

MISSOURI. Conservationist

VOLUME 74, ISSUE 9, SEPTEMBER 2013 • SERVING NATURE & YOU



[NOTE TO OUR READERS]

Protecting Natural Resources

A fundamental tenet of the Conservation Department for more than 75 years has been that, “The hope of wildlife restoration and conservation in Missouri lies in the three-way cooperation of the state,

the landowner, and the public, based upon adequate information and mutual understanding.” Working together, citizens, landowners, and Department staff have achieved many significant and valuable conservation advancements.

Missouri’s forest, fish, and wildlife resources enhance our quality of life, connect us to our outdoor heritage, support more than 95,000 Missouri jobs, and contribute \$11.5 billion to the state’s economy annually. Conservation continues to be a wise investment.

One of the Department’s five broad goals is to ensure healthy and sustainable forest, fish, and wildlife resources throughout the state. Despite the many challenges to this goal, our Department and Missouri citizens are making great strides.

Monitoring and minimizing adverse effects from diseases is a Department priority. Examples range from whirling disease in fish, thousand cankers disease in forests, or chronic wasting disease in wildlife. Wildlife resources enjoyed today could be lost if we fail to review management practices, monitor disease movement, and take preventive actions.

As the Department works to ensure healthy and sustainable resource populations, it is essential to focus on all species. As an example, ensuring sustainable fish populations requires attention to our rivers, streams, and lakes, as well as commercial facilities. In a similar example, ensuring healthy forests requires management considerations for forests in rural and urban areas, as well as in commercial nurseries. The same holds true for one of our state’s most popular wildlife species — white-tailed deer. Missouri’s deer herd includes both free-ranging and captive animals.

White-tailed deer in Missouri are an important part of many Missourians’ lives and family traditions, including 520,000 deer hunters and more than 2 million wildlife watchers. In addition, Missouri’s deer herd is an important economic driver supporting 12,000 Missouri jobs and providing a \$1 billion annual boost to state and local economies. Missouri offers some of the best deer hunting in the country.



Chronic wasting disease has been found in both captive and free-ranging deer in north-central Missouri. During the past few years, the Department has been working with hunters, landowners, conservation partners, and businesses to detect cases of this disease and limit its spread. To date, regulation changes associated with managing the free-ranging deer herd have been implemented in six north Missouri counties.

In addition, the Department has been working with the captive deer industry, landowners, hunters, and others to review management practices and requirements related to holding captive deer. These efforts have identified areas of existing *Wildlife Code* regulations associated with captive deer that need to be enhanced. Areas include existing fencing standards, animal testing standards, inventory requirements, and interstate transport.

Building on previous steps, over the next two months, the Department will conduct public meetings and gather comments from Missourians regarding possible *Wildlife Code* changes associated with holding captive deer. Information received will help inform our future management decisions. The goal is to maintain Missouri’s healthy deer herd for the long term.

Please share your views, become familiar with this issue, and encourage other Missourians to be informed and get involved in protecting Missouri’s white-tailed deer. See the article *Attend a Meeting About White-Tailed Deer* on Page 8 for dates and locations of public forums. For more information, or to make a comment, visit the Department’s website.

I encourage all citizens to become informed on disease topics. Your feedback and involvement is needed as we all work to keep healthy and sustainable forest, fish, and wildlife resources for future generations.

A handwritten signature in black ink, appearing to read "Robert L. Ziehmer".

Robert L. Ziehmer, director

FEATURES

12 **Claws for Alarm**

by Bob DiStefano

Why you should be concerned about invasive crayfish.

18 **Dove Hunting: Getting Started**

by Mark Goodwin

These game birds may be the ultimate wing-shooting challenge.

24 **Meeting the Changing Needs of Wildlife**

by Mike Hubbard

Updating Missouri's *Wildlife Code* to safeguard the public trust and address threats to our state's resources, including protecting deer from chronic wasting disease.

Cover: A golden crayfish, by Chris Lukhaup.
Read about how Missouri crayfish become
invasive when removed from their
native habitats, starting on Page 12.

📷 105mm lens • f/14 • 1/80 sec • ISO 250

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WHAT IS IT?

Our photographers have been busy exploring the intricacies of the Missouri outdoors. See if you can guess this month's natural wonder. The answer is revealed on Page 7.



ON THE MIGHTY MO

I thoroughly enjoy each issue of the magazine. The articles, photos, and general information are superb. My compliments on the *Finding Flow on the Mighty MO* article [July; Page 10]. The story was so riveting that I felt like I was on the trip. I always share the magazine with friends of mine in other states who also enjoy the articles. Thank you for the job you do.

Fred Walton, via Internet

Well, Brett, you did it again. You got my attention with your article! I love the way you write, well done. And you have boosted our inspiration to do the MR340. I'm so excited to paddle it with my husband.

This past week we did a practice run and the temperature was gorgeous, but the wind was humbling. It gave us a reality check of what this could do to our bodies — and our borrowed race canoe. From us first-timers

to the veteran, thanks for all the info and heartfelt descriptions!

*Jody M. Miles, Co-Executive Director
Earth's Classroom, Rosebud*

GRAYS ABOUT TOWN

Thank you for the article and photo of the gray fox in the July issue [Page 30]. On a recent evening, I was shocked to see a fox run across a residential street in Cape Girardeau. I stopped my car and observed it as it trotted across a neighbor's yard and out of view. I knew it was a fox, but was not sure what kind. Was I ever surprised to read the article about the gray fox less than a week later! I have seen deer and now a gray fox in that same neighborhood in the city of Cape Girardeau! What will I see next?

Kim McClanahan, Salem

I was so pleased to see Danny Brown's story and photo of the gray fox in the last issue of the

Conservationist. Coincidentally, the day before, I was near Hwy 50 & C, also in Franklin County, at 5 a.m., waiting to begin my Breeding Bird Survey for USGS. A beautiful gray fox walked into my headlights about 30 feet in front of my car and stood there for a few minutes. I had seen many red fox in Missouri, but never a gray one. What a thrill to open your magazine the next day and see Mr. Brown's beautiful picture.

Pat Lueders, Webster Groves

FACES OF CONSERVATION

I would like to thank Win Stevens from the "I Am Conservation" section of the July *Conservationist* [back page]. I agree that hunting and fishing should not be about black or white, but about everyone being able to enjoy the outdoors. Win is a great role model for all of us.

John Joplin, Imperial

WHAT'S IN A NAME?

Neil Bass and Mark Boone wrote about *Missouri River Restoration* in your June issue. On Page 15 is a list and a map of mitigation sites. I came upon "Nishnabotna" and instantly wondered about what it meant. Unfortunately Robert L. Ramsey's *Our Storehouse of Missouri Place Names* (Pages 118–119) shows that it is an "unsolved name." However, Bill Bright published a meaning for the Siouan name: "spouting wellspring." The Siouanist John E. Koontz supplied it. I understand that your magazine is about conservation rather than etymology, but you might provide a service to many in that northwestern area of Missouri by supplying this meaning.

*Carl Masthay, Creve Coeur (St. Louis), linguist,
Algonquianist*

"WHAT IS IT?" RETURNS

Thank you, thank you, thank you for adding "What Is It?" back into your magazine! The children we know love it.

Ed and Barb Ubert III, Belton

WHERE'S OUR CARTOON?

I miss the little cartoon, is it gone forever?

Mary Garrett, St. Peters

Editors' Note: Our cartoon just has a new home on Page 4, above "Agent Notes."



Reader Photo

TURTLE POWER

Sixteen-year-old Alison Carey took this photo of a three-toed box turtle near Bourbon, Mo., on the side of the road on the way to her house. Carey originally stopped to take a picture of some geese for a 4-H photography project, but found the turtle instead. Carey's grandmother, Peggy Schafer, says Carey has become an avid photographer since undertaking the 4-H photography project. "She and her family live on a farm," says Schafer, "so she has plenty of opportunities to photograph nature." Carey is a junior at Cuba High School and enjoys frog gigging with her brother.



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Discover more about nature and the outdoors through these sites.

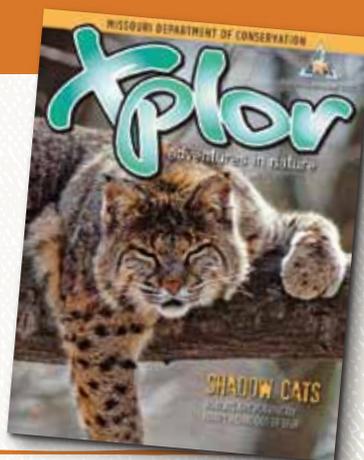
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KIDS' MAGAZINE

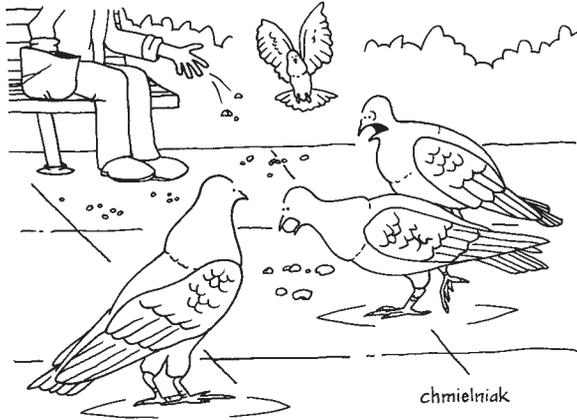
Six times a year we'll bring you eye-popping art, photos and stories about Missouri's coolest critters, niftiest natural places, liveliest outdoor activities and people who've made a living in the wild. Come outside with us and **XPLOR!**

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HUNTING AND FISHING CALENDAR



"Pete won't touch the bread unless he knows it's gluten free."

Agent Notes

Hunter Education Certification



ONE QUESTION I receive regularly is, "Can I go hunting if I haven't gone through hunter education?" If you plan to hunt during a Missouri firearms season or you are acting as an adult mentor, you must first complete an approved hunter education certification program and provide proof of completion unless:

- You are 15 years or younger and will be hunting with a properly permitted adult mentor 18 years of age or older.
- You were born before Jan. 1, 1967.
- You are 16 or older and have purchased an Apprentice Hunter Authorization and will be hunting with a properly permitted adult mentor 18 years of age or older.
- You are the landowner or lessee hunting on land you own or upon which you reside.

If you can prove you completed an approved hunter education course in another state, you are not required to take Missouri's hunter education course.

Conservation makes Missouri a great place to hunt, and the Department of Conservation promotes safe, knowledgeable, and responsible hunting through its hunter education course. Hunter education has reduced hunting accidents and deaths by more than 70 percent since it became mandatory in 1987.

Take hunter education early to avoid the fall rush. The course is now more flexible, convenient, and interactive for students. To learn more about hunter education certification or to find a course near you, call your regional office (see Page 3) or visit mdc.mo.gov/node/3095.

Roger E. Wolken is the Northwest Protection Regional Supervisor. If you would like to contact the agent for your county, phone your regional conservation office listed on Page 3.

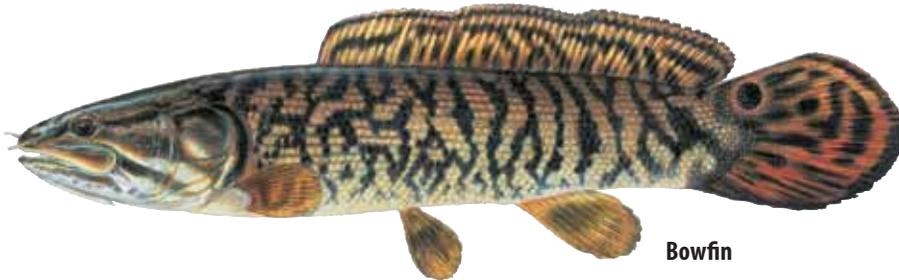
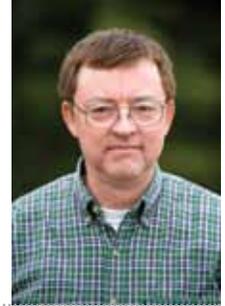
| FISHING | OPEN | CLOSE |
|-------------------------------|----------|----------|
| Black Bass from Ozark Streams | 05/25/13 | 02/28/14 |
| Bullfrogs and Green Frogs | Sunset | Midnight |
| | 06/30/13 | 10/31/13 |
| Nongame Fish Giggling | 09/15/13 | 01/31/14 |
| Trout Parks | 03/01/13 | 10/31/13 |

| HUNTING | OPEN | CLOSE |
|------------------------------|---|----------------------|
| Coyote | 05/06/13 | 03/31/14 |
| Deer | | |
| Archery | 09/15/13 11/27/13 | 11/15/13 01/15/14 |
| Firearms | | |
| Urban | 10/11/13 | 10/14/13 |
| Early youth | 11/02/13 | 11/03/13 |
| November | 11/16/13 | 11/26/13 |
| Antlerless (open areas only) | 11/27/13 | 12/08/13 |
| Alternative Methods | 12/21/13 | 12/31/13 |
| Late Youth | 01/04/14 | 01/05/14 |
| Doves | 09/01/13 | 11/09/13 |
| Furbearers | 11/15/13 | 01/31/14 |
| Groundhog | 05/06/13 | 12/15/13 |
| Pheasant | | |
| Youth (North Zone Only) | 10/26/13 | 10/27/13 |
| North Zone | 11/01/13 | 01/15/14 |
| Southeast Zone | 12/01/13 | 12/12/13 |
| Quail | | |
| Youth | 10/26/13 | 10/27/13 |
| Regular | 11/01/13 | 01/15/14 |
| Rabbit | 10/01/13 | 02/15/14 |
| Sora and Virginia rails | 09/01/13 | 11/09/13 |
| Squirrel | 05/25/13 | 02/15/14 |
| Teal | 9/07/13 | 9/22/13 |
| Turkey | | |
| Archery | 09/15/13 11/27/13 | 11/15/13 01/15/14 |
| Firearms | 10/01/13 | 10/31/13 |
| Waterfowl | see the <i>Waterfowl Hunting Digest</i> or mdc.mo.gov/node/3830 | |
| Wilson's (common) snipe | 09/01/13 | 12/16/13 |
| Woodcock | 10/15/13 | 11/28/13 |

| TRAPPING | OPEN | CLOSE |
|---------------------|----------|----------|
| Beaver and Nutria | 11/15/13 | 03/31/14 |
| Furbearers | 11/15/13 | 01/31/14 |
| Otters and Muskrats | 11/15/13 | 02/20/14 |

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 Spring Turkey Hunting Regulations and Information*, *the Fall Deer and Turkey Hunting Regulations and Information*, *the Waterfowl Hunting Digest*, and *the Migratory Bird Hunting Digest*. For more information visit mdc.mo.gov/node/130 or permit vendors.

ASK THE Ombudsman



Bowfin



Northern cardinal

Q: I noticed references to bowfin in the fishing regulations booklet but that species is not pictured. What is a bowfin?

Bowfin (*Amia calva*), also called dogfish, grindle, grinnel, cypress trout, and mud fish, are most abundant in Missouri in the southeastern lowlands. They can also be found in the Mississippi River and rarely in the Missouri River. The species is not closely related to any other fish, it being the only species in its family. The common name bowfin refers to the long dorsal fin that moves in a wave-like motion. Bowfin can inhabit waters that are low in oxygen, such as stagnant pools and shallow water areas that are drying up. Opinions vary about bowfin as table fare. It is recommended to eat them freshly caught and to keep the meat iced down to prevent it from becoming mushy prior to cooking.

Q: Now that I am 65 years old, am I still required to buy hunting and fishing permits?

It depends on what type of hunting and fishing you do. Missouri residents who are 65 years old or older may fish and small-game hunt without permits. You should carry with you a form of identification that includes your birth date (such as a driver's license). Permits not covered by the age exemption include:

Fishing: Trout Permit, daily fishing tags at trout parks and the White River Border Lakes Permit (for fishing in the Arkansas portions of some lakes in southern Missouri).

Hunting: Migratory Bird Hunting Permit, federal duck stamp, deer and turkey tags, Conservation Order Permit.

Q: The song birds that visited my birdfeeders over the summer seem to have vanished. What happened to them?

In the fall, many of our summer birds leave for the tropics to spend the winter. Birds that move into our area from regions to our north don't always arrive at the same time, so there is often a fall lull in bird activity. Another factor in late summer and fall is that there can be an abundance of fleshy fruits and seeds in our fields and forests, allowing birds to find preferred foods away from our feeders. Our resident birds also shift their ranges with the change in the seasons — the cardinals that you see in your backyard during the summer are often not the same cardinals that you have during the winter. It takes a little while for everyone to get sorted out. By

the first cold weather of late October, the bird numbers should be increasing again at your feeders.

Q: Is it legal to remove the meat from a harvested turkey or butcher a deer while in the field, rather than carrying or dragging out the whole carcass?

Hunters will often field dress (gut) a harvested animal after notching their tag. To do further processing in the field, you must first Telecheck the animal. Depending on your location, you may or may not be able to reach the Telecheck line from the field with a cell phone. If you are able to Telecheck the animal and you record the Telecheck confirmation number on the permit, you may then do further processing in the field. While not required, it is a good idea to retain the appropriate part of the animal to document that it met the legal requirement for harvest (turkey beard from spring turkey, deer antler for buck harvest).

Ombudsman Tim Smith will respond to your questions, suggestions, or complaints concerning the Conservation Department.
Address: PO Box 180, Jefferson City, 65102-0180
Phone: 573-522-4115, ext. 3848
Email: Ombudsman@mdc.mo.gov



River otter

Calling All Trappers

Grizzled veterans, greenhorns, and people who simply are curious about the craft and lore of fur trapping will find a feast of fascination at the Missouri Trappers Association's (MTA) Fall Rendezvous Sept. 20 through 22 at the Montgomery County Fairgrounds in Montgomery City. The event offers seasoned trappers a chance to renew old friendships, make new ones, and learn about the latest developments in the fur trade. The event also is an opportunity for the next generation of trappers to learn from old salts and watch demonstrations of trapping equipment and tricks of the trade.

In addition to the annual fall rendezvous, MTA sponsors trapping clinics throughout the state in September and October. These are scheduled for:

- Sept. 6–8 at Lake of the Ozarks; Sept. 14 at Versailles; Sept. 28 at Orscheln Farm and Home, Camdenton; Oct. 5 at Orscheln Farm and Home, California; Oct. 19 at Warsaw; and Oct. 26 at Orscheln Farm and Home, Eldon. Contact Dale Verts 573-789-5690, ozarktrapper@yahoo.com
- Oct. 5, at Ropp's Fur Buying, 33046 Oval Ave., Jamesport. Trapping demonstrations, trapping supplies available, and lunch served as part of customer appreciation day
- Oct. 12–13 at Swan Lake National Wildlife Refuge. Meals and camping provided. Preregister by calling 660-856-3323.
- Oct. 19–20 — Beginners Trapping Clinic at Prairie Star Restoration Farm, Bland. Students 15 and under need a parent or guardian present. Contact Clay McDaniel 573-368-7564, or paydown318@yahoo.com for details.

Check the MTA website for additional opportunities at missouritrappersassociation.org.

World-Class Archer

Shelby Winslow of Lee's Summit recently scored 290 out of a possible 300 to win third place in the 2013 World National Archery in Schools Program (NASP) Championship. Winslow represented Summit Lakes Middle School competing against nearly 3,000 other young archers June 27 through 30 in St. Louis. The tournament is part of the National Archery in Schools Program.

Apparently the 14-year-old Winslow performs well under pressure. Her performance at the world tournament topped her score at the state NASP tournament in March, when she shot a 287. Hers was the highest score at the state level.

All NASP participants, regardless of age or gender, shoot with the same model of compound bow. Using identical equipment means that archery skills, such as concentration and good aim, are all that counts. The competition is divided into male and female divisions and further segmented into divisions for elementary, middle school, and high school students.

NASP offers a quiet, skills-based sport that allows all participants to build confidence and success. Teachers say the responsibility, concentration, and confidence that students develop through NASP carries over into academics.

The Conservation Department coordinates the Missouri National Archery in Schools Program (MoNASP) in partnership with schools,



Shelby Winslow won the state NASP tournament in March before going on to finish third in the world tournament held in June.

volunteers, and the Conservation Federation of Missouri. Conservation Department education consultants are available to assist schools in

starting archery programs. For more information, visit mdc.mo.gov/node/3409.

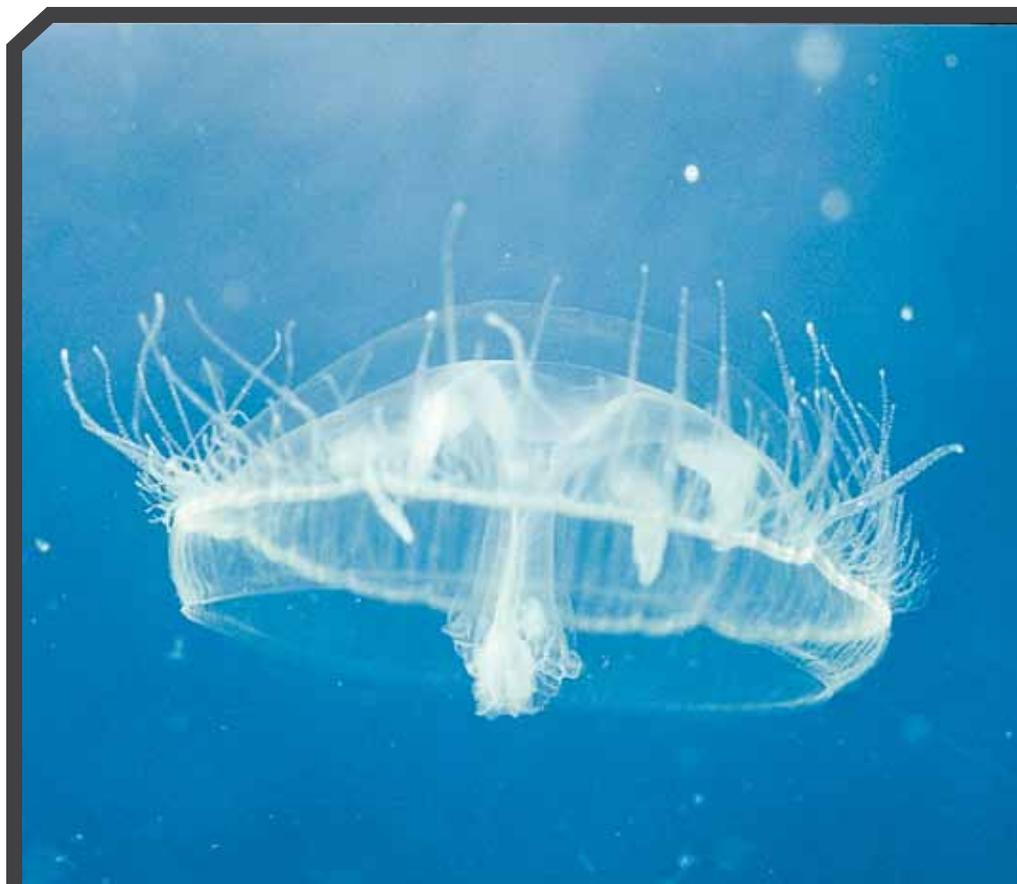
Governor's Christmas Tree

Do you have a grand, old evergreen that is near the end of its life? Don't just lose it, let it enjoy the spotlight at the Governor's Mansion in Jefferson City.

Each year the Conservation Department searches statewide for an ideal tree to be displayed on the Governor's Mansion lawn in Jefferson City and serve as the centerpiece for holiday festivities. This year, we are asking the public to submit photos of suitable trees for this honor.

Many homeowners and communities have wonderful trees that must be removed for home expansion, utility work, or other reasons. Donating such a tree for use at the Governor's Mansion ensures that it will be seen and remembered by many Missourians for years to come.

To be eligible for donation, trees must be a white pine, Norway spruce, or eastern red cedar.



WHAT IS IT?

Freshwater Jellyfish

Craspedacusta sowerbyii

On Page 1 and left is a freshwater jellyfish in its second phase of life (called the "medusa" form). The medusa form is most abundant in late summer. They can be found statewide in calm or standing waters and float just below the surface. This creature is translucent, sometimes faintly tinted tan, gray, white, green, or blue. When fully grown, it is about 1/2 to 1 inch in diameter. Up to 400 tentacles line the edge of the umbrella-like body. When a tiny prey touches a tentacle, stinging cells help subdue the prey. A few people have reported itching or redness when they come into contact with freshwater jellyfish, but most people don't feel them at all. —photo by Jim Rathert

(continued from Page 7)

They must be at least 40 feet tall, fully branched on all four sides, and accessible by large equipment. Once a tree is selected, the Conservation Department will coordinate the cutting and delivery of the tree to the Governor's Mansion at no cost to the owner. Full guidelines are available at mdc.mo.gov/node/23091.

If your evergreen is chosen to be this year's Christmas tree, you will receive a personalized thank-you from the governor, an invitation to the lighting ceremony that usually occurs the first week of December, and of course, bragging rights!

Photos of possible trees can either be emailed to holidaytrees@mdc.mo.gov or mailed

to Missouri Department of Conservation, attn: Holiday Tree, PO Box 180, Jefferson City, MO 65102. Make sure to include your telephone number, email address, location of the tree, and several pictures taken from different angles and distances. All entries must be submitted by Sept. 30. For more information or questions, contact Forest Field Program Supervisor Nick Kuhn at Nick.Kuhn@mdc.mo.gov or 573-522-4115, ext. 3306.

Attend a Meeting About White-Tailed Deer

Infectious diseases such as Chronic Wasting Disease (CWD) threaten Missouri's deer herd. Missouri has nearly 520,000 deer hunters, thousands of landowners, 12,000 jobs, and businesses and communities around the state that depend on the \$1 billion in annual economic activity related to deer hunting and watching.

The Conservation Department is working with hunters, landowners, businesses, and partner organizations to identify and limit the spread of CWD in Missouri. All deer hunters, landowners, businesses, and conservation organizations must do their parts, including captive deer breeders and big-game hunting operations.

The Conservation Department is proposing common-sense regulation changes for deer breeding facilities and big-game hunting preserves to help limit the spread of CWD. Proposals involve more effective fencing to separate captive and free-ranging deer, restricting the importation of live deer into Missouri, and mandatory disease testing.

Attend one of the Conservation Department's public meetings around the state.

- Sept. 3 6:30–8:30 p.m. Macon County Expo Center, HWY 63
- Sept. 5 6:30–8:30 p.m. Powder Valley Conservation Nature Center, 11715 Cragwold Road, Kirkwood
- Sept. 16 6:30–8:30 p.m. West Plains Civic Center, 110 St. Louis St., West Plains
- Sept. 18 6:30–8:30 p.m. Cape Girardeau Conservation Nature Center, 2289 County Park Drive.
- Sept. 23 6:30–8:30 p.m. Runge Conservation Nature Center, HWY 179, Jefferson City
- Sept. 30 6:30–8:30 p.m. Missouri Western University Kemper Recital Hall in Leah Spratt Hall, 4525 Downs Drive, St. Joseph
- Oct. 1 6:30–8:30 p.m. Burr Oak Woods Conservation Nature Center, 1401 NW Park Road, Blue Springs
- Oct. 9 6:30–8:30 p.m. Springfield Conservation Nature Center, 4601 S Nature Center Way

Be informed. Get involved. Share your comments online at mdc.mo.gov/deerhealth.

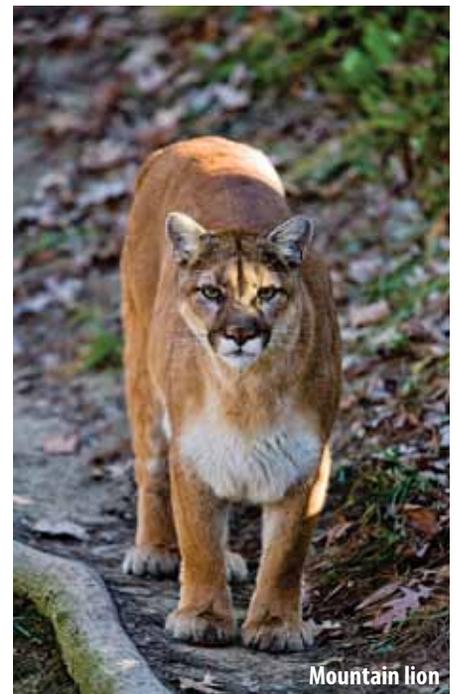
For more information about CWD, visit mdc.mo.gov/node/16478.



White-tailed deer

New Video Explores Mountain Lion Sightings

A new YouTube video from the Conservation Department explores the increasing frequency of mountain lion sightings in the Show-Me State. The 7-minute video includes photos of several mountain lions captured on trail cameras and features an interview with a hunter who was surprised to find not deer, but a big cat on his trail camera. Also included is an interview with furbearer biologist Jeff Beringer, who explains what is known about mountain lions that have found their way into Missouri from other states. The video also explains how Missourians can document sightings for the best chance of confirmation and how the Mountain Lion Response Team evaluates reported sightings. View the video at youtu.be/YcDLlhDUo-0.



Mountain lion

MOUNTAIN LION: NOPPADOL PAOTHONG

DID YOU KNOW?

The Conservation Department helps you discover nature.

Hunters Can Help Contain CWD

Chronic wasting disease (CWD) has been found in captive and free-ranging deer in Linn and Macon counties. The Conservation Department is encouraging hunters to properly dispose of deer carcasses to help prevent further spread of the disease to other parts of the state.

The infectious agents that cause CWD are abnormal proteins known as prions. They remain in the soil for years after being deposited through the bodily fluids or carcasses of infected deer. Because most hunters process their own deer, they should follow proper disposal procedures if efforts to limit the spread of CWD are to succeed.

The first thing to remember is that CWD prions are concentrated in the spine, brain, spleen, eyes, tonsils, and lymph nodes. When processing deer, avoid cutting through bones, the spine, or brain. The spleen, located next to the stomach near the center of the body cavity, should be avoided, too.

If you hunt somewhere other than home, bring knives and containers so you can quarter the animal, removing the front and hind legs from the spine. Remove loins, back straps, and other usable meat and send the spine, internal organs, and head to a state-approved landfill. If landfill disposal isn't practical, bury the carcass deep enough that scavengers can't dig it up.

Deer destined to be mounted require different treatment. Taxidermists use artificial forms to create mounts, so there is no reason to keep the entire skull, which could carry prions. When removing the cape from the carcass, also skin the head. Use a saw to remove the antlers along with a small portion of the skull that joins them. Clean the inside of the skull plate with chlorine bleach before leaving the area where the deer was taken.

The primary way that CWD spreads is by nose-to-nose contact between deer. Anything that artificially concentrates deer populations increases the likelihood of CWD transmission. For this reason, MDC has prohibited artificial feeding of deer in the six north-central Missouri counties designated as the CWD Containment Zone. Because CWD could spread to other areas without warning, MDC strongly urges hunters and landowners not to feed deer and turkeys.

More detailed information about CWD pre-

Shepherd of the Hills Fish Hatchery

» **The largest trout production facility** in the Conservation Department's trout production program.

» **The hatchery typically produces 1,125,000** catchable trout annually, weighing 301,000 pounds. The primary role for this facility is the production of rainbow and brown trout to meet the Conservation Department's management requirements. This facility also plays an important role in supplying eggs and fingerlings for grow-out at other Conservation Department trout production facilities.

» **A Conservation Center** on the 211-acre hatchery complex receives 250,000 visitors annually and provides a vast amount of information to the public with a focus on fisheries.

» **The 7 millionth visitor** came to the hatchery in August.

» **Located** on Highway 165 just south of Branson, below the dam at Table Rock Lake. The address is 483 Hatchery Road, Branson, MO 65616.

» **Area Hours:** Sept. through June open 9 a.m. to 5 p.m.; from Memorial Day to Labor Day open 9 a.m. to 6 p.m. The area is closed Thanksgiving, Christmas, and New Year's Day.

» **Tours:** Self-guided tours are available year-round. From Memorial Day to Labor Day, guided hatchery tours are provided at 10 a.m., 11 a.m., 1 p.m., and 2 p.m. weekdays.

» **Area Information:** The area has a boat ramp and several fishing access points along Lake Taneycomo, where trout fishing is allowed year-round. Four hiking trails are also available for nature viewing. The Ozarks' forests and glades are home to a beautiful yet unusual diversity of plants and animals.

» **For more information:** Call the hatchery at 417-334-4865, or go online at mdc.mo.gov/node/290.

» **Conservation facilities statewide:** The Conservation Department has nature centers, shooting ranges, and other facilities around the state that offer events, programs, exhibits, and other exciting ways to connect you with nature. To learn more about these facilities call your regional conservation office (see Page 3), or visit mdc.mo.gov/node/252.



(continued from Page 9)

vention is found on pages 2 through 5 of the 2013 *Fall Deer and Turkey Hunting Information* booklet. The booklet is available from permit vendors or online at mdc.mo.gov/node/3656.

New Conservation Commissioner

Gov. Jeremiah “Jay” Nixon appointed Tim Dollar, Blue Springs, to a six-year term on the Missouri Conservation Commission. Dollar, 53, grew up in the Kansas City area. He traces his interest in conservation to time spent outdoors with his maternal grandfather, Alden Jaynes.

“He took me squirrel and rabbit and quail hunting, and I fell in love with it immediately,” says Dollar. “I didn’t have too many opportunities to explore that during my childhood, but even then I knew the passion I had for it.”

Dollar recalls that his outdoor career got a jump-start when he met his soon-to-be father-in-law, Robert Hammond. “He introduced me to deer hunting in his home area of St. Clair County,” says Dollar. “That was a life-changing experience. I was absolutely hooked.”

Dollar pursued his passion for hunting for two decades, until a friend, West Plains attorney Lynn Henry, showed the future conservation commissioner what he was doing to improve some hunting land he owns. “I became obsessed with

acquiring land and managing it for deer, turkey, and quail and other wildlife,” says Dollar.

Dollar focused his new-found passion for wildlife management on his wife’s family farm in St. Clair County. He worked closely with St. Clair Conservation Agent Joanna Bledsoe to tailor management techniques to the farm’s special needs. Now, through arrangements with neighboring landowners, he manages nearly 900 acres for deer, turkey, quail, and other wildlife.

Asked if he has any special interests or programs he wants to advance during his term on the Conservation Commission, Dollar said, “No, I’m really interested in it all, and I’m eager to learn. The Missouri Conservation Department is one of the finest, best-run organizations of its kind in the country. When I travel to other states and am asked about Missouri, I start by talking about the Conservation Department, because it is respected around the country. So I’m eager to learn and support this great tradition we have.”

The Conservation Commission consists of four members appointed by the governor and confirmed by the Missouri Senate. The Conservation Commission controls, manages, restores, conserves, and regulates the bird, fish, game, forestry, and all wildlife resources of the state.

Muckermans Donate Land

Patricia (Pat) and David Muckerman donated about 55 acres in St. Louis County to the Missouri Department of Conservation (MDC) as an addition to Rockwoods Range. The donation was made in memory of Pat Muckerman’s aunt, LaVerne Rogan, from whom she inherited the property.

Muckerman has fond memories of her aunt, whom she knew as “Aunt Lovie,” and Rogan’s husband of 44 years, George. The Rogans acquired the property in the early 1950s. Although they worked in the city, they loved the outdoors and wildlife. Rogan continued to live on the farm after her husband died in 1989 until her death in 2009. Muckerman recalls that whenever they spoke, Rogan would talk about the deer, raccoons, and all the wildlife that she had seen. “She was a conservationist at heart. It makes me and my entire family happy that the Rogan farm is in conservation ownership, where the land can be protected and enjoyed

by others. It would have pleased Aunt Lovie so much!” Muckerman said.

The land is primarily forested and is home to abundant wildlife including deer, turkey, songbirds, and more. Gus Raeker, Conservation Department forestry district supervisor said, “One of the most impressive aspects of this donation is how it fits into the big picture. These 55 acres add to a roughly 5,000-acre continuous block of protected forestland including Rockwoods Reservation, Rockwoods Range, and Greensfelder County Park—all within Missouri’s most heavily populated county.”

Directions to Rockwoods Range: From Interstate 44 west of St. Louis, take exit 261 (Allenton-Six Flags), then go north on Allenton Road and take an immediate left on Fox Creek; stay on Fox Creek for two miles. For more information, call 636-458-2236 or visit mdc.mo.gov/node/a4649.

Noodlers Caught

Conservation agents in northwest Missouri cited 25 people for illegally taking catfish by hand-fishing in July. Teamwork by several agents led to the arrests at five different streams in the state’s northwest region.

Hand-fishers, sometimes called noodlers or grabbers, remove large catfish from their nests during spawning season, ensuring the death of thousands of young catfish. Large brood fish can be taken even from small streams.

One of the primary cases in the recent arrests occurred as agents observed illegal hand-fishing activity on the 102 River in Andrew County, according to Steve Nichols, an MDC protection district supervisor based in St. Joseph. Several large fish were seized from those cited. Agents also cited one group of anglers for using an illegal hoop net. Citations were also issued for littering and drug possession.

Hand-fishing is a Class-A misdemeanor punishable by up to a year in jail and fines up to \$1,000. The loss of hunting and fishing privileges is also possible. Anyone spotting illegal fishing activity, including noodling, can contact their local conservation agent or call Operation Game Thief anonymously and toll free at 1-800-392-1111, 24 hours a day. Rewards are available for information leading to arrests.





DUCK HUNTING: NOPPADOL PAOTHONG; FISHING: DAVID STONNER

Hunting and Fishing Day Events

Sept. 28 is National Hunting and Fishing Day, and the Conservation Department plans events throughout the month to recognize and promote the Show-Me State's strong tradition of healthful, wildlife-based, and family-oriented activities.

Kansas City-area residents can attend the Discover Nature Family Outdoors Day from 10 a.m. until 2 p.m. Sept. 28 at James A. Reed Conservation Area in Lee's Summit, Mo. The event will be a cooperative effort with Ducks Unlimited who will offer free memberships in their Greenwing program for youths under age 16. The event will also feature free shotgun, pellet rifle, and archery shooting, as well as fishing and booths staffed by other citizen conservation groups. There will be hunting dog demonstrations, kids' coloring tables, a replica beaver lodge for kids to climb through, and more.

Mark Twain Lake's Warren G. See Spillway, located 9 miles north of Perry, Mo., will be the site of a National Hunting and Fishing Day celebration from 9 a.m. to 4 p.m. Sept. 28. Live demonstrations, educational booths, and a National Archery in the Schools Program tournament will be featured at this event. More information is available by calling 573-248-2530 or emailing robert.garver@mdc.mo.gov.

A Day on the River at Cape Girardeau's Riverfront Park. From 9 a.m. until 4 p.m., Conservation Department staff will reveal Mississippi River mysteries and show how the river has changed over time. Hands-on activities will help them understand the importance of wetlands through entertaining family activities, including crafts, live animals, and boat rides on the river. Youth and adult groups are welcome.

The Conservation Department and St. Louis County Parks are cosponsoring a Great Outdoors Day on Sept. 28 near the Jay Henges Range on Antire-Baumont Road directly across the entrance to the Boy Scout Reservation. The event will include displays from conservation and outdoor organizations, Operation Game Thief exhibit, archery and air gun shooting activities, and cannon-netting demonstrations. The event will run from 10 a.m. to 3 p.m.

In the Ozarks, Twin Pines Conservation Education Center in Winona will get an early start on Hunting and Fishing Day on Sept. 21. The fun will start with archery shooting for all ages from 10 a.m. until 2 p.m. Come see a demonstration of fencepost call making from 2 to 4 p.m. Women are invited to a gigging workshop from 3 p.m. to 10 p.m. Enjoy a crisp autumn evening on the Current River and get an introductory lesson on gigging followed by actual gigging and a fish fry. A fishing license is required. Everything else is provided. For further information or to make a reservation, call 573-325-1381.

Bois D' Arc Conservation Area in Greene County will host the 19th Annual Great Outdoors Day from 8:30 a.m. until 3 p.m. Sept. 28. Hands-on shooting sports — archery, rifles, handguns, and shotguns — will be featured at this event, along with demonstrations of outdoor skills from fishing and fly tying to camping and canoeing. No need to register for this free event. All firearms and ammunition are provided, and no personal firearms are allowed on this day. For more information send an email to DaltonRange@mdc.mo.gov, or call 417-742-4361.

Also on Sept. 28, fans attending the University of Missouri football game in Columbia will have a chance to learn about Missouri's forests, fish, and wildlife.



Spothanded crayfish are one of six native Missouri crayfish species whose numbers are declining due to invasive crayfish species.



CLAWS for ALARM

Why you should be concerned about invasive crayfish

by **BOB DISTEFANO**

Many Missouri stream and lake enthusiasts may be unaware of an invasion that threatens the aquatic resources that we love.

While most of us understand the danger posed to our aquatic environments by foreign invaders such as zebra mussels and Asian carp, it is harder to wrap our minds around the idea that crayfish, a key component of Missouri's stream and lake fisheries, are also invading and threatening our waterways. But it's happening, it's a serious problem, and anglers and other aquatic enthusiasts should be concerned about this threat.

Upstanding Residents

Invasive species are now the second most important problem facing biologists who manage aquatic ecosystems in the United States (U.S.), right after habitat loss. Aquatic invaders are the threat that keeps fisheries managers awake at night.

Crayfish (also known as crawfish and crawdads) are among the most important prey for many Missouri sport fish. Research shows what many anglers already know — crayfish provide fuel for catfishes, trout, and walleye, and they compose most of the diets of popular species such as smallmouth bass, goggle-eye, and adult largemouth bass.

However, few people understand that crayfish play other critical ecological roles in our streams, lakes, and wetlands. Crayfish feed more than 200 wildlife species that live in and around our waterways. Their omnivorous diets (they eat nearly everything) and intense predation allow them to partially control the kinds and abundance of plants and other animals (fish food such as insects and snails) in these ecosystems. Their constant work breaking down dead and decaying plants into food for other animals drives food chains and nutrient cycles. They can affect water clarity when over-abundant. In short, crayfish play an unusually important or keystone ecological role in many fisheries and aquatic environments due to their ability to alter food chains and their environment.



The red swamp crayfish is native to a very small part of Missouri, but elsewhere it has become one of the most invasive crayfish in the world due to its hardiness and adaptability to a wide variety of conditions.

Out-of-towners

So how does an organism with so many beneficial traits become a problem? First, understand that while we mostly hear about a few crayfish species, such as the infamous and highly invasive rusty crayfish, there are actually more than 400 crayfish species in North America. Many have small native ranges where, over many thousands of years, they have established a balance with the plants and other animals in their environment. But when a crayfish species is moved out of its native range to unfamiliar streams and lakes, even if they are nearby, we can't predict how it will interact with its new environment. For example, the red swamp crayfish is native to the southeastern U.S., including a very small part of Missouri where it plays a natural role in the community. But elsewhere the red swamp crayfish has become one of the most invasive crayfish species in the world.

The same story plays out within state boundaries and with many other crayfish species. Several crayfish species that are native to a particular region of Missouri become invasive when moved to other locations in the state. The White River crayfish, also native to a small part of southeastern Missouri and the Mississippi River, has invaded at least 11 waterways in other parts of the state. Biologists have discovered other species disappearing at some of these locations. Species like red swamp crayfish and White River crayfish are hardy and adaptable to a wide variety of conditions. Many are aggressive, territorial, and readily reproduce. These traits combined with

A recent survey of all U.S. state fisheries chiefs found that about half had problems in their states linked to invasive crayfish.



omnivorous and intense feeding habits make them perfect invaders, suited to overpopulate, out-compete native crayfish and fish species for food and shelter, and alter the ecological balance of their new homes. Though the well-known rusty crayfish is among the most invasive North American crayfish, many other crayfish species possess similar traits and capabilities to extend their range and cause problems.

Our Borders and Beyond

A recent survey of all U.S. state fisheries chiefs found that about half had problems in their states linked to invasive crayfish. Research shows that invasive crayfish cause population declines or elimination of native crayfish species, amphibians, and reptiles. They are also linked with reduced fish abundances and sport fishery declines in streams and lakes. These fish declines occur for several possible reasons. Invasive crayfish alter and destroy habitat, especially aquatic plant beds used by many fish for cover, foraging, spawning, or nursery habitat for young. They often overpopulate and then overgraze fish food such as insects and snails, and insect food such as algae. This leaves less overall food for our prized sport fish.

The White River crayfish is also native to a small part of southeastern Missouri and has invaded at least 11 waterways in other parts of the state.

Invasive crayfish prey on sport fish eggs. They also carry diseases and parasites that could affect many animals. Because crayfish play such a key ecological role, the effects of invasive crayfish reverberate throughout the food chain and often disrupt the way aquatic systems function.

This is not to say that every crayfish invasion will have such dramatic results. Streams and lakes are complicated ecosystems with many interacting influences. It is difficult to predict the results of every invasion. But we do not want to leave the future condition of our waterways and fisheries to chance.

In fact, it appears that crayfish invasions are being identified at an alarming rate throughout the U.S. Missouri Department of Conservation biologists have documented more than 20 crayfish invasions in Missouri. In every one of these 20-plus invasions, the invading species is native to some part of our state, but has been moved to another.



All of the invasions that have been studied are spreading in size. Department biologists recently reported one invasion that spread about 1.4 stream miles in only one year. And as these invasive crayfish spread throughout streams, native crayfish species are disappearing. To date we have witnessed declines of at least six native species in Missouri. We don't yet know whether or how other aquatic life forms (insects, fish, amphibians, reptiles, plants, etc.) are being affected, but data from many other states suggest that food chains and ecological function are suffering.

No Substitutions

Some wonder why it's a problem if a native crayfish species is eliminated and replaced by an invasive crayfish species. It's a good question with multiple answers. First, different species, even closely related ones, have different interactions with other community members. Their substitution will often change the way an ecosystem functions and the way people value that system. This is seen with closely related crayfish species, but it might be easier illustrated using species that are better known to most readers. For example, smallmouth bass and spotted bass are native Missouri sport fish species that don't al-

The key to managing crayfish invasions is proactive prevention of introductions. Most states, including Missouri, prohibit the release of live crayfish into natural waters.

ways naturally occur together. They look similar, but play different ecological roles. They also hold much different value with the fishing public — the smallmouth bass is generally more highly prized. Spotted bass are not native to Missouri's Meramec River drainage but invaded there, and are negatively impacting smallmouth bass in much of the drainage (and even impacting largemouth bass in streams). The Department of Conservation received so many complaints about this invasion that regulations were passed to allow liberal harvest of spotted bass in this drainage to manage this invasion.

Another problem with replacement of native crayfish species by invaders is that invasive crayfish populations often rapidly overpopulate waters where they invade, showing much greater abundances than those shown by natives. Overpopulated invasive crayfish overgraze their food sources, often the same food eaten by fish species such as basses, goggle-eye, trout, and catfish. This leaves

less food for fish, translating to slower fish growth, fewer numbers of fish, and less-productive fisheries. Because the production of most fisheries naturally varies, subtle changes caused by invasive crayfishes can go undetected or be mistakenly blamed on other factors.

Overpopulated invasive crayfish also reduce or eliminate aquatic plant beds that are important habitats for fish food organisms such as insects, smaller fishes, and spawning and nursery habitats for sport fishes such as smallmouth bass, largemouth bass, goggle-eye, and sunfishes. The process of destroying these plant beds also muddies waters, leading to less-productive fisheries and poorer water quality for all who enjoy these systems.

The Economic Pinch

Crayfish invasions are not only bad news for aquatic ecosystems and fisheries, but they can affect local and regional economies. U.S. anglers spent about \$22 billion on fishing trip food, lodging, transportation, and associated costs in 2011. State governments haven't yet conducted research to measure widespread economic effects of crayfish invasions. However, a recent Notre Dame University study focusing on only one Wisconsin county affected by crayfish invasions provides insight. Researchers estimated economic losses directly tied to the degraded or altered fisheries in that county were more than \$1.5 million annually! We must also consider the amount of money that conservation agencies are forced to spend on addressing these invasions, money that otherwise would be directed to managing our natural resources.

Hitchhikers and Transplants

So how are invasive crayfish moving around and expanding their ranges?

Baitbucket introductions, or live release of leftover bait by anglers, is widely considered the primary pathway for invasive crayfish in the U.S. Other known pathways include transport by the aquaculture industry and live releases by hobby aquarists and even school teachers. Recent surveys reveal that release of live fishing bait is a serious problem. A significant percentage of anglers admitted to baitbucket introductions in Wisconsin/Michigan (12 percent), Missouri (40 percent), and Maryland (69 percent).

Unfortunately, once crayfish invasions have taken hold, it is nearly impossible to eliminate them. The key to managing crayfish invasions is proactive prevention of introductions. Most states, including Missouri, prohibit the release of live crayfish into natural waters. In addition, many natural resource agencies, including the Department of Conservation, and nongovernmental organizations have started or increased campaigns to educate the public about invasions.

In a perfect world, these educational efforts would prevent future crayfish introductions. However, natural resource agencies have learned that they must combine education efforts with some amount of regulation.

The Department has been gathering input and working closely with a diverse group of stakeholders, including bait shop dealers, hatchery owners, conservation organizations, university scientists, and anglers. The Department also collected information online and provided periodic updates and presentations to the Conservation Commission. Information gained from all stakeholders will be used in order to ensure the right balance of regulations for all involved. The engagement of citizens and stakeholders has been crucial to this regulation review process.

The invasive crayfish problem is large, growing, and causing real damage to treasured aquatic resources throughout the U.S. and Missouri. People transporting and releasing live crayfish into new water bodies is one cause of this problem, and it is an illegal act in Missouri. Natural resource agencies can't be everywhere at all times to enforce regulations and educate those who might introduce these invaders. Part of the solution lies with the public. The thought of a favorite fishery or neighborhood

stream being invaded should be enough to cause most of us to speak up and help educate fellow resource users and other members of our communities. Only together do we have a chance of protecting our valuable waterways and fisheries from this rapidly growing threat. ▲

Unfortunately, once crayfish invasions have taken hold, it is nearly impossible to eliminate them. The key to managing crayfish invasions is proactive prevention of introductions.

Bob DiStefano, a resource scientist for the Conservation Department since 1986, researches stream life and coordinates crayfish conservation and management.



DOVE HUNTING: Getting Started

These game birds may be the ultimate wing-shooting challenge.

by MARK GOODWIN



PHOTO BY DAVID STONNER;
MOURNING DOVE ILLUSTRATION BY DAVID BESENGER

IN AUGUST, TAKE A LOOK AROUND STORES THAT SELL SHOOTING SUPPLIES. Most are stocked heavily with shotgun shells, clay pigeons, and hand-trap supplies. Why? August is the month hunters use to sharpen their wing-shooting skills in preparation for Sept. 1 — the opening day of dove season.

More shells are spent on dove hunting than on any other game bird. On a good hunt, doves often fly in so fast and in such numbers that it is difficult to keep your gun loaded. Barrels heat up from the quick shooting. Doves dip and dive and turn with incredible speed. Downing one dove for every three shots ranks you as an expert shot. Interested in trying this action? Here are some tips.

A Little Biology

Three species of doves are legal game during Missouri's dove season: mourning doves, Eurasian collared-doves, and white-winged doves. The Eurasian collared-dove is an introduced species, escaped from captivity, and is currently expanding its range across the United States. It is larger than a mourning dove, with a distinct black collar and a squared-off tail. The white-winged dove is native to the southern United States, but occasionally shows up statewide. This species has a white wing stripe and a squared-off tail. Where the birds coexist, mourning doves typically far outnumber both collared-doves and white-winged doves.

Mourning doves are native and occur all across the central and eastern United States. They are one of North America's most common

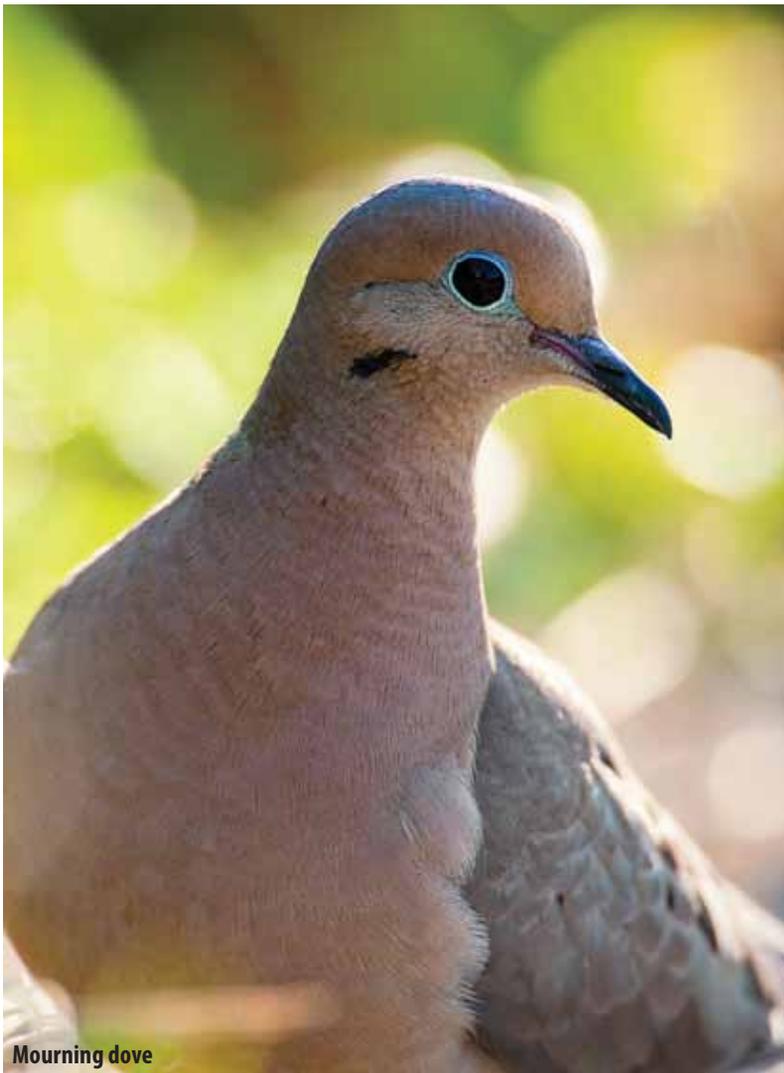
Dove hunting season runs Sept. 1 through Nov. 9. The three species of doves that are legal to hunt in Missouri are mourning doves, Eurasian collared-doves, and white-winged doves.

birds, with fall populations averaging between 350 and 500 million birds. Why so common? Doves are prolific breeders. In Missouri, pairs produce up to five broods a year, with broods consisting of two to four young.

Settlement of North America improved habitat for mourning doves. Open terrain provided by small towns and cities, surrounded by crop fields, provide doves with everything they need. Towns offer the scattered trees and open woods mourning doves require for nesting habitat. Crop fields provide what have become three of the four staples in a dove's diet: corn, wheat, and milo. The fourth staple, foxtail, is a common grass species that grows along the edges of grain fields and other areas. Doves relish foxtail seed.

The daily habits of doves are fairly predictable. Shortly before dawn, doves leave their roost areas and travel to where they feed. Cut grain fields are favorite spots. The birds feed for a couple hours, then often move to places that offer chat for their gizzards and a place to drink. Mid-morning, doves rest in trees. Mid-afternoon finds the birds feeding again. Shortly before dusk, doves fly to favorite roosting areas for the night.

Mourning doves are migratory, but their migration is a complex affair. Adults birds, particularly males, are often permanent resi-



Mourning dove



Eurasian collared-dove



White-winged dove



dents and live their lives where they bred and raised young. Young typically migrate within two weeks of having left the nest. Cold fronts push birds south, with other birds moving in from the north.

Gear

Equipment for a dove hunt is fairly simple. For concealment, camouflage clothes help but are not necessary. Any dull-colored clothes will do. Shotgun type is a matter of choice. A 12 gauge is tough to beat because it throws a lot of shot. Shotgun choke is a matter of choice, too. The larger pattern of an open choke, such as skeet or improved cylinder, will help you hit fast-moving targets. A full choke will allow you to take longer shots. Pick a choke that fits your level of shooting skill.

Most hunters choose shot size of 7.5 or 8, which gives you lots of shot in the air and the energy needed to cleanly bring down doves.

Bring plenty of shells. Two boxes is often a minimum. Shooting can be that fast.

Dove season opens when mosquitoes, ticks, and chiggers are still active. So include insect repellent with your gear. Since the weather is often warm, bring along drinking water.

To carry your gear, stores that handle hunting supplies often stock camouflaged buckets with cushioned lids that make for comfortable sitting and convenient carry-all.

Hunting Strategy

With proper gear gathered, it is time to put together a good dove hunt. As with any hunt, the key is putting yourself where the game is at, at a time when they are active. Locate grain fields that have been recently harvested. It often takes doves five days or so to start using newly harvested fields in large numbers. Look for small grain fields less than 20 acres. In bigger fields doves can spread out and are more likely to evade hunters.

The key to a good dove hunt is putting yourself where the game is located, at a time when they are active, either at first light or late afternoon.



When you see a dove flying your way, hold still. When the dove is in range to shoot, then raise your shotgun. This way, when the dove flairs, it's already close enough for a good shot.

If you plan to hunt in the morning, set up before first light. When doves start flying, pay careful attention to flight patterns. If the birds are not flying where you set up, move to their flyway. Look for a spot that offers some concealment to break up your outline, such as a brushy fencerow or clump of vegetation. Also, if possible, set up so the sun is to your back, which will keep the sun out of your eyes and make you more difficult to see.

Doves often land on the bare limbs of dead trees along the edge of grain fields before flying to the ground to feed. Sitting up next to these trees often offers close shots as the birds come in to land. Power lines also serve as a favorite

place for doves to land. Don't shoot doves off power lines. Shot can damage the lines.

Learn how to judge distances. This will let you know when a dove is in range to shoot. If you are using an open-choked shotgun, your shots should probably be closer than 30 yards. If you are using full choke, you can likely take shots out to a little more than 40 yards.

Gain skill at judging distances quickly by practicing at times other than when you are hunting. In your yard, guess how far away you are from a tree or a clump of grass, then walk it off and see how close you were to your estimate. You can do the same when on a walk or at the mall or at practically anytime you are in a large area.

In the Kitchen

Doves can be cooked a number of ways. The following recipe is easy and makes dove meat taste like fine beef steak.

1. **Fillet** the meat off the breastbone with a sharp knife. You will have two pieces of meat off each breast.
2. **Brush** one side of each breast with olive oil, then sprinkle the side with a liberal quantity of Greek seasoning.
3. **Wrap** each piece of breast meat with a third of a strip of bacon and fasten with a toothpick.
4. **Prepare** a hot charcoal fire, one where if you place your hand close to the grill, you must pull it away after only a second. Place dove breasts on the grill, cover, and cook for two or three minutes a side or until the bacon is crisp. The bacon should be crisp with the dove meat medium rare and juicy. This is important. If you overcook dove meat, it will be tough and dry.

You can use this same recipe but make kabobs with bacon-wrapped dove meat, peppers, mushrooms, cherry tomatoes, onions, and pineapple.

Doves are frequently missed because hunters shoot too far. Also, doves are missed because hunters raise their shotguns to shoot before doves are in range. Doves see the movement and flair before they get close enough to shoot. When you see a dove flying your way, hold absolutely still. When the dove is in range to shoot, then raise your shotgun. This way, when the dove flairs, it's already close enough for a good shot.

When you down a dove, rivet your eyes to the spot where you saw the dove fall, and while walking to the spot, keep your eyes on that spot. Doves are relatively small birds and are easily hidden in tall grass and other vegetation. They also blend in well among corn or milo stalks. Even if other doves are flying in at easy gun range while you walk to a downed dove, resist the urge to take another shot. Keep your eyes on the spot where your bird fell, retrieve it, then get back to hunting.

A well-trained retrieving dog can prove invaluable to finding downed doves. If you have one, make sure you bring along plenty of water to keep your dog cool. Better yet, set up close



to a pond or creek so the dog can take a dip to keep cool. If temperatures reach into the 90s, leave your dog at home. The risk of your canine hunting partner overheating is too great.

On most days when you hunt in the morning, dove activity will be over by 9 a.m. or so. If you hunt in the afternoon, action often starts around 3 and ends at sundown. If while you are hunting, doves fly into a field in large numbers and land, it's often a good idea to walk them up. Otherwise, they will feed, get their fill, then fly off to pick chat or get a drink.

To keep doves up and flying, it helps to hunt with a few friends. Hunters can then position themselves around a field in a way that keep doves flying. If hunting private ground, be sure to ask the landowner if bringing along a few friends is all right.

Learn more about hunting doves and other upland game birds at mdc.mo.gov/node/3607.

How to Clean Doves

Doves are easy to clean. With poultry shears or a pair of scissors, clip off the head and wings. Where the lower tip of the breast ends, insert your thumb, and pull the breast away from the body. Peel the skin and feathers that cling to the breast, rinse carefully in cold water, and the job is done.

Mark Goodwin is a retired teacher, avid outdoorsman, and freelance writer from Jackson, Mo.

MEETING THE CHANGING NEEDS OF WILDLIFE

Updating Missouri's *Wildlife Code* to safeguard the public trust and address threats to our state's resources, including protecting deer from chronic wasting disease

by **MIKE HUBBARD**



MISSOURI HAS UNIQUE METHODS for managing and regulating our state's forest, fish, and wildlife resources; however, the guiding principal behind those methods extends across all 50 states and Canada — it's called the public trust doctrine.

The essence of the doctrine is that certain natural resources are so valuable to the public that they cannot be privately owned and controlled. They are to be held in trust by government for the benefit of present and future generations.

In 1842, a U.S. Supreme Court decision supported and reinforced the public trust doctrine. The findings of the court in the *Martin v. Waddell* case have helped guide the management and regulation of wildlife resources, both aquatic and terrestrial, of our nation.

Deer hunting is a big business in Missouri: Out of all Missouri hunters, half a million pursued white-tailed deer.



Empowering the Conservation Commission

In the early 1930s, during the dust bowl years, Missouri's landscape was significantly different than it is today. Our Ozark hills were severely overharvested. Our streams were choked with gravel and sedimentation. White-tailed deer and wild turkeys were few and far between. Furbearers, an important economic resource, were heavily harvested and difficult to locate. Our state's natural resources had been over-exploited, with no thought given to what it would look like in the future. But some Missourians had a different vision for the natural resources of our state, and they set out to make that vision a reality.

In 1936, Missouri citizens established a new method to manage their forest, fish, and wildlife resources, one that is as unique today as it was when it was conceived. Through a statewide ballot initiative the citizens of Missouri gave the Department of Conservation a mandate by passing a constitutional amendment that provided significant authority to the Conservation Commission. The amendment states, "The control, management, restoration, conservation and regulation of the bird, fish, game, forestry and all wildlife resources of the state...shall be vested in a conservation commission..."

Using the public trust doctrine and the authority provided to the Conservation Commission by Missouri citizens, the Department works to fulfill its mission "To protect and manage the forest, fish, and wildlife resources of the state; to facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources."

Missourians Value Nature

The passage of the constitutional amendment was a reflection of how important the wildlife and natural resources of our state were to Missouri's citizens. That value has not diminished these past 75 years. In 2011–12, more than 2.2 million Missourians identified themselves as "wildlife watchers" and nine out of 10 Missouri citizens said they had an interest in fish, forest, and wildlife resources. In fact, one out of every four Missouri citizens between the ages of 16 and 65 had a permit that allowed them to hunt or fish in our state. There were 1.1 million Missouri anglers and more than 608,000 resident hunters.



Out of all Missouri hunters, half a million of them pursued white-tailed deer. Deer hunting is big business in Missouri and supports more than 12,000 jobs and generates more than \$1 billion in economic activity every year.

Management and the *Wildlife Code*

We have faced challenges to our natural resources throughout our state's history. A primary challenge today is dealing with the effects of a highly mobile society. Issues that are on the other side of the globe can be on Missouri's doorstep in a matter of days, if not hours. The movement of wildlife, plants, invasive species, and disease can happen quickly. However, our state's *Wildlife Code*, which is composed of the regulations approved by the Conservation Commission, reduces the risk of exotic and invasive species, as well as diseases, by reducing their probability of establishment or slowing down their rate of expansion.

Over the past decade, there have been a number of issues that required changes to

our *Wildlife Code*. Issues such as whirling disease that could have a devastating impact on Missouri's trout populations and didymo, which could significantly alter our cold-water streams, have required constituent involvement, stakeholder support, and *Wildlife Code* modifications.

Missouri's *Wildlife Code* has evolved over the past 75 years. It is evaluated through periodic reviews and regularly updated to reflect changing biological information.

Chronic Wasting Disease

The occurrence of chronic wasting disease (CWD) in our state has revealed areas within our *Wildlife Code* that need to be re-examined. In 2003, the Department, in cooperation with other state agencies and stakeholders, developed a CWD contingency plan for both our free-ranging and captive herds. Missouri was the first state in the nation to develop such a plan. Unfortunately, that plan had to be implemented in 2010.

The occurrence of CWD in Missouri's free-ranging deer herd has revealed areas within our *Wildlife Code* that need to be re-examined.



CWD has only been in our free-ranging herd a short period of time. The disease is always fatal and poses a significant risk to Missouri's deer herds. The Department has tested more than 38,000 free-ranging deer for the disease. There have been 21 confirmed cases in north-central Missouri since 2010, with 11 of those occurring in two captive facilities, and the remaining 10 occurring in free-ranging deer within two miles of one of those facilities. The Department has held nine public meetings near that location, met with landowners in the area, and has worked to keep citizens informed. A CWD zone was established in 2011 and is composed of Adair, Macon, Linn, Chariton, Randolph, and Sullivan counties in north-central Missouri.

Since CWD was discovered in our free-ranging population, the Conservation Commission has modified our *Wildlife Code* to reduce the number of older animals in the CWD zone by removing antler point restrictions as well as eliminating activities, such as wildlife feeding, that tend to concentrate animals. These changes will help minimize the spread of CWD.

The Department recognizes these regulation changes have affected landowners, hunters, and business owners in north-central Missouri who have made significant personal sacrifices to reduce the rate of spread of this disease. While the occurrence of CWD was the catalyst to reevaluate the *Wildlife Code*, future regulation changes will address the risks of all diseases for both our captive and free-ranging wildlife populations.

The Department has a long history of engaging citizens on natural-resource issues and has worked with cervid owners since the 1940s. When CWD was discovered in our state, a Captive Cervid Working Group was formed to review disease issues in our wildlife populations. The group is composed of representatives from the Missouri Department of Conservation, the Missouri Department of Agriculture, sporting organizations, the Missouri Whitetail Breeders and Hunting Ranch Association, and the Missouri Elk Farmers Association.

Based on feedback from the Captive Cervid Working Group, research, and management priorities, the Department has identified several areas of concern related to disease transmission. Those items include the separation of

Landowner Conservationists

The strength of the “Missouri Plan” for conservation has always been citizen involvement. Conservation works here because Show-Me State citizens cherish their forests, fish, and wildlife and have a personal commitment ensuring the future of those resources.

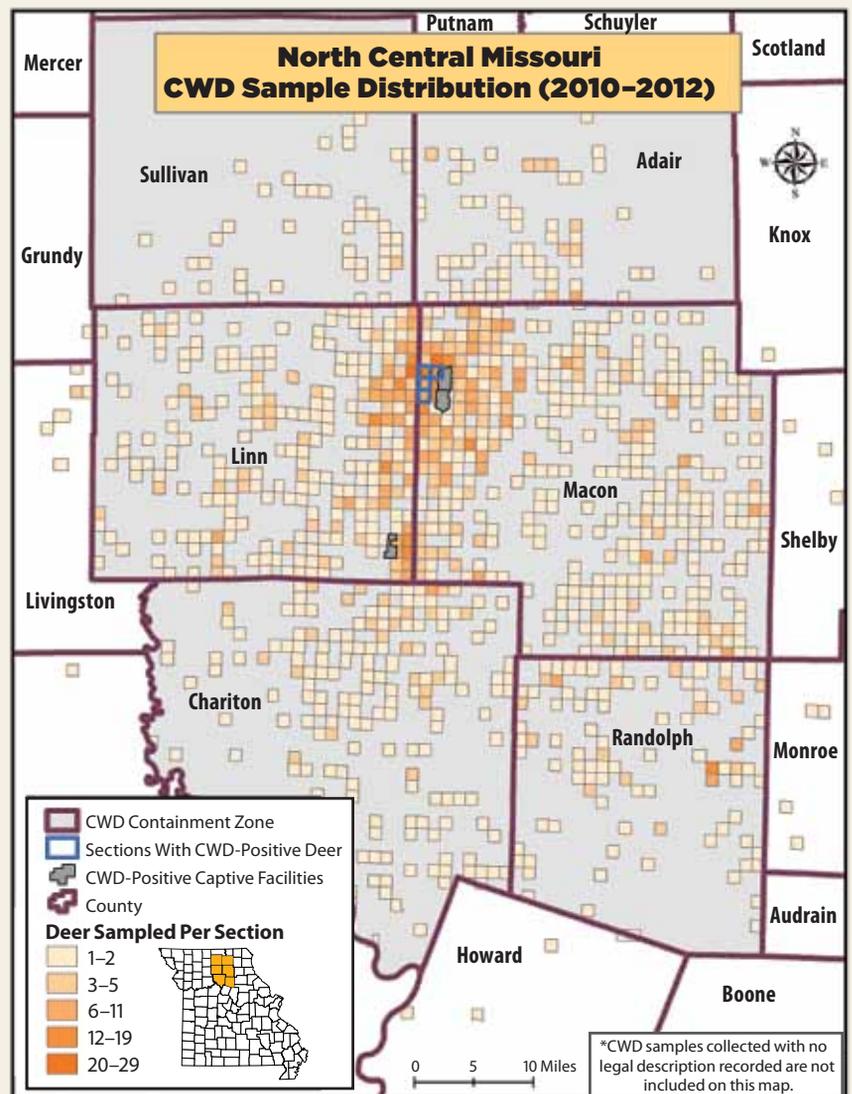
That certainly has been the case with the challenge presented by chronic wasting disease (CWD). Landowners in 29 sections of land in the Core Area of the CWD Containment Zone have stepped up to meet this challenge. Their help has been critical in CWD sampling that enables the Conservation Department to determine where the disease has spread to free-ranging deer. As we learn where CWD has spread, committed landowners are helping check the spread of the disease by reducing deer population density in affected areas. Some are harvesting more deer. Others allow the Conservation Department to come onto their land and remove deer.

This is no small thing. These landowner conservationists treasure Missouri’s deer-hunting tradition and the connection it provides to the land, family, and friends. They are making a painful sacrifice in the interest of the greater good — protecting this tremendously valuable resource for the rest of the state.

We owe a debt of thanks to these dedicated conservationists. They join a long and illustrious line of Missourians extending back to 1937, folks who have stood at the front line of conservation and done what had to be done.

Citizens often tell Conservation Department employees how much they appreciate our work, but the truth is that conservation works because of you. Without your support, our efforts would be in vain. We are deeply appreciative of all YOU do for conservation.

—Jim Low



captive and free-ranging wildlife populations, the movement of captive wildlife, disease testing approaches, herd certification programs, and facility contingency plans.

Help Shape Future Decisions

Over the next few months, the Department will go to our state’s 500,000 deer hunters, as well as other Missouri stakeholders, with a goal of maintaining healthy wildlife populations across our state. Public input on wildlife disease issues will be sought through meetings across Missouri. It is possible that, as a result of the information received, new *Wildlife Code* changes may be suggested to the Conservation Commission for review.

The Missouri Department of Conservation, guided by the public trust doctrine, authorized by our state’s constitution, works for all stakeholders. Often these stakeholders have differing views and approaches, which creates significant complexities. Managing our public trust resources, using the best science available, and incorporating the needs and desires of an ever-changing society is what was mandated by Missouri citizens more than 75 years ago. This same expectation exists today and will continue to shape our state’s natural resources into the future.

Mike Hubbard is the resource science division chief for the Conservation Department.

Northern Bobwhite

Just 3 acres of restored native warm-season grasses and forbs lured this whistling Missouri resident back to our property.

A FEW MONTHS ago, my wife and I had just returned from a week-long vacation and we were sitting on our deck at sunrise, enjoying the “home is where the heart is” glow of being back in Missouri. The landscape was sprinkled with black-eyed Susans of the burgeoning prairie we had established a few years earlier where fescue once flourished. Although we were eager to see the first clumps of mature Indian grass, the colorful forbs gave us hope that the little prairie would soon be a success. What happened next jolted us with surprise.

“Did you hear that?” I asked, already knowing my wife had heard the bobwhite’s call. We listened for a few seconds more and then heard the whistle more clearly, its second syllable cracking like a whip from the prairie. We were stunned to hear a sound we hadn’t heard for at least two decades on the farm. Typical of most hay farms in Missouri, we were flush with turkey, deer, and rabbits, but quail had been snubbing our fescue and other dense vegetation for years. By converting only 3 acres of fescue to warm season grass and forbs, we had enticed at least one northern bobwhite to visit our property.

As I pinpointed the quail’s location, my wife called her mom, who lives down the hill, to ask about the new arrival. “Oh yes, he moved in while you were gone,” she replied. “He has been dusting every day in my flower bed and calling from atop my arbor.” I decided to try my luck at a whistle to see if I could get a look at our new resident. After only one whistle, a little flat in pitch as usual, the bobwhite emerged from the prairie, flew over our house and landed in the maple tree in our front yard. I headed inside to grab my camera. Although I’d jumped hundreds of quail at Shaw Nature Reserve, just down the road, I’d never managed to photograph one.

I carefully opened the front door and skulked down the steps with my camera, fearful I would flush the rotund little visitor from the maple tree. When I finally settled my tripod into position I aimed the lens toward a dead branch to find the bobwhite staring back at me, completely unobstructed. As I began shooting, he started calling again and later stretched his legs for the featured shot of this story. A few minutes later, the quail dropped from the branch into the yard and made a dead run back to the prairie as our lone chicken Sweetie watched in amazement.

As of this writing, the vociferous quail is still living at our farm near Union and we frequently hear a second bird nearby. We hope to see chicks some day but for now we are happy to hear the call of the bobwhite each morning and afternoon.

—Story and photos by Danny Brown

 500mm lens + 1.4 teleconverter • f/5.6 • 1/200 sec • ISO 400

*We help people discover nature through our online field guide.
Visit mdc.mo.gov/node/73 to learn more about Missouri’s
plants and animals.*



Aldrich Refuge

Water birds abound at this Southwest Missouri wetland area located along Stockton Lake.

THIS WETLAND AREA is a 750-acre portion of the Stockton Lake Management Lands (ML), which spans more than 16,000 acres in Cedar, Dade, and Polk counties, and is nestled among the rolling hills of the western Ozarks. Aldrich Refuge, the Polk County piece of Stockton Lake ML, is located on the Little Sac Arm of Stockton Lake.

Mostly shallow-water mudflat, Aldrich Refuge provides ideal habitat for water birds. When Stockton Lake is at its normal water level, more than 500 acres of the refuge is covered in water less than 2 feet deep. Ducks; geese; pelicans; shorebirds such as plovers, avocets, and sandpipers; and large wading birds such as egrets and herons inhabit the abundant wetland environment at various times throughout the year.

A constructed wetland on the refuge's east end offers a viewing blind for bird watching. Waterfowl frequent Aldrich Refuge in mid-winter and during spring migrations from March to mid-April. Shorebirds show up in late summer, early fall and between April and June; pelicans in October and April; and bald eagles during the winter months.

Aldrich Refuge holds as many opportunities for fishing as it does for birding. Bass, catfish, crappie, sunfish, and white bass abound in Stockton Lake; anglers can even bowfish for carp. Hunting prospects include deer, dove, quail, turkey, waterfowl, and small game. As part of Stockton Lake ML, Aldrich Refuge is subject to special regulations; the refuge is closed to fishing, hunting, trapping, and boating from Oct. 15 through the end of the South Zone Duck Season. Due to these regulations, hunting at Aldrich Refuge is available only for portions of certain seasons.



70–200mm lens • f/2.8 • 1/160 sec • ISO 400

Management practices at Aldrich Refuge optimize the area for the wildlife it serves. Managers plant corn, milo, or soybean crops in some of the higher portions to provide high-energy food sources for migrating waterfowl in fall and spring. Disking portions of the refuge when water levels are low helps promote growth of moist-soil plants such as barnyard grass and smartweed, which are important food sources for a variety of birds.

Aldrich Refuge is located at the intersection of Highway 123 and Route T in Polk County. For more information, including an area map and brochure, visit the Web page listed below.

—Rebecca Martin, photo by David Stonner



Recreation opportunities: Bird watching, fishing, hunting (special regulations), mushroom foraging

Unique features: This wetland area features a variety of water birds throughout the year and a look at the kind of habitat these wildlife need.

For More Information Call the Stockton Lake Management Lands office at 417-895-6880 or visit mdc.mo.gov/a7701.

Kids in Nature

Listen for migrating birds in the evening.



Draw a picture of a migrating monarch butterfly.

Find a jewelweed seedpod and see how it explodes when touched.



Fall color begins to show in **sumac**, take a walk and try to spot one.

Try to spot a squirrel burying acorns and nuts for the winter.



Male white-tailed deer rub their antlers against small trees and shrubs (called a **buck rub**) in the fall to remove the fuzzy covering on their antlers called velvet. Try to find a buck rub in the woods.



Simple Ideas for Family Fun

Watch for glowworms in low water.

Kids in Nature Photo Contest!

Break out those cameras and send us your best images of you and your family enjoying the outdoors for our new photo contest. Once again, we will be accepting entries via the online photo sharing service, Flickr. If you are not a member of Flickr, it is easy and free to join. Once you are a member, just navigate to our kids in nature group page: [flickr.com/groups/mdc-kids-in-nature](https://www.flickr.com/groups/mdc-kids-in-nature) and submit your photos. MDC staff will select a winner every month and display it on our website. All of the monthly winners will appear in the January 2014 issue of the magazine.



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I Am Conservation

The Eleven Point River Anglers Association has been active for more than 20 years. They promote fishing opportunities for children, support and promote the Eleven Point River fishery, and team with the Missouri Department of Conservation and the U.S. Forest Service in efforts to maintain and improve camping and picnic areas, boat ramps, and access roads. Each year, the association assists the Ozark Regional Conservation office in West Plains in hosting kids' fishing days. Summer school students from three Oregon County schools are brought to local ponds to fish. "For many of these students, it's the first time they've ever been fishing!" says Barbara Simpson, Eleven Point Anglers Association vice president. The Department of Conservation stocks the ponds and the association provides bait and a volunteer to assist each child who attends. The children are also awarded their own rods, reels, tackle, and tackle boxes. "Our membership is approximately 200 and we continue to grow each year. Although we are not the only organization promoting the sport of fishing among children, we feel we are doing our part and enjoy it immensely," says Simpson.

(From left) Front row: Johnny Sutherland, Christopher Smith. Back row: Judy Wilson (angler member), Dalton Moore, Cassidy Moore, Ashlee Smith, and Alan Wilson (angler member). —*photo by Noppadol Paothong*