, sharp eyes and curiosity, the beginning collector may spy and identify these common but distinctive South Carolina beetles: the locust borer at top right, one of the long-horned beetles; the Hercules, our state's biggest beetle, in the center; and the flashy tiger beetle below.



PHILLIP JONES

step in getting rid of them is to do a thorough house cleaning and find out where they are breeding. "I once found dermestids breeding on a dead cockroach inside a jar on my shelf where I kept shards of Indian pottery," she says. "When you clean, put some insecticide along baseboards, places that collect dust and into empty drawers, letting it dry well before putting things back in. Either dry clean or wash and run through the dryer any clothes that might be infested."

A new problem beetle from South Africa made headlines in South Carolina in 1998. Dark-brown to black hive beetles, one-third the size of a honeybee, began destroying Lowcountry beehives, targeting those weakened by earlier problems. Adult beetles foul the honey, making it unfit for man or bees, and the bees abandon their hives. Beetle larvae tunnel through the combs, damage the hive and kill the immature bees. A strong and healthy bee colony can often repel the invaders from South Africa, where the beetles are only a nuisance. Clemson University's Plant Industry Department tracks the pests and assists beekeepers.

A good field guide, especially one targeting the collector's specific area of the country, can offer help with identifying finds. Just thumbing through such a resource (color is a must) fascinates the beginning collector. Plate after plate of beautiful, horrible, fanciful or terrible beetles challenges readers to learn which species science has documented in a given area and what types of habitats might offer up such treasures.

Then, of course, comes the part where the mind takes off, wondering about untold numbers of beetle color combinations, body shapes, scents and sounds that might be out there, things that even Janet Ciegler hasn't seen. Out there in every corner of the great outdoors are beetles and more beetles, with numbers and characteristics that reflect, as British biologist and philosopher J.B.S. Haldane (1892-1964) put it when asked what his studies had revealed about God, the Creator's "inordinate fondness for beetles." 🐞



CHERYL CARBER

## GO LOOKING FOR BEETLES

*Backyard beetle study* or collection is simple and requires little investment of money. Walk very, very slowly and look at everything you see. Examine anything that doesn't look quite right, such as a leaf or flower with a spot on it, or something that's moving.

Use a butterfly net to "sweep" in weedy places where people won't mind, (not, for example, in someone's prized flower garden). Go through the tops of any kind of foliage with a figure-eight motion, back and forth several times and see what you get. This is a good technique for collecting very small beetles that you wouldn't find just by looking. You can find leaf beetles, weevils, lady beetles, and all sorts of little things.

Insect collectors use ultraviolet light traps to bring in insects and catch the ones normally missed. (Ultraviolet light attracts them better than regular light.) A pit trap, improvised from a big plastic household funnel buried at ground level, can capture beetles that crawl. You can collect around big lights at night, like yard lights or those you used to find at old service stations out in the country. The lights at shopping malls don't usually mean good beetle collecting, because there is no good habitat close by. Beetles need plants, dirt or logs to live in, so a natural area with a good bright light nearby should offer good opportunities.

Janet Ciegler advises novice collectors to start with beetles in general, rather than seeking any one particular group. The best hunting begins in the first few warm days of early spring before it gets really hot, when the daytime temperature is between 60 and 80 degrees, and leaves are newly opened, tender, succulent and unblemished. Spring tends to be the best overall season, but different types of beetles have varying life cycles. Some produce several broods through the year; others winter over as eggs; some hibernate as adults. In the winter, the places to look are in rotten wood and under bark.

Getting involved with other people who have similar interests can help. The Palmetto Insect Naturalist club, or PIN, is a loosely affiliated group of people who like to go out and do field work. Most are amateurs, but the group also includes a couple of professional entomologists. Members get together about four times a year either to collect or identify insects, or in winter, to view a collection or hear a guest speaker. PIN encourages young people to go on the field trips.

*A Field Guide to the Beetles*, by Richard E. White, in the Peterson Field Guide series, is an easy-to-find and helpful book for the enthusiastic student. It guides the user to identify many beetles, at least down to family, and offers detailed instructions for starting a beetle collection and building traps. *The Beetles of North America*, by Richard Headstrom, provides an easy-to-read explanation of the beetles' natural history, the characteristics that set beetles apart, and their habitats. 🐞

## BEETLES ON THE WEB

Another way to find beetle information is on the Internet. Keying in "beetle" or "coleoptera" on an Internet search engine will unearth abundant references with colorful images. Visit the following Web sites to whet the interest of new beetle enthusiasts:

- ◆ "An Inordinate Fondness for Beetles" (book highlights, images, links)  
[www.lam.mus.ca.us/~lorquin/evans/](http://www.lam.mus.ca.us/~lorquin/evans/)
- ◆ Guide to Pine Beetles and links  
Carteret County Times  
[www.carteretnewstimes.com/beetles.htm](http://www.carteretnewstimes.com/beetles.htm)
- ◆ Kids Page on Carrion Beetles  
[dnr.state.il.us/nredu/kids/beetle.htm](http://dnr.state.il.us/nredu/kids/beetle.htm)
- ◆ Beetles Are Cool (information, images, links)  
[members.xoom.com/jexav/page1.html](http://members.xoom.com/jexav/page1.html)
- ◆ "Beetles" (book highlights, images)  
[www.source.at/beetles/](http://www.source.at/beetles/)
- ◆ Asian Longhorn Beetles (information, images, links)  
[dnr.state.il.us/ildnr/offices/pubaffrs/asian.htm](http://dnr.state.il.us/ildnr/offices/pubaffrs/asian.htm)
- ◆ Golden Tortoise Beetle, Dr. Universe  
[www.wsu.edu/DrUniverse/bugs.html](http://www.wsu.edu/DrUniverse/bugs.html)
- ◆ Tortoise Beetles  
[ipmwww.ncsu.edu/AG295/html/tortoise\\_beetles.htm](http://ipmwww.ncsu.edu/AG295/html/tortoise_beetles.htm)
- ◆ Beetles in the Clemson University Arthropod Collection  
[entweb.clemson.edu/museum/beetles/](http://entweb.clemson.edu/museum/beetles/)
- ◆ Beetles in the Cornell University Collection  
[henry.ento.cornell.edu/CUIC/Coleopera.htm](http://henry.ento.cornell.edu/CUIC/Coleopera.htm)
- ◆ Beetles by Bochdansky and Kriftner (European beetle photos)  
[www.source.at/beetles/](http://www.source.at/beetles/)
- ◆ Whirligig Beetles  
[ag.arizona.edu/ENTO/tree/eukaryotes/animals/arthropoda/hex](http://ag.arizona.edu/ENTO/tree/eukaryotes/animals/arthropoda/hex)
- ◆ Tiger Beetles of Connecticut  
[viceroym.eeb.uconn.edu/CTB/home.html](http://viceroym.eeb.uconn.edu/CTB/home.html)
- ◆ Entomology Images  
[www.ent.instate.edu/list/images.html](http://www.ent.instate.edu/list/images.html)

# Sportsman's Best Friend

Wise and wily outdoor-folk won't leave home without consulting this indispensable tool that has more tips than a bookie and more strong points than a full quiver.

by Jim Mize

Most hunters and anglers think the ways to catch more fish, bag more game, and generally find their trucks again involve fancy gadgets, grueling hours scouting, and trails of crumbs. Actually, success is much simpler than that: Get a Sportsman's Calendar.

You might have seen these before. *South Carolina Wildlife* magazine publishes one each year, called the Sportsman's Calendar and Almanac, and it's full of useful tidbits. The key to squeezing the utmost from each page is to understand how to use it and adjust to the information within.

For instance, fishermen will immediately notice the outlines of fish within each date block. From my experience, these are even drawn to scale. Their purpose is to let you know when the fish will bite. Blank fish represent poor fishing, striped fish fair, and solid fish the best. The first thing you'll want to do is color in all your fish.

Astute users will also notice that the months have different numbers of days, and as a result, many squares at the beginning and end of the months have no numbers in them. These are days that never happen. So if a blank square falls on a weekend, be sure to number it, or you may end up with extra work days.

Moon phases, another source of information in the calendars, can predict wildlife activity. If you've already colored in all the fish, this will be most useful during hunting season. The best explanation I've heard regarding the interaction of animals and moon phases went like this: It all stems from one simple fact, namely, that wild animals don't have flashlights. When the moon is full, they're rowdy late and sleep all day. When the moon is new, any of them trying to run around bump into trees until they get tired and go to bed. So they revert to daytime movement. Therefore, if you're hunting a species not known to carry flashlights, like most, this moon information can be useful.

If you haven't colored in your fish symbols, use them as a guide to planning your holiday celebrations. Instead of Y2K, pencil in Y-Not-Fish. January 1, 2000, is predicted to be a good fishing day, and most fish don't know what day it is. Since morning is designated the best time to go, avoid being "under the weather" from New Year's Eve and get an early jump on it. And a best-fish symbol on Valentine's Day shouldn't keep you from going out for dinner with your sweetheart, since the morning gets the green light on that date, too. Actually, with the best-fish symbol you have two choices. You can go fishing together, or one can wait at home for the other to return and grill the catch!



*Keeping your outdoor plans lined up gets easier with the right kind of calendar . . . and a little creativity. The crafty outdoor-lover will look to the months ahead and make sure every day counts.*

In the far back of the calendar, you can find an almanac with all sorts of reference information, S.C. Department of Natural Resources programs, and hotlines. For example, you can write to one address for information on some wildlife tagging programs, including such highlights — I'm guessing here — as knowing who's "It."

For those interested, the almanac offers a map and list of artificial reefs and wrecks. I keep checking to see if my truck is there yet.

The Sportsman's Calendar also shows tide calculations. Though I'm basically a landlubber, it appears to me that this calendar reveals the number of minutes that the tides run late. It's quite an accomplishment to be late so consistently that people plan accordingly. My wife saw this and has correlated my timing to the tides. Now she tells me that we have dinner reservations at 6:22 p.m. based upon the Toogoodoo Creek low-tide schedule. That will get me there by 7:00 p.m.

Along with the tide data are charts for actual sunrise and sunset times, information especially useful to the outdoorsman who might not be clocking the sunrise in the off season. Since shooting times are based on the actual sunrise, you'll need to determine the exact minute to be in your duck blind. Used in conjunction with the tide charts, you can even avoid arriving late if you're hunting Toogoodoo Creek.

The back of the calendar carries information on the state's record fish, too. The current record in South Carolina for wahoo is 130 pounds and 5 ounces. The last time I saw that much wahoo was at a 1972 Forestry Club party. The sunrise time data did me no good at all, and I had to use the tide correction for Bloody Point.

Hunter education information can also be found back in the almanac. Classes include how to read a sunrise chart, I hope.

DNR biologists and law enforcement officers and their phone numbers are even listed, including a number for anonymous calls, perhaps for people with really stupid questions. At least, I guess that's what it's for, because I've already used it twice.

Certainly the most fascinating opportunity comes from the Farm Pond Management Program, which offers a "Pond Balance Check." It never occurred to me that farm ponds around the state were teetering precariously and in danger of tipping over. Obviously, this presents an enormous problem for the owner who wakes up with water spilled all over the neighborhood and fish flipping and flapping everywhere. This phone number alone is worth the price of the calendar.

Finally, my calendar ends with a long list of useful brochures. One offers guidelines on the growth and aging of fish. I for one would like to know how their aging's impacted by having two jobs and fry off in schools.

Another brochure that sounds like fine reading is the one for Youth Fishing Rodeos. I don't know what they ride, but I know I'm signing my kids up.

Obviously, the Sportsman's Calendar offers volumes of information and benefits to outdoor enthusiasts. But more than anything else, it's good for people with a little time on their hands, preferably twelve months' worth.

*Jim Mize is an Upstate outdoorsman who spends his spare time coloring in fish on Sportsman's Calendars.*

# Hands On **For Safety**

**Youngsters across the state** are learning by doing when it comes to hunter education.

Their instructors are learning, too, by giving teenagers positive role models.

by Lt. Michael E. Williams

photography by Michael Foster

**DNR** officer Larry Keeling watches intently as the thirteen-year-old in the climbing stand begins his ascent. The stand slips a fraction and bark flakes off. Sgt. Keeling's hands flex automatically as the boy hesitates about seven feet up the pine. Keeling wants to reach out and steady the boy but knows better.

"Remember what I showed you," the officer says. "Take it slow and set the bottom blade good before standing. Pull the seat portion up and do the same with it before pulling up your feet."

Slowly, the boy begins to work the stand up the tree again, setting the climber as his instructor advised, standing and pulling the seat portion higher, then working the foot portion up under him again. When he reaches the predetermined height of ten feet, he sets the stand and locks it to the tree with a safety rope, leans back and sighs, grinning triumphantly down at Keeling, who grins back.

Reversing his actions, the youngster slowly descends, working his safety rope as he comes down, finally reaching the base of the pine. "You did it — congratulations!" Keeling says. The two shake hands, and it's hard to tell which one is more proud, the boy or the man.

Learning by doing is what makes the S.C. Department of Natural Resources' new approach to hunter education outstanding. Unique among hunter education efforts throughout the nation, Hands-On Hunter Ed teaches young people about firearms and tree stands using qualified instructors concerned about safety and the future of hunting. It is taught not in the classroom, but outdoors where both the inexperienced and experienced are directly involved. Another big difference is that many of the volunteer instructors' "day jobs" include wearing the uniforms of local police departments, sheriff's offices and fire departments.

The concept came about when Capt. Dale Atkinson of the Sumter Police Department contacted the DNR's Keeling, a hunter education instructor. Keeling recalls that Atkinson really wanted to help as a volunteer with the state's mandatory hunter education program, but he didn't want to spend ten hours in a classroom, showing videos and lecturing.

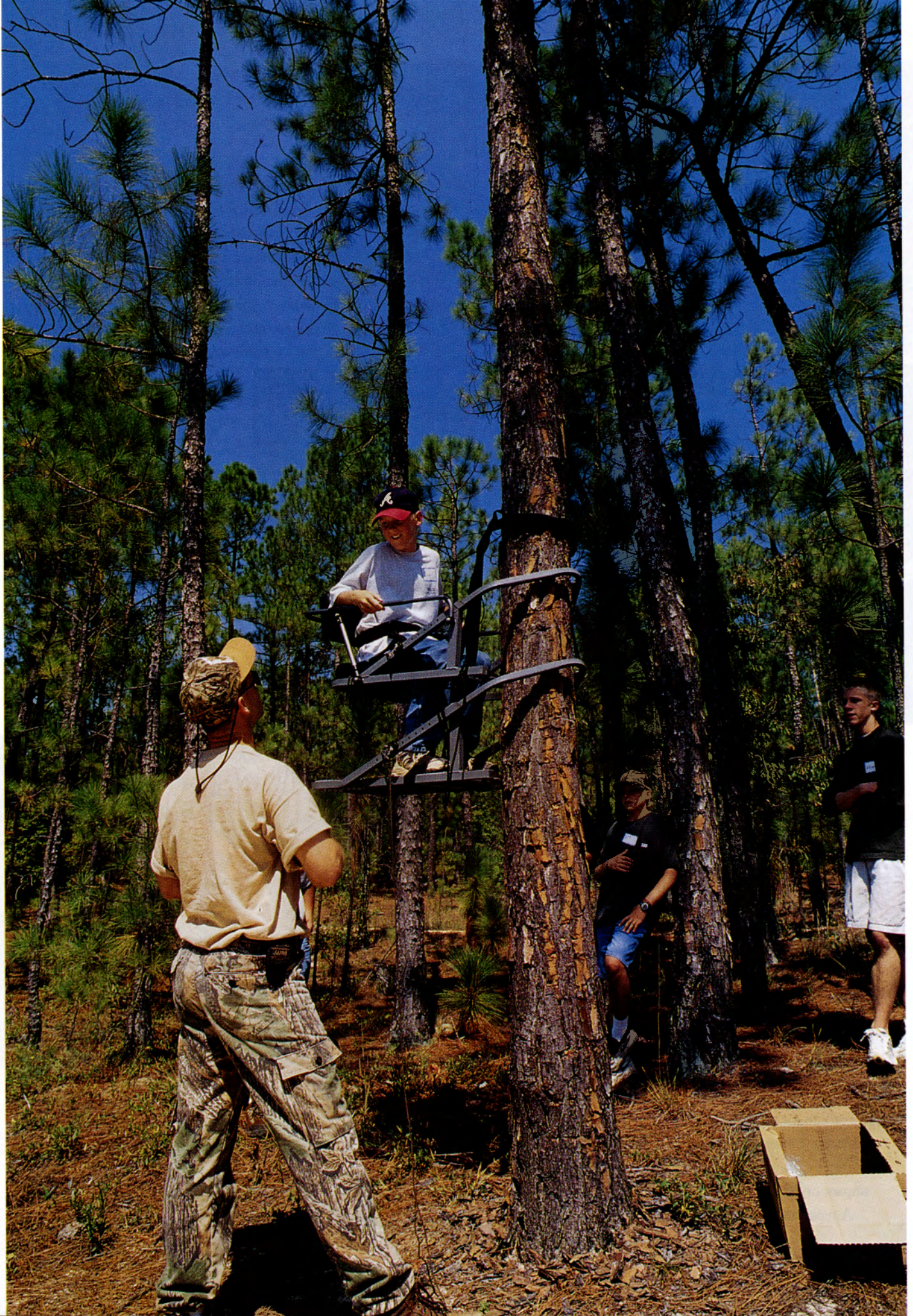
"Can't we do something with the kids outside?" the captain asked. "Get them involved by letting them actually fire a rifle and showing them how to safely climb with a tree stand?"

Keeling liked the idea. But he pointed out that he'd need extra instructors for any one-on-one approach. Atkinson said he had them.

"I told him we'd also need a classroom with a firing range nearby," Keeling says. "He said he had those, too. So we set an August 1998 date and went from there. The response from the kids and the officers Atkinson provided as instructors was terrific."

The success of that first course offering in Sumter led the way for other public-service agencies to get involved with the DNR's new education project. Capt. James Williams, with the Orangeburg County sheriff's department, heard about the model program, contacted Keeling and, shortly afterward, had classes scheduled. Courses were soon offered in Camden, Spartanburg, Aiken and Georgetown, as well as just outside Columbia at the DNR's Styx Receiving Compound education facility. In less than a year, 500 young people have been certified directly through the Hands-On Hunter Ed program.

The number certified may actually be triple that, when you take into account the youth reached through programs offered by independent organizations and conducted with DNR assistance, such as the confidence course at S.C. Waterfowl Association's Camp Woody.





Sumter Police Department's Capt. Dale Atkinson, shown below helping a student reload, joins volunteer instructors from Camden's police and fire departments to teach hunter safety. The DNR's unique hands-on approach combines classroom and field work, building the camaraderie that comes with one-on-one contact.

Offered free, held year-round, and with firearms, ammunition, skeet and throwers, eye and ear protection and tree stands provided, the Hands-On Hunter Ed course satisfies the law's requirement that anyone born after June 30, 1979, must successfully complete a hunter education course before obtaining a license to hunt. While Keeling encourages families to take the course together — and it has attracted

with study of the hunter education manual, then students move out to the firing range. In small groups, participants experience shooting with shotguns and rifles and try out the tips they've learned on using a tree stand and harness. Volunteers interact one-on-one with students, and Sumter police captain Atkinson cites improved community relations as an excellent side benefit. He believes the program offers

teens a look at his officers as positive role models, rather than as someone to fear.

Using dummy ammunition, students are taught to load and unload their firearms, even those who don't even know where the safety is to start with. Each learns the correct stance and shooting form, then fires about a dozen rounds. As confidence grows, aim improves, and Atkinson says, "It's so rewarding to see a young person shooting a firearm for



single parents, men and women who want to get into the shooting sports, and parents accompanying their children — 90 percent of attendees are young people who need certification. "Actually," he says, "it's for anyone who wants to learn about firearms and firearm safety."

Young girls make up a good portion of the class numbers, and Keeling comments on their high enthusiasm. "Shooting sports and shooting competitions, especially for women, are growing unbelievably fast in this country," he says, pointing out that clothing manufacturers have also taken note of this market. No longer do women have to fit into outdoor wear designed for their male counterparts.

A Blythewood couple, Keith and Rose Marie McCaskill, took the course with their two sons and wrote afterward, "Although we were not looking forward to sitting in a classroom for ten hours, we felt like this would benefit our children. I must say that we were impressed. The hands-on portion, coming from professionals, definitely made an impact on us and our children."

A typical class day begins at 8:00 a.m. inside the classroom,



the first time, to see their expression when they hit the bull's eye or break a clay pigeon!"

From the outdoor classroom, participants move back inside to complete the required course work. Instructors stress obeying the law, but practicing courtesy and good, responsible behavior receives equal emphasis. Keeling says, "When we

finish a course, we feel like we've really made a difference in someone's life. We've not only shown them how to be safe, we've also shown them how to respect the land and what we have out there."

Some 22,000 people go through South Carolina's formal Hunter Education program each year, taking advantage of one of the three options available through the DNR. In addition to the Hands-On Hunter Ed method, students can attend a structured classroom course through the schools or offered at night or on weekends. (Range firing experience may or may not be a part of these, depending on availability of facilities.) In special cases, such as when an adult plans to hunt in a state where certification is required, an intensive home study course may be arranged. For information on any of the options, call 1-800-277-4301, or (803) 734-3995.

One final note: while the course is called Hands-On Hunter Education, firearms safety is the subject. Students learn to respect firearms and to handle them responsibly. The goal ultimately is to keep accidents from happening. National attention has been focused in the past couple of years on tragedies that have resulted from mixing youth and irresponsible use of firearms. Learning the basics by doing, with respected professionals as mentors, can allow young shooters to safely experience a traditional sport enjoyed by generations of South Carolinians. 🐾

*Lt. Michael E. Williams is hunter and boater education coordinator.*



## JOINING HANDS

"Hunting is one of the safest recreational sports in the United States, and thanks to programs like the DNR's Hands-On Hunter Education program, it's getting safer," says Lt. Michael E. Williams, the DNR's hunter and boater education coordinator. With participation from agencies and organizations across the state, the DNR is reaching youth with the message of safe, responsible use of firearms.

### Cooperators include:

- ◆ Aiken County Sheriff's Department
- ◆ Camden Fire Department
- ◆ Camden Police Department
- ◆ City of Georgetown Fire Department
- ◆ City of Georgetown Police Department
- ◆ Georgetown County Sheriff's Department
- ◆ Orangeburg County Sheriff's Department
- ◆ Sumter Police Department
- ◆ S.C. Waterfowl Association



## Eastern River Cooter



**T**hey are called from one world to another as surely as the ghouls in *Night of the Living Dead*. They rise furtively, moving with a slow, steady purpose, moist green skin dripping. They crowd together, wary intruders in foreign terrain.

They are river cooters, and it is the sun that calls them forth from our ponds and lakes and rivers. It can happen most any time the cold-blooded creatures sense there is warmth to be gained from a few hours of basking on a bank, a rock or a log. They line up, one behind the other, filling every available space. Sometimes they crawl on top of each other, stacking themselves like the Flying Wallendas, holding the occasional foot aloft in an effort to expose more skin to the warming rays.

For the wildlife watcher, it is a glimpse of a ritual that goes back millions of years. It is also something to be enjoyed from a distance, for these are skittish creatures. At the least hint of disturbance, cooters will slip from their perches into the water. There, they join the many species whose day-to-day lives escape our detection.

Actually, in the case of the Eastern river cooter, we're usually not missing much. Cooters, which can grow to about twelve inches across, tend to rest on the bottom or walk about sluggishly feeding on plant life. There's generally no bigger expenditure of energy below the surface than there is above.

Cooters can stay underwater for as long as two hours, and they

have developed a means of staying hidden that does alligators one better.

Alligators, of course, can swim with just their eyes and nostrils exposed, lurking pretty effectively (and dramatically) below the surface.

Cooters can breathe without even breaking the water's surface. They can press their nasal openings to the place where water meets air and keep them at the bottom of small depressions on the surface film of the water as they breathe. Some scientists also contend that they can use vascularized tissues around the mouth and in the cloaca to pull a little oxygen from the water the way gills do.

On land, they tend to be awkward, and the only activity besides basking that draws them out of the water is nesting.

Females dig nests relatively near the water in sandy soil late in the spring — in South Carolina it is from late May to early June. They lay up to twenty oval eggs that are white with a light pink tinge. The temperature of the nest can determine both the rate of development and the sex of the hatchlings, which break out of the eggs after about sixty days. Opossums, skunks and raccoons prey upon the eggs, and snakes, herons, fish and other turtles eat the hatchlings. Adults are vulnerable to alligators and, of course, to man. Highways mean a particular deathtrap for cooters, and pollution and development both take heavy tolls. Still, the river cooter has adapted surprisingly well to human activity, and its population is relatively strong and stable, according to Steve Bennett, an S.C. Department of Natural Resources biologist and inventory coordinator for the South Carolina Heritage Trust Program.

"We have good populations in both the Savannah and Congaree-Saluda-Broad river systems, and I'm sure they're

Eastern river cooter, *Chrysemys concinna concinna*

Description: Up to 12 inches in diameter. Olive to brown with black and yellow markings; yellow beneath. On head, tail and feet, yellow stripes on greenish skin.

Range and Habitat: Rivers, lakes, streams, ponds from Virginia to Georgia. Throughout South Carolina with the exception of the highest mountains.

Nesting and Young: Nest near water, a covered hole containing up to 20 oval eggs, which hatch after about 60 days.

Viewing tips: Look for them sunning on warm days on rocks or logs in most river systems. Stealth is key. At the slightest disturbance or approach, they will drop back into the water.

strong in the others as well," he says. "Especially when the water is low, you can find them basking on exposed rocks. Where I-20 crosses the Savannah River, it's not unusual to count a hundred or more river cooters on the rocks in March and April. We have a good population in Columbia, too. Looking in the old canal and off the bridges, you're likely to see them on any warm day."

Telling cooters from other basking turtles is not an easy task, and from a distance it is nearly impossible. The fact that Eastern river cooters hybridize with Florida cooters complicates matters even further, although in South Carolina there are just three species to deal with — the Eastern river cooter, the Florida cooter, and the yellow-bellied slider.

The last can be told by the yellow blotch on its head and by its shell, which is more highly arched.

Eastern river cooters grow up to a foot across, with long, narrow shells. The upper shell, or carapace, is dark green, with whorls of black and cream-yellow. A C-shape marks the second scute or upper plate, and the shell itself is relatively flat. The lower shell, or plastron, is yellow. The skin of the head, feet and tail is green, with yellow markings. Males have long, straight claws on their front feet and thicker tails than the females.

Cooters range from Virginia to Georgia, and the rivers they frequent often have moderate current and plenty of vegetation. They can also be found in lakes, swamps and ponds. There they live out their lives, as they have for millions of years, undetected until they move into view, silent and furtive, living links to another world. 🐢

— by Rob Simbeck

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



July-August 1999, Vol. 46, No. 4

Miles before they enter the gates of Table Rock State Park, visitors glimpse the spectacular Upstate landmark that gives the northern Pickens County recreation area its name. At 3,124 feet high, Table Rock dominates the sky, treating travelers to a front-row seat at one of South Carolina's most photographed scenes.

Some geologists believe Table Rock is a monadnock, a massive chunk of prehistoric granite more efficient than neighboring landscape at warding off erosion.

Legend tells us the rock and surrounding forests were favored by Cherokee Indians who called them *Sah-ka-na-ga*, the Great Blue Hills of God, and believed the spirit of a great chieftain dined on Table Rock while sitting on nearby Stool Mountain.

Before the early 1900s, when the area was bought and protected by the Greenville Watershed Commission, it was both farmland and resort, with several hotels and inns accommodating growing numbers of tourists. After its 1935 acquisition by the state Forestry Commission for development as a state park, the Civilian Conservation Corps (CCC) began constructing the park's meandering road, native stone-and-log lodge, rustic cabins and other structures and amenities. Perhaps this influence as much as the Table, Stool and quiet forests makes Table Rock's 3,083 acres as appealing today as they were to the Cherokee.

**1** Table Rock State Park is located 12 miles north of Pickens and spreads across SC Highway 11, the Cherokee Foothills Scenic Highway. The park's larger share rests at the foot of Table Rock, but a visit should begin at the Cherokee Foothills Heritage Corridor's visitors center, a new log structure across Highway 11. Accessed by E. Ellison Lane, the center also houses park administration offices. Public restrooms and a

telephone are available, as is information on both the park and other Corridor sights.

In front of the visitors center, a fishing pier on the bank of 68-acre Lake Oolenoy welcomes licensed anglers interested in bream, bass, catfish and trout. Behind the center is a gated entrance leading to the recently completed primitive campground. This new area is closed to vehicular traffic and stresses low-impact camping. It is designed to accommodate groups or individual campers.

Drive back to SC 11, turn left and left again just over the bridge onto *Sah-Ka-Na-Ga View* where a second fishing pier, restrooms and a public boat ramp are located. Only self-propelled or electrically driven boats are permitted.



Lake Oolenoy fishing pier, near visitors center.

**2** Back at SC 11, turn left and immediately right onto S-39-25 at a park sign indicating the west gate entrance. Drive .5 mile and turn right, stopping at the gatehouse to pay a parking fee. Possession of a Park Passport allows unlimited visits.

Another .1 mile and a left turn bring you to the park's Country

Store, where a coin-operated laundry and variety of gifts, groceries and supplies are available June through Labor Day and weekends Easter through October. An RV dump station is located just past the store, across from the campground entrance.

Around the campground's circular drive are 75 packed-gravel sites (some accommodate RVs up to 35 feet) with picnic tables and water and electrical hookups, three modern comfort stations with restrooms and showers and a recreation building. One comfort station and 30 sites are available in winter; 25 sites, including two designed for the physically impaired, may be reserved spring through fall. Reservations are accepted up to 11 months in advance for stays of not less than two nights or more than 14.

Back at the dump station/campground entrance, turn right and drive to the 100-vehicle parking area for The Barn, a large multipurpose recreation building available for rent year-round. The Barn is heated for winter use and cooled with dual attic fans in summer. With a recreational capacity for up to 500 people, it has restrooms, a kitchen with banquet tables and chairs for 200 and retractable bleachers. The road dead-ends here, so return to the main park road and continue left.



*Table Rock's granite form looms above miles of state park walkways and guest facilities, such as the Carrick Creek Trail and Interpretive Center.*



Less than half a mile on the right is the quaint meeting house that was moved to the site years ago. Sunday church services are held here spring through fall, and the building, which is heated and air-conditioned and seats approximately 150, may be rented year-round.

Around a curve and up a hill is the park's largest cabin area, with three roads angling left and one right to 12 cabins. Each has a fireplace and screened-in porch, is heated and air-conditioned, and is furnished with necessary bed, bath and kitchen amenities, including microwaves, coffee makers and grills. Cabins accommodate from four to 12 people and are available year-round (weekly rentals only Memorial Day through Labor Day).



White Oaks picnic area.

Reservations are accepted up to 24 months in advance. No pets are allowed.

Within sight is the right-turn entrance to the day-use area, with parking for restrooms, picnic tables on the banks of 36-acre Pinnacle Lake and two reservable shelters with seating for 50 to 60 people. Grills are located throughout the area; portable grills are welcome. An 18-hole carpet golf course is adjacent and open daily June through August and weekends May through October.

**3** Farther along the main road and over a short bridge with a narrow walking lane alongside is another of the park's activity hubs. Parking and a public telephone are available to the right. Trails begin from Carrick Creek Interpretive Center on the left. A satellite park office with adjoining concession/gift shop bustles with activity. Picnic tables and grills dot Pinnacle Lake's shores. Canada geese, duck families and bands of noisy crows make themselves at home. Occasionally, the scarlet head of a pileated woodpecker may be spied. And people! They're everywhere, doing a variety of things. . . .

Fishing is allowed on Pinnacle Lake. Fishing boats may be rented year-round, with renters allowed use of personal trolling motors.

Pedal boats and canoes are rented daily June through August; pedal boats are also available weekends March through October. Paddles are provided; life vests are mandatory and furnished.

Swimming, with certified lifeguard supervision, is permitted June through Aug. 10, and a small, fenced beach is open to sunbathers. A bathhouse with restrooms, dressing areas and coin-operated lockers stands nearby.

In the satellite park office, cabin users register and pick up and return keys; boat users pay fees, receive instructions and get their boats; hikers get trail maps. Information on area sights and park activities is available. The concession/gift shop is open daily June through Labor Day and spring and fall weekends with snacks and souvenirs.

Carrick Creek Interpretive Center is open daily June through Labor Day with exhibits on the area's history, flora and fauna. Seasonal interpreters and a full-time naturalist lead a variety of activities for children, group hikes, canoe floats and bird walks.

Behind the center, where Carrick and Green creeks join, a paved walkway leads past small waterfalls and pools popular for toe wiggling, foot cooling and general chilling out.

**4** Several well-marked trails begin behind the center, including the 3.4-mile trail up Table Rock; the 3.3-mile trail up 3,425-foot Pinnacle Mountain, the tallest peak located wholly in the state; and the 1.9-mile Carrick Creek loop trail. The Table Rock Trail System is listed on the National Register of Historical Places and is designated a National Recreation Trail. Each segment has appeal.

The Table Rock Trail was blazed in the 1930s by CCC workers who built the much-appreciated and recently renovated shelter halfway to the summit. They also hacked out the equally appreciated footholds leading up Governor's Rock. The trail opened in 1938 and is one of the state's most popular.

Accessible from the Pinnacle Mountain Trail are Mill Creek Falls and a junction of the Foothills Trail that heads west another several miles to and beyond Sassafras Mountain, the state's highest peak that slopes into North Carolina.

The Carrick Creek Trail is a fun walk, less strenuous than the others, although it follows portions of each while ambling beside both Carrick and Green creeks.

The two longer trails may be connected by using the Mill Creek Pass Trail or the Pinnacle Ridge Trail, but care should be exercised when planning longer hikes since the elevation gain on both main trails is significant. Elevation at the interpretive center/trailhead is 1,160 feet; on Table Rock, 3,124 feet; on Pinnacle Mountain, 3,425 feet. All are strenuous hikes. Good hiking shoes and plenty of liquids and snacks are musts for successful hiking. A trail registration box is located at the interpretive center. No overnight trail camping is allowed.

Continuing right on the main park road, drive .1 mile to Hemlock Lane, turning right to a picnic area. A large shelter with a fireplace and seating for 75 to 80 people is available for rent year-round.

**5** Back on the main road and continuing right, drive .2 mile and turn left on White Oaks Lane which, prior to a 1971 tornado, led to five huge white oak trees. Two fully-furnished, two-bedroom cabins are found by turning left .45 mile farther. One accommodates four people, the other eight, with one designed for the physically impaired.

Return to White Oaks Lane and continue left to White Oaks Shelter, another large, reservable picnic area with a fireplace and seating for 75 to 80 people. A public restroom is nearby.

Just past the picnic area is the 25-site overflow campground, available for group rental with a minimum of 10 sites reserved. Water and electrical hookups and a comfort station with restrooms and showers are provided. Three sites are reserved for tent campers.

Return to the main park road and drive .3 mile to a left pull-out that affords an excellent view of Table Rock, Governor's Rock and 2,600-foot Stool Mountain.

**6** Another .2 mile brings you to a turn-around lane on the right and a park gate that, if locked, means you must retrace the route. If the gate is open, continue another .45 mile to a second gate. The park superintendent's house is on the left; the Table Rock Lodge Restaurant is on the right, with parking on both sides of the road.

Spectacular scenes from Table Rock Lodge Restaurant include Pinnacle Lake and the majestic monadnock itself.



The two-story native stone-and-log lodge was designed and built in the 1930s by CCC craftsmen to overlook Pinnacle Lake. Standing on the lodge patio, you can see the granite face of Table Rock, Bald Rock Overlook on Pinnacle Mountain and the outline of Pinnacle Ridge connecting the two peaks. Most afternoons, the temperature is perfect for gazing and dreaming, but don't miss dinner in the lodge!

Open Tuesday through Sunday year-round, the restaurant serves both lunch and dinner May 1 through October 31 and dinner only the rest of the year. A selection of platters and individual items and desserts are available, but the restaurant's claim to fame is its Family Style All-You-Can-Eat Dinner, with choices of fried chicken, catfish, flounder and country ham (any

or all), cole slaw, french fries, hush puppies, grits and red-eye gravy, homestyle biscuits and beverage. Reservations may be made for groups of 20 or more.

A second pull-out is found another .2 mile down the road, where CCC workers designed and built the stone overlook and adjacent dam. This is an excellent place to stop for a different view of Table Rock as its shimmers in Lake Pinnacle and vies with seasonal foliage for grandeur.

Another .3 mile brings you to a second lake overlook and the park's east gate entrance on SC Highway 11. At this point, you have driven a 3.35-mile loop from the Cherokee Foothills Heritage Corridor Visitors Center, with the main park road winding 2.65 miles at Table Rock's base.

Table Rock State Park gates are open year-round 7 a.m. to 10 p.m.; the office is open most days 8 a.m. to 5 p.m. Quiet hours are from 10 p.m. until 7 a.m. For more information, write the park at 246 Table Rock State Park Road, Pickens, SC 29671, or call (864) 878-9813 or (803) 734-0156.

One of the state's most popular parks, Table Rock offers something for everyone. Fall has its crescendo of color and scent; winter, its stark, barren glory; spring is alive with wildflowers and waking earth; and summer? Summer at Table Rock is a gift . . . of cool mountain breezes, gurgling waters and vistas to warm the soul. 🐾

— Emily Clements

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

*Field Trip gratefully acknowledges the assistance of Joe Hambricht, Poll Knowland and Will Pendleton of S.C. Parks, Recreation and Tourism.*



# ROUNDTABLE



Youths benefit from the experience of outdoors mentors in the DNR's Take One Make One program, the largest outdoor education and hunting recruitment program in the United States.

## TAKE A KID, MAKE A HUNTER

Young people with interest in the outdoors but few opportunities to take advantage of all South Carolina's natural resources have to offer may benefit from a new state DNR program designed to use the experience of seasoned sportsmen to teach newcomers.

The program, called Take One Make One, gives youths and young adults ages 12 to 27 the chance to learn about hunting and fishing, wildlife, forestry and outdoor safety and ethics. This program lets hunters in private clubs, and landowners, take individual participants through an entire season of activities at a location near the young person's home. Adult mentors in the program share their experience and knowledge with young people, teaching them ethics, values, safety, survival skills, bird-watching, fishing, map-reading, wildlife habitat improvement, land and forest stewardship, archery, muzzleloading, shotgun and rifle

marksmanship, and scouting techniques. Participants keep a journal of the activities.

"Hunting in South Carolina is one of the oldest traditions passed on from generation to generation," says Bob Redfern, Take One Make One coordinator for the DNR. "The recruitment of young hunters is important if we are to continue this tradition."

During the past 20 years, hunting license sales have steadily declined across the state. More specifically, between 1986 and 1997, there was a 44 percent drop in the sale of the Junior Outdoorsman license and then a 9 percent drop in 1998 license sales figures.

Take One Make One participants will be required to enroll in and pass the South Carolina hunter education course. They will also receive certification by their adult mentors before participating in seasonal hunting activities.

The program, structured around the building-block approach of exposing young participants to all outdoor activities in South Carolina, has received endorsements in funding and equipment from corporations and conservation groups.

To sign up as a Take One Make One participant or mentor, call Redfern at (803) 734-3942. 🐾

## HEAD OF NEW NATURAL RESOURCES COUNCIL FROM DNR

Gov. Jim Hodges recently named Hank Stallworth, assistant deputy director of the DNR's Land, Water and Conservation Division, as executive director of the Interagency Council on Natural Resources Policy.

As executive director of the newly formed council, Stallworth will coordinate the state's natural resource programs for the governor. The council consists of directors of state departments of Natural Resources, Health and Environmental Control, and Parks, Recreation and Tourism, as well as the commissioner of agriculture and the state forester. The council also has a number of nonvoting members.

Formed to advise the governor on major environmental issues, the interagency council will facilitate coordination and cooperation among state resource management agencies and address major environmental problems.

"Hank is a key employee in the department," says state DNR Director Paul Sandifer. "The governor has made a wise choice — Hank will be an even greater asset to the state in this new position." 🐾



**OPERATION  
GAME THIEF**  
**1.800.922.5431**  
**STOP GAME AND FISH VIOLATORS**

## LAB FACILITY PROTECTS STATE'S WATER RESOURCES

Metals, pesticides and other contaminants present in soil, plants, animals and water around the state won't go unnoticed if chemist Betsy Cooper has anything to say about it.

In a new lab facility located adjacent to the state's Styx Fish Hatchery in Columbia, Cooper, a chemist with the state DNR since 1992, runs tests on samples sent from DNR field scientists using state-of-the-art analytical equipment. Metals, such as lead, mercury and copper, as well as herbicides used to control nuisance water plants, are some of the things she looks for.

When aquatic herbicides are used to control the non-native weed hydrilla, as in Foster Creek near Charleston and many other water bodies around the state, the level of chemicals in the water must be kept at just the right amount to control the weed but not harm the environment. Testing at the new lab facility allows aquatic plant managers to keep close tabs on the amount of herbicide in the water.

"The lab gives us confidence that we are using these materials in a safe and effective manner," says Aquatic Nuisance Species program leader Steve de Kozlowski, "and that's especially important when we're working in lakes and rivers that supply drinking water to the public."

The lab usually processes water samples, but sometimes Cooper analyzes sediment samples from the bottom of

lakes for herbicide residues. "We also occasionally test fish tissue samples, sent to us by the Marine Resources Division, for heavy metals," she says. A new mercury analyzer in the lab allows accurate testing for this substance.

The lab also tests water samples gathered from monitoring stations around the state, including sites on the Savannah River, the Saluda River, and the Pee Dee River, for zebra mussels, a troublesome species of freshwater mollusk that has invaded water bodies from the Great Lakes to the Gulf of Mexico. None of these undesirable mollusks have appeared in samples thus far.

Other lab services include working with Wildlife and Freshwater Fisheries biologists testing ponds having problems with water hardness or alkalinity and running routine water-quality tests on groundwater for the DNR's Hydrology Section.

For a long time, the DNR's lab was located downtown on Gervais Street, and only Water Resources Division scientists took advantage of its services. "We have a new facility now. We moved in here last August and are ready to serve all the DNR's divisions," says Cooper. New equipment, along with the new facility, has expanded the capabilities of the lab in recent months. 🐾

---

*On March 26, 1985, Gov. Dick Riley signed Act 31, the bill that made the Boykin spaniel the official state dog of South Carolina.*

---



MICHAEL FONSTER

Drew's Law cracks down on dangerous boaters, allowing penalties for boating crimes that equal those for similar violations on the road.

## NEW BOATING SAFETY LAW CRACKS DOWN ON CARELESS BOATERS

A measure designed to put South Carolina boaters on notice about the penalties of boating crimes became law this summer when Gov. Jim Hodges signed the Boating Reform and Safety Act.

Called Drew's Law for 11-year-old Joseph Drew Smith, who was killed nearly two years ago when two boats collided on Lake Murray, the new law cracks down on boaters who endanger the lives of others.

The push for a stronger boating safety law originated with DNR officials and was advocated by the parents of Joseph Drew Smith, whose death prompted the legislation. "Randall and Karen Smith showed tireless dedication and commitment to making South Carolina's waterways a safer place," says DNR Director Paul Sandifer. Over the past two years, the Smiths formed Citizens Concerned for Boating Safety,

a private boating safety advocacy organization, and worked hard to pass the Boating Safety Act. The plan won final legislative approval in June, with immediate enforcement.

Among other provisions, the new law allows officers to administer breath alcohol tests to boaters suspected of being under the influence. It also provides stiffer penalties for this and other boating violations, bringing penalties more in line with those for violations on the road.

In addition to the Boating Safety Act, additional funds from a proposed boating registration renewal fee increase will be used to put more DNR officers on the water. Registration renewal fees increased from \$10 to \$30, beginning July 1, 1999. DNR will use the additional revenue to hire up to 25 more officers within the next year.

For questions concerning Drew's Law and safe boating, contact the DNR's Boating Education offices at (803) 734-3995 in Columbia or (843) 762-5041 in Charleston. 🐾

# ROUNDTABLE



Preparation can often decrease or prevent property damage such as that sustained in McClellanville during Hurricane Hugo in 1989.

## PREPARATION KEY TO SAFETY DURING HURRICANE SEASON

South Carolinians and residents of other Southern states along the Atlantic coast can look forward to more than average tropical storm activity again this year.

The 1998 hurricane season was the sixth most active season since 1933, and meteorologists predict an equally active season for 1999. This season we can expect 14 named storms (9.3 average), 9 of them hurricanes (5.8 average). Four of the nine hurricanes are predicted to be major category 3 or higher storms (2.2 average). Category 3 storms have a sustained wind of at least 111 miles per hour.

According to William Gray, professor of atmospheric science at Colorado State University, the East Coast of the United States has a 185 percent of normal chance of getting hit

this hurricane season, which runs from June 1 through November 30.

The message behind these reports is "Be prepared!" Fewer people are injured or killed and less property damage occurs when preparations are made for the onslaught of a hurricane. Modern forecasting allows more advance warning when a serious storm is approaching, time to secure shelter or evacuate if necessary.

Recent research by S.C. Sea Grant Consortium researchers Tim Reinhold and Scott Schiff, both Clemson civil engineers, shows relatively inexpensive retrofitting of houses can make them safer in high winds during hurricanes and other large storms. The engineers tested caulk-like adhesives that can improve a roof's capacity to withstand hurricane wind pressures by a factor of four or five. They also studied ways to create a safe haven in a home and found that by installing

a single layer of plywood beneath one room's siding the homeowner could reduce chances that falling trees would slice through walls. The caulking can be added to a roof for about \$1,000 and the plywood retrofitting cost is about \$1,000 to \$3,000.

For more information about hurricane predictions as well as current weather conditions and forecasts, see the DNR's Web site: [www.dnr.state.sc.us](http://www.dnr.state.sc.us). Select Water Resources, then South Carolina State Climatology Office. 🐾

## NEW DNR BOARD MEMBERS APPOINTED

Six new members of the S.C. Natural Resources Board took the oath of office in June in Columbia, with a seventh named two weeks later.

The newly appointed members of the board, which is the policy-making body of the S.C. Department of Natural Resources, include the following.

M. Russell Holliday Jr. of Galivants Ferry, First Congressional District, is currently a partner and vice-president of Holliday Associates, a South Carolina timber, farming and real estate operation. A lifelong hunter and outdoors-woman, Holliday is a strong advocate for the protection of the natural resources of our state.

Ben Gregg of Columbia, Second Congressional District, holds a masters in environmental studies from Yale University and has served many natural resources-related civic organizations, the Natural

Resources Education Council (chairman), Governor's Council on Natural Resources and the Environment, and the South Carolina River Assessment Advisory Committee.

Julius Leary of Greenwood, Third Congressional District, is a physician also serving on the board of the S.C. Medical Association. He has served as vice chairman of the Heritage Trust Advisory Board for the past two years and previously served as a commissioner of the S.C. Wildlife and Marine Resources Department.

Joab Mauldin Lesesne of Spartanburg (chairman), Fourth Congressional District, has been president of Wofford College since 1972. He has been active in many aspects of business and civic life and received numerous awards for his service to the community.

Douglas Rucker of Lancaster, Fifth Congressional District, practices general dentistry in Lancaster and has served on the South Carolina Marine Advisory Board, among other appointments. Rucker enjoys fishing, farming and raising catfish in his farm ponds.

Malloy McEachin Jr. of Florence, Sixth Congressional District, practices law in Florence and is a member of various hunting and conservation organizations.

Danny Ford, member at large, is former Clemson football head coach who now runs a farm in Central.

The board's meetings are open to the public, and anyone with business for the board should contact Cary Chamblee, DNR associate director, in the DNR's Columbia office at (803) 734-9102. 🐾

**DIAL-A-LICENSE NOW AVAILABLE**

You're about to show a friend how South Carolina earned its reputation as a premier fishing destination, when you suddenly realize there's a problem. He doesn't have a fishing license.

But, thanks to a new service from the state DNR's Licensing Section, a phone, a driver's license and a credit card can save your trip.

It's called Licenses By Phone: 1-888-434-7472. Using this number, your friend can now receive his fishing license number over the phone, immediately, 24 hours a day, seven days a week. He can begin fishing as soon as he hangs up the phone and returns to the riverbank.

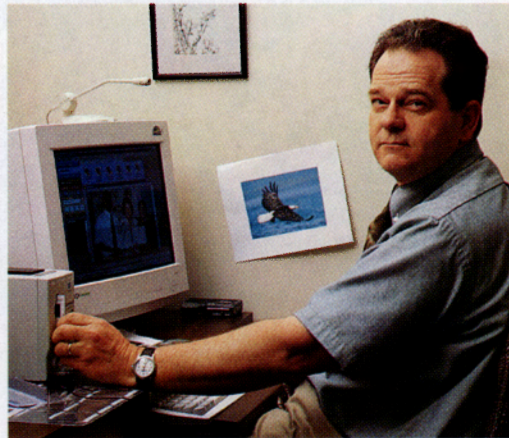
For a \$3.95 processing fee in addition to the regular license fee, callers can buy all varieties of resident and nonresident fishing and hunting licenses using the toll-free number.

"This is provided as a convenience. Hunters and anglers can choose to use it or not," says David Busby, computer services administrator for the DNR, who facilitated the program. "Now boat dealers and marinas who don't want to go to the trouble to handle the paperwork involved in being license vendors can hang a sign on their doors saying Hunting and Fishing Licenses Available Here."

Cards to keep the phone number handy are available from the state DNR by calling (803) 734-3888 or writing Licenses By Phone, SCDNR, P.O. Box 167, Columbia, SC 29202-0167.

**AT YOUR SERVICE: MIKE CREEL**

Mike Creel is what his colleagues call an idea man.



His amazing brain is always busily engaged hatching plans and schemes.

Creel, news section chief in the DNR's Conservation Education and Communications Division, had this crazy idea many moons ago to send electronic transmissions of news stories to South Carolina's daily newspapers. This was years before the words "e-mail" and "Internet" became part of the daily lexicon, back when only eggheads communicated by computer.

But Creel knew that most of the state's larger newspapers had computers with modems, and he realized if he got the settings for each of those modems, he could send the DNR weekly news package to the newspapers electronically. So he devised a plan to do just that, and it worked like a charm. Newspapers began using more agency news because the copy didn't have to be re-keyed by a typesetter. Of course, the delivery method was so complicated that only a NASA rocket scientist — and Creel — could even attempt it, but that's another story. (The process has

been simplified today.)

Creel, who's been with the DNR since 1977, is truly a fount of information. Whenever somebody is stumped on a word or fact, they don't check the Internet, dictionary or World Book. "Ask the Creelmeister" is the first course of action.

The honors he's received are numerous enough to fill a volume. One that stands out is the 1997 Harry Hampton Woods and Waters Journalism Award. Creel received the award from the S.C. Wildlife Federation and the Hampton family for "excellence in natural resources reporting." His years of writing news stories for the DNR and articles for *South Carolina Wildlife* magazine have for the last quarter-century given the public a better understanding and appreciation of South Carolina's natural heritage.

Creel's writings for *South Carolina Wildlife* — more than a hundred articles with no signs of stopping — cover an impressive range of subjects, from hunting and fishing to fall wildflowers. An article by Creel in the September-October

1975 *South Carolina Wildlife* made that particular issue one of the most popular in the magazine's long and storied history. "The Spaniels of Boykin" helped the rest of the world fall in love with South Carolina's little brown dog and planted the seeds for the Boykin Spaniel Society formation, the first field tests, and the eventual naming of the Boykin spaniel as South Carolina's state dog. Creel co-authored the seminal work on the dog, *The Boykin Spaniel: A Crackerjack Retriever, Trick Artist & Family Favorite*, published in 1997 by Summerhouse Press.

Creel's passion, however, is wildflowers and native plants. He's given talks and slide shows on wildflowers to just about every garden club in the state and can often be found consulting with DNR botanist Bert Pittman on some extraordinary plant that he's discovered. He introduced a variegated clethra to the nursery trade that's called Creel's calico, and he is widely recognized as a specialist on native (deciduous) azaleas. In fact, Creel played a primary role in identifying a previously unknown native azalea that will be introduced as a new species later this year in a scientific journal. It will be named *Rhododendron eastmanii* after its discoverer, Charles Eastman, one of Creel's "azalea buddies."

Yet it is family that is foremost in Creel's life. Mike and his wife, Dena, have been married 24 years and are the parents of two children, Sarah and Allen, both in college.

— Greg Lucas

# ROUNDTABLE

## URBAN ECOLOGIST: *Pretty Poisons*

What do *lantana*, oleander, yellow jessamine, boxwood and hydrangea have in common? Besides being great landscaping plants, they are all poisonous to humans.

The list of poisonous plants, both in the wild and around our homes and offices, is surprisingly long and also includes wisteria, philodendron, English ivy, pokeberry, buckeye, chinaberry, popcorn tree, Virginia creeper, trumpet vine, Queen Anne's lace, privet, periwinkle, tansy, yarrow, black locust, lupine, azalea and mountain laurel, to name just a few. Poisoning symptoms from these plants can range from mild skin rashes to severe stomach cramps, labored breathing and, on rare occasions, death.

It should come as no great surprise that some plants are poisonous. They are, after all, miniature complex chemical factories that produce not only the good things that sustain life on earth, but a variety of other compounds, some of which can make us sick or even kill us.

Before we rush out and remove our yard- and houseplants, we should realize that in many cases it would require eating large quantities of leaves, fruit and other plant parts to develop acute poisoning symptoms. Ingestion of poisonous plants may be limited because many taste bitter and unpleasant. The "typical" poisoning case usually involves inadvertent sampling of a few leaves or berries and developing an upset stomach or skin irritation. The serious cases of plant poisoning often result from deliberate acts of amateur



*Most of us should stick to eating blackberries and blueberries in the wild, leaving the other stuff to experts.*

plant doctoring by people old enough to know better. Of course, children can be high-risk candidates for severe poisoning because of their small body size and propensity to put attractive things, such as the berries of *lantana*, poke or mistletoe, into their mouths.

*Different parts* of the same plant can be edible and poisonous. It's hard to believe that a highly poisonous plant like pokeberry can produce a great-tasting dish like poke greens, or that apple seeds, in large quantities, can cause cyanide poisoning. The fruits of red mulberry are quite tasty, while the leaves and stems can make you sick. Figs are a favorite fruit, but the leaves can cause a skin rash for some people. The tomato had a reputation well into the 18th century as a poisonous plant, primarily because it is in the nightshade family, but only the leaves and stems are poisonous. Uncooked asparagus can cause skin irritations. Lovers

of rhubarb pie probably know that the leaves of this plant are toxic enough to have caused death in a few cases.

Reaction to plant toxins can vary from person to person. We all know a few lucky souls immune to poison ivy. I was surprised to find out that a famous edible food found in our river swamps, the pawpaw (tasting somewhat like a banana), can cause stomach problems for some people.

As an aside, it is worth mentioning that the tidal marshes and old rice fields of coastal South Carolina are home to reputedly the most toxic plant in North America, water hemlock. This tall, showy plant with white flowers, a relative of European hemlock used by the ancient Greeks, produces a neurotoxin that acts on the respiratory and circulatory systems. There reportedly have been cases in which livestock were poisoned simply by drinking from the pools of water with hemlock growing in them.

It is interesting to note the

reactions of animals to plant poisons. Livestock seem to be just as vulnerable to many of the same plants as people are. Cows have been poisoned from eating boxwood and the dried leaves of wild cherry. I can still remember the incredibly bitter taste of the milk after my granddaddy's cows had gotten into a pasture filled with bitterweed. (In severe cases the cows themselves may become sick.) We were also familiar with another highly toxic plant, jimsonweed, found in Granddaddy's cow pastures and feed lots. The extremely rank odor of this exotic plant was enough, I believe, to discourage consumption by both humans and animals. Most urbanites don't recognize jimsonweed, but they may have seen a close relative and yard plant (also poisonous) with striking, peach-colored flowers that bloom in late evening, called angel's trumpets.

Birds, on the other hand, seem immune to plant poisons. One of the best natural foods for wild birds is poison ivy berries. Dove hunters know that poisonous poke berries and croton seeds are a favorite for mourning doves, and bobwhite quail are fond of rattlebox seeds, which have been known to poison people and livestock.

The chances of being seriously poisoned by plants are fairly low. However, the Poison Control Center at the University of South Carolina's School of Pharmacy runs a hotline number, 1-800-922-1117, to provide professional assistance in poisoning cases (many of which involve plants). 🐾

—John Cely

# THE SOUTH CAROLINA WILDLIFE SHOP

## CASUAL COMFORT with an outdoor flair!

**SCW** logowear caps top off any season! **Hunter's orange** or **khaki/green**, brushed twill with adjustable leather strap and brass buckle. Summer-weight **camouflage**, with mesh back. Specify color. \$12.95 each.

**C**ool and comfortable — our short-sleeved button-down sport shirts. **Wood duck** embroidered on denim; **deer** on natural. Specify design, and size S, M, L, XL or XXL. \$37.95 each.

**P**almetto Pride — show it off! Embroidered 100% cotton golf shirt and cap. **Palmetto golf shirt** available in S, M, L, XL, XXL. Specify size. \$37.95 each. **Palmetto cap**, adjustable fabric strap. \$12.95 each.

**SCW's exclusive all-cotton coverlet**, custom-designed with the Palmetto State's natural symbols. Measures approximately 48" X 68". **Coverlet**, \$49.95.



Allow ten days for order processing and delivery, or visit the **South Carolina Wildlife Shop** in the Dennis Building, 1000 Assembly Street, Columbia, Monday-Friday, 8:30 to 5.

**Order toll-free: 1-888-644-WILD!**

**CUSTOM-DESIGNED just for her  
by South Carolina Wildlife!**

Carolina wren on yellow jessamine, the state bird and flower, embroidered on cobalt blue linen, cotton-lined vest for dress or casual. Belted back, bound slit pockets; dry clean.

**Wren vest**, \$29.95 each; specify S, M, L, XL, XXL.



**SOUTHERN-STYLE Tee & Tote Sets!**

100% pre-shrunk cotton T-shirt with magnolia or heron design on front; canvas tote to match.

**Magnolia or Heron Set**  
\$19.95; specify design and M, L, XL tee.



**Charleston's Morris Island Lighthouse,**  
on a 100% cotton tee in natural, with a  
matching 9" x 16" cotton drawstring tote  
in natural with navy.

**Lighthouse Tee**  
\$15.95 each; specify S, M, L, XL.  
**Lighthouse Tote**  
\$14.95 each.

ORDER both and **SAVE \$5!**  
Only \$25.90 for the **Lighthouse Tee & Tote Set.**



**Go WILD with SCW's casual caps!**

Adjustable fabric tuck-in strap; multi-colored stitching. Poly-cotton blend khaki/navy and white, or all-cotton denim.

**WILD Cap**  
\$12.95 each;  
specify color.



**Feathered friends** adorn the front of  
our all-cotton Backyard Birds Tee.

**Backyard Birds Tee**  
\$15.95 each; specify S, M, L, XL.



**Kids' Collection**

Our **newest** kids' shirts!  
Wrap-around designs inspired by nature —  
all-cotton tees made in the U.S.A.



**Forest Animals Tee**  
**Bugs Tee**  
\$12.95 each;  
specify design and size, kids' 2-4, 6-8, 10-12.

**T-rompers in 100% cotton;**  
3 styles on white, front and back design.  
Infants' sizes only.



**Turtles  
Ducks  
Frogs**  
\$14.95 each;  
specify infants' 12 mos.,  
18 mos., 24 mos.

**"Here Comes Trouble!"**

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



**Alligator  
Shark**  
\$10.95 each;  
specify kids' sizes 2-4, 6-8, 10-12, 14-16.

## Great Guides!

### Peterson FlashGuides.

Each depicts 50 to 100 or more species in full color. Laminated; opens in a flash to two rows, 12 panels on each side; folds to 4½" x 8½". \$7.95 per FlashGuide.

- Coastal Birds**
- Hawks**
- Trailside Birds**
- Backyard Birds**
- Waterfowl**
- Animal Tracks**
- Butterflies**
- Trees**

\$7.95 each.



### Waterproof, floatable and tearproof marked fishing maps.

Choose from 8 S.C. lakes.

- Lake Wylie**
- Clarks Hill**
- Lake Russell**
- Lake Moultrie**
- Lake Marion**
- Lake Murray**
- Lake Greenwood**
- Lake Wateree**

\$9.95 each.



**1999 Tides & Times.** Tables and charts. \$3 each.

Detailed pocket guide to 25 of the state's waterfalls.

**Finding The Falls.** \$2 each.

## Picture Perfect Posters!

All shipped rolled, ready to frame.

**Seashells of S.C.** (28" x 22")  
\$5.95 each.

Scenic posters:

**Palmetto Moon** Poster (21½" x 17")

**Sunset Harbor** Poster (22" x 17")

**Wood Duck** Poster (20" x 16")

\$4.95 each.

**SAVE!** Order all 3 scenic posters for \$10!  
**Scenic Poster Set**



**SPECIAL!**



S.C. Fish Identification Posters.

Full color; 24" x 36".

**Saltwater Fish** Poster

**Freshwater Fish** Poster

\$4.95 each.

**SAVE!**

Get both fish posters for \$7.95!

**Fish Poster Set**



## THE READING ROOM

**Tideland Treasure** by Todd Ballantine. Revised edition of popular guide to South Carolina's beach, illustrated by the author. Softcover, \$15.95.

**Snakes of Georgia & S.C.** edited by Whit Gibbons and Patricia J. West, from the Savannah River Ecology Laboratory. 30-page identification guide. Softcover. \$5.00.

**South Carolina Nature Viewing Guide** by Patricia L. Jerman. Published by S.C. Department of Natural Resources; tours 93 unique natural areas. Softcover. \$14.95.

**South Carolina: A Guide to Backcountry Travel & Adventure** by Morrison Giffen. Covers 80 areas, emphasizing hiking, camping, canoeing and kayaking, fishing, and mountain biking. Softcover. \$15.

**South Carolina, A Day At A Time** by Caroline Todd and Sidney Walt. Auto tour of S.C., with a day for each county. Softcover. \$18.95.

**Palmetto Trails Guides.** Set of two: **Favorite Day Hikes of S.C.** and **Favorite Birding Trails of S.C.** Softcover booklets. \$7.95.

**Southeastern Wildlife Cookbook** from **South Carolina Wildlife.** 300-plus recipes from the wild. Spiral bound, plastic coated. Softcover. \$14.95.

**Hiking South Carolina Trails** by Allen De Hart. Out-of-the-way places from the mountains to the beaches; maps, trip details. Softcover. \$12.95.

**Paddling South Carolina** by Gene Able and Jack Horan. Complete guide to the Palmetto State's canoeing and kayaking waters. Softcover. \$12.50.

**We Called Him Flintlock** compiled by Irvin Rutledge. A picture story of Archibald Rutledge, Poet Laureate of South Carolina. Hardcover. \$19.95.

## FOR KIDS

**Coastal Colors** by Gay Haff Kovach. Children's coloring book of S.C. places. Softcover. \$3.95.

**From Sea To Shining Sea** by Dennis Brindell Fradin. Chock-full of S.C. reference material for report writers age 8 and up. Softcover. \$7.95.





# SOUTH CAROLINA WILDLIFE magazine

**One-year subscription.** Award-winning outdoor features and fantastic photos. Only \$10 for six issues.

**Two-year subscription** for an even better bargain. \$18.

**Three-year subscription** for the best deal around. \$25. (Pay no shipping and handling on subscriptions.)

**Back issues.** Subject to availability, '94 — current. Specify issue, \$3 each.

**Magazine Binder.** Stores and protects a year of South Carolina Wildlife. \$7.95.

**SCW Covers.** Suitable for framing, beginning with J/F '87. (J/A '88, N/D '89 sold out, S/O '98 available as Medallion Series poster, \$9.95.) Specify issue, \$5 each.

**MAKES A GREAT GIFT!**

**TOLL-FREE ORDER LINE: 1-888-644-WILD (9453)**

Name \_\_\_\_\_ PLEASE PRINT

Street Address \_\_\_\_\_

City • State • Zip \_\_\_\_\_

Daytime Phone \_\_\_\_\_ Area Code \_\_\_\_\_ Number \_\_\_\_\_

(In case we have questions about your order.)



VISA



MASTERCARD

CARD EXPIRATION DATE

CREDIT CARD NUMBER: DO NOT LEAVE SPACES BETWEEN NUMBERS.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MONTH \_\_\_\_\_

YEAR \_\_\_\_\_

Credit Card Customer Signature \_\_\_\_\_

**ORDER FOR MYSELF (INCLUDE SHIPPING CHARGES):**

DESCRIPTION & COLOR	SIZE	QTY.	PRICE	\$ TOTAL

**\* GIFT ORDERS:**

Name \_\_\_\_\_

Street Address \_\_\_\_\_

City • State • Zip \_\_\_\_\_

DESCRIPTION & COLOR	SIZE	QTY.	PRICE	\$ TOTAL

**PRODUCT TOTAL**

(Do not include magazine subscriptions or calendars.) → \$ \_\_\_\_\_

<b>SHIPPING</b> Must be included or order will be returned.	\$20.00 and under, <b>ADD \$5.95</b>	\$ _____
	\$20.01 to \$40.00, <b>ADD \$6.95</b>	\$ _____
	\$40.01 and over, <b>ADD \$7.95</b>	\$ _____
<b>ORDERS SHIPPED UPS.</b>	* <b>ADD \$3.50</b> for each additional shipping address	\$ _____
	<b>MAGAZINE SUBSCRIPTION/CALENDAR TOTAL</b>	\$ _____
	<b>TOTAL AMOUNT ENCLOSED →</b>	\$ _____

Send payment and form to **SCW**, P.O. Box 167, Columbia, SC 29202-0167.

Credit card orders: (Toll-free) 888-644-9453 or FAX (803) 734-3968.

Your purchase directly supports **SOUTH CAROLINA WILDLIFE** magazine's conservation education efforts.

**Shop by:**

**TOLL-FREE PHONE \***  
**1-888-644-WILD**  
(1-888-644-9453)  
(M-F, 8:30am — 5:00pm EST)  
In Columbia, call 734-3944.

**FAX \***  
**1-803-734-3968**  
(24 hours a day, 7 days a week)

**MAIL \***  
**THE WILDLIFE SHOP**  
PO Box 167  
Columbia SC 29202-0167

**IN PERSON**  
1000 Assembly Street, Columbia  
(M-F, 8:30 am-5:00 pm)

\*You must provide all digits of your credit card number and expiration date.

**PAYMENT METHODS:**  
**MasterCard - VISA -** Check -  
Bank Check/Money Order  
**No CODs or cash, please!**

**All orders shipped UPS.**

**Allow 10 days for order processing and delivery.**

**QUESTIONS ABOUT YOUR SUBSCRIPTION?**

CALL TOLL-FREE 1-800-678-7927  
(Subscriptions only, no product orders.)

**Wind Chimes**

Hand-painted wood and anodized aluminum.  
17" total length.

**Beehive/bees;**  
**blue house/birds;**  
**rose house/birds;**  
**green house/butterflies.**

Specify design.  
\$16.95 each.

**NEW!**



# Cool comfort

for warm weather!

**A**nglers, you'll want one of each of our freshwater and saltwater fish shirts!

Our easy-wearing 100% cotton Sporting Series shirts feature button-down collars and embroidered designs. **Seatrout on khaki, red drum on natural, and dolphin on blue** available in sizes L, XL and XXL; **brook trout on khaki, bass on natural, and striper on blue** in S, M, L, XL and XXL.

Specify species and size.  
\$37.95 each.



**C**hart your whole year's outdoor activities with the Millennium Edition of our popular Sportsman's Calendar & Almanac! Order **SCW's** best-selling September-through-August planner today!

**1999-2000 Sportsman's Calendar & Almanac**, \$9.95 each.



