MISSOURI resources

Winter 2006 • Volume 23 • Number 1

Director's Comment

Water is one of Missouri's most treasured and vital resources. There is no aspect of our state's future that does not depend on water in some way. As most of you know, the Missouri Department of Natural Resources is charged with protecting Missouri's water quality. However, just as important is the department's responsibility to ensure that the citizens of the state have an ample supply of water for present and future uses. Since Missouri shares the waters of its major rivers with several other states, we must actively defend our state's rights to use these waters.

In this issue you will find an article about the department's efforts to represent Missouri's diverse interests on the Missouri River. Western states are very aggressive in the pursuit of securing more water for use in their states, often at the expense of downstream states. To western states, water is a transportable commodity to be bought and sold. Like it or not, we are in a battle with them for water. While Missouri has actively defended its use of the Missouri River, we continue to see less water in the river for downstream uses.

To better understand the conflict, it is important to understand the two types of water law that govern water use. With the exception of Iowa and Missouri, the states along the Missouri River adhere to western water law (the law of prior appropriation). Under this type of law, the state allocates the quantity of water that can be used by individuals or entities.

The State of Missouri does not allocate or regulate water use. Missouri subscribes to the doctrine of riparian water law in which individuals have the right to reasonable use of water. Water is a shared resource under riparian law and conflicts between users are often resolved in court.

Both of these approaches to water rights have their strengths and weaknesses. Western states are very efficient at allocating water because they have tremendous knowledge of their water supply. However, western water law lacks a provision for reasonable or best use of water. The western system, based on prior appropriations, dictates "first in time, first in right." In contrast, one of the strengths of the riparian system is that it takes into account the most reasonable or best use of water as a resource. A downside to the riparian system is that individual rights to use water are not clearly defined and unwise and inefficient use of the water resource can cause water shortages, especially in times of drought.

With the possibility that future water battles could be decided in federal court through some form of apportionment, Missouri must improve its knowledge base of information regarding water supply, water use, and future needs to support our claims.

To ensure the best use of Missouri's water resources and to protect the resource to meet growing demands, steps must be taken to better assess the resources and develop long-range plans for Missouri's water resources. This information will be vitally important as we defend the rights of our citizens in the future interstate water conflicts. In order to improve the state's position to address these major challenges, I have established the Missouri Water Resources Center to help focus our efforts. Just as we have done on the Missouri River, we will strive to forge partnerships and work cooperatively in addressing our water needs. We will be an advocate and a protector for Missouri's uses of water, both environmental and economic.

Doyle Childers

Doyle Childers
Missouri Department of Natural Resources

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Mission Statement
The mission of the Department of Natural Resources is to preserve, protect, restore and enhance Missouri's natural, cultural and energy resources and to inspire their enjoyment and responsible use for present and future generations.

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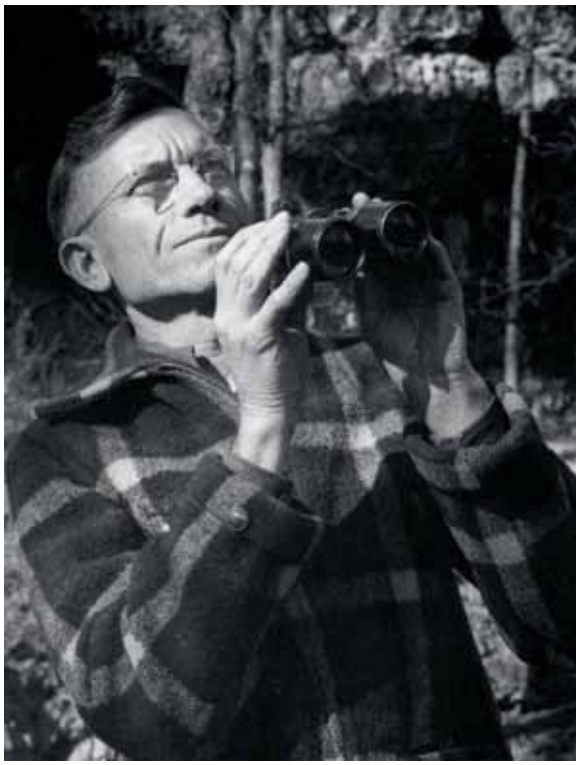
Above right: Mallori Richardson and her grandfather, Chris Ingram, came to trout fish at Roaring River State Park, near Cassville.
Above: The Kansas City skyline rises above the Missouri River levee along Highway 169 in Clay County.
FRONT COVER: Architecturally speaking, the new Busch Stadium will look more "historic" than its 35-year-old predecessor.
BACK COVER: Aquila's Sibley Generating Station, on the Missouri River near Kansas City, blends tires and coal to produce electric power.
Cover photos by Scott Myers.

Award-Winning Interpretation: A State Park Tradition

by Gayle Mooney

(Above) John Cunning, a natural resource manager for the Division of State Parks, shows interpretive training attendees how to conduct a tour of an historic building. (Right) George E. Moore, Missouri's first full-time chief naturalist, was a nationally known and well-respected scientist. He helped develop the first interstate naturalist training workshop in Missouri.



DNR file photo

For 66 years, the Missouri state park system has offered various forms of training for those who interpret the state's natural and cultural features.

Doug Eiken, director of the Missouri Department of Natural Resources' Division of State Parks, explained, "Without a clear understanding and appreciation of the natural and cultural resources we are charged with protecting, it would be very difficult to maintain and preserve them for future generations. The role of interpretation is to provide that understanding. That's why training our seasonal interpretive staff is so important," Eiken added.

The Missouri Department of Natural Resources' Division of State Parks now hosts an annual 40-hour intensive training school that attracts participants from across the Midwest and South. The story of the evolution of this professional training program is one of perseverance, dedication and foresight.

By the late 1930s, Missouri's state park system was just stepping into its current

role of preservation and protection of the state's natural and cultural resources. At the same time, the public's desire to learn about outdoor life in a park setting was growing. Park naturalists would come to play a vital role in fulfilling that desire.

A few state parks had been offering nature guide services. However, these services were unstructured and not well known to the public. In 1938, state park officials hired Uncas McGuire as a chief naturalist on a seasonal basis. McGuire initiated special nature programs and activities to attract the general public.

In a letter dated March 2, 1939, E. A. Mayes, a state planner in charge of park operations, wrote: "A wise use and an appreciation of our state parks is absolutely essential if our department is to serve the best interests of the park areas and our people."

He indicated that because the nature programs had been so well received by the general public, there would be six seasonal naturalists hired for the 1939 season.

State and national park leaders recognized the need for professional training to ensure a well-rounded naturalist staff. Mayes, McGuire and other state officials developed a two-day training session for the 1939 season. Faculty from the University of Missouri-Columbia departments of anthropology, geography, entomology, geology, history, forestry and zoology agreed to participate in the training. The result was the first official training session for seasonal naturalists, held on the Columbia campus, June 1 and 2, 1939.

The following year, state park officials selected George E. Moore, regarded by some as Missouri's most outstanding scientist of natural history, as Missouri's first full-time chief naturalist. As chief naturalist, Moore, with his wife Polly, who was an accomplished naturalist in her own right, traveled statewide, wrote articles for major newspapers and hosted a radio program.

When the National Park Service broached the idea of an interstate park naturalist conference, Missouri took the lead and, with Moore's help, sponsored the event. Leaders from around the country met at Meramec State Park on May 11-13, 1941. The 38 participants of this nationally significant training session came from nine states, as well as the U.S. Department of the Interior. Missouri was becoming known nationally for a high level of naturalist training.

In 1977, George Kastler, who began his career as a park seasonal naturalist in 1964, was hired as the system's fifth full-time chief park naturalist, a position he holds today. Under his leadership and guidance, the number of seasonal naturalists grew and the scope of training expanded to include both cultural and natural history.

"When I became the chief park naturalist," Kastler explains, "my goal was to continue the standards that George and Polly Moore set years earlier for state park interpretation. I knew that involved increasing our seasonal staff and providing them with the best training available."

(Below) During the Kaleidoscope event, trainees learn an American Indian fire-starting technique using a fire bow.
(Bottom) Trainees practice using a prehistoric device, the atlatl, that allowed spears to be thrown greater distances. The atlatl and the spear were made from natural materials such as river cane, antlers and chert.

DNR photos by Scott Myers

DNR photo by Scott Myers

MDC photo by John Miller

By using a pump drill to place holes in freshwater mussel shells, participants learned not only an ancient technique, but also how important the shells were in jewelry making and other crafts.

Seasonal naturalists come from either a scientific or historical background, from all walks of life, from college age to near retirement. Some of these seasonal employees return each summer; others are new, having been hired as a result of the many recruitment events Kastler conducts on college campuses across Missouri each spring. No matter the age or the experience, the interpreters benefit from the annual Interpreters Training School conducted before the start of each season. In addition, some of Missouri's state historic sites routinely send their full-time and seasonal interpreters to the training school.

For the past several years, a 10-person training committee of professional interpreters has organized and planned each year's curriculum. Kastler serves as chairman of the committee, composed of state parks, U.S. Army Corps of Engineers and Department of Conservation staff.

The 40-hour training, held at Dr. Edmund A. Babler Memorial State Park in Wildwood, is broken down into basic, intermediate and advanced studies, as well as specialized coursework. The goal of the school is to teach innovative, fun and creative program ideas that turn the unknown into the understandable in a way that will fascinate and arouse the park visitor, leaving a lasting appreciation of natural and cultural topics.

First-year trainees are instructed in interpretation philosophy, theme development, writing, program development, logistics and formats development. Second-year trainees have a short review of these topics and receive training from a cultural perspective. Courses include caring for artifacts and living history interpretation. Third-year (or higher) trainees are certified in national programs dealing with outdoor ethics and environmental education.

A fourth section was added in 2005 for anyone interested in pursuing a professional career in interpretation. Participants are taught by division staff and receive certification as Professional Interpretive Guides from the National Association for Interpretation, an organization dedicated to advancing interpretation as a profession.

In addition to classroom sessions, there are a lot of hands-on activities such as a 19th century version of baseball. There are more than two dozen demonstrations showcased at the "Kaleidoscope," a two-and-one-half-hour event covering a broad range of subjects such as geology, botany, zoology, shell carving, crafts and timber framing. Stations boast names such as "Hug a Herp," "Can I Touch It?," "It's a Buggy, Buggy Day," "The Crafty Couple," and "The Interpreters' Tapestry of Beauty."

Not all of the fun and education occurs between 8 a.m. and 5 p.m. Nighttime segments demonstrate popular park programs such as astronomy, night hikes, spider sniffs and owl prowls.

All basic and intermediate-level students demonstrate the skills they have learned by presenting a short program. They also are tested on their knowledge of Missouri natural and cultural history. At the conclusion of the training school, each participant receives a certificate of training. Special recognition is given to the best effort demonstrated at all three levels. Approximately 100 people attend the Interpreters

DNR photo by Scott Myers

Training School held each May. In addition to participants from the department, past attendees have come from Louisiana, Arkansas, Illinois and Kansas, as well as the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Missouri Department of Conservation and various parks and recreation facilities around the state.

Many training school graduates have gone on to professional positions at state and federal levels as well as the private sector. For April Dozier, the training she received was the start of a career in outdoor education that now spans almost 30 years.

Dozier, the Cape Girardeau Conservation Campus Nature Center manager, said, "The training I received with the state parks was the beginning of a pathway I could never have imagined. I liked the training so much that I encouraged my oldest daughter to work as a seasonal with DNR."

Over the years, the training school has received recognition from international and national interpreters and educators such as Sam H. Ham and Ted T. Cable. Both Ham and Cable have authored books that outline effective environmental interpretation. Their work has been widely published and used in classrooms and natural or cultural venues required to create meaningful interpretive programs.

Cable serves as a professor of Natural Resource Management at Kansas State University. He says he wishes even more state agencies would model themselves after the Department of Natural Resources' Interpretive Training School. He explains, "It is exceptionally thorough, intense, rigorous and fun. DNR's commitment to high-quality interpretation is commendable."

The training techniques taught at the school have been used as models for other agencies, and DNR full-time interpretive staff have been asked to conduct presentations at various training seminars for other state park systems.

Last year the National Association of Interpretation (NAI) presented the Division of State Parks' Interpreter's Training School with the Outstanding Interpretive Program 2004 award in Region VI, which covers Missouri, Arkansas, Louisiana, Texas, Oklahoma and Kansas.

Cyndi Cogbill, NAI Region VI Awards chairperson, said of the training: "When many of this country's interpretation leaders need inspiration, they turn to Missouri."

Sixty-six years ago a tradition was started that not only survived, but thrived. Today, Missouri State Parks provide visitors the very best in interpretive services. As we travel outside Missouri, it is satisfying to know that other states have learned from this dedicated effort, and that their parks customers have benefited as well.

Gayle Mooney is a video production specialist for the Department of Natural Resources' Division of State Parks.

This year's Missouri State Parks Interpreter Training School boasted more than 90 graduates and over 120 participants from the Midwest.

Heated Competition

story and photographs by Lindsay Tempinson

With the heat indices over 100 degrees, the competition wasn't the only thing that was hot during this year's 2005 Canon Envirothon. Students from 43 states and seven Canadian provinces made their way to the campus of Southwest Missouri State University in Springfield on July 18 for the weeklong event. Missouri was the host of the 18th annual Canon Envirothon, North America's largest high school environmental competition.

Judy Stinson, an education specialist for the Department of Natural Resources, co-chaired the event with Peggy Lemons, executive director of the Missouri Association of Soil and Water Conservation Districts. The two began planning the event, along with a committee of nearly 20, in 1999. Six years later, students arrived in busloads, ready to compete.

After students unpacked and got their team pictures taken, the opening ceremony introduced them to Missouri's many natural resources, and to the other teams. Root beer floats and a trading session followed, giving students a chance to interact. While volunteers scooped rock-hard ice cream, students scrambled from one table to another, trading T-shirts, buttons, stickers and a variety of other items that proudly displayed their state or province's name.

"There was not a trading session, there were like 20," said Holly Bellis, a member of the Missouri team, adding, "Everyone wanted Missouri stuff."

Norborne High School in Carroll County represented Missouri at the 2005 Canon Envirothon. Karl Beckemeier, Bellis, Chris Brooke, Joseph Buhlig and Adam Francis competed against 20 teams to win the Missouri Envirothon in May and advance to the national competition.

The five-student teams participated in an intense week of training and testing about natural resources that began at Wilson's Creek National Battlefield the day after they arrived. Students spent several days at

ition

resource stations learning about aquatic ecology, cultural landscapes, forestry, soils, land use and wildlife.

They pored over a stream display that taught them about the impacts of erosion. They studied maps and learned about watersheds. They knelt in soil pits, walked in the woods, and carefully examined stalks of Sericea lespedeza, learning ways to identify Missouri's soils, trees and invasive species. The students also learned about various types of cultural resources, and ways in which culture can shape the landscape.

"The Canon Envirothon is a great educational event for all students … It allows students who have had no specific interest in environmental studies before, the opportunity to see if a career in the natural resources is something they might want to pursue later. It also allows them to see how everything affects everything else," said Stinson.

The training didn't stop at day's end; in the evenings, students continued to learn. A tour of Fantastic Caverns showed students what hundreds of years of percolating water in the limestone hills of the Ozarks can create. Students learned more about Missouri's caves and wildlife at the Wonders of Wildlife Museum. Tumbling Creek cave snails, white-tailed deer, and other exhibits awaited students at the museum. They also were able to watch otters

play and enjoyed aquariums twice their height, teeming with aquatic life.

After two days of training on Missouri's resources, 250 students ventured out for a day of testing in temperatures topping 100 degrees. They examined wildlife pelts, fish, streams, trees and test questions. Armed with bottles of water and sports drinks, they proved they were definitely up for the challenge. Most had started studying resource materials long before they arrived.

Students found themselves back at the battlefield one last time Friday morning for additional cultural resources training. Dressed civil war attire, Matt Campbell, of the National Parks Service, explained what life might have been like for those in the battle. Teams were then sequestered for the rest of the evening to work on their oral presentations. Students spent the evening after testing in white T-shirts and poodle skirts,

(Opposite page) Matt Campbell, of the National Parks Service, fills the barrel of a gun with gunpowder, while students from the Manitoba Envirothon team look on. Campbell, dressed in Civil War attire, explains what life might have been like for those fighting in the battle that took place at Wilson's Creek National Battlefield in 1861.
(Left) Aimee Davis, of the winning Pennsylvania team, shares her surprise and excitement with teammates.
(Bottom left) Delaware students make their final oral presentation on managing cultural landscapes. The top five teams do a final oral presentation in front of a panel of Envirothon judges and other teams.
(Bottom right) Quayle Chew (right), Lance Pflieger, Jay Houtz (back) and Rachel Simmons (left), of the Utah team, practice identifying aquatic insects during training at Fantastic Caverns.

(Right) Missouri Department of Natural Resources soil scientist Dick Henderson stands in a soils pit to prepare students for the soils test during training at Wilson's Creek National Battlefield. (Bottom left) Bill Pauls, a U.S. Department of Agriculture soil scientist, shows students various techniques for identifying Missouri soils. (Bottom right) Kaylee Steffel (right) and Reed Perkins, of Minnesota, identify Missouri fish during wildlife testing.

relaxing fifties-style at the sock hop, chewing bubble gum, swiveling their hips in hula hoops, keeping their eyes on their poker hands and dancing the night away.

The next day, in between games of table football, cards and naps, teams practiced their speeches, waiting anxiously for their turn to present. Finally, the top five teams were announced: Texas, Delaware, Wisconsin, Pennsylvania and Virginia. The top five teams gave a final presentation, judged by a panel of seven, including Natural Resources Director Doyle Childers.

The announcement of the top five teams was the "peak of the mountain," said Aimee Davis, Pennsylvania team member, but that was before her team was announced as the winner of the 2005 Canon Envirothon.

Pennsylvania won awards for their top scores in forestry, soils, land use and wildlife. Pennsylvania tied the state of Texas in aquatic ecology. Each of the five members of the Pennsylvania team was awarded a $5,000 scholarship.

Pennsylvania team member Michelle Henry thought the most challenging area was soils and said that the soils in Missouri are really different than those in Pennsylvania, and there was a lot more soil application information employed during testing.

More than $75,000 in scholarships and prizes was awarded by Canon U.S.A. Inc.

"It was great meeting a lot of new people," said Chris Brooke, a member of the Missouri team. The Missouri team placed 29th.

"Each student that participates in the Canon Envirothon is given the unique opportunity to travel and meet other students from all over the U.S. and Canada, as well as gain new experiences and knowledge," said Stinson.

More than 230 volunteers from the Missouri Department of Natural Resources, Missouri Soil and Water Conservation Districts, Missouri Soil and Water Conservation District Employees Association, Missouri Department of Conservation, Natural Resources Conservation Service, University of Missouri Extension and Tyson Foods, as well as others, lent a hand at the event. Some taught and tested students about natural resources, while others escorted teams to testing and training sites. At the ceremony, Director Childers was presented with an award recognizing the Department of Natural Resources for its involvement with the Envirothon.

According to Stinson, the many hours of hard work paid off. "Missouri's commitment and passion for the Envirothon was evident that week. With all our conservation partners working together as a team, the event was a huge success."

Lindsay Tempinson is a public information specialist for the department's Soil and Water Conservation Program.

Missouri WATER In High Demand

by John Drew and Karen Rouse

"Water is the scarcest and most important resource in the western United States."

– Bob Stallman, president of the American Farm Bureau Federation

Stallman captured the Western view on water at a congressional hearing entitled, "Water: Is it the Oil of the 21st Century?" Missouri, in competition for water, finds itself at a strategic crossroads where east meets west.

For several decades the Missouri Department of Natural Resources has been at the heart of the battle over water in the Missouri River. There are 10 states and 28 Indian tribes in the Missouri River basin; the states and tribes are sovereign entities, with competing interests in the water. The state of Missouri, located along its southern reach, is the last to use water from the Missouri River before it enters the Mississippi River at a point not far upstream from St. Louis.

According to the U.S. Geological Survey, Missouri River Basin users already consume an estimated 28 percent of the total water available. As demands for water increase and more projects are developed, the competition for Missouri River water will intensify. "The Department of Natural Resources is responsible for protecting not only the state's water quality, but also water quantity," said Mike Wells, deputy department director and chief of Water Resources. "As demand escalates and the supply diminishes, we need to ensure that future generations have adequate access to the river's resources."

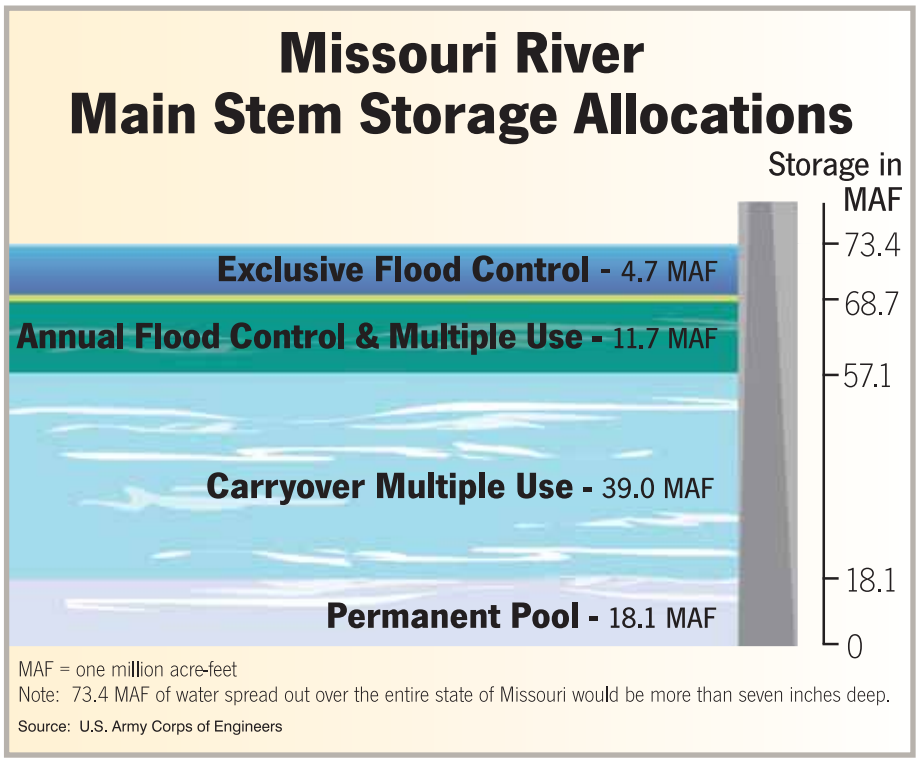
In the first half of the 20th century, tremendous floods wreaked havoc on farms and cities along the Missouri River, taking a heavy toll on human lives and personal property. Congress responded by passing the 1944 Flood Control Act whereby five mainstem dams would be constructed to curtail flooding along the Missouri River. Although Fort Peck Dam in Montana was already built by this time, it would be included with the other five dams to form the Missouri River Mainstem Reservoir System. The system is operated by the U.S. Army Corps of Engineers (Corps) and has two primary purposes set by Congress: flood control and navigation. Secondary authorized purposes include water supply, power generation, fish and wildlife protection, irrigation and recreation.

The Missouri River reservoirs constitute the largest reservoir system in North America. At the normal water level they store approximately 55 times the amount of water that is stored in the Harry S Truman Reservoir, the largest reservoir in Missouri.

The reservoir system is primarily fed by snowpack from the Rocky Mountains, and snows that fall on the northern Great Plains.

Like a bank account, the reservoirs are used to store water in times of excess to reduce flooding and to release water in times of shortage. In an average year, the water stored in the spring provides ample water for all uses, without drawing water from the reservoirs' "account." In high-runoff years like 1995 and 1997, excess water had to be released for much of the year to

DNR photo by Scott Myers



The Missouri River system has the largest storage capacity of any in the United States, totaling 73.4 million acre-feet. To put these mammoth reservoirs in perspective, the Missouri River is 552 miles long in Missouri, extending from Atchison County to St. Charles County. In this stretch of river, the floodplain is estimated to be approximately one million acres. The water would have to be 73.4 feet deep in this floodplain to equal the amount of water that could be stored in the system.

ensure adequate reservoir storage room for the following year's snowmelt runoff. During periods of drought, water is withdrawn from storage.

The reservoir system is divided into four pools, or storage zones: exclusive flood control, annual flood control and multiple use, carryover multiple use, and permanent. Since the six reservoirs are operated collectively, storage volumes in the four pools are typically shown as if they were all one big reservoir. The exclusive flood control pool is generally kept empty so that it will be available to store water from extremely high runoff events and major floods. In normal runoff years, the annual flood control and multiple-use pool is filled, then later emptied in an annual cycle that meets all of the river system's purposes. In a prolonged drought, the huge carryover multiple-use pool is tapped to provide water.

Even after the drought in the upper basin, which has lasted six years, the carryover multiple-use pool is still roughly half full. The permanent pool's primary purposes are to provide storage for accumulation of sediment, a minimum level for generation of hydropower, and reservoir recreation. The reservoirs have been designed and operated so that during a repeat of the worst drought on record, the 12-year drought of the 1930s, the water level would not drop as far as the permanent pool. However, if it does, the Corps can release water from this pool. Coordinating releases from a multi-reservoir system is a complex task.

This complexity requires the Corps to operate the system according to a set of rules specified in the Master Water Control Manual, or master manual. One type of rule commonly cited is called a drought conservation measure. The Corps checks the amount of water stored in the system on specific dates to determine how much water will be released. As

The Howard Bend water treatment plant on the Missouri River provides drinking water for St. Louis.
(Opposite page) A new steam turbine is delivered to Ameren's Callaway Nuclear Plant landing near Portland. Shipped from Europe by ocean and river, the turbines were too large to transport by traditional means.

DNR photo by John Drew

the volume of stored water decreases, the Corps progressively decreases water released from the system.

The general idea is that as the system storage lowers, less water will be released, thereby conserving more water in the reservoirs. This decrease in releases negatively impacts navigation, water supplies on the river, hydropower generated from the reservoir releases, and other electrical power sources.

The Corps revised the master manual in March 2004, after 15 years of contentious, heated debate among states along the river. The master manual revision began because political pressure was applied to the Corps by the upstream states where the reservoirs are located. The upper basin states wanted the rules changed to retain more water in the reservoirs for their use during extended droughts.

According to Wells, upstream states say Missouri is not willing to compromise and support a new plan.

"A compromise means give and take on both sides," Wells said. "The new plans were not a compromise. They all shifted water from Missouri to upstream states. We were unwilling to support a plan that was not in Missouri's best interests," he added.

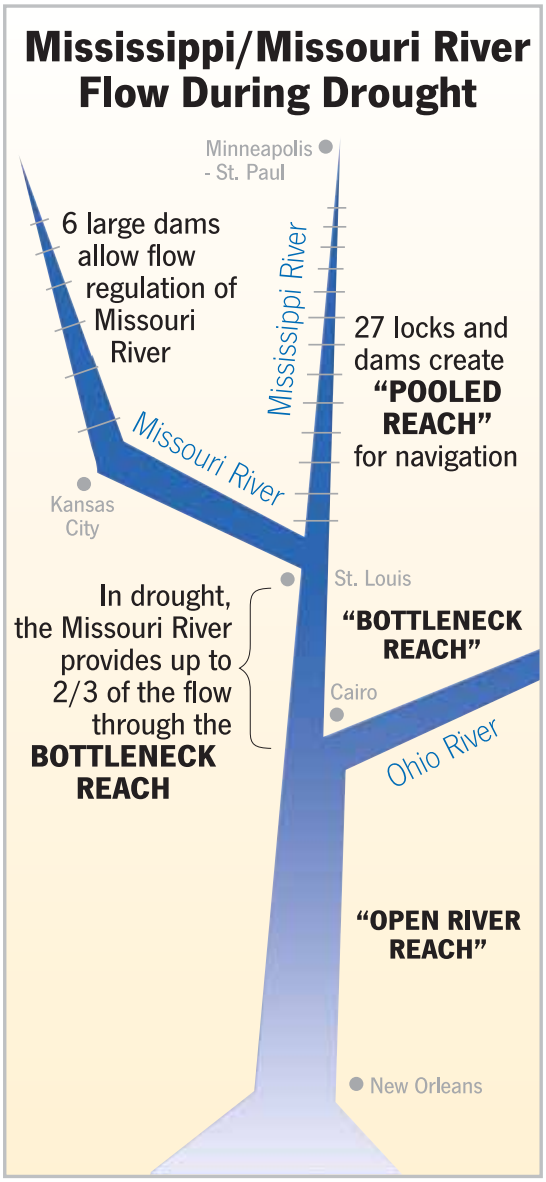
Although the final plan did not shift as much water to upstream states as they negotiated for; there was enough water shifted to significantly impact downstream use. The new criteria had an immediate effect, as the new manual required that reservoir releases be scaled back faster in order to keep more water in the reservoirs for upstream use.

A Word About Endangered Species

Readers that are familiar with some of the conflicts over management of the Missouri River likely noticed that endangered species were not discussed in this article. While endangered species is an extremely important topic and river flow is part of that debate, it is a different issue than the dispute over water between the states.

Holding more water in the reservoirs for stocked non-native fish in the Dakotas and Montana, and water diversion projects should not be confused with measures that help the endangered species. The Missouri Department of Natural Resources takes very seriously its responsibility to represent Missouri's best long-term interests, both environmental and economic, and will continue work with parties whose genuine goals include improvement of habitat for endangered species.

DNR photo by Scott Myers



DNR graphic

DNR photo by Scott Myers

In 2004, the first year of the new master manual, the navigation season ended 47 days early. This cut 30 days from what would have been allowed under the old master manual. In a year with a record harvest of corn and soybeans, the shorter season prevented Missouri's farmers from moving grain to markets on the Missouri River. In 2005, the navigation season was cut short by 48 days in the fall.

Cutbacks in flow support to Missouri River navigation reverberate all the way to the Mississippi River. Above St. Louis, the Mississippi has a series of locks and dams that help maintain the depth of the water. Waterborne transportation can continue to move even when there are low flows. Problems arise on the stretch of river between St. Louis and the confluence with the Ohio River, known as the "bottleneck reach." Since this reach is free-flowing river, the water transportation industries rely on the Missouri River to supply up to two-thirds of the flow during times of drought.

Low water in this reach can act as a bottleneck, shutting down the entire inland waterway system. Missouri River flow can be the difference between keeping the Mississippi River open to traffic or shutting it down. The repercussions of these shutdowns not only create a hardship on Missouri's economy, but usually generate a national impact as well.

In addition to hampering commodity movements on the inland waterway system, low water on the Mississippi River impacts the Port of St. Louis, the third-largest inland port in the country.

Missourians benefit from a variety of other uses of their namesake river. Almost one-fourth of the total length of the river flows through our state. The Missouri's floodplain is fertile cropland and habitat for a multitude of fish and wildlife species. The river is a destination for people seeking various forms of pleasure, be it taking in a vista from a bluff top, bicycling in Katy Trail State Park or a number of other recreational pursuits.

Photo by Robert T. Miller

More than one-half of Missouri's citizens get their drinking water from the Missouri River or its alluvium (the underground aquifer that is tied to the Missouri River). Numerous power plants also use the Missouri River as a source of cooling water. Thus, flows lower than those required for navigation can adversely impact both navigation and the state's water and power supplies.

"Water in the Missouri River is essential

DNR map by Karen Rouse and Belinda Hughes

(Opposite page) Two of Ameren's steam generators travel up the Mississippi River. (Clockwise from below right) At Chamois, a coal-fired power plant uses water from the Missouri River to help generate electricity.
June 2005 flooding submerged the river road below Katy Trail State Park just upstream from Easley. The trail itself was unaffected.
David Miller, of Cortland, N.Y., paddled the entire Missouri River from Three Forks, Mont. to St. Louis. Miller is the author of *The Complete Paddler*, which details the journey and shows others how to do it.

DNR photo by Bryan Hopkins

DNR photo by Scott Myers

DNR photo by Scott Myers

to the operation of our power plants, providing a source of cooling water," said John C. Pozzo, an environmental safety and health engineer with Ameren. "This summer (2005), it was also essential to a plant upgrade at Callaway (Nuclear Power Plant). Because of their size and weight, the Missouri River was the only way that we could transport the new steam generators to the plant site," Pozzo added.

Sometimes, litigation has been required to protect Missouri's interests in water. In 1988, Missouri filed a lawsuit to stop the upstream diversion of water out of the Missouri River basin. In the ETSI Pipeline Project v. State of Missouri, the U.S. Supreme Court stopped the transfer of water from the basin. This project would have piped water westward from South Dakota as part of a coal slurry pipeline.

Due to ongoing drought, several upstream states filed suit in 2002 in an attempt to withhold reservoir releases to protect their economic interests in the Missouri River. Missouri became involved in these lawsuits, seeking to protect the state's interests. In an August 2005 ruling, the Eighth Circuit Court of Appeals denied the upstream states their motion and reaffirmed flood control and navigation as the dominant functions of the system. The court added that reservoir recreation was not included as a dominant function. It went on to say that any change in the priorities of the system was to be decided by Congress and not through litigation.

An ongoing and well-publicized project that seeks to decrease the amount of water in the Missouri River system is the Garrison Diversion in North Dakota. This project would transfer a substantial amount of water out of the Missouri River basin to the Red River basin, which flows into Hudson Bay in Canada. Although many of the pieces are in place, North Dakota still faces some hurdles in completing this water diversion.

Many interests compete for water in the Missouri River. Although we have reached many milestones, unresolved issues remain, such as upstream water diversions, tribal water rights, implementation of the new master manual and others.

With Missouri's magnificent lakes and rivers, it is easy for Missourians to take water for granted. However, water is an extremely valuable resource and key to our state's prosperity. The Missouri Department of Natural Resources will continue to fight for water in the Missouri River so that future generations of Missourians can depend on it.

John Drew and Karen Rouse are hydrologists with the department's Water Resources Center.

DNR photo by Connie Patterson

Ribbon Cutting Launches Maryville Satellite Office

The Missouri Department of Natural Resources and Northwest Missouri State University recently hosted a regional drinking water planning conference on the Northwest campus. A ribbon cutting for the department's new Northwest Missouri Satellite Office at Maryville opened the conference. Northwest University President Dr. Dean L. Hubbard and State Representative Brad Lager joined Department Director Doyle Childers in the ceremony.

Planning for the satellite opening and the conference had been ongoing for several months. "I'm very pleased that so many people worked with us to make this a reality." said Childers.

Field staff dealing with northwest Missouri issues will be closer to their work in the Northwest Missouri Satellite Office. The satellite office will be housed in the university's Environmental Services Building. David Williams and Jody Mayes, formerly housed in the department's Kansas City Regional Office, will provide nearby counties with facility inspections and compliance assistance services, focusing on assistance to drinking water and wastewater facilities.

The department also launched a new satellite office in Rolla on December 20 and soon plans to open an office in Portageville at the Delta Research Center.

To contact the Northwest Missouri Satellite Office, address correspondence to Northwest Missouri State University, Environmental Services, 800 University Drive, Maryville, MO 64468-6015, or call 660-582-5210 or 660-582-5290.

Contact the Rolla Satellite Office at 111 Fairgrounds Road, Rolla, MO 65401, 573-368-3185. Until further notice, the phone number for the Portageville Satellite Office will be the Southeast Regional Office phone number, (573) 840-9750.

Morris State Park Dedicated in Bootheel

A state park that preserves a unique area in Missouri's Bootheel was officially dedicated Oct. 8. Morris State Park is located in an area of southeast Missouri known as Crowley's Ridge, a unique geologic formation of low hills in the Mississippi River floodplain.

A two-mile loop hiking trail named Beech Tree Trail offers a glimpse of the park and the forests of Crowley's Ridge. A self-guiding trail brochure that corresponds with numbered stations along the trail provide information about the forest. The park also contains an overlook and exhibits that interpret the area's natural and cultural significance.

The 161-acre park was donated to the department by Jim D. Morris of Springfield. The day-use park is open from dawn to dusk and is located five miles north of Campbell on Route WW in Dunklin County.

Ombudsmen Offer Compliance Assistance

Missouri Department of Natural Resources' ombudsmen made more than 400 contacts with citizens, community officials and businesses during their first month of work. The department put the ombudsmen in place to improve environmental compliance and customer service to Missouri citizens.

"The ombudsmen learn about minor frustrations folks have with the department," said Department Director Doyle Childers. "Serving as my eyes and ears in the local communities gives the ombudsmen the ability to work with our technical staff in addressing these frustration before they turn into major problems. In the interest of improving customer service, we're going to the problems instead of waiting for them to come to us."

Ombudsmen success stories to date include finding answers to questions and resolving problems for citizens, communities and businesses, often within a number of hours instead of days or weeks. "Sometimes it's as simple as directing someone from outside the agency to the right program or staff person within the agency to address their concern," said Scott Totten, the department's chief ombudsman.

Childers said the development of the program reflects a core belief that the ombudsmen can help the department improve the quality of life for Missouri citizens. "Many times I've heard the phrase, 'Ignorance of the law is no excuse,'" said Childers. "As a former teacher, I believe education and training go a long way to removing ignorance as an excuse. Today, there are better ways to provide a cleaner environment with less hassle and red tape for ordinary citizens."

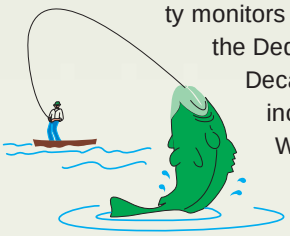
"Missourians have a right to expect good customer service from us, and I want people to know what a good job this agency does in protecting our air, land and water quality."

There are currently six ombudsmen serving central, northwest, southeast and southwest Missouri as well as the St. Louis area. The department hopes to find an ombudsman to serve the Kansas City area soon. Visit [www.dnr.mo.gov/ombudsman-map.pdf] for a map of the ombudsmen regions across the state.

Volunteers Dedicate a Decade to Stream Quality

The Missouri Department of Natural Resources, a sponsor of the Missouri Stream Team Program, recently presented the Dedicating a Decade award

to 23 volunteers with 10 or more years of service. The volunteers demonstrated their long-term commitment to the water quality in local streams by submitting data to the stream team program on a regular basis.



Trained volunteer water quality monitors who received the Dedicating a Decade award include: Jeanelle Wiley – Crane, Barbara Lawton – Valley Park, Robert Steiert – Kansas City, Barbara Duffy – Camdenton, Gerry Boehm – St. Charles, Larry Ruff – St. Charles, Ken Hogue – Lonedell, Dee Dokken – Columbia, Tim Smith – Springfield, Daniel Miller – Columbia, Robert Foster – De Soto, Leslie Lihou – St. Louis, Jim Rhodes – Glendale, Daniel Hatch – Licking, Rick Archeski – Grover, Kay Burke – Walnut Shade, Frank Johnson – Greenfield, George and Carol Timson – Salem, Michael and Linda Tanner – Black, Betsy Blake – Clark, and Mark Osborn – Columbia.

For more information, call the Department of Natural Resources' Water Protection Program at 1-800-361-4827 or (573) 751-1300.

New Online Tour Reservation System

It is now easier and faster to reserve a tour of the State Capitol. The Missouri Department of Natural Resources has a new tour reservation system that can be accessed through the Internet at [www.mocapitoltours.com]. This new Web site will allow visitors to check available dates and times, and make a reservation for a guided tour even when the Missouri State Museum office is closed.

Gov. Matt Blunt made the announcement about the new system, saying it is an example of how state government can be more efficient through the use of technology.

Reservations are only required for groups of 10 or more; reservations are not necessary for groups smaller than 10. In addition to using the Web site, reservations still can be made by calling the museum office from 8 a.m. to 5 p.m. Monday-Friday at (573) 751-2854.

The Capitol is open to the public free of charge from 8 a.m. to 5 p.m. daily. The reservation system also includes Jefferson Landing State Historic Site in Jefferson City.

For more information, contact the Missouri State Museum at (573) 751-2854 or the Department of Natural Resources toll free at 1-800-334-6946 (voice) or 1-800-379-2419 (TDD).

environmental notes

Caring for Your PET

Recycling plastic bottles is good for the environment and the economy. In the United States, the supply of post consumer PET recycled containers continues to be inadequate to meet the growing demand for recycled content products. While Canadian reclamation companies doubled their demand for recycled PET between 2003 and 2004, demand for the plastic also increased in the U.S. and China.

PET stands for polyethylene terephthalate, a plastic resin and a form of polyester. The PET bottle was patented in 1973 by chemist Nathaniel Wyeth, brother of American painter Andrew Wyeth. The first PET bottle was recycled in 1977.

Fourteen 20-ounce bottles = one extra large T-shirt, or one square foot of carpet, or enough fiberfill for a ski jacket

Sixty-three 20-ounce bottles = one sweater

Eighty-five 20-ounce bottles = enough fiberfill for a sleeping bag

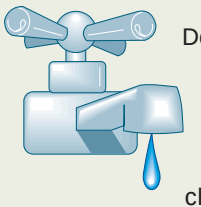
The average U.S. household generated 38 pounds of PET bottles in 2002. Some of the products packaged in PET containers include soft drinks, juice, water, peanut butter, salad dressings and oil, cosmetics, household cleaners and tennis balls. These products will usually display the recycled logo with a PET 1, or PETE 1 designation.

The PET bottle recycling rate rose to 21.6 percent in 2004, for the first time in nearly a decade, up from 19.6 percent the previous year. The amount of PET bottles collected for recycling in 2004 jumped dramatically to a little more than 1 billion pounds, from the 4.6 billion pounds of PET available for recycling, according to the National Association for PET Container Resources (NAPCOR). It is estimated that 80 percent of the U.S. population has access to plastics recycling programs. Missourians can find local collection points on the Department of Natural Resources Web pages at [www.dnr.mo.gov/alpd/swmp/rrr/recycdoliststatewide.pdf].

The use of post-consumer recycled PET increased 59 percent from 2003 to 2004 to a record 878 million pounds. Recycled PET can be used to make many new products, including fiber for polyester carpet; fabric for T-shirts, long underwear, athletic shoes, luggage, upholstery and sweaters; fiberfill for sleeping bags and winter coats; industrial strapping, sheet and film; automotive parts, such as luggage racks, headliners, fuse boxes, bumpers, grilles and door panels; and new PET containers for both food and non-food products.

Recycling a ton of PET containers saves 7.4 cubic yards of landfill space. According to the U.S. Environmental Protection Agency, recycling a pound of PET saves approximately 12,000 Btu of energy that would have been used to manufacture virgin resin.

Water Systems That Fail to Test



The Missouri Department of Natural Resources released a list of 36 public drinking water systems that have chronically failed to do required bacteriological testing. The department requires all public water systems to test for bacteria at least once a month to verify that these systems are providing safe drinking water to the public. While failing to monitor does not necessarily mean the water is unsafe, routine testing is crucial to maintaining a safe water supply.

However, failing to monitor can result in ongoing bacteriological problems. Often, informing the public of a system's chronic failure to test water quality will prompt the system operators to routinely submit samples.

Chronic violators are the exception rather than the rule. The 36 systems represent only 1.3 percent of approximately 2,700 public drinking water systems in Missouri.

These systems' owners have been sent multiple violation notices in addition to certified letters informing them that chronic failure to monitor is unac-

I have seen articles on the Civilian Conservation Corps in Missouri in previous issues, and thought some of your readers might be interested in CCC Co. 1713. My husband, Hugh, enrolled at Cassville on April 12, 1939, and stayed on until he was drafted in April 1941. Part of the company went ahead to Laclede to put up barracks for the rest of the men, who would arrive over the winter and spring. The winter of 1939-40 had such heavy snow that the company didn't work for 30 days. They had to shovel the road by hand all the way out to Hwy. 36 (at least four miles) just to get supplies.

The land was wet, black gumbo. Many railcars of cinders were unloaded by the men and spread on the soggy streets and walkways. Picks, shovels and jackhammers were needed to remove the rock for buildings. Copperheads and rattlesnakes were plentiful, and all hands were required to carry snakebite kits. The conditions were tough, but so were the economic times of the 1930s. I wish there were a program like the CCC today for young people who need the money, and are not afraid to work hard to get it. Thanks in part to Co. 1713, Roaring River State Park is the beautiful place it is today.

After World War II, Co. 1713 had yearly reunions at the site of their old camps. I know they were still going as late as 1994 at a place they called Camp Smokey. I believe other groups like the 4-H use it, too. Maybe one of your readers might know if any of the original Co. 1713 still gets together.

Wilma Gibbens
Stark City

The Elusive Morel

Out in the forest we carefully walk,
Slowly, while watching our way.
We move the leaves gently to look underneath,
Searching for blonde or for gray.

We take each step carefully, searching the ground
We don't want to miss one or two.
Hunting for mushrooms is such a delight
In the spring, in the forest, with you.

The birds are all singing, the squirrels are at play,
The sun warms our faces and hearts.
The dogwoods and red buds show off their display
God's artwork has left us its mark.

The mayflowers carpet the damp forest floor
As we walk with our eyes to the ground
If we find no mushrooms, we really won't mind,
As nature's pure beauty abounds.

The sponge-like morels are a delicacy
That can only be found a short time.
This makes them so special and more of a treat
Their rarity makes them sublime!

But look, there's a mushroom we'll put in our bag!
I'm sure we'll find more if we try!
We now search more carefully, looking for more
So we'll have a full skillet to fry.

And so we keep searching, we walk on and on
Enjoying the scenery anew.
Yes, hunting for mushrooms is such a delight
In the spring, in the forest, with you.

Nancy Gilbertson
Concordia

Editor's Note:

In the Fall 2005, Vol. 22, No.3 issue of Missouri Resources, *some photo credits were incorrectly attributed. The Resources to Explore entry on the Katy Trail failed to credit George Denniston, of Elwood, Kans., for two pictures on page 22. In Teacher's Notebook, the Career Connection article on state parks archaeologist Larry Grantham, the photos on pages 23 and 24 were taken by his daughter, Sarah. We regret the errors and appreciate both Mr. Denniston and Ms. Grantham for allowing us to use their photos in those stories.*

LETTERS

Letters intended for publication should be addressed to "Letters," *Missouri Resources,* P.O. Box 176, Jefferson City, MO 65102-0176 or faxed to (573) 522-6262, attention: "Letters." Please include your name, address and daytime phone number. Space may require us to edit your letter. You also can e-mail *Missouri Resources* staff at moresdnr@dnr.mo.gov

ceptable. Department representatives also routinely make on-site inspections. If systems continue to fail to comply with Missouri's drinking water law, more stringent enforcement action may be pursued through legal channels.

To view more details on the violators listed, visit [www.dnr.mo.gov/env/wpp/chronic/3Qchronic.pdf].

These and other violations are detailed in the department's Annual Compliance Report of Missouri Public Drinking Water Systems. A copy may be obtained by calling the department's Water Protection Program at 1-800-361-4827 or (573) 751-5331 or the report can be downloaded at [www.dnr.mo.gov/env/wpp/fyreports/index.html].

Compliance Assistance Before Inspection

The Department of Natural Resources has launched a new compliance assistance initiative to assist citizens, communities and businesses that obtain permits, licenses, certifications and registrations from the department and to encourage compliance with Missouri's environmental laws.

In the first phase of the new initiative, the department will visit land disturbance sites, newly permitted air pollution sources, drinking water facilities where permit actions are anticipated, limestone quarries and hazardous waste generators. The department will guide permit holders through their unique permit requirements and provide compliance assistance rather than conduct formal inspections.

Working on compliance up front is more beneficial for everyone, according to Department Director Doyle Childers. "First and foremost, it protects the environment because it's preventative rather than an after-the-fact cleanup," he said. "This saves time and effort for citizens, communities and businesses while our air, land and water resources are being protected."

The department conducted about 250 assistance visits in November. The experiences from this startup phase were reviewed, and changes will be

DNR photo by David Kelly

Reservoir Failure Floods State Park

In the early morning hours of Dec. 14, the AmerenUE Taum Sauk hydroelectric plant's upper reservoir near Lesterville breached, flooding Johnson's Shut-Ins State Park with approximately 1.3 billion gallons of water.

The state holds AmerenUE responsible for the incident and any subsequent damage and cleanup, and will require AmerenUE to pay for and reimburse the state for any expenses, including Missouri Department of Natural Resources oversight and assistance. Gov. Matt Blunt directed the use of the department's emergency funds to cover the state's interim costs to restore and stabilize the flood area until AmerenUE can reimburse the state.

Environmental stabilization and water quality impacts to the Black River were the state's immediate concerns.

"The governor has instructed us to expedite our efforts to restore the natural and cultural resources of Johnson's Shut-Ins State Park and the Black River," said Department Director Doyle Childers. "We are committed to having some services available at the park by this summer. But, we don't want to go so fast that we negatively impact the future of the park."

The state of Missouri remains involved in the oversight of recovery efforts. Since the incident occurred, the department's Environmental Emergency Response team has been on site, coordinating the response to the reservoir failure. Staff from the department's State Parks and Geology and Land Survey divisions, as well as the Missouri Department of Conservation, are working on a natural resource damage assessment to the area. The department's Division of Environmental Quality also provided assistance for the incident.

Preliminary reports indicate the majority of the damage was in the area adjacent to the East Fork of the Black River, which flows through Johnson's Shut-Ins State Park. The park superintendent's residence, the campground, and the park's water plant were destroyed and significant damage was done to other smaller buildings, a section of the Ozark Trail, and the boardwalk to the shut-ins — the park's signature natural feature. The park store and office were flooded but are still standing. The park remains closed until services can be restored and it is safe to reopen to the public.

People interested in the status of the state park are urged to visit the department's Web site at [www.mostateparks.com]. Updates will be posted on the Web site and through the other media.

Time Exposures

Send your photo to "Time Exposures," c/o *Missouri Resources*, P.O. Box 176, Jefferson City, MO 65102-0176. All pictures will be returned via insured mail. Pre-1970 environmental and natural resource photos from Missouri will be considered. Please try to include the date and location of the picture, a brief description and any related historic details that might be of interest to our readers.

During the summer of 1935, five-year-old George Zaiger (left) of St. Louis and his family embarked on a two-car caravan over gravel roads to visit Elephant Rocks and other scenic sites of Missouri. Along the way they stopped for a drink at a rest area on Highway 21, near Arcadia. The spring water that refreshed young George, his cousins and sister, also filled a well-worn trough for weary, horse-powered travelers.

Zaiger, who provided this photo, recalls that the family made such day trips to selected Missouri sites about twice a year. On this particular trip, the explorers turned around at Pilot Knob and went back to St. Louis the same day. "There were a lot of gravel roads and few places to stop for fuel or food in those days," he said. "The people were friendly along the way, but there were not as many people living along the route. We carried what we needed.

"We didn't need to leave St. Louis to see farms," Zaiger said. "Until after World War II, there was a farm just across the street from our house." Zaiger's father was an engineer for a St. Louis ice plant. The car they used on this trip was a 1933 Chevrolet. "It was a tough car, but the gravel roads were hard on tires so we carried spares, patches and a pump. The trips were fun. This was our recreation," he said.

made where warranted. This type of visit will become routine by January 2006. The department also is actively pursuing other improvements to its permitting and enforcement processes.

Teachers Receive Water Education Award

The Missouri Department of Natural Resources has presented the 2005 Water Education Award to teachers Erica Cox, Lebanon Junior High School; John England, Lincoln Intermediate Center; Elizabeth Peterson, Ladue Middle School; and Ron Howerton, Noel School (K-8th).

Cox has spent countless hours teaching students how to care for water resources through monitoring activities on the Niangua River. She founded the DNA club in 1990 and participates in Forest Keeper monitoring and Science Olympiad competitions. Cox is a dedicated science teacher who is quick to mentor and share her ideas and experience.

England encouraged his students through monitoring activities on the Big River. In 1999, he founded what is known today as the Lincoln Intermediate Center Stream Team. England takes students on field trips to meet various presenters stationed along the riverbanks. England is quick to mentor and share ideas gained through his 16 years of teaching experience.

Peterson guided her students during monitoring activities on Deer Creek. She founded the Ladue Stream Team in 1989. Peterson promotes Science Olympiad competitions, leads the Jr. Academy of Science after-school club and is currently the president-elect of the Science Teachers of Missouri (STOM) professional organization.

Howerton introduced his students to the care of water resources through monitoring activities on the Elk River. In 1998, he co-founded the Noel Conservation Club at Noel Elementary.

The Department of Natural Resources presents the Water Education Award annually in conjunction with World Water Monitoring Day, celebrated on Oct. 18. It offers an opportunity to improve the health of rivers, lakes, estuaries and other bodies of water.

For more information, call the Department of Natural Resources' Water Protection Program at 1-800 361-4827 or (573) 751-1300.

For news releases on the Web, visit [www.dnr.mo.gov/newsrel]. For a complete listing of the department's upcoming meetings, hearings and events, visit the department's online calendar at [www.dnr.mo.gov/calendar/search.do].

Jane Bishop
Environmental Protector

Jane Bishop

In support of environmental causes for more than 30 years, Jane Bishop, of St. Charles, was honored in June 2005 as an Environmental Pioneer by the St. Charles Social Justice Alliance. The Alliance, headquartered in Wentzville, works to educate the public about social justice issues, including related concerns such as environmental protection. Bishop helped establish St. Charles' Enthusiasts for a Natural Environment (SCENE), which started its own recycling program in the early 1970s and then helped establish the St. Charles Recycling Center in 1976. Bishop served as the center's director from 1976 to 1990. "The recycling center was the first in the county," she told Jason Lee of the *Suburban Journals of Greater St. Louis*. "We began to realize that our resources are finite and our landfills were going to be overfilled, which causes water and air pollution."

Bishop also has served as president of the Missouri Waste Control Coalition, a member of the St. Charles County Solid Waste Committee, an advisor and volunteer for Recycle Roundup and is currently a member of the St. Charles County Environmental Quality Commission. For the past 10 years, Bishop served as chairwoman of the Environmental Roundtable Task Force of Healthy Communities in St. Charles County. Her community work includes membership in the St. Charles League of Women Voters and time volunteering for Youth in Need when the organization started in the mid-1970s.

Bishop often works as a link between the task force and the St. Charles community. She says that the most effective way to educate the public about environmental concerns is to generate lasting partnerships between businesses, local agencies and nonprofit groups. "The longer I've been involved in environmental issues, the more I've realized how interconnected the environment is with everything else," Bishop said. "And with four children and now two grandchildren, I've always been concerned about what kind of world we are leaving." She recently became involved with Greenway Network, a grassroots, volunteer-based organization working to conserve natural resources, protect area watersheds and preserve the quality of life for the community.

Bishop believes that there are many more opportunities for education in schools today, but schools don't reach families and the community like they once did. She encourages people to work together on raising awareness about local, state and national issues. She and husband Gordon have been married 54 years. They have lived in St. Charles 52 of those years. They have four children, Mark, Steve, Nancy and Timothy, and two grandchildren. "I've had some health problems recently," Bishop admits, "but I keep pushing recycling and doing what I can," she said, "We need to continually push the idea of zero waste. The goal is to get as much of it reused and recycled as possible."

Mrs. Bishop recently celebrated her 80th birthday, but continues to use her phone and community contacts to stay involved. We are pleased she will be taking a seat at the head of the class, in Resource Honor Roll.

Holly Neill
Water Values

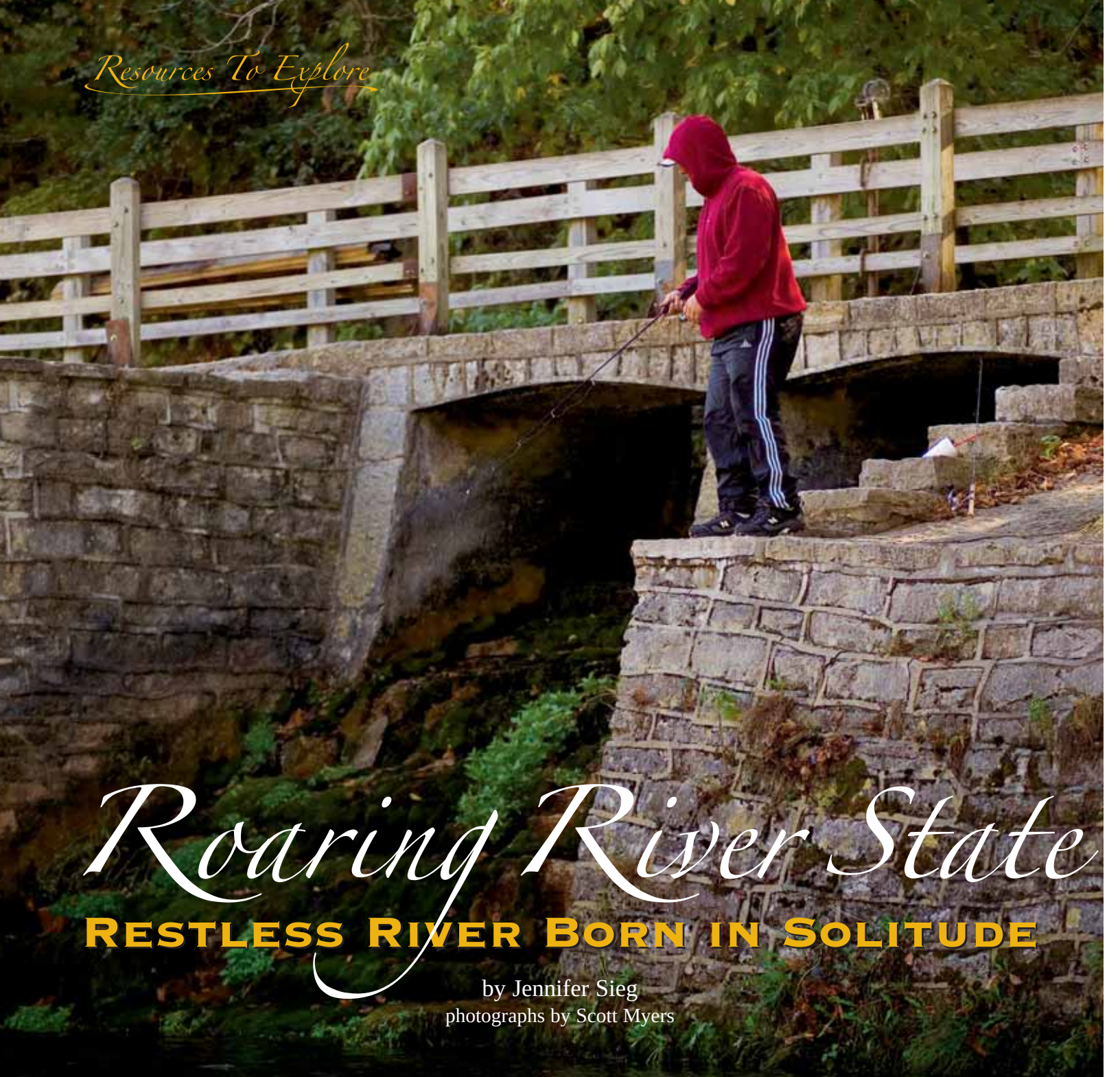
Holly Neill

As a child, Holly Neill didn't like swimming in water so murky that she couldn't see her feet when she stepped in. Now, as executive director of the nonprofit James River Basin Partnership (JRBP) in Springfield, she has made a career of protecting and increasing clean water resources. "Algae-choked and sediment-filled water just won't do," said Neill, "and I will work my darnedest to make sure my favorite places here in the Ozarks still let me see my feet when I jump in." Since December 2003, she has conducted grant-funded environmental studies, supervised community and volunteer events, administered educational outreach projects and implemented programs that further the partnership's mission to protect and improve water quality in the Ozarks. Her excitement about the job has encouraged participation in James River projects, according to Martin Mac Donald, chairman of the JRBP board of directors.

"If you truly love and respect something, protecting it should be easy. Convincing others of its importance; that can be challenging," said Neill. She spent her childhood in West Plains, but was only 25 minutes from the North Fork of the White River and 45 minutes from Norfork Lake in Arkansas. There, her family enjoyed swimming and spending time on their pontoon boat. "Every weekend, sometimes during the week, I was at the river or the lake," said Neill, now a long-distance swimmer. "Everything in my life revolves around water." The partnership offers financial incentives for septic tank owners to get their tanks pumped out, helping pay for more than 300 since February, 2005. It is estimated that more than 70 percent of Missouri's septic tanks do not function properly. This threatens the state's water resources with 100 million gallons of poorly treated sewage per day. According to Neill, most of the people don't know they are required to maintain them.

Neill graduated from Southwest Missouri State University (SMSU) with a Bachelor of Science in Biology and a Masters of Natural and Applied Science. Her thesis research was done at the Ozark underground laboratory in Taney County on "The Effects of Land Use on Tumbling Creek Cave." Neill served with the Peace Corps in Jamaica at the Discovery Bay Marine Lab and was part of a National Science Foundation Fellowship Program at SMSU involving scientists in the local public school system. She now lives near the James River and has taken part in water quality improvement efforts for several years. "We are all connected to water in some way," Neill said. "By enjoying it as a recreational benefit, for drinking water for us or our livestock, or using it to clean little children that can always find the dirt and mud, water is something we all value whether we realize it or not." Neill credits the local media for helping to raise community awareness about the septic tank program. She praises the "corporate garage sale" put on each year by Bass Pro Shops of Springfield as a fundraising effort in support of the JRBP's annual river cleanup. "The successes and accomplishments of the JRBP are not the work of any one person," she said. "It is truly a team effort. I truly feel honored to work side-by-side with our partners on our common goal: to protect and improve our wonderful water resources."

The next time we can see our feet in an Ozark stream, we should thank Holly Neill.



Roaring River State

Restless River Born in Solitude

by Jennifer Sieg
photographs by Scott Myers

A trickle of water drips from a fern-and-moss-covered bluff into a deep blue pool of water. Far below the water's surface, 20 million gallons of water gush daily into Roaring River Spring, the overflow weaving its way, tumbling over rocks, between rugged Ozark hills. Breathtaking views from glades and bluffs high above showcase the deep, narrow valley through which Roaring River flows and the rugged, mountainlike terrain that surrounds it. The natural beauty of the Roaring River valley captured the attention of early settlers and still charms today's visitors to Roaring River State Park near Cassville.

Settlers flocked to the Roaring River valley in the early 1800s and businessmen traveled there in the early 1900s attracted by the beauty and restfulness of the Ozarks and the recreation opportunities that it provides. Thanks to the generosity of one of those businessmen, Thomas Sayman, 2,400 acres of prime land along the river valley were purchased in 1928 and donated to the state to preserve for everyone to continue to enjoy. The waters that once were

Park

used to power mills now provide a popular fishing spot. The rock shelters that used to serve as hiding places for Civil War bushwhackers now serve as cool resting places along trails.

Although a variety of recreational facilities dot the grounds, the 3,974-acre park provides ample space to find solitude amid the natural beauty. Follow a trail to an open dolomite glade high above the park and take in a scenic view of the hardwood forests below, which hide numerous stony bluffs, caves, springs and clear-water streams. More than 10 miles of trails lead visitors to hardwood forests, small Ozark streams, geologic features like Devil's Kitchen, caves, Deer Leap Overlook and scenic views. Each season of the year offers a different color scheme, as assorted wildflowers bloom and tree leaves change color and eventually drop.

The park is located in the White River section of the Ozarks, known for its scenery, the depth of its valleys, the size and openness of its glades and the abundance of its native plant life. The area's geology and rugged landscape influence the growth of more than 600 species of plants in the park, many of which cannot be found in any other region of the state. The 2,045-acre Roaring River Hills Wild Area is an important part of the park because the plants, animals and natural communities that survive in it have become living links to a nearly lost natural landscape.

Fire Tower Trail leads visitors into the wild area, where they can find rare Ozark chinquapin trees on chert-covered ridges

(Opposite) An angler takes the high-ground approach to tempt trout below the spillway on Roaring River. (Above left) Roaring River State Park is home to the modern Emory Melton Inn and Conference Center. (Top) Dale and Iris Alexander, of Port Arthur, Tex., stayed at the park after evacuating their home ahead of Hurricane Katrina. (Above) The Smith Family of Lone Jack gathered at Roaring River. Pictured from left: Lynn, Brandy, Barney, Kiara and Corey. John Hearth is on the right.

and spicebush and ninebark bushes in the deep hollows. Twenty-six endangered plant and animal species live in or around the wild area.

The Ozark Chinquapin Nature Center features exhibits and interpretive displays that highlight the park's natural history. Park naturalists present nature programs and slide shows and conduct nature hikes. In November, December and January, the park hosts three eagle-viewing events that give visitors the opportunity to learn about bald eagles, and watch as they fly in to roost at the park.

Patsy Hurst, of Pittsburg, Kans., views artifacts in the Ozark Chinquapin Nature Center at Roaring River State Park.

Surrounded by the splendor of the park's setting, fishermen, casting and recasting their lures in hope of catching a lunker, line the banks of Roaring River, the primary feature of the park. After landing the catch of the day, a fish cleaning station transforms it into their evening meal. (For a fee, the restaurant inside Emory Melton Inn and Conference Center will prepare your fish for you.) Accessible fishing areas are available. The river is stocked daily during the March 1 to Oct. 31 trout fishing season by the park's hatchery, which is operated by the Missouri Department of Conservation. Guests, young and old, enjoy touring the hatchery and feeding and watching the lunkers that slowly swim about in the blue waters of the spring pool.

Ten rustic cabins, some of which were built by the Civilian Conservation Corps (CCC) in the 1930s, dot the colorful landscape. The CCC also built picnic shelters and the CCC Lodge, which now houses a convenience store offering fishing licenses and tags, fishing equipment, tackle, camping supplies and groceries. Four buildings that the CCC used while developing the park are now part of Camp Smokey, the park's organized group camp. All of the CCC structures, most of which remain today, were built in a rustic stone and wood style that blends well into the natural backdrop of the park.

The Emory Melton Inn and Conference Center's rustic, yet elegant, style offers dining and lodging in a setting that echoes the park's relaxed atmosphere. It houses 26 motel rooms, two of which are suites with kitchenettes, and a full-service restaurant. An additional 16 fourplex and duplex lodging units are also available for overnight stays. Reservations for the inn, lodging units and the cabins can be made by calling (417) 847-2330.

For those who prefer to sleep where they can hear the waters of Roaring River gently rolling by, the park offers 184 campsites, many near the river. Basic, electric and accessible campsites are available and some are just steps away from premier fishing. Many of the campsites can be reserved six months to two days in advance by calling 1-877-ICampMo or going online at [www.mostateparks.com]. An advance reservation only leaves one thing to worry about – will you be standing along the bank of the river awaiting the fishing whistle or will you let the whistle awaken you? Some campsites are also available on a first-come, first-served basis. The campgrounds feature hot showers, modern restrooms, laundry facilities and sanitary dumping stations.

During the summer months, if it's just too hot to fish or hike, cool off in the park's swimming pool. Or, take a break and enjoy a picnic lunch under shade trees in the large picnic area, which features two picnic shelters and a playground for the kids.

For more information about Roaring River State Park, contact the park directly at (417) 847-2539, the Department of Natural Resources toll free at 1-800-334-6946 (voice) or 1-800-379-2419 (Telecommunications Device for the Deaf) or visit the Web at [www.mostateparks.com].

Jennifer Sieg is a public information coordinator for the department's Division of State Parks.

"Discover a Watershed" A Sound Example

by Joe Pitts

The Missouri River bisects the state of Missouri, west to east, from the Nebraska border to St. Louis, where it joins the Mississippi River. This places the citizens of Missouri in position to influence water quality and quantity, and the quality of life in one of the world's largest river systems. Future captains of industry, agriculture, education and development currently are students in Missouri schools and represent hope for a continued sustainable economy and healthy environment. These future decision-makers will play a critical role in efforts to protect, conserve and preserve the immense water resource called the Missouri River.

In 2004, the Project WET (Water Education for Teachers) International Foundation published *Discover a Watershed: The Missouri Educator's Guide*. The guide is written by teachers for teachers and consists of 36 hands-on student activities. The activities focus on teaching students "how to think, not what to think," about river issues. Scientists and river specialists from more than a dozen federal agencies contributed to the writing and review of activities in the guide.

Discover a Watershed: The Missouri Educator's Guide is available to teachers in Missouri through workshops provided by the Missouri Project WET facilitator network. The guide is available for sale online at [www.projectwetusa.org]. For maximum benefit, educators are strongly urged to acquire the guide by attending a workshop. For information about attending or sponsoring a *Discover a Watershed: The Missouri Educator's Guide* workshop, please contact the Project WET state coordinator at 1-800-361-4827.

The first part of the Discover a Watershed publication paints a comprehensive portrait of the past and current Missouri River Basin. Diverse activities appeal to teachers of math, science, language arts and social studies. A poster-size, full-color map of the Missouri River watershed is included.

(Left) DNR environmental educator Joe Pitts leads approximately 250 fourth and fifth graders in re-creating the sound of rolling thunder, an activity found in the Project WET Curriculum and Activity Guide. (Below) In an activity titled, Blue Beads of the Missouri, students attempt to mimic water flow in the Missouri River. The re-creation activity is found in the Project WET publication, *Discover a Watershed: the Missouri Educators Guide.*

Photos by Betsy Blake

THE FOLLOWING EXERCISE IS TAKEN FROM A GUIDE ACTIVITY TITLED, "RHYTHM OF THE MISSOURI RIVER."

Objective

Students will: listen to a recording and describe what they hear; translate a natural sound using an instrument, voice, or other sound; cooperate with fellow students to create and perform a sound piece; describe the seasonal changes in flow of the Missouri.

Materials

Materials for making instruments (materials will vary and may include items such as tin cans, bells, waste cans, dry limbs and grass, plastic milk jugs, and boxes of sand and gravel) and a tape recorder.

Procedure

Warm Up: Ask students to close their eyes and listen carefully as you play an example of music inspired by a river. Play the music again. This time have students write down sounds, ideas, feelings or images that come to them as they listen. Discuss what students have written. Are there similarities or differences in what students heard? What do students think the composer is trying to say? What is a story that could be told with this music?

The Activity

- Divide students into four groups: spring, summer, fall and winter.
- Give each group five to 15 minutes to brainstorm the sounds of the Missouri River during their particular season.
- Inform students that each group will develop a 45-second sound piece that will represent the Missouri River during their assigned season.
- Have students collect objects to make appropriate sounds.
- Using these instruments, challenge students to find innovative ways to create sounds that represent the river and its environment during their assigned season.
- Provide students with a space where they can develop and practice their sound piece.
- Have each group perform its sound piece.
- Ask students to combine their sound pieces into a symphony.

Assessment

- Have students listen to a recording of their sound piece or symphony and write down sounds, ideas, feelings or images that come to them as they listen.
- Describe the annual flow of the Missouri River as it changes from season to season.
- The *Discover a Watershed: The Missouri Educator's Guide* is a strong tool for raising student awareness and knowledge of issues concerning the Missouri River.

Joe Pitts is unit chief of the environmental education unit in the department's Division of Field Services. Pitts is the Missouri coordinator of Project WET.

DNR photo by Scott Myers

Southern Housepitality

by Victoria Lovejoy
photograph by Mary Collette

A four-bedroom Victorian home, being recycled by the nonprofit group Preservation Springfield and several partnering organizations, is moved to accommodate a new family.

Springfield residents dubbed Aug. 25, 2001 as "The Parade of Homes" day. Buzzing chainsaws cut through trees. Power lines were disconnected. Mighty creaks and groans were heard for blocks. And when the sun set, three houses had moved to different neighborhoods. Instead of facing bulldozers these homes were given another chance to shelter families thanks to Preservation Springfield's plan to preserve older homes.

Preservation Springfield, a nonprofit organization committed to reconstructing the town's historic fabric, was able to sell two of the homes, built c. 1900-1930. The organization is renovating the third home, a four-bedroom Victorian, built c. 1885-1887. Recycling on such a grand scale illuminates the organization's mission, "To inspire Springfield to become a model for historic preservation."

Habitat for Humanity partnered with Preservation Springfield by providing contacts and resources for donations. Inmates in Action, a work group from Fordland Correctional Center in Fordland, stripped, sanded and painted the home's exterior. The International Brotherhood of Electrical Workers Local No. 453 is donating labor and materials to replace electrical wiring plus providing two heating and cooling systems – one upstairs and one down.

Mary Collette, a founding board member of Preservation Springfield, is asking for donated Sheetrock, plumbing supplies and roofing materials. She is hopeful they will get help from plumbers, pipe fitters and roofers.

Collette recently received a Missouri Department of Economic Development Community Development Block Grant for $12,000. The money will be used for mechanical systems and materials.

"We are trying to make a 100-year-old home habitable," Collette said. "We need all the help we can get!"

Collette says the main impact of preserving homes is in the way neighborhoods begin to change when families work on their homes. "When one family starts landscaping and making improvements, then you often see their neighbors fixing their homes," said Collette. "This sends out the message that older homes are worth preserving."

Families now live in two of the relocated homes. Preservation Springfield is searching for a family, with children able to attend nearby Reed Middle School, to buy the third home. They want the buyers to maintain the historic character and integrity of the home. The organization is taking applications plus contacting families who did not qualify for Habitat for Humanity homes.

"People are hungry for what's authentic and real," Collette said. "There is something satisfying and calming about revisiting life as it used to be. When we preserve and care about our past, this says something about us as a society. It says we care enough about our community to preserve areas so we can reflect back."

This rescued Victorian, with its own special character and personality, offers a sense of generations.

Victoria Lovejoy is a public information specialist for the department's Southwest Regional Office in Springfield.

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