MISSOURI CONSERVATIONIST

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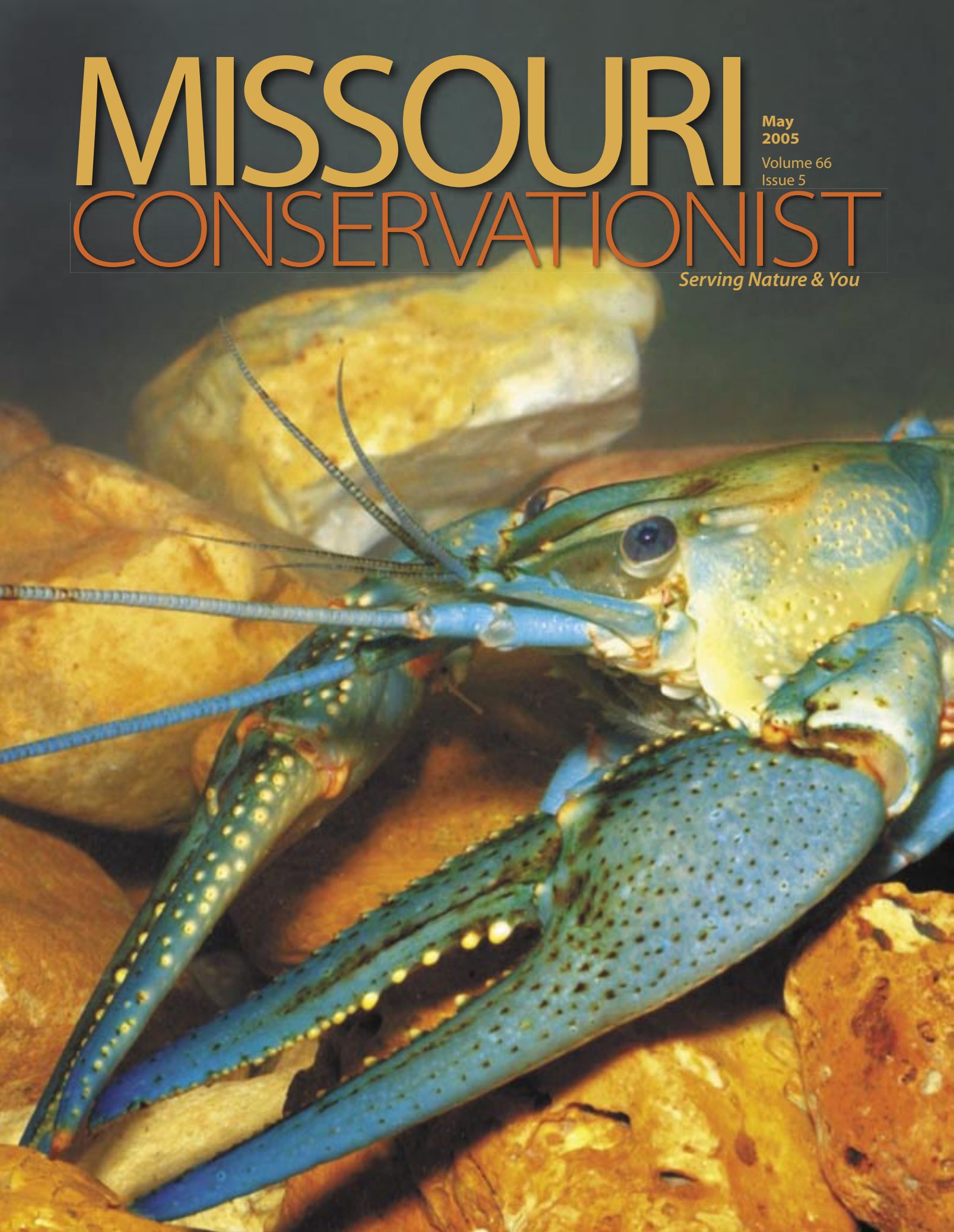
Serving Nature & You



Vantage Point

Native Habitats for Native Species

Public land stewardship programs are very different now than they were 50 years ago. When we had a habitat problem during the early days of conservation, we tended to search for a magical solution. We might, for example, introduce a non-native plant, thinking it would meet the needs of all wild things, or at least the species being managed at the time. Such attempts rarely lived up to expectations, and sometimes caused new problems.

It's a fact that most of our early habitat management decisions on public land usually benefited game animals. That's largely because game restoration was crucial at that time and, unlike today, hunters and anglers paid virtually all the conservation bills.

Game animals remain important in our habitat management programs. However, they share the limelight with a myriad of other plants, animals and natural communities. The natural resource field has changed with the times and learned from our past efforts. Today, our prescription for most habitat problems is to restore natural communities.

Through time and experience we've learned that the native plant and animal communities that historically occurred here are usually best at supporting all of Missouri's native wildlife, including healthy populations of game animals. Native plants and animals have adapted to one another over thousands of years and respond to each other in ways that ensure their mutual survival.

Our effort to re-establish native plant and animal communities is evident at many of the state's conservation areas. When you visit these areas you may see a prairie, savanna or wetland restoration in progress, or one that has been recently restored. These natural communities not only benefit bobwhite quail, white-tailed deer and wild turkey, they also support a rich diversity of species relished by birders, botanists, photographers and naturalists.

We still conduct agricultural operations at some conservation areas. Haying is allowed when it benefits specific native plants, plant communities or wildlife habitat. Cropping helps us manage plant succession and is an important early step in restoring native grasses. In some cases, cropping provides high energy food for migrating waterfowl.

You may see cattle grazing at a few areas. These cattle replace bison, whose grazing formerly helped maintain prairie habitat. We rely on controlled grazing to modify grassland structure in ways that benefit declining grassland birds, including bobwhite quail.

We also use prescribed burning on thousands of acres to mimic the periodic natural fires that formerly contributed to the richness and integrity of our native grasslands.

Early Europeans visiting what would become Missouri described a rich world of wild places and native things. From their accounts, we know of the spectacular pine forests and bluestem savannas of the Ozarks, the dark swamps of the Bootheel and the expansive tallgrass prairie of northern and western Missouri.

Our conservation areas provide wonderful opportunities to partly restore this "rich world of wild places and native things." We can manage these areas to re-establish habitats for native species and to protect unique natural communities. As an added benefit, restoring and managing native plant communities results in a wider range of ways that the public can benefit from these areas.

We never lose sight of the fact that conservation areas belong to the people of Missouri and are for their benefit. Conservation areas have always provided room for people to enjoy the outdoors. Now they are doing so much more.

Why not visit a Missouri conservation area to see what's developing on your lands?

Dave Erickson, Wildlife Division Administrator

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Reflections

MOCKINGBIRD SOLUTIONS

In addition to my three birdfeeders and four suet hangers, I have a mockingbird feeding station, which is nothing more than a covered platform on which I place chopped apples and raisins.

I started this years ago, and the only time the mocker is aggressive to other birds is when he's waiting for his mate to arrive. Then I have to double the rations.

He earns his keep by chasing off starlings and blackbirds.

I might add that I whistle for him when I set the food out. If he's within earshot, he usually comes to see what I've put out for him.

Geri Balanag, St. Louis

A simpler fix for the couple who captured a mockingbird and relocated it to the country would have been to hang a rubber snake in the area the bird was perching.

Birds are terrified of snakes. I have seen a single rubber snake keep birds out of an entire apple tree. This solution wouldn't have harmed the bird or broken any laws.

Sandra B. Leonard, DVM, CVA

Editor's note: Northern Mockingbirds, along with all other native, non-game birds, are protected by state and federal laws prohibiting trapping, shooting or any other intentional harassment without a special permit. There are many effective, non-lethal, legal solutions for dealing with problem birds. For some other options, visit <www.missouriconservation.org/faq/links/pages/Nature/Birds/> or <www.missouriconservation.org/landown/wild/nuisance/>, or contact your local Conservation Department office for assistance.

MYTH AMONG MYTHS

In your "Myths from the Deep" article you stated that NRCS provides 75 percent cost-share in building a pond using federal monies. This is incorrect.

The Soil and Water Conservation Districts of the State are the ones that fund these projects, if there is active gully erosion, through the use of the Soils and Parks Tax. The districts may pay up to 75 percent of the county-average cost in the construction of these structures.

To my knowledge, NRCS is not allowed to build any pond structure using federal funds, although it may provide technical assistance.

Diana Mayfield, Gasconade County SWCD

A LOAD OF CRAPPIE

Mary Kramer of Columbia poses with some huge crappie her family caught on a summer day at a public lake in north-central Missouri. She would not be more precise. The five biggest crappie ranged from 17 to 19 inches , with the largest weighing 4 1/2 pounds. The fish succumbed to both minnows and yellow jigs.

TREE PLANTING AUTHOR

Conservation Department Urban Forester Ann Koenig wrote the article "Tree Planting Breakthrough!" in our April issue. An editing error resulted in our crediting the wrong person for the article. Ann lives in Columbia with her husband and two young sons. She has worked as a Conservation Department forester for eight years. Granddaughter of a stave mill owner, great niece of a WWII naturalist, and daughter-in-law to owners of a Century Farm, she has strong ties to conservation.

IVY LEAGUE

I'd like to add a poison ivy remedy that my grandfather taught me when I was five years old.

Wash the exposed area with straight apple vinegar, or you can dab the area with a cloth soaked in vinegar. It kills the oil and doesn't spread it around. I carry a plastic bottle of vinegar with a

rag in it. I'm 58 and have been in a lot of poison ivy, but I haven't had a rash and blisters since I was five.

Gary Sparks, Tarkio

One method of controlling poison ivy not mentioned in your article is goats.

When we first bought our land in 1979, poison ivy completely covered a small valley. After a few years of goat browsing (they love poison ivy), the valley is completely clear of it.

I never had a rash from milking them.

Incidentally, the goats are also great for clearing multiflora rose.

Penny Kujawinski, Harrisburg

THE GREATEST!

I no longer hunt, as I will be 90 this August, but I hunted small game when there was no conservation.

I think creating the Conservation Department is the greatest thing Missouri has done, and the magazine is the greatest free book anyone could care to read.

Everett Benoit, Wentzville

HAWK PATROL

I'd like to remind people to please slow down when they see hawks on the road. These beautiful birds of prey eat roadkill, but because of their size and weight cannot take off quicker than you can hit them.

This goes for other animals, too. Slowing down saves lives—all kinds.

June Kreyling, Dittmer

The letters printed here reflect readers' opinions about the Conservationist and its contents. Space limitations prevent us from printing all letters, but we welcome signed comments from our readers. Letters may be edited for length and clarity.

Ask the Ombudsman

Q: I have a large pin oak tree in my front yard and when it has acorns it attracts chipmunks. I notice their burrows, but I don't see any dirt. What do they do with the dirt they've dug from the burrows?

A: Chipmunks scatter the dirt after pushing it outside with their nose and front feet or carrying it out in their cheek pouches, according to Charles and Elizabeth Schwartz's *About Mammals and How They Live* and *The Wild Mammals of Missouri*. Chipmunks may just prefer to keep a clean house, or the practice might help prevent detection by predators.

Burrowing chipmunks can damage lawns or gardens. To learn more about chipmunks and how to control them, go to <www.missouriconservation.org/landown/wild/nuisance/chipmunk/>.

About Mammals and How They Live is available from the Conservation Department Nature Shop <www.mdcnatureshop.com/mdc.cgi> or, toll-free, 877/521-8632 for VISA or MasterCard orders. *The Wild Mammals of Missouri* is available from University of Missouri Press, 2910 LeMone Blvd., Columbia, MO 65201, 573/882-3000, <www.umsystem.edu/upress/>.

Ombudsman Ken Drenon will respond to your questions, suggestions or complaints concerning Conservation Department programs. Write him at P.O. Box 180, Jefferson City, MO 65102-0180, call him at 573/522-4115, ext. 3848, or e-mail him at <Ken.drenon@mdc.mo.gov>.

MISSOURI CONSERVATIONIST

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Current River *Natural Area*

Missouri's first designated natural area is bigger and better at 50.

by Dan Drees and Susan Flader
photos by Jim Rathert

Thunder rumbles in the distance as dusk approaches. A Native American woman studies the rapidly growing clouds. She senses that cold rain and high winds will soon break the drought that lasted throughout summer.

She returns to camp and tells others in her tribe. The approaching storm will rain down acorns as well as water. The next day, they will gather them as a part of their winter food supply.

Some of the trees that sustained Native Americans are still around to nurture us at a secluded and pristine place called the Current River Natural Area. White oaks nearly 400 years old reign over the area.

There's a story about how these ancient oaks in this rough heart of the Ozarks escaped the logger's saw. The area was part of a large acreage in the Current River Hills assembled over the course of several decades by the Pioneer Cooperage Company of St. Louis.

New York-based National Distillers Products Corporation acquired Pioneer Cooperage in 1947. The company wanted to use the oaks to replenish its stock of white oak for barrels. White oak imparts color, aroma and smooth, mellow flavor to fine whiskies.

Two Pioneer Cooperage foresters, Ed Woods and Charlie Kirk, transferred to National Distillers with the land. Their goal was to persuade their new bosses to manage the forests for a continuous yield of white oak. To help their cause, they even invited one of the most influential foresters in America, Yale emeritus professor H.H. Chapman, to tour the forest. Chapman pronounced the area's oak reproduction as "nothing short of spectacular."

Realizing that the ancient trees had economic, scientific and spiritual value, National Distillers abandoned its plans for four of six intended stave mills. Instead,

A wood thrush bathes in its reflection at the natural area.

the company tried to capitalize on its conservation consciousness along with its fine whiskies. One of its slogans was "90,000 Acres of Natural Beauty … and Barrel Staves, Too."

In 1953, The Society of American Foresters began negotiations with National Distillers to protect 10 acres containing a grove of virgin, old-growth white oaks under a natural area program the society started in 1947.

The negotiations broke down, however, when the cooperage department head at National Distillers died unexpectedly, and other officials decided to liquidate the white oak. Woods and Kirk, still employed by the company, were dismayed.

Kirk was helping to fight a fire on the Conservation Department's Peck Ranch area one night in late 1953 when he ran into Leo Drey of St. Louis. Drey had begun purchasing woodland in the Ozarks in 1951, in part to prove that it was possible to manage Ozark forests sustainably. As the crew took a breather at 3 a.m., Kirk plopped in the weeds beside Drey and told him about the sad turn of events at Distillers.

CLIFF WHITE

Leo Drey at Pioneer Forest.

Although Drey had already purchased some 37,000 acres—more than the 25,000 he originally intended—he was a soft touch for land under threat. He immediately began negotiations with Distillers to purchase the entire 90,000-acre forest. Distillers insisted on cutting all the oaks over 15 inches diameter at breast height. They also wanted to cut the big white oaks in the proposed natural area if the designation failed to go through. But Drey bargained for the right to select 300,000 board-feet of white oak of his own choosing—not to cut but to protect.

The author surveys an old-growth white oak in the original natural area.

Drey completed his purchase of the 90,000 acres June 1, 1954, and the Current River Natural Area was officially designated in March 1955.

Leo Drey became increasingly active in SAF and The Nature Conservancy, and in 1964 set aside a tract of old-growth eastern red cedar as the Pioneer Research Natural Area, the second SAF-designated site in Missouri. By this time he had also established the L-A-D Foundation (1962), through which he would purchase additional sites of natural or cultural value. He transferred to the foundation 961 acres of Pioneer Forest that were under scenic easement to the National Park Service for the Ozark National Scenic Riverways.

When the Missouri Department of Conservation initiated a state system of natural areas in 1970, the

two SAF sites on Pioneer were among the first to be included. By the end of the decade, eight L-A-D properties had won designation. Several of them were leased to the Conservation Department for management. Two other properties, Grand Gulf and Dillard Mill, were leased to the Department of Natural Resources for management as state parks.

In the 1980s, Leo Drey came to the rescue of yet another spectacular area, a 7,000-acre tract of forest surrounding Greer Spring, the most pristine spring in the Ozarks. The spring is now part of the Mark Twain National Forest.

In the 1990s, ecologists came to believe that large natural areas were necessary to provide for normal ecosystem functioning. Sites as tiny as the 10-acre Current River Natural Area seemed too small to be viable, and some thought that it should be declassified, despite the fact that it was the first designated natural area in the state.

Conservation Department naturalists who visited the area were surprised to find that much of the surrounding forest was nearly indistinguishable in quality from the original 10-acre tract. Leo Drey had provided a buffer around the area by allowing only minimal salvage harvesting of storm-toppled trees.

Drey's conservative management of the forest created an opportunity to expand the original 10-acre natural areas to 256 acres in commemoration of the Current River Natural Area's 50th anniversary.

The addition is now the property of the L-A-D Foundation rather than Leo Drey himself, thanks to the most spectacular gift of real estate ever in the state of Missouri and perhaps in the nation. On July 6, 2004, Leo and Kay Drey signed over nearly the entire acreage of Pioneer Forest, some 144,000 acres, to the L-A-D Foundation for protection as a conservatively managed, producing forest in perpetuity.

In the article "Building Natural Wealth" in the November 2003 *Missouri Conservationist*, Leo Drey is referred to as "a Santa Claus for natural areas in Missouri."

Natural beauty endures at Current River Natural Area.

The new addition to the Current River Natural Area is certainly a spectacular gift. The area includes old-growth white oaks, a fen, small cliffs, a spring-fed stream, and part of the Brushy Creek Backpacking Trail.

There is marvel in this place, and it is marvelous that Leo Drey has given us even more to explore.

The Current River Natural Area is more than massive trees coated with soft and moist, emerald moss. Melodic bird songs fill the forest, and each spring a profusion of wildflowers, including showy orchids and large and small yellow lady-slippers, bloom before dense leaf canopy blocks the sun. Satterfield Creek has carved a chute in the dolomite bedrock, and numerous springs moisten the soil.

Though a mile of maturing forest separates the Current River Natural Area from its namesake river, this old-growth forest is one of the most beautiful places within the river's watershed. Those who fought to preserve the Current River Natural Area more than 50 years ago obviously saw an inseparable connection between the river and this ancient forest of white oaks. ▲

A Remote Haven

The Current River Natural Area is in the 61,000-acre Roger Pryor Pioneer Backcountry, a large and undeveloped area of Pioneer Forest.

The natural area is remote and difficult to access. The 20-mile Brushy Creek/Crockertown Trail, still under construction, will pass through this forested tributary hollow. Access to the trail will be at Himont, in Shannon County. You can find more information about the area and the trail at <www.pioneerforest.com/PF_Recreation3.html>.

SAFETY FIRST *in* BOATING

Boats help you enjoy the outdoors, but you have to be careful with them.

by Elizabeth A. Ratliff, photos by Cliff White

Flowers are blooming, birds are singing, and boats are shucking their covers all over Missouri. Warm days in April and May bring fishermen and boaters to the state's waterways in droves. Before launching your boat for the first time this spring, there are a few things to keep in mind to make your boating experience safe and fun.

As early season boating regulars know, the water is still cold, even on warm days. Most boating fatalities occur from capsizing and falling overboard. Cold water decreases the amount of time a person can swim or tread water, regardless of training or swimming ability.

Best Boating Law

One of the best Missouri laws is the one that requires each vessel to have one appropriately sized, U.S. Coast Guard approved personal flotation device for each passenger on board. However, PFDs are useless if they are not readily accessible.

Nine out of ten drowning victims were not wearing a life jacket. That's why authorities recommend that boaters wear a life jacket at all times. If traditional life jackets are too bulky, hot or uncomfortable to wear for long periods of time, consider trying an inflatable, U.S. Coast Guard approved PFD. Some inflatable PFDs resemble suspenders or fanny packs. A CO2 cartridge inside inflates them. Pulling a cord activates some. Others inflate automatically when a sensor comes into contact with water.

These small, lightweight PFDs are more expensive than regular life jackets, but most users agree that


MARINER

Boat Signals

Buoys are the traffic signs of our major waterways. **"No-wake" buoys** are white with an orange circle. They are commonly found in front of docks and marinas. You are required to be at idle speed between the buoy and the dock.

"Danger" buoys are white with an open orange diamond. They mark hazards in the water, such as shoals, reefs or shallow points. Always give these areas a wide berth to avoid damaging your boat.

"Boats keep out" buoys are white with an orange diamond with a cross through it. They often mark swimming beaches or dangerous areas near a dam. It is illegal to operate a boat in these areas.

An **orange flag** displayed by another vessel indicates a person in the water swimming or skiing. You must stay at least 50 yards from that vessel while above idle speed.

A **red flag** with a diagonal white stripe indicates a SCUBA diver is in the water. You must remain at least 50 yards from the flag.

the convenience is well worth the extra cost. All inflatable PFDs are approved only if they are worn.

Children under seven years old are required by law to wear a PFD while aboard any vessel, unless they are in a totally enclosed cabin, such as on a houseboat. Before heading out, make sure the life jacket fits the child well, so he or she won't slip out of it after falling into the water.

Another required piece of boating safety equipment on every vessel 16 feet or longer is a throwable personal flotation device, such as a seat cushion or a ring buoy. Throwing a buoy to someone in danger of drowning keeps would-be rescuers out of the water, where they might themselves drown.

Vessels 16 feet and longer also must be equipped with a sounding device. If your boat doesn't have a horn, a simple solution is a plastic or metal whistle. You can attach it to your boat keys so you'll always have it when you're on the water.

All boats that have gasoline onboard must be equipped with a fire extinguisher. It is always a good idea to make sure your extinguisher is still charged after sitting all winter.

If your boat is equipped with an ignition safety switch lanyard, always attach it to you when running the motor. It cuts the engine in case you fall overboard, preventing the boat from circling back and running over you. It also keeps the boat close so you can more easily re-enter it.

Hunters who use boats need to be especially careful. It's easy to overload a johnboat with dogs, guns, decoys, gear, hunters and hopefully some wild game. Always check the capacity plate on your vessel and be sure you're not exceeding the manufacturer's recommended load.

Because boating traffic is usually light during winter months, it's a good idea to leave a float plan with someone who is not going with you. Always have a cell phone, dry clothes and matches in a waterproof bag, as well as flares or a signal kit to get the attention of passing boaters or someone on shore in case of emergency.

Boaters should always be alert to dangerous weather conditions. Storms usually forecast themselves with rising winds and dark clouds. Don't wait to head for shelter, and never rely on a small boat to get you safely across any body of wind-roughened water, especially during fall, winter and spring.

Boat Defensively

Defensive boat operation helps you avoid collisions. Maintaining a safe distance from other boats gives you enough time to avoid them. Keep a sharp lookout in all directions. Other operators may make unexpected course changes that could put you on a collision course.

Be especially alert when boating at night. It's difficult to see the shoreline, docks, hazards and other boats in the dark, and the mixture of shore lights and navigation lights on a busy lake can become confusing.

Add in the difficulties of rescue and it's easy to understand why boating accidents that occur at night tend to be much more serious than daylight accidents.

Always keep your lights in working order and check them before leaving your dock or trailer. The law requires a 360-degree white stern light and a red and green light on the bow. Spotlights are helpful for intermittently checking for hazards in the water or to signal another vessel if you need assistance, but Missouri law prohibits continuously displaying a spotlight at night.

Given the dangers, you should slow way down at night. On

Missouri's biggest reservoirs and the Mississippi and Missouri rivers, the speed limit is 30 miles per hour from a half-hour after sunset until one hour before sunrise.

Missouri's two big rivers often have swift currents and dangerous water conditions—especially in spring. Navigation charts are helpful for staying in the main channel and avoiding the numerous submerged dikes.

Boaters also need to respect barges. These huge vessels often take up the majority of a channel and create large wakes that can capsize a small vessel. Don't cross in front of a barge. If you lose power, it can't stop in time to avoid you.

Missouri has many waters to explore and enjoy by boat, but always think of safety first.

Alcohol and Water

About half of Missouri's boating injuries and fatalities involve alcohol. Alcohol depresses the central nervous system, affects vision, coordination and judgment and slows down physical reaction time.

Boater's Checklist

These items are required by law:

- ▲ Boat registration
- ▲ One wearable PFD for each passenger
- ▲ One throwable PFD
- ▲ Fire extinguisher
- ▲ Sounding device

Studies show that exposure to heat or cold, glare, vibration, noise and motion increases the effects of alcohol. Studies also show that an alcohol-impaired boat operator is 10 times more likely to be killed in a boating accident than a sober boat operator.

Passengers aren't immune from the dangers. Alcohol increases the likelihood of falls, missteps and risky behavior for everyone aboard. In fact, an American Medical Association study shows that passengers with high blood-alcohol levels are just as likely to die in a boating accident as intoxicated boat operators.

The Missouri State Water Patrol has a zero-tolerance policy for boating while intoxicated. The first conviction for boating while intoxicated is a class B misdemeanor, the second is a class A misdemeanor, and a third or subsequent conviction is a class D felony. If you plan on drinking alcohol while out on the water, be responsible and use a designated operator.

Last year in Missouri 321 boating accidents resulted in 174 injuries and 16 fatalities. Statistics show that eight out of 10 boating fatalities occur on boats where the operator had no boating safety education.

Missouri recently passed a law that requires people born after January 1, 1984, to have taken and passed an approved boating safety course before operating a boat on Missouri lakes.

The law went into effect January 1, 2005, and the course is available now. For further information, visit the Missouri State Water Patrol Website <www.mswp.dps.mo.gov>. Everyone who boats is encouraged to take the course and help make boating on our lakes and rivers safer. ▲

TABLE ROCK CRAWDADS

A White River reservoir provides the fixings for a Cajun feast.

by Gene Hornbeck, photos by Cliff White

If you crave lobster, your Missouri fishing permit won't help you obtain a meal. However, you can catch a close relative of the lobster that is just as nutritious and has its own distinct flavor.

Crayfish are popular as food in a handful of southern states, including Mississippi, Louisiana and Alabama.

Those states have a growing number of crayfish farms where the crustaceans, raised in ponds and rice paddies, are sold on the open market. The estimated harvest of crayfish for food in the United States is said to be close to 100 million pounds, and most of that comes from Louisiana.

Crayfish are also popular in Scandinavian countries, especially Norway. That country has intensive fisheries for crayfish and resource managers devote a lot of time to them.

Missouri isn't usually regarded as a crayfish state. We do have 33 species of crayfish living here, but most of our crayfish are too small to attract attention as a food item, even though Missouri anglers can legally harvest 150 of them daily.

At least one of our crayfish is big enough for the table, and they are numerous enough to provide a feast. In fact, our longpincered crayfish is the largest crayfish in North America. This species can have a body six inches long with pincers and claws almost as long as its body. The longpincered "crawdad" is believed to be indigenous only to the White River basin of southern Missouri and northern Arkansas, which includes Table Rock Lake.

People who live near or visit Table Rock are finding that the reservoir holds an excellent population of large crayfish, and more and more anglers are harvesting them—and having fun doing it.

"The Table Rock Lake crayfishery is unique in the state, if not the nation," says Bob DiStefano, a Conservation Department resource scientist whose specialty is crayfish.

"Only a few other places in the country have an intensive fishery for wild crayfish," DiStefano said. It certainly is one of a few places where the number of people catching and eating crayfish is growing."

I'm one of that growing number of crawdad fans on Table Rock, so is my friend Wayne Williams. Until he retired and moved down to Table Rock from Kansas City, he never tried to catch crawdads to eat.

The author demonstrates the safest way to handle a longpincered crayfish, the largest crayfish species in North America. Table Rock anglers have learned how to make great tasting meals from these crayfish, which are unique to the White River basin.

"I saw a trap on the dock of a friend of mine," Wayne said, "and I decided to try catching some. I baited the trap with some canned dog food and, to my surprise, I caught more than a dozen that were two or three times larger than any I had seen. They were huge!"

Wayne said he soon learned how to clean and cook them and has been crayfishing ever since. "My family and friends have had a lot of fun catching and eating the crawdads," he said.

Most of the crawdads are taken from under boat docks on Table Rock. However, that appears to be just a matter of convenience. The big crayfish are found almost everywhere in the big reservoir.

There is no season for catching the crayfish. Anglers legally can take them year around, but the most productive months are May, June and July. September and October are also good for crayfishing.

Crawdads can be trapped from the wild, but not sold. The daily limit is 150. A Missouri fishing permit is required.

The most productive way to catch crayfish is with a baited wire-mesh trap. Regulations specify that the opening or entrance to the trap cannot be more than 1.5 by 18 inches and the owner's name and address must be attached.

The crayfish is a scavenger and will eat almost anything. Many people bait their traps with canned dog food (open just one end of the can) or dead, non-game fish. Meaty chicken and turkey bones, such as the backs and necks, also attract crayfish.

Most of the crayfish taken in traps are large. DiStefano says this because the longpincered species is so aggressive. "The little ones just can't compete with the big ones in getting to the bait," he said.

Although longpincered crayfish dominate the catch, other species also find their way into traps. These include the smaller Ozark crayfish, the virile or northern crayfish and the ringed crayfishes. These usually top out at about 3.5 to 4.5 inches in body length.

Handling big crayfish can be a challenge. If one latches onto your finger, you probably will emit a few words of despair. It's best to shake them through the trap's door into a bucket, then you can handle them with cooking tongs.

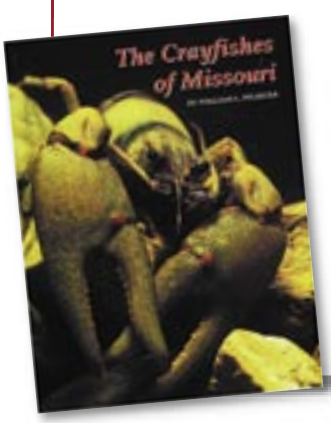
Crayfish come readily to traps baited with dog food or dead fish. Lampe resident Wayne Williams (opposite page) caught more than a dozen the first time he baited a trap. Large crayfish seem to keep smaller ones from entering the traps.

CRAYFISH IN THE WILD

Crayfish are primarily nocturnal. They spend daylight hours in holes or under rocks.

Male crayfish mate with females in late fall and winter, and the eggs develop inside the female. In May and June, she lays the eggs and gathers them under her tail. She holds them in place with a glue-like substance she produces from glands under her tail.

Later, the young attach themselves to small tabs, called swimmerets, under the mother's tail. The young stay on the tail for a couple weeks before becoming free-swimming larvae. The females with eggs or young remain close to cover.



Crayfish periodically outgrow their shells and shed them. Before their new shell hardens, they are extremely vulnerable to predation and usually hide themselves. It takes about a day for the new shell to harden.

Although the longpincered crayfish of Table Rock is one of the state's best-known and most-used species, crayfish densities in some Ozark streams are among the highest in the world, said Conservation Department resource scientist Bob DiStefano. Many animals, including our sport fishes, feed on adult crayfish and their young. Researchers are studying the role of crayfish in aquatic food chains and determining the status of several of Missouri's rarest crayfish.

To learn more, you can purchase "The Crayfishes of Missouri" by William L. Pflieger. It is available in softcover for $10, plus tax, at Conservation Nature Centers and regional Conservation Department offfices. You can order electronically at <www.mdc.natureshop.com>, or by calling toll-free 877/521-8632. Ask for item 01-0250.

CAJUN COOKING

My friend Dick Burroughs says he enjoys the Cajun method of cooking crawdads. Dick moved to Kimberling City from Mississippi, but discovered crawdads at an early age in Louisiana.

"Down south we found them in muddy ponds and rice paddies," Dick said. "Not only are the ones we catch here two and three times as large as the ones we got down south, they are also very clean. We always put the ones we caught in Louisiana in a tub of salt water for about a day to let the mud vein (alimentary canal) clean out. We don't believe we have to do that here."

Dick is a real expert with the "mudbugs" as he calls them. He and his friends have a number of crawdad boils every summer.

He cooks the crayfish in a 5- to 6-gallon pot with a basket in it. He fills the pot about half to two-thirds full with water spiced with Cajun seasoning and brings the mixture to a boil. He then dumps in whole crawdads, along with some small red potatoes, small onions and whole mushrooms, and lets everything boil for five to six minutes. He'll then add some ears of corn and let the pot simmer for another five minutes or so. When the vegetables are done, the crawdads should be bright red.

To serve, he spreads newspaper or butcher paper on a picnic table. He lifts the basket out of the pot to drain it, then pours the contents on the paper and lets everyone dig in.

His buddy, Tony Root of Lampe, regularly reaps the rewards of Dick's Cajun catfish boils.

"We all pitch in and set our traps so we have a bunch for a cookout," Tony said. "Needless to say it's hard to keep from pigging out when you have all those crawdads. It's an impressive feast."

My method is simpler. I soak the tails and claws in salt water for an hour or so before rinsing them and popping them into a pot of boiling water spiced up with a tablespoon of Old Bay Seasoning for every 2 cups of water. I stir frequently for about 10 minutes until the crawdads or pieces turn a bright red, indicating they are cooked.

Crayfish boils are popular around Table Rock Lake. Anglers can harvest 150 crayfish per day, which should feed 10 people. You'll find the best meat in the tail and the pincers.

LIP SMACKING

If you don't relish the thought of sucking up the fat and juices after popping the tail of a cooked crawdad, you can devein the tail before cooking. Simply snap the pincers off and twist the middle tab, called the telson, on the tail fan back and forth and then gently pull on it. The attached vein or alimentary canal should come free of the tail. This procedure also works after the tail is cooked.

Try dipping the pieces in melted butter or cocktail sauce for even more flavor.

It takes about a dozen medium to large crawdad tails and pincers for each serving, but that guideline depends on how they are served. If eaten by themselves it might take two dozen. If used in a stir-fry, a salad or casserole a half dozen per serving will be enough to provide the distinctive flavor of crayfish.

Shucking the tails and cracking the pincers to get to the flesh is a bit of a challenge until you get the hang of it. Having a veteran crawdadder show you the ropes is the best way to get started enjoying them. ▲

"Conservomics"

The economics of Conservation brings high yields to state.

by Jim Low

JIM RATHERT

Feed stores profit from Missourians' efforts to attract more wildlife.

Stop by Heart of Missouri Agri Service in Fayette almost any day of the year, and among the farmers buying fertilizer and livestock feed you also are likely to find someone buying something for wildlife.

Three thousand pounds of sunflower seed and 600 pounds of black thistle seed cross the loading dock each month during the winter. In the spring and summer, it's thousands of pounds of wildlife food plot seed mix, mostly for quail. In the fall, tons of shelled corn goes out the door monthly to feed deer.

In all, Manager Ryan McDowell estimates these and other wildlife-related items make up 8 percent of his trade, and sales are increasing.

MARK RAITHEL

"It used to be a pretty low amount," McDowell said. "Truthfully, it was sort of a hassle. But over time I realized this is something we can really make money on. There are a lot of people buying 20 or 30 acres, and they're not so much interested in raising farm-type products. They're more interested in raising wildlife."

Mike Wyss, whose family owns the Russellville Locker and Feed Plant west of Jefferson City, does a thriving business slaughtering domestic livestock. But for a few weeks each fall, normal business stops.

During the November firearms deer season, Wyss hires six to eight extra workers to process hunters' deer. By the time the antlerless portion of deer season ends in mid-December, they have processed about a thousand deer. That is 20 to 25 percent of his total business for the year.

"Deer became a big part of our business about 20 years ago," says Wyss. "We were fortunate. Starting in the late 1980s our beef and pork business shut down. For some packers then, deer made up 60 to 70 percent of their gross. You have to take advantage of that. It was a long time between Novembers."

McDowell's and Wyss' experiences represent the tip of an economic iceberg. Since Missourians began investing in science-based conservation 70 years ago, forests, fish and wildlife have become important economic engines for the Show-Me State.

The phenomenon caught my attention a couple of years ago when the National Wild Turkey Federation announced state-by-state turkey harvest figures. Missouri topped the list by a wide margin. It made me wonder how many hunters were coming here to take advantage of the nation's best turkey hunting.

I discovered that from 1980 to 2003 nonresident turkey permit sales increased by more than 500 percent.

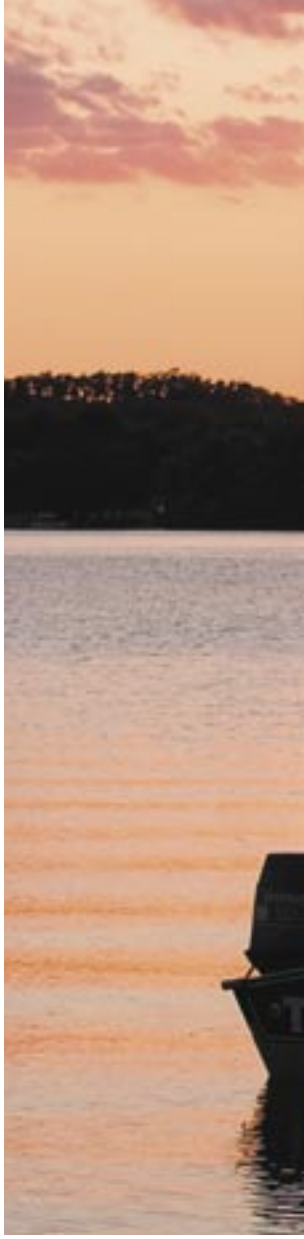
JIM RATHERT

Birders, anglers, hunters and other outdoor-minded people enrich local economies as they enjoy Missouri's outdoor resources.

Conservation Services

"Conservation is great, but what has the Conservation Department done for me lately?" you may ask. Here are a few of the services you get for your conservation dollar:

* Curriculum material helps public and private schools and home schoolers meet state math, English and science requirements.
* Naturalists bring conservation messages to schools.
* Education consultants offer workshops to help teachers enrich students' class time.
* Private Land Services Division offers landowners expertise in managing forests, fish ponds or wildlife habitat on their property.
* Cost-share programs help landowners affordably put conservation theory into practice.
* The state forest nursery provides approximately 6 million tree and shrub seedlings for conservation plantings every year.
* Wildlife damage biologists are ready to help when you have trouble with squirrels in the attic or a bear in the back yard.
* *Missouri Conservationist* magazine is free to adult Missouri residents, keeping them informed about agency activities.



CLIFF WHITE

Last year, 10,124 nonresidents spent $1.44 million on Missouri spring turkey hunting permits.

Sales of turkey and other nonresident permits funnel nearly $8 million into Missouri annually. That is a good thing all by itself, but much more significant is what happens after visitors buy permits. They rent hotel rooms, hire guides, visit restaurants and auto mechanics and buy gasoline, groceries, beverages, ammunition, fishing gear and a host of other items.

For example, Missouri's 13,000-plus nonresident deer hunters spend about $139 per day in our state for a total economic boost of more than $57 million.

As I explored the tremendous wealth that wild resources generate, I discovered more and more ways that conservation benefits Missouri economically. I started putting notes about the economic benefits of conservation in a folder I labeled "Consernomics." The folder is now about two inches thick. Few weeks go by that I don't add a few pages.

If you ever wonder what you get for the penny of conservation sales tax you pay on every $8 of taxable goods you buy in Missouri, consider the following facts from the "Consernomics" folder.

Direct Benefits

Among the most obvious benefits of conservation are millions of fish produced at state hatcheries, abundant game and hundreds of conservation areas where you can enjoy hunting, fishing, trapping, birdwatching, nature photography, hiking, camping, canoeing, mushroom hunting and just being outdoors.

The value of all this conservation-based recreation is elusive. How do you put a dollar value on hours spent outdoors with family or friends? One way is to ask participants how much they would spend.

Deer hunters said they would pay about $16.27 per day on their sport. Multiply that by the 3.6 million days of deer hunting in Missouri annually, and you discover that just the experience of deer hunting is worth more than $58 million.

Another way of assigning a dollar value to outdoor fun is to look at how much people are willing to spend on the goods and services necessary to pursue it. Surveys conducted for the U.S. Fish and Wildlife Service in 2001 showed the average angler in Missouri spends $635 per year on fishing. Hunters spend $895 per year, and wildlife watchers spend about $434 per person on their activities. The combined value of all this wildlife-related retail spending is approximately $1.6 billion annually.

My favorite direct benefit from conservation is the food it puts on my table. Hunters harvested 309,893 deer in 2004. The average deer yields about 60 pounds of venison, which translates to about 18.6 million pounds. If you compared the venison to high quality beef cuts, which average about $7 a pound, the value of Missouri's deer harvest is approximately $130 million annually.

Similar calculations could be made for the 72,000

CLIFF WHITE

Fishing and hunting equipment, permits and travel supports thousands of jobs and generates billions of dollars in economic activity in Missouri.

turkeys and millions of rabbits, squirrels, quail, pheasant, doves, ducks, geese, frogs, bass, trout, bluegills and other fish taken by Missourians each year. How much more would we spend on groceries if all that food didn't arrive on our tables as a bonus of outdoor recreation?

An increasing number of deer hunters are donating venison to the needy through the Share the Harvest program, more than 137 tons last year. That cuts the cost of state and federal social assistance programs.

Food isn't the only natural commodity produced by conservation. Consider the state's public and private forests. Missouri produces about 140 million cubic feet of timber annually, mostly from private land. Yet, with help from Conservation Department foresters and the George O. White State Forest Nursery, Missouri's forested acreage continues to increase. Wood-based industries contribute about $4.4 billion a year to Missouri's economy.

Indirect Benefits

Not all the economic benefits of conservation are as obvious as trees, venison and recreation. One of the biggest returns on conservation expenditures is employment.

Hunting and fishing support more than 21,000 Missouri jobs with salaries and wages totaling $531 million. The Fish and Wildlife Service survey showed that wildlife watching supports 7,850 Missouri jobs that provide earnings of $200 million. Missourians spend approximately $70 million annually on birdseed. This money fuels Missouri's farm economy, supports retail businesses and creates jobs.

CLIFF WHITE

Conservation contributes billions to Missouri's economy. That's the beauty of Consernomics.

Our forest products industry sustains 2,600 businesses, from loggers and sawmills to flooring and furniture manufacturers. These businesses employ 32,250 Missourians with $1.1. billion in yearly wages.

Retail sales and jobs are important, but the full effect of wildlife-related activities in Missouri is much bigger. Sawmill workers, bait shop owners and hunting guides spend their pay on other goods and services, and this money continues to move through the state's economy. In the end, every dollar spent on outdoor activities generates about $2 in economic activity. In Missouri, this ripple effect of hunting, fishing and forest products exceeds $7 billion annually.

A Smart Investment

After seeing their wild resources decimated in the 19th and early 20th centuries, Missourians understood the value of conservation. That is why they voted in 1936 to amend the state constitution and set up a politically independent conservation agency. In 1976 Missouri voters amended the constitution again, this time to provide permanent, adequate conservation funding through a one-eighth of 1 percent conservation sales tax.

Good management of Missouri's wild resources still is critical to our state's economic well-being. Now more than ever, conservation isn't just the right thing to do, it's the smart thing. ▲

JIM RATHERT

Conservation Land

Missouri's one-eighth of 1 percent conservation sales tax enables the Conservation Department to maintain more than 1,000 public areas. Every county in the state has conservation areas. Hunting and fishing are the most common activities at conservation areas, but many also have hiking trails, wildlife viewing blinds, covered fishing docks, boat ramps and handicapped-accessible facilities.

Conservation nature centers bring educational programs to urban areas. Wetland areas ensure the survival of millions of migratory waterfowl, and an extensive system of natural areas preserves the best examples of natural communities from prairies and glades to swamps and caves.

Conservation Waters

Missouri has 1.2 million anglers and hosts more than 1,800 fishing tournaments annually. Where do all those anglers go?

Lots of them go to the 10,000-plus acres of lakes and ponds on conservation areas. Others find fishing bliss at community lakes and other impoundments under Conservation Department management. These total 7,000 acres.

They can find tens of thousands more fishable acres at more than a dozen major reservoirs where fishing is supported by Conservation Department fish hatcheries and management. They also have free access to 1,078 miles of river and stream frontage on conservation lands.

Tiny, Tenacious, Terrible Ticks

They look repulsive, and their behavior is downright nasty.

by Bernie Rains

PHOTOS BY JIM RATHERT

Ticks crawl unnoticed over clothing (right) in search of flesh. When they find it, they bite with gusto (above).

You can't spend time outdoors without being a target for ticks. These little vermin wait patiently on blades of grass or other vegetation for opportunities to attach to any animal, including you or your pets. Not only are they pests, their bite has the potential to transmit disease.

Only mosquitoes surpass ticks in the ability to transmit disease to animals and humans. About 850 species of ticks have been identified worldwide. They hunger for the blood of mammals, birds and reptiles. It's during their meal that they can introduce a wide array of disease-causing organisms.

Ticks are closely related to mites, spiders and scorpions. They are divided into two families: Ixodidae (hard ticks) and Argasidae (soft ticks). The soft ticks generally parasitize birds. The hard ticks are primarily parasites of mammals. They are the villains Missourians most often encounter.

A tick's life is divided into four stages: egg, larva (often called seed ticks), nymph and adult. Ticks advance through these stages by molting, during which they shed their outer skin.

After an egg hatches, the emerging larva is about the size of a poppy seed and has six legs. After a blood meal, typically from a small rodent, the larva drops off its host, casts its skin and becomes an 8-legged nymph. After attaching and feeding on another mammal, the nymph drops to the ground and transforms into an 8-legged adult. Adult ticks are 1/16 to 1/4 inch long, or about the size of a sesame seed. When engorged with blood, female ticks might expand to 3/8 inch or longer.

Soon after feeding and mating, which usually occurs on a host, the adult male dies. The female drops to the ground to lay thousands of eggs, and then she dies, too. Eggs may not hatch for several months, depending on humidity, temperature and other conditions.

Ticks are hardy parasites. Their skin is so tough it's hard to crush one. The larva, nymph and adult can survive several months without feeding. When not climbing onto low vegetation to wait for an animal or human to pass, they remain on or near the ground. Dehydration is their worst enemy. The often have to leave their perches to rehydrate themselves with ground moisture.

Questing

Ticks cannot run, leap or fly. They only crawl, and only slowly. To find and attach to a host, they use a wait-and-watch technique called questing. They climb to the top of grass stems or take a position on the branches of bushes. They hold on with their three pairs of back legs and extend their hooked front legs away from their body.

JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARMTNET OF ENTOMOLOGY

An American dog tick with her eggs.

When a potential host brushes against the vegetation, the tick's extended legs snag fur, hair or clothing. This pulls them off the vegetation. Ticks sense exhaled carbon dioxide and emitted body odors, and will crawl a short distance to the source. They also detect vibrations and changes in light intensity caused by movement. These alert them to an approaching potential meal.

The habitat of hard ticks supports their questing behavior. They frequent woods, tall grass, weeds and brushy areas. Overgrown, vacant lots, waste farm-fields, and weedy edges of paths and trails are prime tick areas, particularly where wildlife is abundant. They are not typically found in well-maintained lawns.

Missouri has many species of ticks, but the two most often encountered hard ticks are the lone star tick (*Amblyomma americanum*) and the American dog tick (*Dermacentor variabilis*). The deer tick (*Ixodes scapularis*), sometimes called the blacklegged tick, is another common Missouri species.

The lone star tick is reported to be one of the most aggressive ticks and actually will pursue a potential host a relatively long distance. The female of this species is easily identified by the white dot in the center of her back.

The American dog tick is found throughout most of the United States. Newly hatched larvae are yellow.

JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARMTNET OF ENTOMOLOGY

JIM RATHERT

Shown from left to right are adult female lone star, deer and American dog ticks.

Ticks climb to the tips of grasses or branches and wait for a potential host. This behavior is called questing.

Adults are brown. Blood-engorged females become slate-gray.

These ticks are most active from April through July. Another tick that parasitizes dogs and may be carried inside the home to become an indoor pest is the brown dog tick. It is one of the most widely distributed ticks in the world and can infest window and door moldings, baseboards and furniture if brought into the house by the family pet.

Ticks and Disease

Any tick bite is dangerous because of the threat of disease. The three most prevalent tick-borne diseases are Rocky Mountain spotted fever, Lyme disease and ehrlichiosis.

Rocky Mountain spotted fever is caused by a rickettsia, a species of bacteria. The disease was originally called black measles because of its characteristic dark spotted rash on victims. It occurs throughout the United States. The American dog tick is the primary carrier, but the lone star tick is also suspected.

Disease symptoms appear in three to 12 days after the initial bite and include high fever, headache, backache, aching muscles and a rash that starts on the wrists and ankles by the fifth day. The rash spreads to other parts of the body, including palms of hands and soles of feet. It is essential to see your physician if such symptoms occur. A delay in seeking medical attention can cause serious complications and possibly death.

Lyme disease is caused by a spirochete bacterium.

Lyme disease is currently considered the number one arthropod-borne disease in the country. The deer tick is considered to be the main carrier, but the lone star tick is also suspected.

Lyme disease is difficult to diagnosis because its early symptoms mimic the flu. These symptoms include fatigue, headache, stiffness or pain in neck, muscles or joints, fever and swollen glands. An expanding circular or oval-shaped red rash or bump may appear at the site of a tick bite within two to 32 days and become a spreading red ring or bull's-eye. Treating the disease in its early stage with antibiotics is essential. If untreated, damage to joints and nervous system can occur, including arthritis, chronic pain, numbness and cardiac abnormalities.

Ehrlichiosis is a more recently recognized tick-borne disease caused by the bacterial species *Ehrlichia*. The bacteria is primarily spread by the lone star tick, but the deer tick and the American dog tick are suspected carriers. Early symptoms of ehrlichiosis are tiredness, high fever, muscle aches, headache and, in some cases, a rash that appears five to 10 days after a tick bite. The disease attacks the blood cells and is usually treated with antibiotics.

Other tick-borne diseases include tularemia, babesiosis, relapsing fever and the little-understood tick paralysis.

Because timely treatment is essential for tick-borne diseases, it's important to monitor yourself for unusual symptoms following any tick bite. Especially look for flu-like symptoms or rashes that occur within several days after a tick bite. Report such symptoms to your family physician.

JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARMTNET OF ENTOMOLOGY

The lone star tick on the right is engorged with blood

Tick Bite First Aid

You cannot contract a tick-borne disease unless a tick bites you, or you come in contact with tick body fluids through your mouth or eyes, or through a skin cut. Even if a tick bites you, promptly removing the tick diminishes the potential for disease transmittal.

Don't just grab the tick and pull it out. Squeezing the rear portion of its body may force the tick to inject body fluids into your flesh. Besides, you should avoid touching the tick with your bare hands because some fluids may enter your system through small cuts.

Use sturdy tweezers or blunt forceps to remove the tick. Pinch the tick lightly as close to your skin as possible and remove the tick with a steady lifting motion—no twisting. Be careful not to squeeze, crush or puncture the tick's body. It's a good idea to save the tick in case you do come down with something. Put it in a sealed plastic bag marked with the date and keep it in the refrigerator.

After removing the tick, bathe the bite area (maybe even scrub it with cotton swab dipped in hydrogen peroxide), apply antibiotic ointment and cover it with a bandage.

Beware of some often-cited tick removal methods. Some people, for example, recommend touching the tick with a hot match. This might cause the tick to rupture, increasing the chances of disease transmission. Coating the tick with nail polish or petroleum jelly might cause the tick to regurgitate into your flesh.

JIM RATHERT

JIM KALISCH, UNIVERSITY OF NEBRASKA DEPARMTNET OF ENTOMOLOGY

A tick's life has four stages: egg, larva, nymph ("seed tick") and adult.

Ticks spend much of their time in the moist leaf litter on the forest floor. Their worst enemy is dehydration.

Ticks and Dogs

In 2003, an animal medical center in Wentzville confirmed 100 active cases of tick-borne diseases among client dogs. Of those, 80 dogs tested positive for Rocky Mountain spotted fever, 19 were positive for ehrlichiosis, and one dog had Lyme disease. Two of the dogs with ehrlichiosis died.

Rural clients usually know about ticks and the diseases they carry. However, pet owners moving from urban areas to the country may not be as aware as they should be. Dog owners should have their pets tested using what's called a titer test, and take action to protect their pets from ticks.

Prevention and Control

If you walk through uncut fields, brush or other likely tick habitat, check your clothes and skin frequently for the tiny, crawling critters. Wear light-colored clothing to allow you to more easily see ticks. Treat clothing with a permethrin insecticide (dry before wearing) and protect exposed skin with a tick repellent. At the end of the day, perform a full-body inspection using a mirror.

Your veterinarian can recommend preventative measures to protect your pets.

You can reduce the number of ticks in your yard by keeping your lawn cut short and edges trimmed. Remove brush and leaf litter to allow sunlight to reach the ground. Woodpiles are prime locations for ticks. To prevent infestation, wood should be neatly stacked off the ground in a dry location. If chemical control becomes necessary, use appropriate products according to label directions.

If personal and home security precautions are followed, you can protect your family, your pets and yourself against tick attack. Recognizing ticks and applying proper first aid if bitten will lessen the chance of contracting tick-borne disease. Knowing the early symptoms of disease and seeking appropriate medical assistance reduces the potential for debilitating complications. All of us should take tick bites seriously, but we should not let the presence of ticks and their diseases in our environment prevent us from enjoying Missouri's great outdoors. ▲

Venison donated to needy tops 137 tons

Missouri deer hunters' generosity just keeps growing. Last year, firearms and archery deer hunters donated 275,886 pounds of protein-rich venison to food banks statewide through the Share the Harvest Program.

That translates into tremendous nutritional benefits for Missourians in need. It also bolsters cash-strapped private and public social-assistance programs.

Last year's venison donations were nearly triple what they were just two years earlier. The Conservation Federation of Missouri (CFM), which administers the program, hopes to boost donations to more than half a million pounds in the next few years.

The strength of Share the Harvest is in its community-based approach. Sponsoring organizations, such as civic clubs or churches, cooperate with meat lockers to collect and process meat with conservation agents' approval. In many cases, local donors provide cash to pay for deer processing, making it inexpensive or even free for hunters to donate whole deer.

For more information about Share the Harvest, contact the CFM at 573/634-2322, <mofed@socket.net<, or visit <www.missouriconservation.org/hunt/deer/share/>.

APPLY NOW FOR TREE MAINTENANCE GRANTS

Missouri communities can get help with tree maintenance through Tree Resource Improvement and Maintenance (TRIM) grants. The TRIM program offers cost-sharing for tree inventory, planting and pruning, as well as for removal of hazardous trees. Training also is available to teach city or county workers how to care for community forests.

The Conservation Department and the Missouri Community Forest Council sponsor the program. It provides reimbursement for up to 60 percent of the cost of tree conservation work on public land. Projects located in communities with Tree City USA designation are eligible for an additional 15 percent cost share.

The application deadline is June 1. For grant applications and more information, write to Community Forestry Coordinator, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102-0180.

LEWIS & CLARK celebration resumes

Lewis and Clark buffs who were sorry to see the modern-day Corps of Discovery disappear up the Missouri River last summer will be glad to know that Lewis and Clark events are resuming this spring.

The fun started April 28–30, when the keelboat crewed by the Discovery Expedition of St. Charles made its first Missouri appearance in St. Joseph. Events follow in Lexington May 4–5, Waverly May 5–6, Brunswick May 6–7, Glasgow May 7–8, Rocheport May 8–9, Lupus May 9–10, Chamois May 14–15, Hermann May 15–16, Washington May 16–21 and St. Charles May 21.

The keelboat will be on display on the south lawn of the State Capitol in Jefferson City May 11-14. Storytellers, dugout canoe makers, food and souvenir vendors, displays of Lewis and Clark era artifacts and children's games all will enliven the event.

Want a memento of the Lewis and Clark bicentennial? Order a commemorative coin from the Conservation Department's Nature Shop. The silver dollar-sized, gold-colored coins are reproductions of the peace medallions that Lewis and Clark gave to Native Americans. The coins are available for $4 plus shipping at <www.mdcnatureshop.com>, or by calling 877/521-8632.

Shepherd of the Hills hosts family fishing event

Shepherd of the Hills Hatchery in Branson will sponsor a Family Fishing Fair from 10 a.m. until 2 p.m. June 11. Visitors will learn how to cast, what bait to use for different fish and how to clean and cook fish. The Fishin' Magicians comedy team will perform at 11 a.m. and 1 p.m., and other family-oriented activities and crafts will provide entertainment for every age. The program is free. No reservations are needed. The hatchery is 5 miles south of Branson on Highway 165. For more information, call 417/334-4865, ext. 0.

BRONZEBACKS AND BUSHYTAILS ARE LEGAL MAY 28

Hunters who are itching to get back into the woods and anglers who relish frying up a mess of smallmouth bass should mark May 28 on their calendars. That's opening day for squirrel season statewide and for keeping black bass on streams in most of southern Missouri.

The daily limit for squirrels is six fox and gray squirrels in the aggregate. The possession limit is 12. The daily limit on black bass is six smallmouth, largemouth or spotted bass in the aggregate in most waters. The possession limit is 12. Black bass must be at least 12 inches long to be legal in Ozark streams. Some lakes and streams have special length or creel limits. Check the 2005 fishing regulations summary for detailed information and regulations for the waters where you plan to fish.

Gypsy moth trapping resumes

May is the month when Missouri foresters' thoughts turn to gypsy moths, the winged pests that have devastated forests in the eastern and north-central United States. The moth is slowly extending its range west and south.

The infested area is northeast of a line extending from Wisconsin to North Carolina. Gypsy moth populations in Wisconsin, northeastern Illinois and northern Indiana are expected to expand over the next few years.

Gypsy moths can leapfrog to new areas by laying eggs on motor homes or other vehicles and equipment used by interstate travelers. To prevent a leapfrog infestation from getting out of hand in Missouri, agriculture and forestry officials set out traps baited with female moth pheromones. The discovery of gypsy moths in an area gives an early warning to mobilize eradication efforts.

Starting this month, agriculture and forestry officials will hang triangular orange cardboard traps on trees statewide. They will monitor the traps through August. If you see a trap, leave it in place, so that it will be effective in detecting this damaging forest pest.

For more information, call 573/751-5505 or 573/882-9909, ext. 3303, or send e-mail to <michael.brown@mdc.mo.gov> or <foresthealth@mdc.mo.gov>.

Celebrate National Trails Day at conservation areas

Missourians looking for places to celebrate National Trails Day should visit a nearby conservation area. Missouri has hundreds of miles of hiking trails on these areas and other conservation facilities statewide.

* Columbia Bottom CA in north St. Louis County has more than 10 miles of paved roads suitable for walking, in addition to trails and a viewing platform overlooking the confluence of the Missouri and Mississippi rivers. Interpretive signs help visitors enjoy the natural features of the area. Stop at the visitor center for information before hitting the trails.

* Grand Bluffs CA has a 1-mile trail to the top of a scenic dolomite bluff mentioned in the journals of Lewis and Clark. The steep hike to the top of the bluff takes you through woods and fields to a grand Missouri River vista.

* James A. Reed Memorial Wildlife Area, within minutes of downtown Kansas City, has 17.5 miles of trails through 2,600 acres of forest, prairie, glade, grassland and wetlands.

* Mark Youngdahl Urban CA in St. Joseph has more than 2 miles of hiking trails. Most of the trails are wheelchair accessible.

* Springfield Conservation Nature Center has 2.8 miles of trails through forest, savanna, fields and marsh. Stop at the nature center before hiking to learn about current natural events.

* Pilot Knob CA in Stone County has a 2.7-mile Ridge Top Trail that leads hikers past impressive rock ledges. Patches of oak-hickory forest on steep hillsides punctuate the austere beauty of a rocky Ozark glade landscape. Spring visitors are treated to displays of native wildflowers. The trail is a leisurely three-hour hike.

For more information about trails on conservation areas, check the Conservation Department's online atlas, <www.missouriconservation.org/atlas/>, or order a copy of *Conservation Trails* ($5) by calling The Nature Shop toll-free at 877/521-8632, or writing to The Nature Shop, P.O. Box 180, Jefferson City, MO 65102. You also can order online at <www.mdcnatureshop.com/>.

BREAKING BAD HABITAT HABITS

Sometimes what you don't do is as important to good wildlife management as what you do. Take mowing, for example. When crop planting and haying are done and food plots are in, we sometimes go in search of more jobs. This can lead to "recreational mowing." It is a great way to keep busy, but mowing idle field edges and corners destroys productive transition habitat between woods and fields. It can set back hard-won habitat progress.

Instead of mowing, disk pastures where dense, rank grass excludes ground-nesting birds. Another useful job is spraying herbicide to eradicate serecia lespedeza, exotic cool-season grasses and other plants that contribute little to wildlife.

Another habit that hurts wildlife habitat is brush burning. Tree tops and branches left over after cutting firewood or timber stand improvement cuts may look like trash, but they can be a key habitat element. Instead of setting fire to this material to "clean up" an area, pile slash in out-of-the-way spots between woods and open ground. Rabbits, quail and other birds will flock there to escape predators and harsh weather.

FISHING IS FREE JUNE 14 & 15

Anglers don't need a fishing permit the first weekend in June. June 14 and 15 are Free Fishing Days in Missouri; you can fish without having to buy a fishing permit, daily trout tags or trout permits at any conservation area and most other places in the state. Requirements for special permits still may apply at some county, city or private areas. Normal regulations, such as size and daily limits, still apply everywhere.

Nature plates dish up support for conservation

Last year, Missourians contributed $75,000 for nature-themed automobile license plates and in doing so helped make their state a more natural place. The Missouri Conservation Heritage Foundation, a private, nonprofit organization, took the money and reinvested it in projects ranging from disabled-accessible fishing facilities and archery ranges to educational programs for youths and surveillance equipment to catch poachers.

Conservation license plates require a $25 annual donation. You can choose from artwork of a white-tailed deer, a bluebird or a largemouth bass. The Missouri Motor Vehicle Bureau charges an additional $15 for either the personalized plate or a stock plate. For more information about conservation license plates and the work of the foundation, contact the Missouri Conservation Heritage Foundation, P.O. Box 366, Jefferson City, MO 65102, 573/634-2080 or 800/227-1488.

Report ground bats

Not all bats roost in belfries, caves, attics or barns. Missouri's common red bat is one of several bat species that spends most of its days under loose tree bark or among leaves on the forest floor. This habit makes counting them or learning about them difficult. Lack of knowledge about their distribution and natural history makes it difficult to ensure they aren't hurt by human activities, such as prescribed burning.

Professor Lynn Robbins at Southwest Missouri State University would like to change that. He is asking Missourians to be on the lookout for non-cave bats and to report sightings online at <http://biology.smsu.edu/faculty_pages/Robbins/bats/index.htm>.

Late winter and early spring are the best times to observe the bats, which sometimes fly up from leaf litter when disturbed by passing people. They also can be seen flying on warm winter evenings when cave bats are still dormant.

Connected to conservation

You might be surprised how often conservation helps community-based programs. For example, $210,000 in matching grants obtained through the Conservation Department helped fund 16 local bird conservation programs sponsored by Audubon Societies, county parks and recreation departments, a Girl Scout troop, sportsmen's clubs, private landowners and a power cooperative. Another $25,000 grant from the Conservation Department helped support Kansas City Wildlands' volunteer habitat restoration program.

Conservation also contributes more than money to communities. Youngsters in the Kansas City area, for example, now experience hands-on learning about the Lewis and Clark expedition in a full-sized, authentic dugout canoe handcrafted by Conservation Department employees in their spare time.

For more information about support for community-based conservation programs, visit <http://www.teaming.com/index.htm>.

Waterfowl survey: 50 years and counting

Visiting 2 million square miles of isolated prairie ponds and northern wilderness to count waterfowl is a daunting challenge. In fact, it was impossible until 50 years ago, when the first U.S. Fish and Wildlife Service (FWS) pilot-biologists climbed into small aircraft to assess numbers of ducks, geese and swans and the condition of their nesting areas.

Each May, 12 teams of biologist-pilots and trained observers fly standardized routes, covering 400 to 500 miles a day. They fly a mere 150 feet above ground to get accurate counts of waterfowl.

Global positioning systems and other technological innovations make the job easier and the data more accurate today, but the challenge of flying 80,000 miles (more than three times around the globe) in a few weeks remains unchanged.

Without the information gathered in this way, biologists could not set hunting seasons and bag limits that ensure healthy waterfowl populations for the future.

Until last year, the FWS also conducted aerial surveys each July to measure waterfowl nesting success. Budget cuts caused cancellation of that survey in 2004 and again this year.

ZEBRA MUSSELS EDGE CLOSER

With the discovery of zebra mussels in Grand Lake, Okla., and adult mussels and larvae at El Dorado and Cheney lakes in Kansas, Missouri boaters, anglers and other water enthusiasts need to be on the lookout to prevent the spread of this destructive pest.

Since arriving in North America in 1988, this Caspian Sea native has hitchhiked to many areas of the country, including the Mississippi and Missouri rivers, causing economic, ecological and human health problems along the way.

Transporting boats, motors, trailers and aquatic plants from one body of water to another poses one of the biggest risks for spreading zebra mussels. Adults can live for several days out of water, and their microscopic larvae can survive in boat bilge water, live wells, engine cooling water systems and bait buckets.

To help prevent the spread of zebra mussels, remember to:

* Inspect your boat and trailer thoroughly, and remove any trash, mussels or aquatic weeds after each outing.
* Drain water from the motor, live well, bilge and transom wells and other parts of your boat.
* Dump leftover bait on land, away from the water.
* Rinse boat, trailer and equipment (including live wells, bilge and cooling systems) thoroughly with hard spray from a garden hose, and allow to dry for at least 48 hours. If your boat or equipment was used in zebra mussel-infested waters, use a commercial car wash with hot water.
* Dry boat, motor, trailer and equipment thoroughly in the hot sun before using again.
* Learn to identify zebra mussels. Adults have a distinct triangular-shaped shell, with a variable striped color pattern. They can reach 2 inches, but most are fingernail-sized.

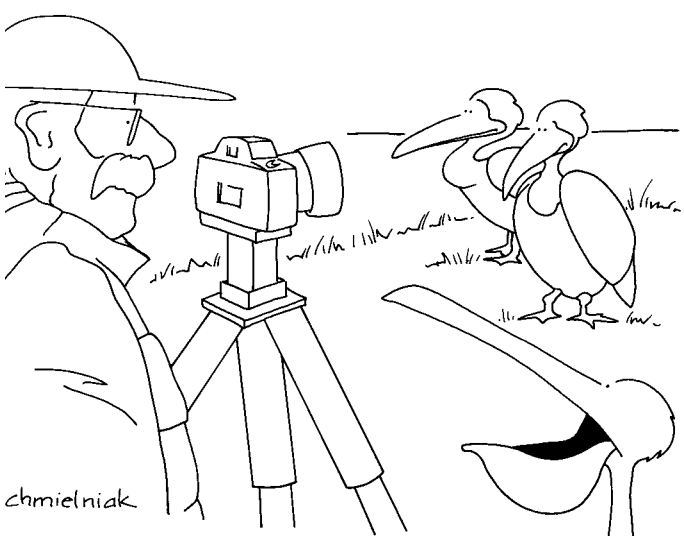
To report a potential zebra mussel sighting or for additional information, go to <www.missouriconservation.org/nathis/exotic/zebra/> or contact a Conservation Department office.

Outdoor Calendar

Hunting	open	close
Coyotes	5/9/05	3/31/06
Deer/Turkey Archery	9/15/05	to be announced
Deer Firearms	11/12/05	to be announced
Groundhog	5/9/05	12/15/05
Rabbits	10/1/05	2/15/06
Squirrels	5/28/05	2/15/06
Turkey (spring)	4/18/05	5/08/05
Fishing		
Black Bass (most southern streams)	5/28/05	2/28/06
Bullfrog	sunset	midnight
	6/30/05	10/31/05
Nongame Fish Snagging	3/15/05	5/15/05
Paddlefish on the Mississippi River	3/15/05	5/15/05
Trout Parks	3/1/05	10/31/05

For complete information about seasons, limits, methods and restrictions, consult the Wildlife Code and the current summaries of Missouri Hunting and Trapping Regulations and Missouri Fishing Regulations, the Fall Deer and Turkey Hunting Information, Waterfowl Hunting Digest and the Migratory Bird Digest. To find this information on our Web site go to <http://www.missouriconservation.org/regs/>.

The Conservation Department's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800/392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to <http://www.wildlifelicense. com/mo/>.



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SCHOLARSHIP AVAILABLE FOR STUDENT COMMUNICATORS

The Missouri Outdoor Communicators (MOC) is accepting applications for a $1,500 scholarship.

MOC awards the E.L. "Buck" Rogers Memorial Scholarship to Missouri college students who are interested in careers in outdoor communications. The scholarship comes with a one-year MOC membership and an expense-paid trip to the group's annual conference in September. Applications are due by June 1. For application forms and additional information, visit <www.mochomepage.org/scholarship.html>.

Rogers, a long-time Columbia resident and newspaper columnist, was a founding member of MOC and a past president of the Outdoor Writers Association of America. He died in 1997.

AGENT NOTEBOOK

Can an angler take a limit

of crappie off of the Lake of the Ozarks and then on the same day go to the Gasconade River and take more crappie? Can a trout fisherman take a limit of trout at the trout park at Maramec Springs and on the same day go to Montauk, buy a second daily tag and take another limit of trout? The answer to these questions might surprise you.

There is a statewide daily limit for each of Missouri's fish species. Some areas, like major impoundments, might have special regulations setting a more restrictive daily limit, but at no time are anglers allowed to exceed the statewide limit in a single day.

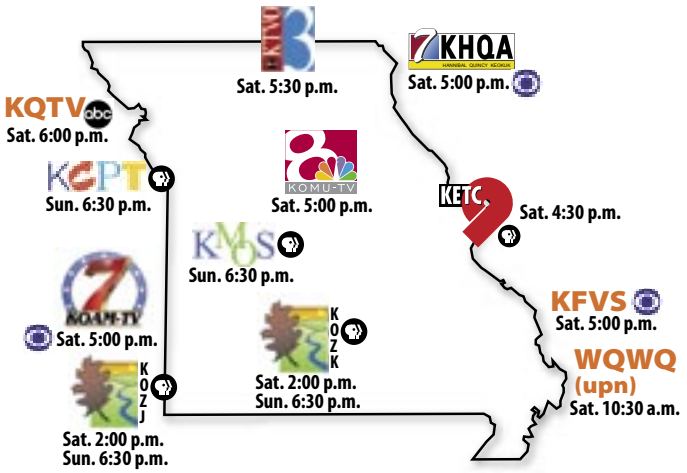
The statewide daily limit on crappie is 30. This also is the limit on the Gasconade River, but on Lake of the Ozarks the daily crappie limit is 15. If an angler limited out on Lake of the Ozarks, he or she could go to the Gasconade River on the same day and catch up to 15 more crappie.

The angler in the trout park is finished after catching his four trout, however. That's because the statewide daily limit of four trout applies even to the trout parks. Once the angler reached the limit of four trout at Maramec Springs, he or she would be prohibited from keeping any more trout on that day anywhere in the state of Missouri, even in one of the other trout parks.

Remember, the statewide daily limit can never be exceeded.— *Steve Zap, Phelps County*

Program Schedule

Television the way Nature intended!



SHOW SCHEDULE

May 7 & 8 — *QUAIL & ART*
Experience Hunting Skills University, fish gigging, and a family of outdoor artists.

May 14 & 15 — *LEWIS AND CLARK*
Take a journey on the Missouri River with Lewis & Clark.

May 21 & 22 — *MORELS*
Experience Arbor Day, mushroom hunting, and trout fishing in Missouri.

May 28 & 29 — *AKERS FERRY*
Journey to a special place along the Current River, and see high school teams compete in shooting sports.

OTHER OUTLETS

Branson Vacation Channel
Brentwood Brentwood City TV
Cape Girardeau Charter Cable Ed. Ch. 23
Chillicothe Time Warner Cable Channel 6
Hillsboro JCTV
Independence City 7
Joplin KGCS
Kearney Unite Cable
Maryland Heights Cable America 10
Mexico Mex-TV
Noel TTV
O'Fallon City of O'Fallon Cable
Parkville City of Parkville
Perryville PVTV
Raymore Govt. Access-Channel 7
Raytown City of Raytown Cable
St. Charles City of St. Charles-Ch 20
St. Louis Charter Communications
St. Louis City TV 10
St. Louis Cooperating School Districts
St. Louis DHTV-21
St. Louis KPTN-LP/TV58
St. Peters City of St. Peters Cable
Ste. Genevieve Public TV
Springfield KBLE36
Sullivan Fidelity Cable-Channel 6
Union TRC-TV7
West Plains OCTV

Meet Our Contributors

Wildlife Management Biologist **Dan Drees** and his wife, Susan, love exploring and "botanizing" natural areas. Shannon County, which contains both the largest number and the greatest acreage of natural areas in Missouri, captivated their hearts, and they recently moved near Eminence.

Susan Flader is a professor of history at the University of Missouri-Columbia. She has published books and articles on the career and thought of Aldo Leopold and on Missouri parks and forests, including the recently released *Toward Sustainability for Missouri Forests*.

Gene Hornbeck of Lampe is a retired writer and photographer who still enjoys indulging in those professions. He and Laura, his wife of 57 years, and their children and grandchildren have enjoyed Table Rock Lake for 14 years. Gene also enjoys fishing and boating, as well as hunting turkey and deer.

Jim Low is the Conservation Department's print news services coordinator. He and his wife, Diane, live on a few acres near Jefferson City, where he says they practice conservation and enjoy its many benefits—tangible and intangible.

Bernie Rains is a retired environmental engineer with 40 years experience in controlling pollution of St. Louis waterways. He has written about wastewater and storm water issues. Since retiring, he has become a freelance writer of articles on wildlife, food security and other subjects.

Missouri State Water Patrol Corporal **Elizabeth Ratliff** is originally from Columbia. She now primarily works on Table Rock, Taneycomo and Bull Shoals reservoirs. She enjoys SCUBA diving, hiking, duck hunting and bird hunting with her vizsla, Splash.

Spring tonic

Widow's cross sedum (*Sedum pulchellum*) provides rich color and texture in the hot and dry glades of southwestern Missouri. It's one of five Missouri species in the aptly named stonecrop family. —*Jim Rathert*