

# KANSAS

*Wildlife & Parks Magazine*



SHAD JIG



GRUB JIG



ROAD  
RUNNER



MARABOU  
JIG



TUBE JIG



BOBBER & MINNOW

SPRING CRAPPIE  
JIGS





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**KANSAS**  
*Wildlife & Parks Magazine*



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Nadia Reimer, Executive Editor

Jessica Ward, Associate Editor

Dustin Teasley, Graphic Design Specialist

Annie Campbell-Fischer, Circulation

**FRONT COVER** Time-tested lures for nabbing spring crappie. Dustin Teasley design.

**INSIDE FRONT COVER** A wildlife viewing platform offers onlookers a sky-high view of marsh life. Kelly Nachtigal photo.

**Editorial Creed:** To promote the conservation and wise use of our natural resources, to instill an understanding of our responsibilities to the land.

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## Learning New Tricks

Anyone who knows me knows that this old dog has a hard time learning new tricks, especially when they are electronic or “tech” in nature. I have terrific respect and admiration for Jason Dickson who is our Information Technology Officer and his staff in Pratt who keep our computers and programming working well and provide exceptional customer service. Unlike me, they and folks in our Parks, Wildlife, Fisheries and Public Lands divisions are always looking for ways in which technology can create new opportunities for outdoor users or to make existing activities easier. This is my chance to tell you about some of our most beneficial “new tricks” to improve your ease and enjoyment of Kansas outdoors, if you’re willing to learn them along with me.

### CampIt Kansas



The CampIt Kansas mobile app, available on the Apple Store and Google Play, will take most of the guesswork out of choosing and reserving a campsite or cabin at one of our 26 camping parks across the state. It allows you to use multiple criteria filters, view campground details, reviews and photos and to self-register, taking the guesswork out of site availability. Gone are the days when, after arriving late, you’ll be prowling around campgrounds in a car with tired occupants, looking for that one last open campsite.

### iWIHA

**iWIHA** Kansas ranks 49th among the states for public lands, with less than 2 percent of land in state or federal ownership. To increase the amount land open to hunters quickly and cost-effectively, KDWP started the Walk-in Hunting Access (WIHA) program in 1996, leasing 33,000 acres from private landowners. WIHA succeeded beyond most expectations, and by 2002, more than 1 million acres were enrolled, and that number has stayed consistent. However, most of the land is located in the western half of the state, and staff find it difficult to enroll land in the eastern, more urban areas of the state. Landowners in these highly populated regions fear their land will be over-hunted if open access was allowed. Thus, until recently, any efforts to increase WIHA acres in the eastern half of the state had failed. Then last year, iWIHA was rolled out. The program limits the number of hunters who can hunt on a tract of enrolled land on any given day through an electronic check-in system.

You can find a map of iWIHA areas on [www.ksoutdoors.com](http://www.ksoutdoors.com). From there, go to iSportsman, <https://kdwpt.isportsman.net>. Simply check into the area you want to hunt the night before or morning of a hunt. If there’s a spot open, you’ll know that only you and a few other hunters will be hunting there the next day. When you leave, simply check out and that spot will reopen for the next hunter.

This arrangement has been more attractive to landowners and hunters are seeing higher-quality experiences as a result. During the first full hunting season (2018), 25 areas were enrolled in the iWIHA program, resulting in 1,120 check-ins by 258 unique hunters; On average, each hunter checked into iWIHA 4.3 times throughout the season. This year, 60 areas have been enrolled and the number of check-ins has since tripled.

Wildlife Division assistant director Wes Sowards smiles when he talks about the iWIHA program. He’s received numerous “thank you” emails, often with pictures of happy hunters and deer they’ve taken on an iWIHA tract. Recently, a proud father sent a picture of his 14-year-old daughter with her first buck taken on an iWIHA tract in Riley County. It was one of 43 deer taken during the regular seasons on iWIHA in eastern Kansas.

### iSportsman

iSportsman is an electronic check-in system we’ve been implementing at public areas to replace the old paper system to check in, out and provide valuable use and harvest data. Our agency has avoided requiring iSportsman on all areas for fear of excluding people (like me!) who are slow adapters, but it is much easier for the user, less labor-intensive for the manager, and it provides better real-time and long-term data more efficiently. Area use and harvest data are the backbone of our decision-making and everyone wins when this is more accurate. Dispelling the myth that sharing this information somehow makes public your favorite spot, this data enables us to better sustain and improve areas for continued enjoyment.




### HuntFish KS

The long-anticipated HuntFish KS mobile app, now available, allows hunters and anglers to purchase and store licenses and permits on their mobile device; this includes carcass tags. Hunters will still be able to print paper copies at home or have tyvek paper copies printed at license vendors, but an e-license on a mobile device is all you’ll need when afield.

The HuntFish KS app will improve over time to be an all-in-one portal to everything hunting and fishing, including licenses, permits, applications, fishing and waterfowl reports, checking into wildlife and iWIHA areas, wildlife area maps, and more. Download it for free at the Apple Store and Google Play today.

Clearly, our willingness to embrace these new technologies provides great personal benefits, but they also benefit the resources we all care about and want to improve.

Our personnel are driven everyday to expand and enhance the opportunities we provide to Kansans and our visitors. Your and my embracing of these new options are good for “all of the above.” 





**Wonderful Issue, Again**

Nadia,  
Just received the newest issue of *Kansas Wildlife & Parks Magazine*. As always, it is wonderful. This 2020 Photo Issue is outstanding! Excellent photographs from cover to cover, including the 2019 Wild About Kansas pictures. As a longtime deer hunter, the picture on page 14 is awesome. My only 'suggestion'

would be that the 'salmon' color ink used to show the photographers names does not show up well on the glossy pages. Keep up the good work. I've been a subscriber to the magazine since the early 1980s. All the Best.

Jim Clements

**A Friendly Suggestion**

Nadia,

I just received my copy of the Jan/Feb *Kansas Wildlife & Parks Magazine*. The photographs are spectacular. I have always enjoyed this magazine for its informative wildlife information and the many wonderful photos. I just have one comment about the current 2020 Photo Issue. I found the names of the photographers in the light neon orange font color very difficult to read. May I suggest black be chosen next time. Thank you for your consideration.

Kate McNeal

**Summer Sausage**

Dustin,

I was very lucky on Wednesday morning and filled my tag. As my dad always said if you see one (being the right size), you better shoot it, if you can. I used your summer sausage recipe and it turned out great! So, do you have a recipe for jerky, by any chance? If you already published it in an earlier edition, then I would be able to look the recipe up.



Thank you for your Mom's recipe!

Bill Potenski

Bill,

**Glad you liked the recipe. I have two outstanding recipes for deer jerky. The first was in a feature in the November/December 2006 issue titled "Eat'n Wild." The second, from the Let's Eat column in the November/December 2015 issue. The first one was just a photo of the recipe. I may have to do a Let's Eat column on it in the near future.**

-Dustin Teasley

**An Impressive Issue**

Nadia,

I received the "Wild Eats" issue on Friday, and immediately looked at all of the photos and read all of the captions.

It is impressive to see the effort and dedication the photographers put in to record so many fleeting action photos, no doubt often using long cumbersome lenses, and often from blinds. You have assembled and published many outstanding wildlife photographs! Not only is this educational, but it also serves to point out all of the many species that live in Kansas.

Congratulations to you, Jessica, Dustin, Annie, and the many photographers who contributed! Best regards.

Jon Blumb

**Lt. Jesse Gehrt: Boating Educator of the Year**

Lieutenant Jesse Gehrt was acknowledged for his efforts related to recreational boating safety by named the Boating Educator of the Year for the Western Association of Boating Administrators. Lt. Gehrt was one of three finalists for the award and was announced as the recipient during the Annual National Association of State Boating Law Administrators (NASBLA) fall conference in Anchorage Alaska.



Major Dan Hesket (left) and Lt. Jesse Gehrt (right).

Lt. Gehrt's nomination included many accomplishments towards the promotion of recreational boating safety.

One highlight includes improving the statistics of Milford Reservoir. In years past, Milford Reservoir averaged one to three drownings per year. Since Lt. Gehrt's efforts to incorporate boating safety classes at the Fort Riley Military Base and the base-owned marina, Milford has had three drownings over the past 12 years. Lt. Gehrt also coordinated with nearby Kansas State University to include the Kansas Recreational Boating Safety class into a curriculum for college credit; he teaches the laws and regulation portion of the class.

Lt. Gehrt is a NASBLA-certified instructor for Boating Under the Influence standardized field sobriety tests and seated battery, in addition to instructing the following: KDWP's airboat and vessel operations, side scan sonar, officer water survival, and boating and hunter education courses. Lt. Gehrt also serves as a boating education regional coordinator, and averages between 21 to 25 educational courses annually.

Most recently, in 2018, Lt. Gehrt graduated the NASBLA Leadership Academy.

Congratulations, Jesse!



# BIRD BRAIN

with Mike Rader

## Early Spring Birding



Early spring is a great time to begin birding in Kansas. Waterfowl migration is in full swing, with early migrants such as Northern pintail, green-winged teal, gadwall, American wigeon and others joining the abundant mallards that spend much of the winter in the state. The marshes and reservoirs in Kansas will have duck and goose numbers swell as these species prepare for the journey north. Male ducks are in breeding plumage this time of year, with courtship behavior in full swing, providing great opportunities to see what males of different species do to draw the attention of females. Common goldeneyes are fun to watch. Males will throw their heads back and make odd calls to attract a mate. Other species of diving ducks, like redheads, are also very vocal in early spring. With practice, you can learn to identify many species simple by sound.

We are fortunate to live in the central flyway, so we are in the center of the awesome sandhill crane migration. The mid-continent population is around a half-million birds, with most flying over Kansas. Many use the marshes of Quivira and Cheyenne Bottoms for a rest on the

way to the famous staging areas along the Platte River in central Nebraska. This is one of the most impressive wildlife spectacles in the country and is well-worth the trip to experience the massive numbers of birds.

Other bird migration occurs in early spring, with many wintering sparrow species getting ready for the trek north. There is some crossover with departing species like American tree, Harris', Lincoln's and others, and the arrival of summer residents such as chipping, lark and grasshopper sparrows. You throw in other migrant species such as vesper, clay-colored, song and many more, and it's a great time to go out and run up a big list of this fantastic and interesting group of birds.

Early spring is also when the peak of lek activity occurs for both prairie chicken species. Lesser prairie chickens can be found in the southwest, and west central parts of the state. I love hearing the cackles and squeals of an active group in the lek. Greater prairie chickens are found in the northwest, north central and eastern parts of the state, and the sounds they make are

much different than the lessers, calling attention to the reason leks are called "booming grounds." The greater's lower-pitched "boom" and cackles can be heard at great distances, especially on calm mornings, making it one of my favorite sounds on the prairie.

Kansas has a variety of raptors that are present in fall and winter, taking advantage of high rodent populations on our landscape. We are the melting pot of many plumage types and races of red-tailed hawks, from the very dark western birds to light, almost white birds from other parts of the country. Early spring is when they are paired up and mobilize for their migration back to breeding grounds often hundreds of miles away.

Take this opportunity to catch a glimpse of early spring birds. If you're like me, you'll never be disappointed.

### Johnson Named Fire Bird Award Winner

The Fire Bird Conservation Award was established by the National Bobwhite Conservation Initiative to allow State Quail Coordinators the opportunity to recognize an individual, group, or entity that has made a significant contribution to bobwhite quail restoration in their state.

John Johnson, Kansas' most recent Fire Bird Award recipient, has been the manager of Woodson Wildlife Area since 2012. Johnson has implemented many quail-friendly habitat improvements on the approximately 3,000-acre area, such as oak savanna restoration, invasive tree removal, spring/summer/fall burning rotations, and patch burn/grazing rotations.

Johnson has monitored impacts from his grazing regime by utilizing exclusion devices in addition to establishing a contract to document and quantify plant diversity changes. Johnson has also established a fall covey count survey to help monitor responses in the local quail population.

Johnson regularly researches and obtains equipment to improve the efficiency and effectiveness of his habitat man-



Pictured: KDWP Secretary Brad Loveless (left), John Johnson (center) and Jason Deal (right).

agement practices. And he's given many presentations to department personnel, private landowners, noxious weed directors, and academia to share his findings. Johnson's work has been well received by local ranchers, and has influenced several to adopt more quail- and wildlife-friendly practices. A win-win for all.





## LAW MATTERS

with Colonel Ott

## Recruiting the Right Ones

The new year started off with a bang for KDWP's Law Enforcement Division. On January 13, we were able to bring in five new Kansas game warden recruits; six total were hired, however one was already law enforcement certified and was able to start much earlier than the others.

Hiring a law enforcement officer is a difficult task requiring testing, interviews, physical examinations and background investigations. Selecting the right candidate is critical to ensure the success of the agency, as well as the individual being hired.

Many KDWP game wardens are situated in rural areas, while others are in more urban environments. And largely, they work mostly alone, regardless of placement. Not everyone is cut out for this kind of career; we require smart, independent thinkers who can navigate difficult situations on their own and away from "civilization."

The Law Enforcement Division is comprised of 87 officers, myself included. There are 82,277 square miles in Kansas, leaving roughly 1,054 square miles of public and private lands for each of our 78 game wardens to patrol and provide assistance. That's a tough spot to be in sometimes.

Kansas game wardens are also certified state law enforcement officers with statewide jurisdiction. Our mission and focus will always be on protecting Kansas' natural resources, but game wardens can enforce any state law, including traffic. And they attend the same training academy as other state law enforcement officers, through the Kansas Law Enforcement Training Center.

To be a Kansas game warden, you must have a bachelor's degree in any discipline, but natural resource and law enforcement degrees are preferred. You cannot have a felony or domestic violence conviction, questionable personal integrity, or poor moral fiber; we need the best of the best.

Once sworn in and trained, many game wardens also teach



hunter education classes, attend numerous community events around the state, and career fairs. Though not required, officers are also encouraged to be active in their communities, serving on boards, councils or other positions; it's a great way to stay engaged in a community.

For those who cut the mustard, serving as a Kansas game warden can be a fulfilling, lifelong career. We're hopeful for our new recruits, and anxious to see who else might apply in the future.

Our newest hires will fill positions in Miami, Coffey, Montgomery, Neosho, Labette, Morton, Stevens, Seward, Atchison and Doniphan counties.

We have plans for another hiring effort in late spring through the summer of 2020. If this interests you, consider taking a look at what being a Kansas game warden is all about. We have a new ride-a-long program coming soon to our division that will offer individuals a first-hand look at the work we do. We'd love to have you join us.

## WHAT AM I? ID Challenge

Using only the image and clues below, see if you can figure out this month's mystery species!

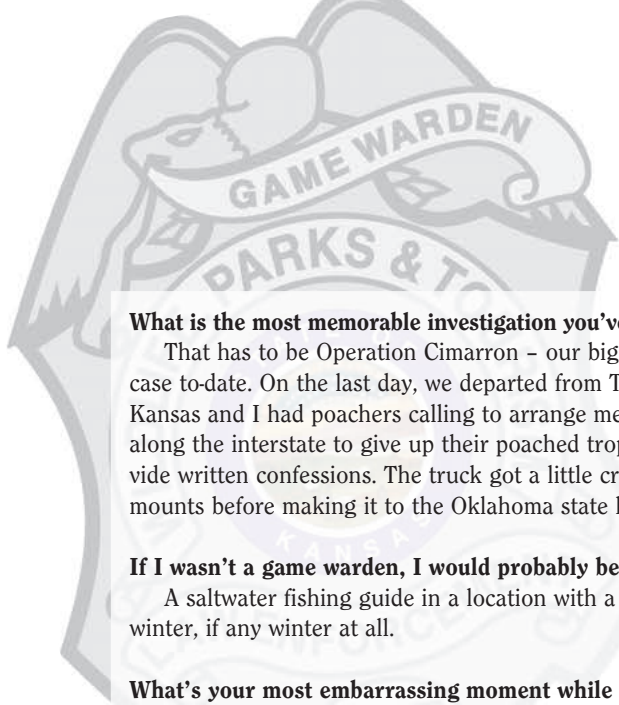


### Clues:

1. I am primarily aquatic, but love to bask in the sun.
2. I can live up to 40 years and average 6 to 12 inches long.
3. As an omnivore, I eat both plants and meat.

>>> See answer on Page 14.





# Game Warden Profile

Captain Dan Melson

## What is the most memorable investigation you've worked on?

That has to be Operation Cimarron – our biggest poaching case to-date. On the last day, we departed from Texas back to Kansas and I had poachers calling to arrange meeting points along the interstate to give up their poached trophies and provide written confessions. The truck got a little crowded with deer mounts before making it to the Oklahoma state line.

## If I wasn't a game warden, I would probably be...?

A saltwater fishing guide in a location with a very short winter, if any winter at all.

## What's your most embarrassing moment while on duty?

One that comes to mind is when I interviewed a suspect for illegally noodling flatheads in Elk County on a rural road. After receiving his confession, written statement and giving him his ticket, my truck had a dead battery and I was forced to beg him for a jump start, which he very reluctantly provided.

## What/Who influenced you to become a game warden?

My love of hunting and fishing in Kansas.

## What's your favorite area in Kansas to hunt or fish?

Wilson Lake for fishing and Russell County for hunting.



## What are the things about your patrol area most people don't know?

The brush piles I catch my crappie from. And, when I was still in the field, most people didn't know my hiding spots for catching poachers, or that I had a key to nearly every gate in Greenwood and Elk counties.

## El Dorado Shooting Range: One Year Later

by Ross Robins



Located just west of the park office, the El Dorado State Park Shooting Range provides shooting opportunities in an area where opportunities had been limited. The new facility serves as an ideal location for live-fire exercises in hunter education classes, sighting in rifles before hunting season, and spending time outside enjoying a fun activity.

This popular range, that attracts more than 100 shooters each Saturday, consists of a 100-yard rifle range, 25-yard handgun/rifle range, and 15-yard handgun range. It also includes a 2,400 square-foot building with full utilities. It is open Thursday through Sunday, and hours vary according to the day and time of year. Shooters must furnish their own firearms, ammunition and safety gear. The range is operated by a friends group and manned by certified range officers. In keeping with the design of our newer, modern ranges, the

El Dorado range boasts earthen backstops, concrete side-walls and bullet-retaining firing line covers. It also incorporates overhead baffles to prevent any errant bullets from leaving the range.

Three-quarters of the cost of the range was provided by a U.S Fish and Wildlife Service (USFWS) grant. The money comes from an excise tax paid by manufacturers of firearms, archery equipment and ammunition. Sales of firearms and ammunition continue to be at an all-time high and the revenue from the excise tax on those sales continues to grow accordingly; in fact, this year, there will be about \$1.4 million dollars available. The USFWS divvies that money to the states. When we build a range, that money is used to pay 75 percent of the cost. The Department's share of the grant is 25 percent of the cost, paid with revenue received from the sale of hunting licenses and permits.

We are now planning to focus on repair, maintenance and improvements to existing ranges. Some of our early ranges are almost 20 years old and showing lots of wear, particularly the Fancy Creek range at Tuttle Creek State Park. Currently, we are in the engineering and design phase of what will be a complete renovation. The existing wooden-baffled range has outlived its useful life expectancy and will be replaced with a concrete-baffled range modeled after El Dorado. The Tuttle Creek range will be operated by the existing friends group, which has been in place since the original range opened in 2002.

Visit [ksoutdoors.com](http://ksoutdoors.com) to find a shooting range nearest you, and come see what all the buzz is really about.





## Safe Boating is a Family Affair

with Chelsea Hofmeier

When I think back through my childhood memories, boating with my family is one that stands out in my mind. Boating is a fantastic way to spend time as a family and make some lasting memories along the way. It promotes family fun, closeness and teamwork, allows your children to discover new passions and skills, and fosters a love of the outdoors, as well as physical activity. One of the most important elements to boating as a family is safety; there is no such thing as too young when it comes to learning about boating and water safety. When you make learning to boat safely as fun as possible, it can be very successful. Here are a few teaching tips and safety concerns that you should address while boating with your family.

If you want your children to follow safe boating practices, lead by example! You can't expect youngsters to always make the right decision when it comes to safety unless they consistently watch you do the same. Enlisting older children to set an example for younger siblings is also a great way to involve the whole family.

Instead of having an irrational fear when teaching kids about boating safety, teach them to have a healthy respect for the water and parts of the boat that could potentially be dangerous.

Life jackets should be worn at all times when on a boat or near the water. Make sure young children have their life jackets on while on docks and swimming platforms. Teach your kids the importance of knowing how to swim while wearing a life jacket.

Always have at least two adults on board when boating with young children so that one can focus on driving and the other can focus on the kids. A bored child tends to find things they shouldn't be doing, so be prepared to keep your kids entertained during your outing so they don't get into trouble. Depending on



the age of your child, this could mean pointing out landmarks, learning how to navigate, watching the waves or wake behind the boat, or bringing along small toys and books for the little ones. As the kids get older, encourage them to take over small jobs and responsibilities such as anchoring, keeping watch, line handling, and flag duty.

Boating safety also includes protection from the outdoor elements. This includes applying and re-applying sunscreen, providing shade and hydration when needed, and dry clothes for when kids inevitably get wet.

Lastly, when your children are old enough, take a boating safety course together. This is a great way to learn some new things together.

Keep your family a happy boating family by making boating safety a routine practice on every outing.

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## Elk City State Park Receives Best of Independence Award

Elk City State Park was recently awarded the 2020 Best of Independence Award in the Local Business category by the Independence Award Program.

Each year, the Independence Award Program identifies companies they believe have achieved exceptional marketing success in their local community and business category, enhancing the positive image of small business through service to their customers and community.

### About Elk City State Park

Dense oak and hickory woodlands meet rolling meadows of big bluestem and Indian grass at this striking 857-acre park located on the east shore of 4,500-acre Elk City Reservoir with 12,000 acres of wildlife area nearby. Elk City State Park offers

a quiet, family-oriented get-away. The compact park allows easy, quick access to features including boat ramps, a swim beach, camping, playgrounds, and hiking trails. The lake area offers picturesque views ranging from open prairie to wooded hills and limestone bluffs.

The area is well-known for its diverse trail systems, including the Eagle Rock Mountain Bike Trail, the Post-Oak and Green Thumb Nature Trails, the Table Mound Hiking Trail, and the Squaw Creek Hiking Trail. Also nearby is the Elk River Hiking Trail, a 15-mile trail from the west end of the dam to the US-160 bridge over the Elk River south of Elk City. Wildlife watchers can see a variety of Kansas wildlife, including the large pileated woodpecker which is common in the mature trees along the Elk River.



# HUNTING HERITAGE

with Kent Barrett

## Sharing The Shoot

As nicer weather approaches, many of us will have the opportunity to introduce friends and even some family members to a new activity – shooting. So how do we make sure that when we take someone shooting for the first time, they enjoy it?

First, we need to make absolutely sure that everyone involved is safe. This means appropriate eye and hearing protection. No one is exempt and no one is left out – period. This safety equipment has to be functional and fit each person. This means don't make the little bounders wear grandpa's old, worn out, scratched up shooting glasses!

Next, make sure new shooters, as well as our experienced mentors, know and follow the four basic firearms safety rules: 1) Treat every firearm as if it were real and loaded. 2) Never point a firearm at anything you do not want to shoot. 3)

Keep fingers out of the trigger guard and off the trigger until the firearm is on target and the shooter is ready to shoot. 4) Know your target, what is in front of, beside and especially, what is behind it. Always stay right next to the shooter and be ready to help control the muzzle if it happens to wander.

Now, the fun can really begin. Ensure the firearm you select is a size and weight the new shooter can comfortably handle. If it is not, STOP. Start small before going on to a larger firearm with more recoil. It is also important to use a target that will allow for success. Select an appropriate shooting position: seated at a bench, shooting prone, even standing. But make sure that whatever the position selected, that position will increase the new shooter's opportunities for success. Select an appropriate dis-

tance to the target; very few shooters will feel comfortable shooting at a target that is far away. Start close – you can always move further back after the new shooter's confidence goes up. The Kansas Hunter Education program uses a rifle target designed for a distance of 10 meters or about 32.5 feet. This target is designed for use with either an air rifle or a rimfire cartridge. Shooting at this distance is fun and makes success easy for the new shooter.

As Andy Fink, editor of *Junior Shooters* magazine reminds us, "Taking a person shooting for the first time requires planning: the right gun, the right targets, the right distance, the right place, and lots of patience. Remember, safety comes first."

## Mind The Trail

by Kathy Pritchett

Suppose you are zooming along on your mountain bike when you crest a hill and there, coming at you along the trail, is a horse and rider. What do you do? If you are following proper and established trail etiquette, you move off the trail and wait quietly while the horse passes. You might speak a quiet greeting so the rider (and the horse) sees and hears you, and can identify you as a human, not a mountain lion. Once the horse has safely passed, you can resume your ride.

But suppose what you see over the crest is a hiker? Same scenario, although you could make a bit more noise and maybe not move so far off the trail. A hiker is not likely to bite, kick or trample you with the same ferocity as a frightened horse.

You may already have seen these signs on our trails. KDWPT has partnered with the Kansas Horse Council, aided by a grant from Back Country Horsemen of America, to post trail etiquette signs at trail heads, crossings and other places along our multi-use trails. These rules are designed to keep trails safe for all users and minimize conflicts.

Volunteer trail workdays are also a great way to learn more about other users and their points of view. A recent

workday on the trails at Kanopolis State Park brought out runners, hikers, mountain bikers and equestrian users. The trails have suffered from much use over the last 20 years as well as being submerged for long periods during last summer's devastating floods. Working shoulder-to-shoulder carrying bags of concrete to stabilize the trails, folks got acquainted and learned ways to help each other. The youngest volunteer was 7, the oldest in her 70s. Thanks to the young ones, staff were able to place steppingstones for a water crossing at a distance comfortable for users. Workdays at other parks offer similar opportunities.

If service is your passion or you need funding for college, we still have some part-time AmeriCorps positions available. Part-time AmeriCorps members agree to serve 900 hours between sign-up and August 31 in a state park. In return, they receive a biweekly living stipend. Upon completion of the 900 hours of service, they also receive an education award that can be used to pay expenses or student loans at Title IV schools. Interested persons should apply at a state park near them.

Volunteering to help maintain trails and parks is an excellent way to ensure these opportunities are there for generations to come. Volunteers are essential



to our park operations, as the state parks receive no state general tax funds. Our volunteers watch over our trails, letting us know issues that need resolved. Many times, for instance if a tree limb is down, they take care of it themselves and let us know. Other times, in coordination with the park staff, they mow the trails or trim the tree limbs. Other volunteers may care for the flower plantings or butterfly gardens, while still others handle other tasks around the park. Don't hesitate to pop into the park office and engage with the staff by asking, "What can I do to help keep my park the best place it can be?"



## Blue Wild Indigo | text and photos by Krista Dahlinger

Each spring, showy purple flowers appear on tall spikes across the eastern three-quarters of Kansas. Flower colors range from sky blue to deep purple, sometimes with very pale to white coloration. The blue wild indigo plant is a member of the legume, or pea family. Its flowers are made up of characteristic large upright banner petals, standing above lower wing petals located on each side of a “keel” – two petals that serve to enclose and protect the 10 stamens and pistil reproductive parts of the flower.

The leaf and stem parts of the plant can grow several feet in height, with the flowering spike rising another foot or more. As the plants mature over several years, with deepening root structures in favorable rocky limestone and clay soils, the plant may grow several stems at the ground level and produce two to five flowering spikes. Each stem produces branches that spread widely outward, forming an open funnel shaped mass. Leaves are arranged alternately along the branches and are wedge shaped with pointed tips in groups of three. In Kansas, blue wild indigo blooms from May to June in open sunny to near shade areas. Deep roots give the plant the ability to survive dry and drought soil moisture conditions. Plants can be long-lived for five or more years.

After flowering, blue wild indigo forms large inflated pods in which seeds develop. The pods are initially green but turn dark brownish-black by wintertime. Seeds are small, kidney shaped and can persist for long periods inside of the tough dried pods. Blue wild indigo plants are herbaceous, meaning they are without a woody stem that persists year after year. The entire plant can break off at ground level and tumble short distances. The tough seed pods remain closed with the seeds coming loose inside of the pod. The seed pod spikes are referred to as “buffalo rattles” due to the rattling sound made when shaken.

Blue wild indigo occurs from Nebraska to Texas and east to Illinois across the south and eastern range of the Great Plains. Blue wild indigo is not

a candidate for transplanting due to the very deep root system. Seed pods can be collected, and the seeds planted in soil in deep pots outdoors for a year or more awaiting germination. Once a seedling develops, it can be transferred in early spring to a permanent location in the landscape. Young plants will produce a very long tap root that should be handled carefully. It may take two to three years for blooms to form as the root system becomes established. Several species of weevils lay eggs in the inflated seed pods and the larva consume and destroy developing seeds.

*Baptisia australis* may produce an inferior bluish dye, but not true deep blue indigo dye. *Indigofera tinctoria* is a plant native to India that produces the traditional deep indigo colored dye used for denim. The Kansas plant is sometimes referred to as “false wild indigo.”

Blue wild indigo leaf and stems contain alkaloids which make the plant unpalatable – and it is not usually grazed by domestic or wild animals. Insects including caterpillars of several butterflies and moths utilize the leaves for food, and the flowers for nectar.

Most Kansas state parks have good growing conditions for Blue wild indigo. Be sure to look for purple flowers on tall spikes starting in May.





## EVERYTHING OUTDOORS

Spring is a time of renewal, and a time to make new memories. New growth sprouts and outdoor enthusiasts gear up for activities like spring crappie fishing, shed antler hunting, bird-watching, and turkey and morel mushroom hunting. While my good friend and coworker, Craig Curtis, enjoyed the former, he was absolutely addicted to finding morel mushrooms. Craig lost a battle with kidney cancer last September at the age of 49. He leaves behind his wife, Anita, and two high school-aged children, Cale and Addie. He also leaves behind my favorite kind of memories – being outdoors with friends.

Craig worked as a regional wildlife supervisor in our Wichita office for about 10 years. In addition to working cooperatively on activities like our Pass It On youth hunting programs, the state fair and other projects, our mutual love of the outdoors fostered a friendship that had us visiting often. As I write this, I guarantee past conversations this time of year would have already focused on all of the morel mushroom hunting to come.



## My Kind of Memories

with Marc Murrell



**Craig Curtis holds a false morel mushroom on the left (his right hand) and two morel mushrooms. Morels are tasty treats Curtis enjoyed hunting for each spring season with author and friend, Marc Murrell.**

Mushroom hunters are a secretive breed and Craig had plenty of good spots. I often joked my favorite mushroom hunting spring was when he found enough to share so I could avoid the poison ivy, ticks and sore back from tromping through the woods!

But unlike many mushroom hunters, Craig did share a few spots, and we considered them “ours.” I rarely went alone and enjoyed the time we hunted together better anyway. Our conversations focused on our kids and family, some new food recipe Craig had tried, big whitetails he’d seen on Facebook or a particular buck we measured together. If things got too quiet, he’d start quizzing me with movie quotes and while he knew hundreds, I was pitiful at naming most any, which is why I think he enjoyed the game so much.

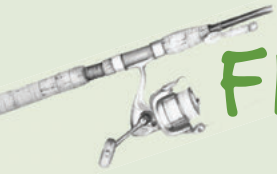
Some of our best years found us collecting upwards of 70 pounds of morels, while others drew just enough to quench only his palate; Mother Nature was often the limiting factor. Yep, Craig was addicted. He’d literally drop everything on a hot tip to take off and pursue morels. Or, during his kids’ track practices, he’d eyeball a patch of woods and bug out for a quick look, several times finding some in the city limits of Wichita. I swear he could smell them, and it wouldn’t surprise me if he could hear them popping up, too.

I’ll certainly miss those times hunting morels with Craig. I’ll head to our spots thinking of him, our wonderful times and memories of great finds. Morels were icing on the cake; the real treat was time spent outdoors with a good friend.

I imagine Craig is in heaven now, bending God’s ear with talk of precipitation predictions, ground temperature and soil moisture and where he thinks they should look for morels first. I’m also hoping God knows every answer to his movie trivia game, so he’ll finally quit playing it.

A tip of the mushroom cap and mesh sack to you, Craig. I’ll lift the first morel I find in 2020 to the sky and send you a wish. My wish is you are cancer and pain-free, finding the morel motherlode on the other side of the pearly gates and enjoying all things outdoors.





# FISHIN'

with Mike Miller



# Writings from a Warden's Daughter

with Annie Campbell-Fischer

## Understanding Limits

Have you ever wondered why there is a 20-fish creel limit on crappie at Melvern but a 50-fish daily creel limit on crappie at Milford? It may seem overly complicated, but fishing regulations are established with a goal of maintaining healthy fish populations while providing the best angling opportunities possible.

Lakes differ in respect to water quality, habitat, available forage, fish growth and reproductive rates, as well as how susceptible the fish are to angling pressure. And fish species differ in lifespan, reproductive potential, and angler preference.

So how do the biologists arrive at their recommendations? While it's unavoidable that social pressures sometimes influence regulations, Fisheries staff use the best science available when proposing regulations.

Data is gathered annually through sampling fish populations at each lake with electroshocking and netting. Numbers and size of fish caught per sampling effort are recorded, and fish are released. Fishes' health is determined and population trends are tracked by comparing the data to that from years past. This data also helps a biologist evaluate the effectiveness of current regulations.

Additional information is gathered through creel surveys. Seasonal employees are hired each spring and summer to survey anglers at various lakes, where they ask anglers about numbers and size of fish caught, as well as their opinions about the fishing experience.

But that's not all. Research projects involving tagging, telemetry tracking, and microchemistry help biologists learn more about fish mortality, movement and reaction to changing conditions. Results often dispel long-held assumptions and allow biologists to focus on the actual limiting factors in various fisheries, which in turn helps them recommend effective regulations.

All that to say that the different length and creel limits for various lakes isn't random. They are based on science and are in place to improve the quality of fishing for Kansas anglers.

## A Poacher Under the Bridge

In the late 1980s most hunting seasons ended in January, so February was usually a quiet month for game wardens. However, on one "quiet" February evening, our home phone rang at around 10 p.m. At that hour, Dad wasn't eager to answer it, but he did. He always answered the phone. It was the Pottawatomie County Sheriff's dispatcher with information about an injured man found lying on the ice below a county bridge next to the remains of a deer. As Dad stepped out, the cold night air ensured he was wide awake for the 17-mile drive to meet the Pottawatomie County Sheriff's deputy who waited at the bridge. The deputy told Dad that an unknown person had called the Sheriff's office around 9:30 p.m., reporting that someone had fallen off a county bridge southwest of Westmoreland. When the deputy arrived on the scene, he found an unconscious man on the ice next to the still-steaming remains of a partial deer carcass. The man had fallen at least 15 feet from one of the few arched bridges in the county, the arch adding another 3 feet to his fall. The injured man had been transported to the Westmoreland hospital. His truck remained parked west of the bridge. Dad slid down the bank with a rope and secured it to a deer head, hide and front shoulders and he and the deputy hoisted it up onto the bridge. Examining the carcass, Dad determined that a single bullet had passed through the front shoulders killing the animal. Turning their attention to the man's truck, Dad and the deputy located a centerfire rifle in the unsecured cab and a recently used bone saw under the truck topper. Fresh blood, tallow and deer hair were evident on the rifle and saw. Dispatch traced the call to a residence a half-mile southwest of the scene. It was almost midnight, but Dad knew it was necessary to wake the residents at that location and determine who made the call. The sheriff's deputy to knocked on the door and learned that a neighbor who lived a quarter-mile northeast of the bridge had showed up at the house on foot and asked to use the phone. Dad was familiar with caller's address, so he and the deputy headed that way. When they arrived, Dad swung a wide circle in the farmyard behind the house to cover the back door. In his headlights, he saw a deer hanging in

the barn. Dad watched the back door of the residence as the deputy knocked on the front door, but no one answered. Dad inspected the hanging deer carcass. It had an entry and exit wound through the rib cage that matched up with the front shoulder wounds of the remains removed from the ice earlier. A deer heart was tacked to a barn beam support with a filet knife. It was seized, along with the untagged carcass and loaded into the back of Dad's truck. At the hospital, nurses were expecting to see Dad and allowed him to see the patient. As he entered the hospital room, the injured man called Dad by his first name. Dad had a history with him and his accomplice and he knew it would be a waste of time to get an admission from either, but he tried. The seized rifle, bone saw, along with samples of blood and hair were submitted to the Kansas Bureau of Investigation lab in Topeka. Analysis linked the deer remains found in the creek to the blood and hair found in the suspect's truck and the deer carcass found in the barn. Dad submitted his report and the evidence to the Pottawatomie County Attorney's Office. Six months later, warrants were issued for both suspects for several big game hunting violations. Faced with the evidence, both men pled guilty to hunting without state licenses, taking a deer in closed season, and wanton waste. The men had prior records and were guilty of violating their probations. In addition to fines, the poachers served six months in the county jail. What happened on that cold February night? We may never know all the details, but there's a good chance alcohol or drugs were involved and as the man attempted to throw the deer head, front shoulders and hide over the bridge, he went along with it. His accomplice, afraid of being incriminated with the poaching crime, called in anonymously and disappeared.

Before that February closed out, Dad was called out to investigate two more deer poaching reports, which resulted in the arrest of four individuals. The cases were the result of law enforcement teamwork between game wardens and county sheriff's deputies acting on the timely reporting by citizens. So much for a quiet February.



## Wander Woman with Tanna Fanshier

There is a newcomer to the R3 game, and these ladies are making waves in the recruitment, retention and reactivation world for women across Kansas – welcome Wander Woman.

Wander Woman, founded by Jessica White out of NE Kansas in 2018, aims to get women excited about attending a wide variety of outdoor skills events. It allows women the opportunity to accomplish something new and outdoor-related, all while surrounded by fun-loving, motivated peers ranging in experience and ability. When asked directly about her goals in forming the group, White responded simply, “What I want most is to get outdoors and enjoy these new activities, and bring women with me.” And that is exactly what she has done.

Some of White’s most popular events include hunting and shooting clinics, citing feedback from many participants that these activities can be intimidating to explore alone, and difficult to learn directly from a spouse. So far, she has seen fantastic results.

White reports the organization is already seeing repeat participants. Given the organization’s continued growth, White looks forward to organizing a com-

mittee that will make recommendations and help oversee the future efforts.

Repeat participants aside, what might be most impressive of all is that Wander Woman currently receives no formal funding; the organization relies almost solely on sponsorships and raffles to cover the cost of events. White plans to use funds from their most recent raffle to apply for status as a 501c3. To date, no participant has ever been charged for an event, and White credits the many event sponsors, organizers and volunteers she has worked with for keeping these events free, or at low cost to the group.

White has big dreams for Wander Woman, including expanding to include chapters in other states, making appearances at larger conventions and women’s clinics, and conducting gear reviews to provide female consumers and the outdoor industry with honest feedback about gear made specifically for women. White also imagines a day when Wander Woman might have its own line of outdoor clothing and merchandise to promote the group and meet the needs of all outdoors women.

As for her events, White plans to maintain a broad focus and continue to get



women outdoors in any way she can.

“Some women aren't ready to shoot and hunt,” White admits, “So, let's go canoeing and build a bond which could potentially lead to [participants] wanting to try the other clinics I have to offer. I love to do it all.”

If these activities interest you, follow the Wander Woman-Kansas Facebook page @kansaswanderwoman and subscribe to updates at [www.wanderwomanks.com](http://www.wanderwomanks.com).

## Twin Lakes WRAPS 2019 Water Quality Award Winner



KDWPT district wildlife biologist, Jeff Rue, was recently announced as the Twin Lakes WRAPS 2019 Water Quality Award winner. Rue manages public and private lands in Butler, Chase, Cowley, Marion, Morris and Sumner counties.

Rue’s day to day tasks include: participating in deer and wildlife population surveys; volunteering as a Council Grove Regional Envirothon instructor; working with various outdoor wildlife learning sites (OWLS); serving as a general wildlife information source for inquiring minds and media; continuously meeting with landowners offering technical advice; collecting and analyzing field data; as well as writing technical reports and articles.

Most recently, some of Rue’s research projects in Morris County have been focused on details that could affect select farm bill programs, such as the Farm Service Agency’s Conservation Reserve Program, or CRP.

These select few examples do not even begin to take into account all that Jeff Rue has done in other counties and across Kansas. His overwhelming dedication to conservation of our natural resources, both big and small, is why the Twin Lakes WRAPS Stakeholder Leadership Team is proud to announce Jeff Rue as the 2019 Twin Lakes WRAPS Water Quality Award winner.





## Paddlefish Jerky

Last year, my family planned a fishing trip over spring break for paddlefish. We brought back a good 40 pounds of well cleaned fish steaks that, along with our other fish, lasted well into winter. With so much meat, I decided to try something new – fish jerky.

One day, I asked around the office if anyone had experience with making fish jerky. To my surprise, no one had! It made me want to try out a recipe even more. After some online research, I formulated a recipe.

I sliced the paddlefish steaks into quarter-inch strips and placed them in brine for two days. I then moved the strips to an elevated wire rack placed in an aluminum foil-lined baking sheet and placed the strips in the oven. The lowest gas oven can go is 170 F, so that's where I set the temperature. I then used an aluminum can to prop the oven door to help with dehydration.

It took nearly 10 hours before my family finally couldn't stand the smell anymore. Almost as soon as I removed the fish from the oven, my wife locked the oven door and hit the "clean oven" button. (I will admit, it stunk up the house!)

My wife was the first taste-tester. I could tell by her facial expression she wasn't initially into it, but after taking a bite, she remarked "I didn't think I could get past the way the house smelled, but it's surprisingly good."

Next up, were my coworkers. I first hit up the people who I knew liked fish. All of them really liked it. And as for the rest of the "non-fish" crowd, well, all but one said I should make more.

I'm eager to try this again using catfish, as the two fish are similar in fat content and texture. Decide for yourself if you want to take the chance of smelling up your house. You just might find this recipe surprisingly good.

### Paddlefish Jerky

*Makes approx. .75 lbs.*

|                          |                      |
|--------------------------|----------------------|
| 3 lbs Paddlefish steaks  | 1 tsp Onion powder   |
| 1 C Soy sauce            | 1 tsp Garlic powder  |
| 1 C Orange juice         | 1 tsp Turmeric       |
| ½ Fresh lemon juice      | 1 tsp Smoked paprika |
| ¼ C Worcestershire sauce | 1 tsp Ginger         |
| 1 T Black pepper         |                      |

Mix all ingredients in a bowl, excluding fish. Cut fish into quarter-inch strips. Place strips in marinade and refrigerate 24-48 hrs. Place strips on an elevated rack in a baking sheet. Set oven on lowest setting and prop open door to allow moisture to escape. Dry jerky for 10-12 hrs. Store jerky in plastic bags and refrigerate.



# Park View

with Kathy Pritchett

## Let's Camp America

Let's Camp America is a nationwide initiative by state park agencies in all 50 states to encourage people to camp. Some states use a different name for the initiative and its components, such as "Let's Camp," "Rent-a-Tent," or others, but the goal is the same - to get people who have never camped before to try it.

Events are held the first weekend of May to kick off the primary camping season and the last weekend in September to recognize the usual conclusion of it. Conceived by the National Association of State Park Directors, which is comprised of state park directors of all states, the events are meant to introduce new campers to the world of creating memories by experiencing adventures in nature. It also serves to remind those who used to camp how many memories they created by camping. The goal is for those people camping their first night to begin camping regularly, turning a night into a weekend then into a week, and eventually into a whole season.



Whether in a tent, RV or cabin, campers experience the natural world in a different way than at home in the backyard or spending time in a city park. Campers get to see the night sky unobscured by city lighting, finding more stars than they knew were there. They might wake to find deer, geese or squirrels ready to share breakfast. Kids can play without electronics, catch fireflies and watch sunrises and sunsets. Campers can smell the smoke of a campfire, while they taste the hot, melty goodness of fresh s'mores.

Many camping trips also involve other outdoor pursuits. Some enjoy water sports, like skiing and tubing, while camping. Others may relax on the beach and swim. Some fish from a boat or a bank, while others take a hike. Some ride a bike or a horse. There are

many trails of varying lengths and difficulties within our state parks; some wind through spectacular scenery.

Camping generates community as well. There are groups dedicated to camping together, as well as friends and family who make camping together a tradition that may last generations.

Arranging for camping is easy in Kansas. You can reserve online at [reserveamerica.com](http://reserveamerica.com) or call a park office for detailed information before reserving. We also have a new app called CampIt KS that allows you to pull into a campground, see what sites are still available then reserve and pay for the site you select.

Saturday, May 2 is free park entrance day in Kansas for 2020. Visitors can go to any Kansas state park without paying the \$5 daily motor vehicle fee. They can picnic, hike, utilize the playgrounds or just look around to see what's there. Webster State Park is holding its Outdoor Kansas (OK) Kids Day on May 2, a day filled with fun activities to introduce kids (and parents) to the adventures they can have in our parks. Cedar Bluff State Park is hosting a family friendly outdoor movie that evening. Take advantage of this free opportunity to check out what we have to offer. Let's camp, America!

### WAY outside BY BRUCE COCHRAN



Reserve your  
campsite on-the-go  
with the CampIt KS  
mobile app!  
Available now in the  
Apple App and  
Google Play stores.



“WHAT AM I?” answer: Red-eared slider





## Get Out or the Count!

with Daren Riedle

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I was scrolling through social media when an article a friend shared caught my eye. The article, originally published in the October 2018 issue of the journal, *Nature*, was titled “No PhDs Needed: How Citizen Science is Transforming Research.” The article was a brief discussion on the growth of active public involvement in scientific research. The efficiency and scope of data collection through a cadre of dedicated volunteers greatly exceeds what can be done by a handful of agency biologists. I’ve discussed citizen science in the past, but for this issue, I thought I would briefly discuss two of the oldest and largest efforts in Kansas – Audubon’s Christmas Bird Count and Spring Herp Counts.

Audubon’s Christmas Bird Count, the largest and longest running citizen science effort in the world, is in its 120th year. It takes place December 14 to January 5 annually. A total of 2,585 counts were submitted for the 2017-18 season across the United States, Canada, Latin America, Caribbean, and Pacific Islands. Twenty-nine of those counts occurred in Kansas, and anywhere from 50-100 bird species were observed during each count.

Similar homegrown efforts were initiated by the Kansas Herpetological Society (KHS). Founded in 1974,

KHS established regular field trips to better understand distribution of amphibians and reptiles in the state. Modeling the Christmas Bird Counts, KHS began Spring Herp Counts in 1989. A recent summary of herp field trips from 1974 to present showed 472 counts in 81 Kansas counties, including 74,184 individuals observed, and 94 amphibian and reptile species represented.

So why count things? Repeated surveys reveal population trends over time, which can be related back to impacts such as land conversion, development, and climate change. When reviewing a species status, KDWPT considers the population status and trends over the previous 35 years. As you can imagine, data from these citizen science counts are of tremendous value to our agency. I encourage you all to participate freely in these citizen-led endeavors.

If you’re interested in participating in future bird counts, follow the Kansas Ornithological Society at [ksbirds.org/kos/KOSindex.html](http://ksbirds.org/kos/KOSindex.html) or KS Birds at [ksbirds.org](http://ksbirds.org). KHS holds regular field trips, generally in spring, mid-summer, and late summer into fall; Visit [ksherp.com](http://ksherp.com) for more info.



Daren Riedle photo

# Kansas Bowhunter Takes World-class Non-typical Whitetail

By Marc Murrell

Every deer hunter dreams of crossing paths with a once-in-a-lifetime buck. Unfortunately, most never get that chance and instead, are left with the ones that got away, near misses and what-ifs. However, the paths cross occasionally and bowhunter Brian Butcher is proof it does indeed happen. Butcher, 38, harvested a buck last October that will potentially rank fourth in the world for non-typical whitetail deer if the net score of 321 3/8 inches is accepted and verified by the Boone and Crockett Club.

Butcher started bowhunting at age 25 and enjoys his time in the woods.

"I just enjoy watching nature," Butcher said. "If you look at the time spent in a tree and the actual number of times you're successful harvesting a deer, it's minimal so I just enjoy the experience of being out there."

Harvesting a doe usually precedes Butcher filling his buck tag in past seasons, but he wouldn't even have time to do that this year.

"I'd gone out the week before and moved a stand and a trail camera and that's the one I sat in," Butcher said of his very first sit the evening of October 11 in Chase County. "I'd seen some deer and had some good action when I first saw him."

The buck that would eventually be determined to have 67 scorable points moved towards Butcher's stand.

"I was confused," Butcher said. "When I first saw it, I thought it had some branches or grass tangled up in his antlers. But when I looked at him with binoculars, I realized it was all antlers and I never looked at them again as I got ready to shoot."

At 25 yards, Butcher took careful aim and released. The buck bolted and left his view. After only being able to wait five to ten minutes, he climbed down from his tree stand for a closer look. He immediately found good signs of a fatal shot, including his arrow just a few yards away.



"He only went 50 yards or so," Butcher said.

As Butcher walked up to the buck, he realized something most hunters don't experience.

"I had the most opposite feeling of ground shrinkage possible," he said of the big whitetail. "I was in complete shock."

Knowing he had kids' soccer games early the next morning, Butcher hustled to get his deer loaded up and back to town. Since he enjoys the taste of venison, he wanted to cut it up and process it that night. He hadn't thought much about the rack, other than maybe doing a European skull mount like he's done with other bucks.

"But when a friend of mine, Brian Crowe, saw the photos he said, 'NO!', you need to have that mounted," Butcher said.

When he and Crowe initially green scored the rack, they were even more convinced this was something special.

"We added it up five times because it didn't make sense," Butcher laughed. "We had it at 341 inches gross, and 316 inches net."

According to Boone and Crockett guidelines, the buck could not be officially scored for at least 60 days. On January 3, Boone and Crockett measurers Marc Murrell, Newton, Kans., and Ken Witt, Burlison, Tex., took nearly five hours to come up with a net non-typical score of 321 3/8 inches of antlers.

The score sheet has been submitted to Boone and Crockett Club's headquarters for verification and tentative acceptance. The rack will then be scored by a panel of measurers at the next Boone and Crockett award's ceremony in 2022 and finalized.

Butcher's buck's score, if it stands, would rank fourth in the world. The top two non-typical whitetails were found dead in Missouri and Ohio and scored 333 7/8 inches and 328 2/8 inches, respectively.

The largest hunter-harvested non-typical was taken by bowhunter Luke Brewster in Illinois in 2018 and scored 327 7/8 inches.

The current Kansas state record non-typical whitetail was harvested during the 1987 firearms deer season by Joseph Waters in Shawnee County and scored 280 4/8 inches. The current Kansas state record non-typical whitetail harvested with archery equipment was shot by Dale Larson in 1998 in Pottawatomie County and scored 264 1/8 inches.

Butcher will no doubt realize some level of notoriety and monetary return after taking a world class whitetail like this one. While he's not sure where that's headed, he is certain he'll get a pedestal shoulder mount of the giant whitetail. Beyond that, it's anyone's guess.

"It's certainly uncharted territory for me," Butcher admits. "I'm not sure where it's going to take me so who knows?"





# Research Remarks

text and photos by Jeff Koch, KDWPT Fisheries Biologist

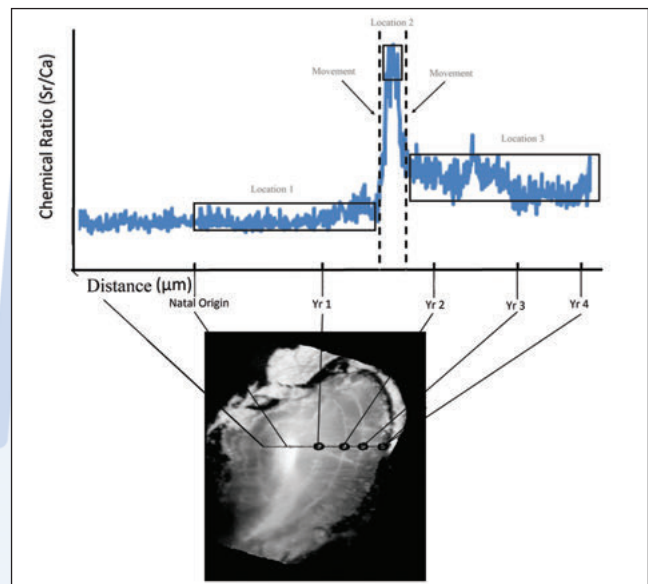


You know the old saying, “We are a product of our environment?” When it comes to humans, the phrase has more of a sociological context; however, when it comes to fish, there is scientific truth behind the phrase. Scientists can examine how a fish’s environment is reflected in their tissues, which in turn, can help answer important management questions. KDWPT Fisheries Division biologists are using clues from fish bones to determine where the fish spawned and where it’s been.

## Microchemistry

Select bones in fish continue to grow throughout their lives, such as the otoliths, or inner ear bones. Otoliths grow more rapidly during warm seasons when a fish is actively growing. Conversely, this growth slows during the winter when a fish’s metabolism decreases. The resulting growth patterns on otoliths display “rings,” much like those seen in a tree. As such, biologists can assign age estimates to fish using otoliths, often with relatively high confidence. As otoliths grow, they also accumulate calcium and other elements from the water in the fish’s environment. These elements are archived in the bone and can give biologists clues as to the fish’s life history. If biologists have baseline information about water chemistry in the state’s rivers, reservoirs, or even hatcheries, they can then correlate the chemical signatures in otoliths to those from waters where the fish may have resided.

An application of examining the microchemical signature of a fish otolith would be to determine whether a fish was stocked from a hatchery or spawned in the wild. Luckily, the chemical signature of the water sources from KDWPT’s four fish hatcheries are quite different from many of our reservoirs. As such, biologists can use otolith microchemistry to determine relative success of stockings without having to individually



The bottom of this figure illustrates a fish otolith. It’s chemical signature (seen at the top of the graph) can give information about a fish’s natal origin and the different locations it inhabited throughout its life.

mark every stocked fish.

Another use of microchemistry is to determine the natal origins and broad movements of fish in rivers. For instance, KDWPT is cooperating with the University of Nebraska-Lincoln on a project to determine where blue catfish and Asian carp in the Kansas River are spawned, and where they live in the Kansas-Missouri River system throughout their lives. Researchers are examining the microchemical signature at the core of these fishes' otoliths to understand where the fish were spawned. This can inform fisheries managers as to whether blue catfish in the Kansas River are fish that are stocked or spawned in our reservoirs and have emigrated from standing waters.

Researchers are also examining signatures along what's called the "gradient" of the otolith – from the core of the otolith to its edge – to understand a fish's movements during its life.

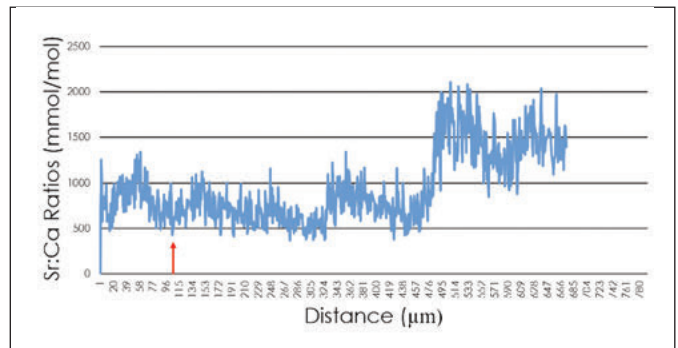
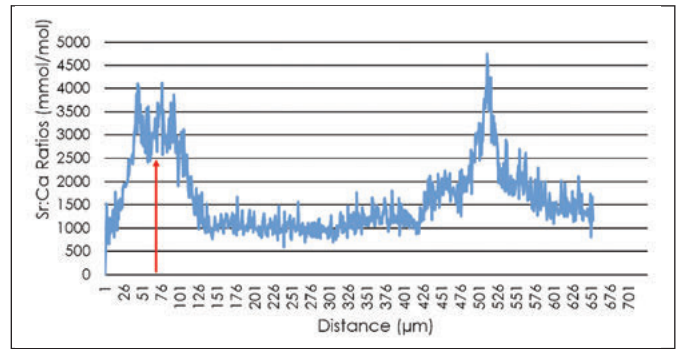
The data collected from these analyses is illustrated on the graphs to the right. The blue lines represent the chemical signature in two different silver carp otoliths throughout their lives. The area indicated by the red arrows represents the area near the core of the otolith.

As you can see, the chemical signatures are very different for the two fish. The fish represented on the top graph has a core Sr:Ca signature varying from 2500-4000, whereas the bottom fish's core signature is around 500-1000. This indicates that the fish were spawned in different waters. Secondly, both fish were captured at the same location in the Kansas River, which is also reflected in similar signatures towards the end of the blue line.

This information indicates that neither of these fish were spawned in the Kansas River and moved among river systems throughout their lives. This information can assist in interjurisdictional management and inform natural resource agencies on how populations move and interact. A similar process is being used on blue catfish in the Kansas River to determine where they are spawned and to what degree they migrate in and out of the Kansas River.

## Milford Blue Catfish

The blue catfish population at Milford Reservoir has developed into a destination fishery that provides high-quality opportunities for all types of anglers. There, boat and shore anglers can experience great fishing throughout all seasons for various sizes of fish. Optimal eating-sized blue catfish are available for anglers desiring their delicious white meat, but trophy fish exceeding pounds are also commonly caught in one of the best "big-game fishing" opportunities available in Kansas.



The first stockings of blue catfish into Milford Reservoir were in the early 1990s and the potential of the fishery is just now being realized. Blue catfish populations can take decades to fully develop, especially in Kansas, since our populations represent some of the northernmost reservoir populations. Continually monitoring, researching, and adapting management strategies remains a top priority for this fishery as it changes and matures.

In 2018, a 25- to 40-inch protected slot limit was instituted at Milford in response to concerns about overharvest of large blue catfish. To determine this regulation's effectiveness, KDWPT biologists began evaluating population size, angler exploitation, and growth of Milford blue catfish. In the summer of 2018, approximately 2,300 blues were marked with individually-numbered reward tags. Return of these tags by anglers provided biologists with valuable information as to how susceptible blue catfish may be to angling activity. The returned tags led to some interesting findings. For instance, only one percent of tagged fish under 25 inches had been reported by anglers; whereas, 10 percent of slot fish (25-40 inches) were caught by anglers. Furthermore, a staggering 30 percent of "over the slot" fish (greater than 40 inches) were reported as being caught by anglers, indicating an increasing trend in susceptibility to angling as these fish grow.

Although population estimates are fairly uncertain, our mark-recapture estimates from tagging indicate there are a lot of small fish in the population. Biologists estimate there are approximately 45 blue catfish smaller than 25 inches per acre; conversely, big



fish are rarer than previously thought. Models estimated the population of fish in the protected slot is 0.2 fish per acre, while fish over 40 inches are likely fewer than 0.1 fish per acre. These results give strong support to the new regulation that is targeted at protecting large fish in the population.

In addition to exploitation and population size information, biologists sought updated age and growth information on Milford blue catfish to understand how rapidly fish grow into and out of protection by the regulation. Results indicate that it takes approximately 10 years for a blue catfish to reach 25 inches in Milford. Once fish enter the protected slot limit, growth is rapid, and fish remain in the slot for approximately five to ten years. Abundance and growth of blue catfish will continue to be monitored to ensure the regulation is functioning as desired and maximizing the potential of the population at Milford; however, at the current time, the regulation looks to be functioning well and providing anglers with the opportunity to harvest sizes of blue catfish that are abundant, while protecting rare fish in the population.

## Bluegill Management

Bluegill are an important species to Kansas anglers, serving as both a sport fish and bait. KDWPT surveys indicate approximately 60 percent of Kansas anglers consider bluegill a sport fish, while 40 percent regard bluegill primarily as bait. Given this information, fisheries managers must balance desires for abundant, small bluegill for bait, against quality-sized bluegill either for harvest or catch-and-release opportunities.

A recent statewide project examining bluegill populations in Kansas indicated that Kansas impoundments rarely provide good numbers of bluegill greater than 8 inches. Researchers and managers have worked together to understand the shortcomings of Kansas' bluegill populations and to develop management strategies for improving populations, while still providing abundant numbers of small bluegill for those seeking bait. Results indicated that although growth of Kansas bluegills is rapid, mortality is also high, and in many instances excessive mortality may be the limiting factor. Essentially, bluegill are dying before they have the potential to reach 8 inches. Therefore, biologists once again developed a regulation aimed at protecting bluegill from angling exploitation to decrease mortality and improve size structure.

Starting in 2019, KDWPT enacted a 6- to 9-inch protected slot limit on sunfish at Jewell State Fishing Lake, Lake Lenexa, Miami State Fishing Lake, and Pottawatomie State Fishing Lake #2. Additionally, anglers are limited to five sunfish over 9 inches per



The blue catfish population at Milford Reservoir offers one of the best “big-game fishing” opportunities available in Kansas.

day. These populations will be closely monitored and their response to these regulations will be compared to local control lakes to ensure the influence of the regulation is isolated from natural variation in conditions.

Secondarily, biologists compared growth of bluegill at dozens of lakes to determine what physical, limnological (inland water-based), or biological characteristics lead to good bluegill growth. Variables relating to size structure of bluegill in the population, latitude, and abundance of largemouth bass appeared to drive bluegill growth; however, variability in these models led researchers to suggest that limiting harvest in Kansas bluegill populations may provide the largest dividends when it comes to producing larger bluegill.

Furthermore, simply the presence of large bluegill in these populations may increase growth as large, fit individuals may limit spawning of smaller individuals. Without having to worry about putting energy into spawning, these smaller individuals can then use their resources to grow more rapidly. Hopefully, protecting larger bluegill with regulations will keep larger individuals in the population, and positively influence growth by altering the social structure of the populations. 🐮



# Early-to-spawn Bass

## *A new era in fry production*

by Jason Vajnar  
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In Kansas, largemouth bass are the number one preferred fish to catch, according to the 2013 Kansas Licensed Angler Survey Report. Surprisingly, they're only the third most-targeted species. KDWPT's stocking program is a way to bridge that gap, and give anglers more opportunities to fish for largemouth bass – especially in large reservoirs.

Meade State Fish Hatchery started its early spawn bass program in 2010. Although defined as an intensive program due to the amount of manpower and mechanical infrastructure needed, Meade Hatchery have improved fry production by 90 percent over extensive spawning programs of spawning in ponds, and simply hoping for the best from Mother Nature.





Prior to 2010, largemouth bass broodfish were paired in several ponds and allowed to spawn naturally. In the morning, when water temperatures reached around 70 F, hatchery staff would walk the perimeter of the ponds, looking for “clouds” of fry in the water. Once spotted, the ponds were drained, and fry were harvested for fingerling grow-out or stockings. Collected fry often ranged in age from 8 days to 3 weeks, resulting in dramatic size differences. Due to the cannibalistic nature of largemouth bass, larger fry would routinely eat the smaller ones, resulting in low final harvest numbers. This method of pond spawning would require 300 pairs of largemouth bass brooders and produce 200,000 fry annually.

Drawing from the Richloam Fish Hatchery in Florida, KDWPT fish culturists created Kansas’ intensive early-spawn bass program.

In about mid-February, broodfish are brought into KDWPT’s Largemouth Bass Propagation Facility where they are first placed in a concrete raceway.

Since getting largemouth bass to spawn out of their normal season requires setting their “clocks,” fish culturists will expose the broodfish to winter-like conditions in holding ponds at the hatchery. In nature, spawning is induced by the amount of daylight and water temperature, with ideal conditions in Kansas occurring in mid-to-late May. By mimicking these conditions artificially, staff can “fool” fish into believing it’s time to spawn, even

during the first of April.

Next, when the fish are brought into the building, they are exposed to 10 hours of light by means of a mechanical timer, keeping the fish in wintertime mode. During this phase, the water temperature in the raceways range from approximately 48 F to 54 F.

Adjusting the fish to spawn takes nearly all of March. On the second Monday following their arrival, the fish receive 14 hours of light. On Wednesday of the same week, heaters are turned on and slowly adjusted to 70 F and then 72 F over the course of 10 to 14 days. On the fourth Monday, culturists place mats into the raceways, giving the male brooders an artificial nest for spawning.

By April 1, the first spawning activity begins, and the fish continue spawning for up to two and a half weeks. On average, these fish will spawn 65 times, resulting in 2 million fry from only 100 females and 60 males.

Of the 2 million largemouth bass fry the Meade Fish Hatchery produces annually, roughly 65 percent are stocked into rearing ponds for growth to a larger size. Meade accounts for one third of the fry, while the rest are stocked at the Farlington State Fish Hatchery. If any fish remain, they are stocked as fry into Kansas lakes and reservoirs or used in fish trades with other state agencies or private producers.

Reserving most of the fry to grow into fingerling-sized fish aids in survival and grows a fish





Thanks to the innovative efforts of KDWPT's hatchery staff, nearly 2 million largemouth bass fry are produced each year from just 100 female and 60 male broodfish.

with a higher competitive advantage over naturally-spawned bass. There are two sizes or phases of fingerlings raised in the fish culture system; Phase I fish reach a size of at least 35 millimeters or 1.5 inches, and Phase II fish are at least 65 millimeters or 2.5 inches long when stocked. The vast majority of fingerlings produced statewide are reared at the Farlington Hatchery.

Each March at Farlington, culturists prepare ponds for the roughly 500,000 largemouth bass fry that arrive the second week in April. Young fry eat plankton and other small aquatic animals, so ponds must be filled two weeks in advance to ensure proper food



densities. The Farlington Hatchery's water supply is Crawford State Fishing Lake, so the water used at the start of each rearing season already contains a "starter pack" of plankton; however, ponds are fertilized with commercially-acquired alfalfa pellets to speed up growth.

The fry arrive from the Meade Hatchery in fry bags – much like goldfish purchased from a pet store, only larger – placed inside coolers. The water in the bags must first be brought to the pond's temperature and pH level prior to stocking. In a process

called tempering, water from each pond is slowly added inside the bags until the temperature and pH equalize close to that of the ponds. This typically takes around 30 minutes and enhances fish survival at stocking.

Fry are stocked at roughly 11,000 fish/acre foot to produce Phase I fingerlings. The fish are seined twice during the initial growth period and their size is tracked to determine harvest dates. At Farlington, largemouth bass grow on average 1.1 millimeters per day, so harvest typically begins 30 to 35 days after initial





inches have been stocked in Kansas waters throughout the state.

All told, since the inception of the early spawn bass program, KDWPT's fish culture system has stocked millions of fry and fingerling largemouth bass, bolstering populations and improving fisheries throughout the state. So, the next time you're out fishing and you hook that lunker, just remember – it may have had a head start at a Kansas fish hatchery. 🐮

stockings – around May 10 – depending on spring water temperatures.

Since early-spawn bass are stocked and grown at a temperature range of 55-65 F (a full 10 degrees outside of their typical temperature), survival is low; typical return is around 54.7 percent. Over the last nine years, Farlington Hatchery staff have produced 2.4 million fingerling Phase 1 bass, with 1 million fish graduating to Phase II production.

Phase II bass are produced by restocking the 1.5-inch fish in rearing ponds for an additional 30-35 days at a rate of 3600/acre foot. This low stocking rate is necessary to reduce cannibalism and ensure quick growth of plankton. The first Phase II bass were raised in 2013, and since that time, 780,000 fish greater than 2.5



At Farlington, largemouth bass grow on average 1.1 millimeters per day. Depending on spring water temperatures, the fish will be collected approximately 30 to 35 days later.



# 2020 FISHING FORECAST

Kansas Department of Wildlife, Parks and Tourism fisheries biologists manage more than 200 community lakes, 63 state fishing lakes and 24 reservoirs in Kansas. Management techniques include setting creel and length limits, stocking fish, surveying anglers and enhancing fish habitat. To do this, biologists need to know what lurks below.



Spring sampling is usually done with electroshocking when species such as black bass are in shallow water. The shocker boat's electrical current stuns bass temporarily, allowing biologists to net and place them in a holding tank. Each fish is measured and weighed, then released. In the fall, nets are used to sample species such as crappie, walleye, white bass, wiper and channel catfish. Data recorded helps managers make recommendations for

regulations and stocking requests. Biologists take the same data and put it in the Fishing Forecast to help anglers. Here's how it works.

Let's use largemouth bass as an example. The data shows how many largemouth bass 12 inches long or longer were shocked per hour of effort, which is the Density Rating. A 12-inch bass is considered high quality by most anglers. The Preferred Rating is the number of those bass 15 inches long or longer. The next rating is the Lunker Rating, which lists the number of largemouth bass in the sample that were 20 inches long or longer. These are bass that will probably weigh 5 pounds or more and are considered lunkers by most anglers. The "Biggest Fish"

rating is the biggest fish recorded during sampling and gives anglers confidence big bass exist in a population. The Biologist's Rating is an opinion on the fishery – Poor, Good or Excellent – and it may not agree with the Density Rating. This could occur if there were environmental factors that impacted sampling results, and the biologist feels the population is better than the ratings show.

Theoretically, a lake with a Density Rating for largemouth bass of 72 has twice as many bass longer than 12 inches per acre than a lake with a Density Rating of 36. The final rating is the Three-year Average, which allows anglers to see trends in populations.

Lengths for each category are different for each species, and water bodies are divided into three categories – ponds, less than 10 acres; lakes, 10-1,200 acres; and reservoirs, larger than 1,200 acres.

Review the forecast, make a trip to a lake that looks promising and find out for yourself what lurks below.

Eric Engbretson Underwater Photography



## CHANNEL CATFISH

| IMPOUNDMENT                  | Density Rating (>16") | Preferred Rating (>24") | Lunker Rating (>28") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>18") |
|------------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>            |                       |                         |                      |                     |            |                       |
| LOVEWELL                     | 9.75                  | 1.17                    | 0.25                 | 10.03               | G          | 5.68                  |
| BIG HILL                     | 8.40                  | 0.50                    | 0.10                 | 7.43                | G          | 6.03                  |
| KANOPOLIS                    | 7.06                  | 0.24                    | 0.00                 | 6.96                | G          | 4.03                  |
| MELVERN                      | 3.94                  | 0.19                    | 0.06                 | 9.00                | G          | 3.90                  |
| HILLSDALE                    | 3.50                  | 0.33                    | 0.00                 | 9.92                | G          | 4.22                  |
| MARION                       | 3.07                  | 0.53                    | 0.40                 | 19.88               | G          | 3.62                  |
| TORONTO                      | 2.90                  | 1.70                    | 0.70                 | 11.90               | G          | 2.11                  |
| POMONA                       | 2.88                  | 0.13                    | 0.00                 | 5.69                | G          | 2.65                  |
| WILSON                       | 2.87                  | 0.47                    | 0.03                 | 9.27                | G          | 2.83                  |
| GLEN ELDER                   | 2.22                  | 0.61                    | 0.06                 | 13.41               | G          | 1.99                  |
| CLINTON                      | 1.56                  | 0.19                    | 0.00                 | 4.93                | G          | 4.04                  |
| <b>LAKES</b>                 |                       |                         |                      |                     |            |                       |
| HOWARD-POLK DANIELS LAKE     | 14.00                 | 1.00                    | 0.00                 | 6.17                | G          | 9.25                  |
| PLAINVILLE LAKE              | 13.25                 | 0.50                    | 0.00                 | 5.81                | G          | 9.92                  |
| ROOKS STATE LAKE             | 10.75                 | 0.00                    | 0.00                 | 4.30                | G          | 4.00                  |
| SEDGWICK CO.-LAKE AFTON      | 8.33                  | 0.00                    | 0.00                 | 4.62                | G          | 8.33                  |
| BOURBON CO. LAKE             | 7.67                  | 6.33                    | 2.67                 | 15.92               | G          | 7.67                  |
| DOUGLAS SFL                  | 7.00                  | 0.83                    | 0.00                 | 8.89                | G          | 5.94                  |
| CHERRYVALE CITY LAKE-TANKO   | 6.00                  | 0.00                    | 0.00                 | 2.94                | G          | 6.00                  |
| COLDWATER LAKE               | 6.00                  | 0.67                    | 0.33                 | 9.81                | E          | 5.33                  |
| EUREKA CITY LAKE             | 5.67                  | 0.67                    | 0.33                 | 10.34               | G          | 7.00                  |
| CARBONDALE CITY LAKE - EAST  | 5.50                  | 0.33                    | 0.17                 | 10.45               | G          | 6.50                  |
| KINGMAN SFL                  | 5.33                  | 0.33                    | 0.17                 | 17.26               | G          | 4.51                  |
| OLATHE - CEDAR LAKE          | 5.25                  | 0.25                    | 0.00                 | 5.97                | G          | 5.50                  |
| PLEASANTON CITY LAKE-OLD     | 5.25                  | 0.50                    | 0.50                 | 10.52               | G          | 5.25                  |
| BOURBON SFL                  | 4.75                  | 0.25                    | 0.25                 | 7.76                | G          | 4.00                  |
| GARNETT-CEDAR CREEK LAKE     | 4.75                  | 0.13                    | 0.00                 | 6.30                | G          | 8.21                  |
| NEOSHO SFL                   | 4.75                  | 0.25                    | 0.00                 | 5.37                | G          | 3.67                  |
| GARDNER CITY LAKE            | 4.33                  | 0.67                    | 0.33                 | 10.86               | G          | 3.50                  |
| GARNETT CITY LAKE-NORTH      | 4.00                  | 0.00                    | 0.00                 | 4.06                | G          | 4.13                  |
| LYON SFL                     | 4.00                  | 0.67                    | 0.17                 | 10.00               | G          | 3.50                  |
| OSAWATOMIE CITY LAKE         | 4.00                  | 0.33                    | 0.00                 | 4.96                | F          | 4.00                  |
| COUNCIL GROVE CITY LAKE      | 3.80                  | 0.60                    | 0.40                 | 9.70                | G          | 4.93                  |
| WINFIELD CITY LAKE           | 3.50                  | 0.40                    | 0.00                 | 8.15                | G          | 2.67                  |
| CHANUTE CITY LAKE            | 3.25                  | 0.00                    | 0.00                 | 4.02                | G          | 5.92                  |
| GRAHAM CO-ANTELOPE LAKE      | 3.25                  | 0.25                    | 0.00                 | 6.10                | G          | 2.50                  |
| JEWELL SFL                   | 3.25                  | 0.00                    | 0.00                 | 2.95                | G          | 3.42                  |
| POTTAWATOMIE SFL #2          | 3.25                  | 0.00                    | 0.00                 | 2.90                | G          | 3.17                  |
| BROWN SFL                    | 3.20                  | 0.60                    | 0.00                 | 5.51                | G          | 3.32                  |
| DOUGLAS CO.-LONESTAR LAKE    | 2.83                  | 0.00                    | 0.00                 | 4.05                | G          | 1.92                  |
| BUTLER SFL                   | 2.75                  | 0.25                    | 0.25                 | 13.07               | G          | 5.08                  |
| CHASE SFL                    | 2.75                  | 0.25                    | 0.00                 | 5.72                | G          | 4.42                  |
| FORT SCOTT CITY LAKE         | 2.75                  | 0.50                    | 0.00                 | 9.15                | G          | 3.19                  |
| GEARY SFL                    | 2.75                  | 0.25                    | 0.00                 | 4.40                | F          | 1.67                  |
| HOLTON-PRAIRIE LAKE          | 2.75                  | 0.00                    | 0.00                 | 6.06                | G          | 2.88                  |
| PAOLA CITY LAKE(LAKE MIOLA)  | 2.67                  | 0.00                    | 0.00                 | 4.53                | F          | 1.56                  |
| RICHMOND CITY LAKE           | 2.67                  | 0.00                    | 0.00                 | 3.89                | G          | 2.67                  |
| POTTAWATOMIE CO. LAKE        | 2.33                  | 0.33                    | 0.00                 | 4.83                | G          | 3.00                  |
| SHAWNEE CO.-LAKE SHAWNEE     | 2.13                  | 0.25                    | 0.00                 | 6.90                | G          | 2.56                  |
| BARBER SFL-LOWER             | 2.00                  | 0.67                    | 0.00                 | 4.85                | G          | 1.00                  |
| CENTRALIA CITY LAKE          | 2.00                  | 0.75                    | 0.13                 | 15.37               | G          | 3.33                  |
| COWLEY SFL                   | 2.00                  | 0.00                    | 0.00                 | 3.37                | G          | 4.08                  |
| LEAVENWORTH SFL              | 2.00                  | 0.00                    | 0.00                 | 2.40                | F          | 1.56                  |
| MOLINE NEW CITY LAKE - NORTH | 2.00                  | 0.33                    | 0.00                 | 7.51                | F          | 1.44                  |
| MONTGOMERY SFL               | 2.00                  | 0.00                    | 0.00                 | 3.37                | G          | 3.67                  |
| OTTAWA SFL                   | 2.00                  | 0.00                    | 0.00                 | 2.82                | G          | 1.13                  |
| YATES CENTER CITY LAKE-NEW   | 2.00                  | 0.33                    | 0.17                 | 9.22                | F          | 2.44                  |
| MIDDLE CREEK SFL             | 1.83                  | 0.00                    | 0.00                 | 3.48                | F          | 2.50                  |
| OLATHE - LAKE OLATHE         | 1.83                  | 0.17                    | 0.00                 | 7.69                | F          | 1.28                  |
| HOLTON - BANNER CREEK LAKE   | 1.75                  | 0.25                    | 0.00                 | 5.95                | G          | 2.96                  |
| THAYER CITY LAKE (NEW)       | 1.75                  | 0.50                    | 0.00                 | 5.57                | G          | 2.25                  |
| FORD SFL                     | 1.67                  | 0.00                    | 0.00                 | 4.39                | G          | 1.89                  |
| GMAN SFL                     | 1.67                  | 0.00                    | 0.00                 | 3.72                | G          | 1.67                  |
| GRIDLEY CITY LAKE            | 1.67                  | 0.33                    | 0.00                 | 6.31                | F          | 2.56                  |
| OSAGE SFL                    | 1.67                  | 0.17                    | 0.00                 | 7.61                | G          | 2.67                  |
| YATES CENTER-SOUTH OWL LAKE  | 1.67                  | 0.83                    | 0.00                 | 6.23                | F          | 1.78                  |
| JEFFREY EC-AUX. MAKEUP LAKE  | 1.63                  | 0.25                    | 0.13                 | 10.40               | F          | 2.58                  |
| <b>PONDS</b>                 |                       |                         |                      |                     |            |                       |
| JEWELL CL - EMERSON LAKE     | 5.00                  | 0.00                    | 0.00                 | 4.43                | G          | 4.83                  |
| FORT LEAVENWORTH-MERRITT LK  | 2.00                  | 0.00                    | 0.00                 | 1.88                | G          | 2.00                  |
| OVERBROOK CITY LAKE          | 2.00                  | 0.00                    | 0.00                 | 3.17                | G          | 1.13                  |
| COFFEYVILLE-LECLERE          | 0.67                  | 0.00                    | 0.00                 | 2.74                | G          | 0.67                  |



## BLUE CATFISH

| IMPOUNDMENT                | Density Rating (>20") | Preferred Rating (>30") | Lunker Rating (>35") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>20") |
|----------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>          |                       |                         |                      |                     |            |                       |
| WOLF CREEK                 | 1.44                  | 0.33                    | 0.00                 | 16.98               | G          | 2.29                  |
| EL DORADO                  | 1.40                  | 0.00                    | 0.00                 | 10.05               | G          | 1.04                  |
| LOVEWELL                   | 1.33                  | 0.25                    | 0.08                 | 20.72               | G          | 0.74                  |
| ELK CITY                   | 0.83                  | 0.00                    | 0.00                 | 8.51                | G          | 1.61                  |
| CLINTON                    | 0.63                  | 0.44                    | 0.00                 | 14.00               | F          | 0.54                  |
| LACYGNE                    | 0.25                  | 0.19                    | 0.13                 | 27.82               | G          | 0.28                  |
| WILSON                     | 0.17                  | 0.13                    | 0.00                 | 15.88               | G          | 0.32                  |
| JOHN REDMOND               | 0.15                  | 0.00                    | 0.00                 | 6.39                | F          | 0.15                  |
| PERRY                      | 0.14                  | 0.00                    | 0.00                 | 4.84                | F          | 0.21                  |
| POMONA                     | 0.13                  | 0.00                    | 0.00                 | 6.29                | F          | 0.04                  |
| GLEN ELDER                 | 0.11                  | 0.00                    | 0.00                 | 6.28                | F          | 0.06                  |
| MELVERN                    | 0.06                  | 0.06                    | 0.00                 | 25.00               | F          | 0.23                  |
| <b>LAKES</b>               |                       |                         |                      |                     |            |                       |
| YATES CENTER CITY LAKE-NEW | 0.83                  | 0.17                    | 0.17                 | 22.49               | P          | 0.78                  |
| YATES CENTER-S OWL LAKE    | 0.17                  | 0.00                    | 0.00                 | 7.77                | P          | 0.17                  |

## FLATHEAD CATFISH

| IMPOUNDMENT               | Density Rating (>20") | Preferred Rating (>28") | Lunker Rating (>34") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>20") |
|---------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>         |                       |                         |                      |                     |            |                       |
| WEBSTER                   | 0.42                  | 0.08                    | 0.00                 | 6.55                | G          | 0.25                  |
| POMONA                    | 0.25                  | 0.06                    | 0.06                 | 10.13               | F          | 0.14                  |
| LACYGNE                   | 0.19                  | 0.06                    | 0.06                 | 12.27               | F          | 0.28                  |
| BIG HILL                  | 0.10                  | 0.00                    | 0.00                 | 2.40                | F          | 0.20                  |
| TORONTO                   | 0.10                  | 0.00                    | 0.00                 | 3.17                | E          | 0.26                  |
| WILSON                    | 0.10                  | 0.00                    | 0.00                 | 4.83                | F          | 0.10                  |
| ELK CITY                  | 0.08                  | 0.00                    | 0.00                 | 2.10                | F          | 0.08                  |
| COUNCIL GROVE             | 0.07                  | 0.00                    | 0.00                 | 1.68                | F          | 0.08                  |
| CLINTON                   | 0.06                  | 0.00                    | 0.00                 | 0.00                | F          | 0.06                  |
| MELVERN                   | 0.06                  | 0.00                    | 0.00                 | 0.00                | F          | 0.13                  |
| JOHN REDMOND              | 0.05                  | 0.00                    | 0.00                 | 2.98                | F          | 0.05                  |
| <b>LAKES</b>              |                       |                         |                      |                     |            |                       |
| BOURBON CO. LAKE          | 0.67                  | 0.00                    | 0.00                 | 4.84                | E          | 0.67                  |
| WILSON SFL                | 0.50                  | 0.00                    | 0.00                 | 3.50                | G          | 0.33                  |
| CRAWFORD SFL              | 0.33                  | 0.17                    | 0.00                 | 6.93                | G          | 0.33                  |
| HOLTON-PRAIRIE LAKE       | 0.25                  | 0.00                    | 0.00                 | 2.65                | P          | 0.25                  |
| LEAVENWORTH SFL           | 0.17                  | 0.00                    | 0.00                 | 2.62                | F          | 0.11                  |
| MADISON CITY LAKE         | 0.17                  | 0.17                    | 0.00                 | 6.70                | P          | 0.17                  |
| SABETHA - PONY CREEK LAKE | 0.17                  | 0.17                    | 0.00                 | 6.06                | P          | 0.17                  |
| SEDGWICK CO.-LAKE AFTON   | 0.17                  | 0.00                    | 0.00                 | 1.70                | F          | 0.17                  |
| BONE CREEK LAKE           | 0.13                  | 0.00                    | 0.00                 | 3.02                | P          | 0.17                  |
| CENTRALIA CITY LAKE       | 0.13                  | 0.00                    | 0.00                 | 5.38                | F          | 0.13                  |
| SHAWNEE CO.-LAKE SHAWNEE  | 0.13                  | 0.00                    | 0.00                 | 0.00                | P          | 0.13                  |
| WINFIELD CITY LAKE        | 0.10                  | 0.00                    | 0.00                 | 2.72                | F          | 0.10                  |

## LARGEMOUTH BASS

| IMPOUNDMENT                  | Density Rating (>12") | Preferred Rating (>15") | Lunker Rating (>20") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>12") |
|------------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>            |                       |                         |                      |                     |            |                       |
| KIRWIN                       | 52.94                 | 3.53                    | 0.00                 | 4.00                | E          | 18.27                 |
| LACYGNE                      | 48.00                 | 30.86                   | 2.86                 | 6.70                | E          | 62.56                 |
| SEBELIUS                     | 45.88                 | 12.94                   | 0.00                 | 4.45                | E          | 50.13                 |
| WEBSTER                      | 41.18                 | 7.19                    | 0.00                 | 3.60                | E          | 16.23                 |
| WILSON                       | 32.85                 | 15.71                   | 0.29                 | 5.90                | E          | 21.79                 |
| BIG HILL                     | 28.37                 | 10.73                   | 0.00                 | 4.08                | E          | 22.57                 |
| GLEN ELDER                   | 10.38                 | 7.96                    | 0.00                 | 3.65                | G          | 15.98                 |
| <b>LAKES</b>                 |                       |                         |                      |                     |            |                       |
| COWLEY SFL                   | 205.88                | 77.94                   | 0.00                 | 3.80                | E          | 164.05                |
| BUTLER SFL                   | 186.27                | 100.00                  | 18.63                | 6.54                | E          | 164.71                |
| WILSON SFL                   | 144.12                | 51.76                   | 2.35                 | 4.89                | E          | 75.15                 |
| SABETHA - PONY CREEK LAKE    | 140.71                | 62.14                   | 2.86                 | 5.19                | E          | 140.71                |
| GARNETT CITY LAKE-SOUTH      | 139.39                | 66.67                   | 0.00                 | 4.06                | E          | 171.97                |
| ROOKS STATE LAKE             | 137.65                | 17.65                   | 0.00                 | 4.20                | G          | 70.91                 |
| GRIDLEY CITY LAKE            | 130.00                | 34.00                   | 0.00                 | 2.51                | E          | 122.26                |
| LYON SFL                     | 116.67                | 33.33                   | 2.94                 | 4.60                | G          | 91.32                 |
| POTTAWATOMIE CO. LAKE        | 111.76                | 14.71                   | 4.41                 | 5.68                | E          | 91.73                 |
| LENEXA LAKE - LENEXA         | 105.77                | 18.27                   | 0.00                 | 3.86                | G          | 98.22                 |
| GARNETT CITY LAKE-NORTH      | 104.31                | 31.90                   | 0.00                 | 4.82                | E          | 116.68                |
| MEADE SFL                    | 89.86                 | 65.22                   | 0.00                 | 4.63                | F          | 70.08                 |
| MOLINE OLD CITY LAKE - SOUTH | 86.76                 | 26.47                   | 0.00                 | 2.87                | G          | 68.50                 |
| GARDNER CITY LAKE            | 85.58                 | 26.92                   | 0.00                 | 4.49                | G          | 63.37                 |
| MCPHERSON SFL                | 84.17                 | 35.97                   | 0.72                 | 5.27                | G          | 79.79                 |
| YATES CENTER CITY LAKE-NEW   | 81.88                 | 9.38                    | 0.00                 | 3.25                | G          | 83.64                 |
| GREAT BEND-STONE PARK LAKE   | 77.11                 | 3.61                    | 1.20                 | 3.45                | F          | 49.34                 |
| ALTAMONT-IDLE HOUR LK (E)    | 72.55                 | 39.22                   | 7.84                 | 5.77                | G          | 67.39                 |
| JEWELL SFL                   | 72.35                 | 57.65                   | 2.94                 | 5.71                | G          | 73.40                 |
| BROWN SFL                    | 70.79                 | 40.45                   | 4.49                 | 4.91                | G          | 90.08                 |
| POTTAWATOMIE SFL #1          | 69.61                 | 2.94                    | 0.00                 | 2.20                | G          | 140.27                |
| LOGAN CITY LAKE              | 67.12                 | 10.96                   | 0.00                 | 2.49                | G          | 34.34                 |
| POTTAWATOMIE SFL #2          | 66.67                 | 21.14                   | 1.63                 | 4.09                | G          | 60.50                 |
| SHAWNEE SFL                  | 64.00                 | 35.20                   | 1.60                 | 4.67                | G          | 65.91                 |
| ATCHISON SFL                 | 63.53                 | 41.18                   | 3.53                 | 4.67                | G          | 71.87                 |
| ALTAMONT-IDLE HOUR LK (W)    | 63.16                 | 39.47                   | 2.63                 | 4.61                | G          | 41.58                 |
| JETMORE CITY LAKE            | 62.79                 | 41.86                   | 1.16                 | 5.36                | G          | 61.40                 |
| PLAINVILLE LAKE              | 57.45                 | 31.91                   | 0.71                 | 5.34                | G          | 54.88                 |
| KIOWA SFL                    | 57.14                 | 18.37                   | 0.00                 | 2.38                | F          | 75.37                 |
| BOURBON SFL                  | 55.86                 | 8.28                    | 0.69                 | 4.71                | G          | 60.34                 |
| CHASE SFL                    | 54.90                 | 11.76                   | 0.00                 | 3.46                | G          | 51.43                 |
| SHAWNEE CO.-LAKE SHAWNEE     | 54.90                 | 21.57                   | 0.00                 | 4.33                | G          | 64.49                 |
| FORD SFL                     | 54.17                 | 12.50                   | 0.00                 | 4.41                | G          | 31.07                 |
| BONE CREEK LAKE              | 50.27                 | 40.11                   | 1.60                 | 5.05                | G          | 37.44                 |
| OLATHE - LAKE OLATHE         | 50.00                 | 39.22                   | 0.00                 | 4.19                | G          | 51.61                 |
| ATWOOD-LAKE ATWOOD-MAIN      | 49.02                 | 14.71                   | 0.00                 | 4.12                | G          | 36.93                 |
| NEOSHO SFL                   | 47.06                 | 27.21                   | 0.00                 | 4.37                | G          | 49.26                 |
| MIAMI SFL                    | 46.15                 | 33.65                   | 4.81                 | 5.47                | G          | 31.74                 |
| DOUGLAS CO.-LONESTAR LAKE    | 46.08                 | 14.71                   | 0.00                 | 4.16                | F          | 50.65                 |
| HOLTON-PRAIRIE LAKE          | 45.83                 | 22.22                   | 0.00                 | 4.41                | F          | 47.92                 |
| FORT SCOTT-GUNN PARK W PD-#2 | 45.61                 | 29.82                   | 1.75                 | 5.11                | G          | 74.09                 |
| COLDWATER LAKE               | 44.94                 | 14.61                   | 0.00                 | 3.15                | F          | 50.71                 |
| LEAVENWORTH SFL              | 44.44                 | 2.61                    | 0.00                 | 1.86                | F          | 38.77                 |
| SCOTT STATE LAKE             | 42.97                 | 10.55                   | 0.00                 | 4.10                | G          | 52.36                 |
| MONTGOMERY SFL               | 42.65                 | 7.35                    | 0.49                 | 4.01                | G          | 29.07                 |
| SEDAN NEW CITY LAKE- SOUTH   | 42.16                 | 17.65                   | 1.96                 | 4.54                | G          | 30.60                 |
| SEDAN OLD CITY LAKE- NORTH   | 41.18                 | 20.59                   | 2.94                 | 5.40                | G          | 43.14                 |
| OLATHE - CEDAR LAKE          | 40.74                 | 26.85                   | 0.00                 | 4.25                | G          | 52.73                 |
| DOUGLAS SFL                  | 40.20                 | 7.84                    | 0.00                 | 3.40                | F          | 83.33                 |
| GARNETT-CEDAR CREEK LAKE     | 40.00                 | 18.13                   | 2.50                 | 7.52                | G          | 60.77                 |
| YATES CENTER-SOUTH OWL LAKE  | 40.00                 | 13.13                   | 0.63                 | 4.60                | G          | 40.03                 |
| WASHINGTON SFL               | 39.08                 | 26.44                   | 1.15                 | 5.03                | F          | 49.11                 |
| FORT SCOTT CITY LAKE         | 36.47                 | 14.12                   | 0.00                 | 3.68                | F          | 36.47                 |
| HOWARD-POLK DANIELS LAKE     | 35.29                 | 21.18                   | 0.00                 | 3.96                | G          | 51.70                 |
| NEBO SFL                     | 32.08                 | 26.42                   | 0.00                 | 4.32                | F          | 64.46                 |
| ELLIS CITY LAKE              | 31.96                 | 16.49                   | 0.00                 | 3.78                | F          | 19.37                 |
| GRAHAM CO-ANTELOPE LAKE      | 30.88                 | 25.00                   | 0.00                 | 3.71                | F          | 32.10                 |
| GMAN SFL                     | 30.68                 | 0.00                    | 0.00                 | 1.47                | P          | 30.68                 |
| CARBONDALE CITY LAKE - EAST  | 30.39                 | 5.88                    | 0.00                 | 2.40                | F          | 61.76                 |
| OTTAWA SFL                   | 29.44                 | 12.22                   | 0.00                 | 3.15                | F          | 29.28                 |
| LEBO CITY LAKE               | 27.86                 | 18.57                   | 0.00                 | 3.27                | F          | 33.62                 |
| PAOLA CITY LAKE(LAKE MIOLA)  | 27.10                 | 7.48                    | 0.00                 | 3.24                | F          | 24.82                 |
| HOLTON - BANNER CREEK LAKE   | 26.47                 | 8.82                    | 0.00                 | 2.88                | F          | 32.10                 |
| CRAWFORD SFL                 | 26.14                 | 14.38                   | 0.65                 | 4.92                | G          | 24.03                 |



Engbretson/L-3443

## LARGEMOUTH BASS

| IMPOUNDMENT               | Density Rating (>12") | Preferred Rating (>15") | Lunker Rating (>20") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>12") |
|---------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>PONDS</b>              |                       |                         |                      |                     |            |                       |
| SALINA-LAKEWOOD LAKE      | 200.00                | 6.25                    | 0.00                 | 3.35                | G          | 105.00                |
| EMPORIA-JONES PARK W POND | 150.00                | 0.00                    | 0.00                 | 1.35                | G          | 105.95                |
| ATCHISON CITY LAKE #4     | 80.77                 | 19.23                   | 0.00                 | 2.30                | G          | 80.77                 |
| SEVERY CITY LAKE          | 78.57                 | 4.76                    | 0.00                 | 3.31                | G          | 49.13                 |
| EMPORIA-JONES PARK NORTH  | 69.23                 | 15.38                   | 0.00                 | 1.98                | G          | 57.42                 |
| JEWELL CL - EMERSON LAKE  | 59.38                 | 12.50                   | 0.00                 | 2.00                | G          | 88.29                 |
| BLACK KETTLE SFL          | 55.88                 | 29.41                   | 2.94                 | 5.73                | F          | 48.63                 |
| OLPE - JONES PARK POND    | 50.00                 | 40.00                   | 0.00                 | 3.43                | G          | 31.25                 |
| STERLING CITY LAKE        | 41.18                 | 19.61                   | 0.00                 | 4.13                | F          | 84.80                 |
| EMPORIA-JONES PARK E POND | 37.50                 | 25.00                   | 0.00                 | 2.37                | G          | 48.21                 |
| EMPORIA-PETER PAN PARK    | 36.84                 | 21.05                   | 0.00                 | 2.79                | G          | 35.71                 |
| HOLYROOD CITY LAKE        | 34.43                 | 11.48                   | 1.64                 | 5.45                | G          | 36.33                 |
| COFFEYVILLE-LECLERE       | 16.22                 | 2.70                    | 2.70                 | 5.32                | F          | 16.22                 |
| OVERBROOK CITY LAKE       | 13.89                 | 5.56                    | 0.00                 | 2.26                | P          | 29.67                 |

## SMALLMOUTH BASS

| IMPOUNDMENT                 | Density Rating (>11") | Preferred Rating (>14") | Lunker Rating (>17") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>11") |
|-----------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>           |                       |                         |                      |                     |            |                       |
| GLEN ELDER                  | 41.18                 | 25.95                   | 4.15                 | 3.28                | G          | 26.96                 |
| WOLF CREEK                  | 31.39                 | 22.63                   | 2.92                 | 2.99                | G          | 35.29                 |
| WILSON                      | 3.17                  | 2.31                    | 0.86                 | 3.17                | G          | 8.33                  |
| <b>LAKES</b>                |                       |                         |                      |                     |            |                       |
| WINFIELD CITY LAKE          | 7.65                  | 4.71                    | 1.18                 | 3.65                | F          | 4.92                  |
| JEFFREY EC-AUX. MAKEUP LAKE | 2.61                  | 1.31                    | 0.00                 | 1.51                | G          | 7.11                  |
| POTTAWATOMIE SFL #2         | 2.44                  | 0.81                    | 0.81                 | 6.21                | F          | 3.61                  |
| JEFFREY EC-MAKE UP LAKE     | 1.96                  | 0.98                    | 0.00                 | 1.92                | F          | 2.09                  |
| GREAT BEND-STONE PARK LAKE  | 1.20                  | 0.00                    | 0.00                 | 0.72                | P          | 1.08                  |
| HOLTON - BANNER CREEK LAKE  | 1.18                  | 1.18                    | 0.59                 | 2.82                | P          | 0.96                  |

## SPOTTED BASS

| IMPOUNDMENT              | Density Rating (>11") | Preferred Rating (>14") | Lunker Rating (>17") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>11") |
|--------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>        |                       |                         |                      |                     |            |                       |
| SEBELIUS                 | 5.88                  | 4.71                    | 0.00                 | 2.26                | G          | 9.09                  |
| CEDAR BLUFF              | 4.35                  | 0.82                    | 0.00                 | 1.27                | F          | 3.03                  |
| <b>LAKES</b>             |                       |                         |                      |                     |            |                       |
| WILSON SFL               | 27.65                 | 12.35                   | 0.00                 | 2.18                | E          | 19.90                 |
| BOURBON SFL              | 18.62                 | 0.00                    | 0.00                 | 1.07                | E          | 27.72                 |
| FORT SCOTT CITY LAKE     | 12.94                 | 3.53                    | 0.00                 | 2.05                | F          | 12.94                 |
| CRAWFORD SFL             | 8.50                  | 3.27                    | 1.31                 | 3.81                | F          | 9.64                  |
| CHASE SFL                | 4.90                  | 0.98                    | 0.00                 | 1.26                | G          | 17.25                 |
| EUREKA CITY LAKE         | 4.90                  | 1.96                    | 0.00                 | 2.36                | F          | 4.76                  |
| HOWARD-POLK DANIELS LAKE | 2.35                  | 2.35                    | 0.00                 | 2.15                | F          | 3.91                  |



## BLACK CRAPPIE

| IMPOUNDMENT                  | Density Rating (>8") | Preferred Rating (>10") | Lunker Rating (>12") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>8") |
|------------------------------|----------------------|-------------------------|----------------------|---------------------|------------|----------------------|
| <b>RESERVOIRS</b>            |                      |                         |                      |                     |            |                      |
| SEBELIUS                     | 25.50                | 14.70                   | 1.40                 | 1.58                | G          | 12.50                |
| GLEN ELDER                   | 16.85                | 3.65                    | 0.05                 | 1.30                | G          | 5.68                 |
| KIRWIN                       | 14.75                | 13.13                   | 0.75                 | 1.75                | G          | 16.79                |
| KANOPOLIS                    | 11.75                | 1.83                    | 0.17                 | 1.12                | G          | 4.26                 |
| WEBSTER                      | 7.25                 | 2.56                    | 0.38                 | 1.45                | G          | 5.38                 |
| LOVEWELL                     | 5.38                 | 2.88                    | 0.25                 | 1.23                | F          | 3.09                 |
| MARION                       | 3.82                 | 3.18                    | 1.36                 | 1.43                | F          | 2.71                 |
| WILSON                       | 2.47                 | 1.87                    | 0.47                 | 1.68                | F          | 0.93                 |
| CEDAR BLUFF                  | 1.56                 | 0.94                    | 0.50                 | 1.15                | F          | 2.48                 |
| <b>LAKES</b>                 |                      |                         |                      |                     |            |                      |
| PLAINVILLE LAKE              | 47.00                | 1.00                    | 1.00                 | 1.21                | G          | 16.00                |
| GRAHAM CO-ANTELOPE LAKE      | 45.75                | 12.50                   | 0.00                 | 1.19                | G          | 17.06                |
| JEWELL SFL                   | 38.00                | 2.00                    | 0.20                 | 0.95                | G          | 18.33                |
| ROOKS STATE LAKE             | 29.00                | 0.00                    | 0.00                 | 0.43                | G          | 9.83                 |
| ANTHONY CITY LAKE            | 17.00                | 5.25                    | 1.25                 | 1.74                | G          | 10.32                |
| MELVERN RIVER POND           | 12.50                | 1.50                    | 0.00                 | 0.60                | G          | 17.25                |
| DOUGLAS SFL                  | 8.50                 | 3.25                    | 0.00                 | 0.69                | G          | 10.33                |
| POTTAWATOMIE CO. LAKE        | 8.00                 | 0.75                    | 0.00                 | 0.47                | G          | 5.50                 |
| HOLTON-PRAIRIE LAKE          | 6.00                 | 0.00                    | 0.00                 | 0.30                | F          | 3.25                 |
| HERINGTON CITY LAKE-NEW      | 5.75                 | 4.50                    | 1.25                 | 1.21                | F          | 3.50                 |
| CHANUTE CITY LAKE            | 5.50                 | 1.50                    | 0.00                 | 0.66                | F          | 2.17                 |
| COUNCIL GROVE CITY LAKE      | 5.25                 | 1.00                    | 0.50                 | 0.97                | F          | 3.63                 |
| MIAMI SFL                    | 5.00                 | 0.25                    | 0.00                 | 0.30                | F          | 3.53                 |
| MONTGOMERY SFL               | 5.00                 | 1.25                    | 0.50                 | 1.00                | F          | 3.18                 |
| GRIDLEY CITY LAKE            | 4.33                 | 3.00                    | 2.00                 | 1.46                | F          | 3.36                 |
| DOUGLAS CO.-LONESTAR LAKE    | 4.25                 | 2.75                    | 0.25                 | 1.01                | F          | 3.38                 |
| KINGMAN SFL                  | 4.25                 | 4.00                    | 1.75                 | 1.79                | F          | 2.02                 |
| NEOSHO SFL                   | 3.83                 | 1.67                    | 0.00                 | 0.65                | F          | 3.78                 |
| GEARY SFL                    | 3.50                 | 0.00                    | 0.00                 | 0.26                | F          | 2.50                 |
| HOLTON - BANNER CREEK LAKE   | 3.50                 | 1.88                    | 0.00                 | 0.97                | F          | 7.67                 |
| HARVEY CO. LAKE-WEST         | 3.33                 | 0.33                    | 0.00                 | 0.56                | F          | 1.77                 |
| GARNETT CITY LAKE-NORTH      | 3.25                 | 1.25                    | 0.00                 | 0.61                | F          | 4.43                 |
| YATES CENTER-SOUTH OWL LAKE  | 2.60                 | 0.20                    | 0.20                 | 0.87                | F          | 1.50                 |
| MOLINE OLD CITY LAKE - SOUTH | 2.25                 | 1.25                    | 0.25                 | 0.93                | F          | 2.00                 |
| HOWARD-POLK DANIELS LAKE     | 1.75                 | 0.00                    | 0.00                 | 0.43                | F          | 1.75                 |
| THAYER CITY LAKE (NEW)       | 1.75                 | 0.75                    | 0.00                 | 0.61                | F          | 1.21                 |
| WILSON SFL                   | 1.75                 | 0.50                    | 0.00                 | 0.76                | F          | 1.33                 |
| <b>PONDS</b>                 |                      |                         |                      |                     |            |                      |
| OVERBROOK CITY LAKE          | 4.50                 | 0.00                    | 0.00                 | 0.34                | P          | 4.50                 |
| SEVERY CITY LAKE             | 0.50                 | 0.50                    | 0.00                 | 0.76                | P          | 2.00                 |

## WHITE CRAPPIE

| IMPOUNDMENT                  | Density Rating (>8") | Preferred Rating (>10") | Lunker Rating (>12") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>8") |
|------------------------------|----------------------|-------------------------|----------------------|---------------------|------------|----------------------|
| <b>RESERVOIRS</b>            |                      |                         |                      |                     |            |                      |
| LOVEWELL                     | 64.50                | 26.75                   | 11.88                | 1.58                | G          | 32.47                |
| POMONA                       | 28.56                | 18.56                   | 3.38                 | 1.40                | E          | 15.81                |
| PERRY                        | 17.53                | 9.00                    | 1.00                 | 1.48                | E          | 20.26                |
| HILLSDALE                    | 14.38                | 8.63                    | 0.56                 | 1.65                | G          | 25.46                |
| MELVERN                      | 10.06                | 6.31                    | 0.13                 | 0.99                | G          | 8.97                 |
| EL DORADO                    | 8.00                 | 5.13                    | 1.06                 | 1.90                | G          | 8.02                 |
| WEBSTER                      | 7.94                 | 0.88                    | 0.19                 | 1.05                | G          | 3.52                 |
| COUNCIL GROVE                | 6.75                 | 4.92                    | 1.50                 | 1.20                | G          | 4.57                 |
| LACYGNE                      | 5.50                 | 1.94                    | 0.13                 | 1.47                | G          | 4.52                 |
| JOHN REDMOND                 | 5.44                 | 4.31                    | 0.19                 | 1.72                | F          | 7.13                 |
| BIG HILL                     | 5.30                 | 3.70                    | 0.30                 | 1.01                | G          | 3.63                 |
| MARION                       | 4.73                 | 3.55                    | 0.64                 | 2.11                | F          | 11.16                |
| WOLF CREEK                   | 4.38                 | 0.69                    | 0.50                 | 2.43                | F          | 6.68                 |
| ELK CITY                     | 3.69                 | 3.63                    | 0.94                 | 2.11                | G          | 10.45                |
| GLEN ELDER                   | 3.00                 | 1.80                    | 0.40                 | 2.11                | F          | 2.39                 |
| <b>LAKES</b>                 |                      |                         |                      |                     |            |                      |
| EUREKA CITY LAKE             | 50.50                | 40.00                   | 10.00                | 1.32                | G          | 32.75                |
| CHANUTE CITY LAKE            | 42.00                | 10.50                   | 0.50                 | 1.89                | G          | 15.50                |
| KINGMAN SFL                  | 39.50                | 34.00                   | 3.25                 | 2.38                | G          | 13.70                |
| OLATHE - CEDAR LAKE          | 36.00                | 19.50                   | 5.00                 | 1.72                | G          | 53.17                |
| NEBO SFL                     | 35.00                | 14.33                   | 0.67                 | 0.85                | G          | 18.17                |
| GARNETT-CEDAR CREEK LAKE     | 30.63                | 2.50                    | 0.25                 | 0.95                | F          | 28.71                |
| SEDGWICK CO.-LAKE AFTON      | 27.60                | 4.00                    | 0.40                 | 1.10                | G          | 20.50                |
| HOWARD-POLK DANIELS LAKE     | 27.50                | 3.50                    | 0.50                 | 1.38                | G          | 24.92                |
| MIAMI SFL                    | 25.25                | 15.00                   | 6.00                 | 1.78                | G          | 13.33                |
| HERINGTON CITY LAKE-NEW      | 24.00                | 16.75                   | 0.75                 | 1.15                | G          | 11.75                |
| WINFIELD CITY LAKE           | 23.00                | 13.89                   | 1.89                 | 1.18                | G          | 23.41                |
| MOLINE NEW CITY LAKE - NORTH | 19.75                | 9.25                    | 2.50                 | 1.24                | G          | 18.75                |
| COUNCIL GROVE CITY LAKE      | 18.50                | 2.50                    | 0.00                 | 0.66                | G          | 12.42                |
| OTTAWA SFL                   | 17.17                | 4.83                    | 1.83                 | 1.60                | G          | 11.94                |
| YATES CENTER-SOUTH OWL LAKE  | 13.60                | 7.20                    | 2.20                 | 1.72                | G          | 11.33                |
| MCPHERSON SFL                | 11.67                | 2.33                    | 0.00                 | 0.67                | G          | 23.61                |
| NEOSHO SFL                   | 11.50                | 4.50                    | 0.00                 | 0.67                | G          | 7.58                 |
| HOLTON-PRAIRIE LAKE          | 11.33                | 3.33                    | 1.67                 | 1.13                | G          | 10.92                |
| LEBO CITY LAKE               | 11.00                | 4.67                    | 2.00                 | 1.71                | G          | 8.75                 |
| HARVEY CO. LAKE-EAST         | 10.88                | 7.38                    | 2.38                 | 1.34                | G          | 6.63                 |
| OLATHE - LAKE OLATHE         | 8.50                 | 4.75                    | 0.25                 | 0.93                | G          | 12.00                |
| SCOTT STATE LAKE             | 8.44                 | 3.33                    | 0.56                 | 1.41                | G          | 14.96                |
| OLPE CITY LAKE               | 8.25                 | 2.50                    | 0.75                 | 1.32                | G          | 6.42                 |
| WASHINGTON SFL               | 8.25                 | 4.50                    | 1.75                 | 1.32                | F          | 14.42                |
| BOURBON CO. LAKE             | 8.00                 | 1.00                    | 0.33                 | 0.89                | G          | 8.00                 |
| HOLTON - BANNER CREEK LAKE   | 7.25                 | 1.75                    | 0.50                 | 0.99                | F          | 6.71                 |
| CENTRALIA CITY LAKE          | 6.50                 | 2.88                    | 0.63                 | 1.15                | G          | 22.08                |
| COLDWATER LAKE               | 6.00                 | 4.50                    | 0.00                 | 0.82                | F          | 5.13                 |
| OSAGE CITY LAKE              | 6.00                 | 0.50                    | 0.00                 | 0.53                | P          | 6.00                 |
| BUTLER SFL                   | 5.75                 | 2.50                    | 0.50                 | 0.00                | P          | 5.33                 |
| BARBER SFL-LOWER             | 5.50                 | 1.50                    | 0.00                 | 0.72                | F          | 4.44                 |
| JEFFREY EC-MAKE UP LAKE      | 5.50                 | 1.25                    | 0.00                 | 0.81                | F          | 3.25                 |
| BROWN SFL                    | 5.00                 | 0.50                    | 0.00                 | 0.48                | F          | 6.83                 |
| OSAWATOMIE CITY LAKE         | 5.00                 | 2.00                    | 0.00                 | 0.55                | F          | 5.00                 |
| CARBONDALE CITY LAKE - EAST  | 4.75                 | 2.50                    | 0.00                 | 1.01                | F          | 21.63                |
| CHASE SFL                    | 4.75                 | 2.75                    | 0.50                 | 1.15                | F          | 3.42                 |
| SHAWNEE SFL                  | 4.75                 | 1.25                    | 0.25                 | 0.93                | F          | 4.17                 |
| BELLEVILLE-ROCKY POND        | 4.33                 | 2.00                    | 0.00                 | 0.71                | F          | 3.94                 |
| DOUGLAS SFL                  | 4.00                 | 1.75                    | 0.25                 | 0.82                | F          | 4.33                 |
| SHAWNEE CO.-LAKE SHAWNEE     | 3.88                 | 2.25                    | 0.50                 | 1.23                | F          | 2.63                 |
| WELLINGTON CITY LAKE         | 3.80                 | 3.20                    | 0.40                 | 1.46                | F          | 3.80                 |
| DOUGLAS CO.-LONESTAR LAKE    | 3.75                 | 2.50                    | 0.50                 | 1.38                | F          | 3.50                 |
| PAOLA CITY LAKE(LAKE MIOLA)  | 3.75                 | 1.25                    | 1.00                 | 1.13                | F          | 6.50                 |
| MADISON CITY LAKE            | 3.25                 | 1.75                    | 1.25                 | 1.27                | F          | 2.33                 |
| ELLIS CITY LAKE              | 3.00                 | 1.67                    | 0.33                 | 1.15                | P          | 2.78                 |
| GEARY SFL                    | 3.00                 | 1.00                    | 0.00                 | 0.38                | F          | 2.50                 |
| MOLINE OLD CITY LAKE - SOUTH | 3.00                 | 2.00                    | 0.00                 | 0.70                | F          | 5.50                 |
| LYON SFL                     | 2.75                 | 2.00                    | 0.50                 | 1.11                | G          | 5.58                 |
| HARVEY CO. LAKE-WEST         | 2.67                 | 1.00                    | 0.33                 | 1.30                | P          | 3.73                 |
| JEFFREY EC-AUX. MAKEUP LAKE  | 2.63                 | 2.25                    | 0.75                 | 0.95                | F          | 5.17                 |
| ATCHISON CO. LAKE            | 2.50                 | 0.50                    | 0.50                 | 0.93                | P          | 2.50                 |
| KIOWA SFL                    | 2.50                 | 1.25                    | 0.75                 | 1.06                | P          | 2.81                 |
| MIDDLE CREEK SFL             | 2.25                 | 0.75                    | 0.50                 | 1.00                | F          | 5.08                 |
| <b>PONDS</b>                 |                      |                         |                      |                     |            |                      |
| OVERBROOK CITY LAKE          | 7.50                 | 0.00                    | 0.00                 | 0.37                | P          | 7.50                 |
| COFFEYVILLE-LECLERE          | 5.00                 | 5.00                    | 1.00                 | 1.04                | P          | 5.00                 |





| <i>WALLEYE</i>              |                       |                         |                      |                     |            |                       |
|-----------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| IMPOUNDMENT                 | Density Rating (>15") | Preferred Rating (>20") | Lunker Rating (>25") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>15") |
| <b>RESERVOIRS</b>           |                       |                         |                      |                     |            |                       |
| WILSON                      | 5.90                  | 4.80                    | 0.33                 | 7.23                | G          | 5.42                  |
| GLEN ELDER                  | 4.33                  | 0.94                    | 0.06                 | 6.59                | G          | 4.47                  |
| KIRWIN                      | 3.80                  | 0.53                    | 0.00                 | 5.60                | G          | 2.89                  |
| WEBSTER                     | 2.08                  | 0.58                    | 0.00                 | 5.92                | G          | 2.50                  |
| MARION                      | 2.00                  | 0.13                    | 0.07                 | 6.09                | F          | 2.24                  |
| CHENEY                      | 1.80                  | 1.25                    | 0.05                 | 6.62                | F          | 1.35                  |
| EL DORADO                   | 1.60                  | 0.87                    | 0.00                 | 5.02                | G          | 3.07                  |
| CEDAR BLUFF                 | 1.58                  | 0.04                    | 0.00                 | 4.00                | G          | 4.48                  |
| MELVERN                     | 1.19                  | 0.38                    | 0.00                 | 5.16                | F          | 0.65                  |
| LOVEWELL                    | 0.83                  | 0.25                    | 0.00                 | 4.40                | F          | 0.96                  |
| HILLSDALE                   | 0.75                  | 0.17                    | 0.08                 | 5.89                | G          | 0.67                  |
| WOLF CREEK                  | 0.39                  | 0.11                    | 0.06                 | 6.06                | F          | 0.44                  |
| COUNCIL GROVE               | 0.27                  | 0.13                    | 0.00                 | 3.19                | P          | 0.63                  |
| CLINTON                     | 0.19                  | 0.00                    | 0.00                 | 2.69                | F          | 0.19                  |
| <b>LAKES</b>                |                       |                         |                      |                     |            |                       |
| SHAWNEE CO.-LAKE SHAWNEE    | 1.75                  | 0.38                    | 0.00                 | 3.69                | F          | 1.38                  |
| HORSETHIEF                  | 1.63                  | 0.13                    | 0.00                 | 3.24                | F          | 1.08                  |
| SABETHA - PONY CREEK LAKE   | 1.50                  | 0.83                    | 0.17                 | 4.85                | G          | 1.39                  |
| GRIDLEY CITY LAKE           | 1.33                  | 0.00                    | 0.00                 | 2.02                | F          | 3.00                  |
| HERINGTON CITY LAKE-NEW     | 1.20                  | 0.40                    | 0.00                 | 3.38                | F          | 1.40                  |
| HOLTON - BANNER CREEK LAKE  | 1.13                  | 0.00                    | 0.00                 | 2.52                | F          | 0.88                  |
| BARBER SFL-LOWER            | 1.00                  | 0.67                    | 0.00                 | 4.32                | G          | 1.22                  |
| JEFFREY EC-MAKE UP LAKE     | 1.00                  | 0.33                    | 0.00                 | 3.11                | F          | 1.28                  |
| YATES CENTER-SOUTH OWL LAKE | 0.83                  | 0.83                    | 0.33                 | 5.93                | F          | 0.72                  |
| WINFIELD CITY LAKE          | 0.60                  | 0.40                    | 0.00                 | 4.67                | F          | 0.60                  |
| COUNCIL GROVE CITY LAKE     | 0.40                  | 0.40                    | 0.00                 | 4.04                | P          | 0.72                  |
| JEFFREY EC-AUX. MAKEUP LAKE | 0.38                  | 0.00                    | 0.00                 | 1.31                | F          | 0.46                  |
| LEAVENWORTH SFL             | 0.33                  | 0.17                    | 0.00                 | 2.69                | P          | 0.39                  |
| BOURBON SFL                 | 0.25                  | 0.25                    | 0.00                 | 2.36                | P          | 0.25                  |
| BUTLER SFL                  | 0.25                  | 0.00                    | 0.00                 | 0.00                | P          | 0.50                  |
| LYON SFL                    | 0.17                  | 0.17                    | 0.17                 | 5.39                | P          | 0.17                  |
| OSAGE SFL                   | 0.17                  | 0.00                    | 0.00                 | 2.96                | P          | 0.25                  |

| <i>SAUGER</i>              |                       |                         |                      |                     |            |                       |
|----------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| IMPOUNDMENT                | Density Rating (>11") | Preferred Rating (>14") | Lunker Rating (>17") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>11") |
| <b>RESERVOIRS</b>          |                       |                         |                      |                     |            |                       |
| PERRY                      | 1.10                  | 1.05                    | 0.43                 | 3.10                | E          | 1.87                  |
| CLINTON                    | 1.00                  | 0.94                    | 0.56                 | 1.94                | F          | 1.17                  |
| MELVERN                    | 0.13                  | 0.13                    | 0.00                 | 1.53                | P          | 0.13                  |
| <b>LAKES</b>               |                       |                         |                      |                     |            |                       |
| HOLTON - BANNER CREEK LAKE | 1.88                  | 1.75                    | 0.38                 | 1.68                | E          | 2.63                  |

| <i>SAUGEYE</i>              |                       |                         |                      |                     |            |                       |
|-----------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| IMPOUNDMENT                 | Density Rating (>14") | Preferred Rating (>18") | Lunker Rating (>22") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>14") |
| <b>RESERVOIRS</b>           |                       |                         |                      |                     |            |                       |
| SEBELIUS                    | 6.50                  | 1.30                    | 0.20                 | 5.73                | G          | 6.30                  |
| KANOPOLIS                   | 2.12                  | 1.94                    | 0.18                 | 4.97                | G          | 4.86                  |
| COUNCIL GROVE               | 1.80                  | 0.60                    | 0.00                 | 3.83                | F          | 1.56                  |
| <b>LAKES</b>                |                       |                         |                      |                     |            |                       |
| SCOTT STATE LAKE            | 15.33                 | 3.58                    | 0.42                 | 5.15                | E          | 11.03                 |
| GRAHAM CO-ANTELOPE LAKE     | 14.25                 | 7.00                    | 0.75                 | 5.01                | E          | 14.25                 |
| CHASE SFL                   | 10.50                 | 2.00                    | 0.00                 | 3.88                | G          | 5.92                  |
| BONE CREEK LAKE             | 5.38                  | 3.50                    | 0.00                 | 4.13                | G          | 2.67                  |
| HOWARD-POLK DANIELS LAKE    | 2.75                  | 2.75                    | 2.75                 | 5.45                | G          | 2.83                  |
| CARBONDALE CITY LAKE - EAST | 2.67                  | 0.17                    | 0.00                 | 1.85                | F          | 2.75                  |
| EUREKA CITY LAKE            | 2.67                  | 1.33                    | 0.00                 | 3.04                | G          | 1.22                  |
| WELLINGTON CITY LAKE        | 2.67                  | 1.00                    | 0.00                 | 3.31                | G          | 7.00                  |
| MCPHERSON SFL               | 2.40                  | 0.90                    | 0.30                 | 5.30                | F          | 2.07                  |
| ATWOOD-LAKE ATWOOD-MAIN     | 2.33                  | 2.00                    | 1.67                 | 5.64                | G          | 2.33                  |
| PAOLA CITY LAKE(LAKE MIOLA) | 2.17                  | 1.17                    | 0.33                 | 5.21                | G          | 1.50                  |
| CENTRALIA CITY LAKE         | 2.13                  | 1.38                    | 0.50                 | 5.83                | G          | 5.83                  |
| GEARY SFL                   | 2.00                  | 0.75                    | 0.25                 | 2.36                | F          | 1.42                  |
| MIDDLE CREEK SFL            | 1.83                  | 0.50                    | 0.17                 | 5.19                | F          | 1.83                  |
| OTTAWA SFL                  | 1.67                  | 1.33                    | 0.17                 | 4.81                | F          | 2.82                  |
| HARVEY CO. LAKE-EAST        | 1.38                  | 0.38                    | 0.25                 | 5.40                | F          | 0.88                  |





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| <i>BLUEGILL</i>            |                      |                        |                      |                     |            |                      |
|----------------------------|----------------------|------------------------|----------------------|---------------------|------------|----------------------|
| IMPOUNDMENT                | Density Rating (>6") | Preferred Rating (>8") | Lunker Rating (>10") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>6") |
| <b>RESERVOIRS</b>          |                      |                        |                      |                     |            |                      |
| SEBELIUS                   | 25.00                | 1.20                   | 0.00                 | 0.62                | G          | 12.73                |
| GLEN ELDER                 | 7.50                 | 0.15                   | 0.00                 | 0.45                | F          | 2.98                 |
| WEBSTER                    | 7.19                 | 0.13                   | 0.00                 | 0.48                | F          | 11.08                |
| KIRWIN                     | 6.25                 | 0.00                   | 0.00                 | 0.38                | F          | 3.67                 |
| MARION                     | 4.91                 | 0.00                   | 0.00                 | 0.31                | F          | 7.05                 |
| WILSON                     | 3.73                 | 0.00                   | 0.00                 | 0.33                | F          | 2.24                 |
| KANOPOLIS                  | 3.50                 | 0.00                   | 0.00                 | 0.35                | F          | 1.68                 |
| <b>LAKES</b>               |                      |                        |                      |                     |            |                      |
| ROOKS STATE LAKE           | 62.00                | 2.50                   | 0.00                 | 0.47                | G          | 24.33                |
| PLAINVILLE LAKE            | 31.00                | 7.00                   | 0.00                 | 0.51                | G          | 32.67                |
| OSAWATOMIE CITY LAKE       | 22.00                | 0.00                   | 0.00                 | 0.31                | G          | 22.00                |
| GRAHAM CO.-ANTELOPE LAKE   | 19.50                | 1.25                   | 0.00                 | 0.64                | G          | 7.81                 |
| JETMORE CITY LAKE          | 19.00                | 0.25                   | 0.25                 | 0.45                | G          | 19.00                |
| DOUGLAS CO.-LONESTAR LAKE  | 17.25                | 0.00                   | 0.00                 | 0.28                | F          | 14.38                |
| COWLEY SFL                 | 16.67                | 0.33                   | 0.00                 | 0.31                | G          | 8.31                 |
| SCOTT STATE LAKE           | 16.22                | 1.44                   | 0.00                 | 0.44                | G          | 16.52                |
| LOGAN CITY LAKE            | 15.00                | 0.00                   | 0.00                 | 0.36                | G          | 8.00                 |
| CHASE SFL                  | 12.25                | 0.00                   | 0.00                 | 0.00                | G          | 5.58                 |
| LYON SFL                   | 12.00                | 1.50                   | 0.00                 | 0.42                | G          | 9.17                 |
| MIAMI SFL                  | 11.50                | 0.00                   | 0.00                 | 0.20                | G          | 10.78                |
| EUREKA CITY LAKE           | 10.50                | 0.00                   | 0.00                 | 0.30                | G          | 8.67                 |
| JEWELL SFL                 | 9.60                 | 0.00                   | 0.00                 | 0.31                | G          | 4.95                 |
| MCPHERSON SFL              | 9.33                 | 0.17                   | 0.17                 | 0.22                | G          | 17.06                |
| CHERRYVALE CITY LAKE-TANKO | 7.00                 | 0.00                   | 0.00                 | 0.19                | F          | 7.00                 |
| MONTGOMERY SFL             | 7.00                 | 0.00                   | 0.00                 | 0.28                | G          | 4.46                 |
| POTTAWATOMIE CO. LAKE      | 6.75                 | 0.00                   | 0.00                 | 0.28                | G          | 9.63                 |
| FORD SFL                   | 6.25                 | 0.00                   | 0.00                 | 0.34                | G          | 8.92                 |
| WILSON SFL                 | 5.00                 | 0.00                   | 0.00                 | 0.33                | G          | 3.17                 |
| GARNETT-CEDAR CREEK LAKE   | 4.88                 | 0.00                   | 0.00                 | 0.33                | F          | 9.50                 |
| HOWARD-POLK DANIELS LAKE   | 4.75                 | 0.00                   | 0.00                 | 0.23                | G          | 7.50                 |
| THAYER CITY LAKE           | 4.75                 | 0.00                   | 0.00                 | 0.20                | F          | 3.63                 |
| NEBO SFL                   | 4.33                 | 0.00                   | 0.00                 | 0.24                | F          | 1.61                 |

| <i>BLUEGILL</i>           |                      |                        |                      |                     |            |                      |
|---------------------------|----------------------|------------------------|----------------------|---------------------|------------|----------------------|
| IMPOUNDMENT               | Density Rating (>6") | Preferred Rating (>8") | Lunker Rating (>10") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>6") |
| <b>PONDS</b>              |                      |                        |                      |                     |            |                      |
| OVERBROOK CITY LAKE       | 15.50                | 0.00                   | 0.00                 | 0.34                | F          | 15.50                |
| SEVERY CITY LAKE          | 14.50                | 0.50                   | 0.00                 | 0.41                | G          | 12.17                |
| STERLING CITY LAKE        | 11.33                | 0.00                   | 0.00                 | 0.23                | F          | 5.44                 |
| COFFEYVILLE-LECLERE       | 6.00                 | 0.00                   | 0.00                 | 0.25                | F          | 6.00                 |
| JEWELL CL - EMERSON LAKE  | 3.00                 | 2.00                   | 0.00                 | 0.53                | G          | 7.28                 |
| FORT LEAVENWORTH-SMITH LK | 1.00                 | 0.00                   | 0.00                 | 0.18                | P          | 1.00                 |

| <i>REDEAR</i>                |                      |                        |                      |                     |            |                      |
|------------------------------|----------------------|------------------------|----------------------|---------------------|------------|----------------------|
| IMPOUNDMENT                  | Density Rating (>7") | Preferred Rating (>9") | Lunker Rating (>11") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>7") |
| <b>RESERVOIRS</b>            |                      |                        |                      |                     |            |                      |
| BIG HILL                     | 0.40                 | 0.00                   | 0.00                 | 0.33                | P          | 0.43                 |
| <b>LAKES</b>                 |                      |                        |                      |                     |            |                      |
| DOUGLAS SFL                  | 33.50                | 0.50                   | 0.00                 | 0.62                | G          | 23.83                |
| COWLEY SFL                   | 14.00                | 2.00                   | 0.00                 | 0.65                | G          | 9.08                 |
| OSAWATOMIE CITY LAKE         | 12.00                | 0.50                   | 0.00                 | 0.50                | G          | 12.00                |
| MELVERN RIVER POND           | 7.50                 | 2.00                   | 0.00                 | 0.76                | G          | 9.00                 |
| MOLINE OLD CITY LAKE - SOUTH | 6.00                 | 2.75                   | 0.00                 | 0.90                | G          | 4.92                 |
| LEAVENWORTH SFL              | 5.75                 | 0.00                   | 0.00                 | 0.40                | F          | 3.50                 |
| NEOSHO SFL                   | 5.17                 | 0.00                   | 0.00                 | 0.44                | G          | 3.56                 |
| DOUGLAS CO.-LONESTAR LAKE    | 4.50                 | 0.75                   | 0.00                 | 0.52                | F          | 6.38                 |
| WILSON SFL                   | 4.50                 | 1.25                   | 0.00                 | 0.74                | G          | 7.08                 |
| LYON SFL                     | 4.25                 | 0.00                   | 0.00                 | 0.45                | G          | 5.25                 |
| THAYER CITY LAKE             | 3.75                 | 0.00                   | 0.00                 | 0.39                | G          | 2.88                 |
| THAYER CITY LAKE (NEW)       | 3.75                 | 0.00                   | 0.00                 | 0.42                | G          | 3.71                 |
| JEWELL SFL                   | 2.60                 | 0.00                   | 0.00                 | 0.47                | F          | 1.45                 |
| <b>PONDS</b>                 |                      |                        |                      |                     |            |                      |
| SEVERY CITY LAKE             | 6.00                 | 2.00                   | 0.00                 | 0.52                | G          | 7.83                 |
| OVERBROOK CITY LAKE          | 3.00                 | 0.00                   | 0.00                 | 0.33                | P          | 3.00                 |

## WHITE BASS

| IMPOUNDMENT                 | Density Rating (>9") | Preferred Rating (>12") | Lunker Rating (>15") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>9") |
|-----------------------------|----------------------|-------------------------|----------------------|---------------------|------------|----------------------|
| <b>RESERVOIRS</b>           |                      |                         |                      |                     |            |                      |
| KANOPOLIS                   | 25.24                | 19.06                   | 3.35                 | 3.66                | E          | 13.60                |
| GLEN ELDER                  | 18.11                | 16.72                   | 4.67                 | 3.06                | E          | 18.01                |
| MARION                      | 13.13                | 10.93                   | 0.27                 | 1.98                | G          | 8.33                 |
| ELK CITY                    | 10.50                | 8.25                    | 1.42                 | 2.91                | E          | 7.29                 |
| MELVERN                     | 9.88                 | 8.75                    | 2.31                 | 2.42                | G          | 5.19                 |
| WEBSTER                     | 9.33                 | 8.08                    | 0.00                 | 1.50                | G          | 5.58                 |
| JOHN REDMOND                | 8.65                 | 2.75                    | 0.35                 | 2.82                | G          | 6.44                 |
| LOVEWELL                    | 7.58                 | 4.58                    | 0.08                 | 1.73                | G          | 5.58                 |
| CLINTON                     | 4.94                 | 4.31                    | 0.88                 | 2.76                | G          | 6.13                 |
| LACYGNE                     | 4.88                 | 2.06                    | 0.25                 | 1.83                | G          | 3.40                 |
| CEDAR BLUFF                 | 4.25                 | 3.71                    | 0.21                 | 1.50                | F          | 11.29                |
| EL DORADO                   | 3.07                 | 2.27                    | 0.73                 | 2.56                | F          | 3.04                 |
| BIG HILL                    | 3.00                 | 2.70                    | 0.70                 | 2.27                | F          | 2.20                 |
| KIRWIN                      | 2.20                 | 2.20                    | 0.13                 | 2.52                | G          | 2.94                 |
| CHENEY                      | 2.15                 | 2.05                    | 0.40                 | 2.20                | F          | 2.13                 |
| WILSON                      | 2.07                 | 1.97                    | 1.27                 | 3.75                | F          | 2.33                 |
| PERRY                       | 1.48                 | 1.00                    | 0.10                 | 1.57                | F          | 2.33                 |
| HILLSDALE                   | 1.33                 | 1.08                    | 0.17                 | 1.78                | F          | 1.69                 |
| WOLF CREEK                  | 1.28                 | 1.11                    | 0.39                 | 1.93                | F          | 2.23                 |
| <b>LAKES</b>                |                      |                         |                      |                     |            |                      |
| HERINGTON CITY LAKE-NEW     | 19.00                | 17.40                   | 0.80                 | 2.16                | E          | 15.75                |
| HOLTON - BANNER CREEK LAKE  | 9.63                 | 7.75                    | 0.13                 | 2.05                | E          | 8.04                 |
| JEFFREY EC-AUX. MAKEUP LAKE | 9.00                 | 8.13                    | 0.38                 | 1.60                | E          | 10.79                |
| JEFFREY EC-MAKE UP LAKE     | 7.83                 | 7.33                    | 0.50                 | 3.17                | E          | 6.72                 |
| GEARY SFL                   | 4.25                 | 4.25                    | 2.50                 | 2.13                | G          | 3.25                 |
| CARBONDALE CITY LAKE - EAST | 3.17                 | 2.67                    | 0.00                 | 1.44                | F          | 1.92                 |
| HARVEY CO. LAKE-EAST        | 3.00                 | 2.75                    | 0.00                 | 1.59                | F          | 2.14                 |
| WINFIELD CITY LAKE          | 2.70                 | 2.40                    | 0.00                 | 1.45                | F          | 4.10                 |
| GARDNER CITY LAKE           | 2.67                 | 1.67                    | 0.00                 | 1.23                | F          | 1.67                 |
| OSAGE SFL                   | 2.67                 | 2.67                    | 0.83                 | 1.98                | F          | 4.00                 |
| SHAWNEE CO.-LAKE SHAWNEE    | 2.63                 | 1.50                    | 0.00                 | 1.37                | F          | 6.81                 |
| PAOLA CITY LAKE(LAKE MIOLA) | 2.33                 | 2.33                    | 0.83                 | 2.12                | F          | 3.06                 |
| DOUGLAS CO.-LONESTAR LAKE   | 2.17                 | 1.67                    | 1.17                 | 2.63                | F          | 2.25                 |
| YATES CENTER CITY LAKE-NEW  | 2.17                 | 1.00                    | 0.50                 | 1.80                | F          | 1.44                 |
| DOUGLAS SFL                 | 1.67                 | 1.67                    | 0.00                 | 1.68                | P          | 0.67                 |
| FORT SCOTT CITY LAKE        | 1.63                 | 1.38                    | 0.75                 | 2.09                | F          | 1.13                 |
| LYON SFL                    | 1.33                 | 1.33                    | 1.00                 | 1.97                | F          | 1.06                 |
| MIDDLE CREEK SFL            | 1.33                 | 0.83                    | 0.00                 | 1.56                | F          | 1.17                 |

## WIPER

| IMPOUNDMENT                 | Density Rating (>16") | Preferred Rating (>20") | Lunker Rating (>24") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>16") |
|-----------------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b>           |                       |                         |                      |                     |            |                       |
| CHENEY                      | 4.40                  | 1.70                    | 0.05                 | 8.19                | G          | 5.07                  |
| KIRWIN                      | 3.80                  | 0.27                    | 0.07                 | 8.66                | G          | 2.79                  |
| WEBSTER                     | 3.00                  | 0.42                    | 0.08                 | 8.21                | G          | 2.28                  |
| LOVEWELL                    | 2.58                  | 0.00                    | 0.00                 | 3.74                | G          | 1.01                  |
| SEBELIUS                    | 2.30                  | 0.70                    | 0.00                 | 6.17                | G          | 7.63                  |
| POMONA                      | 1.88                  | 0.31                    | 0.00                 | 6.23                | G          | 1.35                  |
| GLEN ELDER                  | 1.56                  | 1.50                    | 0.33                 | 11.23               | G          | 2.03                  |
| CLINTON                     | 1.25                  | 0.50                    | 0.00                 | 6.40                | F          | 1.17                  |
| CEDAR BLUFF                 | 0.92                  | 0.21                    | 0.04                 | 8.23                | G          | 1.31                  |
| EL DORADO                   | 0.67                  | 0.67                    | 0.00                 | 6.47                | G          | 3.42                  |
| LACYGNE                     | 0.63                  | 0.25                    | 0.00                 | 5.12                | G          | 0.65                  |
| MARION                      | 0.60                  | 0.20                    | 0.00                 | 4.97                | G          | 3.80                  |
| KANOPOLIS                   | 0.59                  | 0.59                    | 0.06                 | 7.87                | P          | 0.94                  |
| <b>LAKES</b>                |                       |                         |                      |                     |            |                       |
| JEFFREY EC-MAKE UP LAKE     | 5.50                  | 1.67                    | 0.00                 | 4.21                | E          | 4.39                  |
| MELVERN RIVER POND          | 4.75                  | 1.00                    | 0.00                 | 3.97                | G          | 2.75                  |
| HERINGTON CITY LAKE-NEW     | 4.00                  | 0.60                    | 0.00                 | 5.04                | G          | 5.25                  |
| JEFFREY EC-AUX. MAKEUP LAKE | 2.13                  | 1.38                    | 0.00                 | 4.36                | G          | 3.46                  |
| SHERIDAN SFL                | 2.00                  | 0.00                    | 0.00                 | 2.40                | F          | 0.72                  |
| GRIDLEY CITY LAKE           | 1.67                  | 1.00                    | 0.00                 | 4.26                | F          | 2.44                  |
| SABETHA - PONY CREEK LAKE   | 1.17                  | 0.67                    | 0.00                 | 5.64                | F          | 3.00                  |
| KIOWA SFL                   | 1.00                  | 0.00                    | 0.00                 | 1.98                | F          | 0.33                  |
| GRAHAM CO-ANTELOPE LAKE     | 0.75                  | 0.50                    | 0.00                 | 5.53                | F          | 3.25                  |
| YATES CENTER CITY LAKE-NEW  | 0.67                  | 0.33                    | 0.00                 | 3.42                | F          | 0.44                  |
| WINFIELD CITY LAKE          | 0.60                  | 0.20                    | 0.00                 | 4.33                | P          | 2.53                  |
| CARBONDALE CITY LAKE - EAST | 0.50                  | 0.00                    | 0.00                 | 3.02                | P          | 0.50                  |
| SHAWNEE CO.-LAKE SHAWNEE    | 0.50                  | 0.00                    | 0.00                 | 2.18                | P          | 0.25                  |
| LYON SFL                    | 0.33                  | 0.00                    | 0.00                 | 2.78                | P          | 0.33                  |
| OLATHE - LAKE OLATHE        | 0.33                  | 0.33                    | 0.17                 | 8.62                | F          | 0.42                  |
| PAOLA CITY LAKE(LAKE MIOLA) | 0.33                  | 0.17                    | 0.00                 | 5.26                | F          | 1.94                  |

## STRIPER

| IMPOUNDMENT       | Density Rating (>20") | Preferred Rating (>30") | Lunker Rating (>35") | Biggest Fish (lbs.) | Bio Rating | 3-Year Average (>20") |
|-------------------|-----------------------|-------------------------|----------------------|---------------------|------------|-----------------------|
| <b>RESERVOIRS</b> |                       |                         |                      |                     |            |                       |
| WILSON            | 0.73                  | 0.07                    | 0.00                 | 11.22               | G          | 1.58                  |







# Exploring the Great Plains Nature Center

by *Emily Davis & Nicole Brown*  
GPNC Staff

For 20 years, the Great Plains Nature Center has been an oasis for humans and wildlife alike within the urban sprawl of Wichita. On Labor Day weekend in September 2000, the doors opened to the public for the first time.



## *“Inspiring stewardship of the natural world through exceptional experiences to benefit future generations.”*

Since the Great Plains Nature Center (GPNC) has opened, visitors have come in to encounter native animals, learn about the Great Plains in Koch Habitat Hall, visit Bob Gress Observatory to watch for birds and other wildlife, or see an educational program in the Coleman Auditorium. These experiences are all completely free, thanks to a unique cooperative partnership between the U.S. Fish and Wildlife Service (USFWS), Kansas Department of Wildlife, Parks, and Tourism (KDWPT), City of Wichita Parks and Recreation, and the non-profit Friends of the Great Plains Nature Center group. These entities completely fund and staff the nature center, field trips, outreach programs, and animal care along with generous donations from the public. A small handful of events charge a minimal fee or encourage donations to help pay for consumable supplies.

The vision of the GPNC is to “inspire stewardship of the natural world through exceptional experiences to benefit future generations.” That is the goal with every field trip, animal program, or career day. It all started with Bob Gress, who worked for Wichita Wild, doing outreach programs for the

public to promote environmental education. He said it best in *The Wichita Eagle*, 1994, “If adults and kids know more about their environment, they’ll make better decisions about policies affecting their environment.” But he didn’t have enough space to invite the public in, much less for large school field trips. He approached KDWPT and then USFWS to get the job done. Finally, in 1994 after being fully funded, groundbreaking began for the new building in Chisholm Creek Park. The park itself is a Wichita Wild Habitat, the perfect place for environmental education to occur. It has been a great setting for visitors of all ages to experience the habitats of Kansas within its 282 acres.

Now, in 2020, there has been 20 years of programs, hundreds of thousands of visitors, and changes in directors, staff, and volunteers. GPNC still has the same vision and focus, but is also expanding the programming in unique and fun ways to reach new audiences. An overnight camping experience, a zombie apocalypse boot-camp, various guided hikes to chat with naturalists, trivia nights, as well as archery, nature journal, and photography clubs are some of the programs

Staff dress up for a Halloween day program on one of Kansas’ most iconic roadside birds – the turkey vulture. Cassie Standley photo.







One of the Great Plains Nature Center’s naturalists leads a day program. Nicole Brown photo.



Great Plains Nature Center staff member Lyndzee Rhine does some improv teaching. Nicole Brown photo.

offered. This is in addition to annual events, outreach programs, and field trips that have been successful (and mostly free) for so many years.

Such programs presented by naturalists reached 53,707 kids and adults in 2019, while an additional 30,000 walked through the doors to explore on their own. Some events, like Howl-loween, have reached a massive scale; in 2019, 1,646 visitors attended the event!

With 17 staff members, this can only be pulled off with the amazing, devoted volunteer base. Volunteers at the GPNC logged 6,893 hours – nearly 3.5 full time positions – in 2019. They not only help at our special events, which can take 30-100 volunteers, but with everyday tasks like animal care and running the front desk. Volunteers are currently going through the new docent training program and education workshops to become empowered to do even more amazing programs and natural interpretation.

This year will also include an overhaul of the programming to create field trip experiences that are more standardized, interactive, and applicable to what students are actively learning in the classroom. This includes middle school and high school programs where older kids and young adults participate in seining, water testing, bug-netting, bird surveys, and other experiences to give them a taste of what the outdoors can provide.

Such programs have helped GPNC serve Wichita and surrounding areas, providing an improvement to quality of life through outdoor education. But, they want to teach people who may not even enter the doors, too. To do that, they’ve started two podcasts: That’s My Favorite and Naughty Nature (not suitable for all audiences). The podcasts cover a large variety of floral and faunal topics to excite

others about learning and conservation.

To widen the reach even further, GPNC staff use social media and technology extensively. Through Facebook, Instagram, TikTok, and Twitter, thousands have been reached, even international audiences on some platforms.

Come visit the Great Plains Nature Center in Wichita. There’s always something to do and see, and it is always free to explore. We’d love to have you here and to share our passion for the Great Plains. 🐾

Hosts of the Great Plains Nature Center’s “Naughty Nature” Podcast. Cassie Standley photo.



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# Little Jerusalem Badlands State Park

text & photos by  
Rick McNary



As you drive down a sandy road between cornfields to the park entrance, *Little Jerusalem sneaks up on you like a surprise birthday party*. The terrain changes rapidly from flat farm ground and rolling prairie to jagged rock formations with various pastels of sienna, cerulean and sage.

Little Jerusalem is the newest state park in Kansas and is the first in the park system to focus on preservation.



Little Jerusalem is approximately halfway in between Oakley and Scott City on Scenic Highway 83. Turn west on road Gold Road (it's graveled) and go until you see the park sign, which is 400. Turn north and you will see the park sign on your west.



Thanks to “The Wizard of Oz,” Kansans are often teased when they travel with the iconic line from the movie, “I don’t think we’re in Kansas anymore, Toto.”

If your reaction is anything like most people when they first see Little Jerusalem State Park, you will think the same; you’re not in Kansas anymore. This distinct formation of Niobrara Chalk is unlike the rolling plains, undulating hills and tree-

lined valleys of the other parts of Kansas. Located about halfway between Scott City and Oakley, this off-the-beaten-path state park should be on the bucket list of any lover of nature and history.

“We are a recreation-based system in our other parks,” says Linda Lanterman, state park director at Kansas Department of Wildlife, Parks and Tourism (KDWPT). “Most of our parks are

near reservoirs and their main focus is recreation with camping, boating and fishing. However, Little Jerusalem is so different than what we’ve done before because it’s about preservation rather than recreation. It’s a learning experience for us as we make sure we preserve this pristine area.”

The story of how this became the newest state park is as unusual as the rock formations themselves.

The Smoky Hill River courses through this valley, which was once the major conduit for pioneers headed west. The McGuire family settled this parcel in the late 1800s after President Lincoln signed the Homestead Act. Since that time, five generations of McGuires have farmed and ranched the land; their old homestead is easily viewed from many of the points on the trail.



Governor Laura Kelly cuts the ribbon following grand opening ceremonies at Kansas’ newest state park – Little Jerusalem Badlands.





Park trails have excellent education and interpretive signage placed along paths, but a guided hike can bring out the hidden secrets of the park.

privilege to be good stewards of the property and will do amazing work to make sure it's managed the best way possible.

"We still have that flair for outdoor recreation so, as we built the trails, we consistently asked ourselves where we put them to make sure we preserved the area, too. This is an area that contains fossils from 85 million years ago when this was all underwater. It's hard to think about Kansas having once been a sea."

The trails are strategically placed to allow the public to explore the various parts of the park's ecosystem and to enjoy the grandest views. However, the only time the public is allowed to go off-trail is under a guided hike by a state park official.

Another unique part of Little Jerusalem is that it has its own naturalist, Sara Kay Carrell, who gives the guided tours.

"At Little Jerusalem, my role as a naturalist is to incorporate and teach the delicate and complex balance of nature in that ecosystem," Carrell says. "I combine plant, animal, and

insect identification and wildlife tracking along with the relationships between flora and fauna and their habitat. I also like to teach people to identify birds by their song and even teach people how to be aware of surroundings to help them with land navigation skills."

Although the trail has excellent education and interpretive signage strategically placed along the path, a guided hike by Carrell or one of the other park staff brings out the hidden secrets of the park of which the casual observer might be unaware. For example, inside those rock formations is the only place on earth where the Great Plains wild buckwheat can be found.

In addition to revealing nature's secrets, Carrell educates hikers about grass varieties like little bluestem, sideoats grama, blue grama, hairy grama and buffalo grass. She explains why prairie fires are critical for the ecology and what grazing cattle do to help keep the delicate ecosystem in balance. She points out the places the rock wrens build their nest and how they visited her and inspected every board she put up on the split rail fence she built last summer.

When you go, you might see the mule deer hanging out in the shadows or hear the racket of a coachwhip snake as they race away







Trail users can have a “do-it-yourself” trek one of the park’s two defined trails: the Overlook Trail, 1/4-mile, and the Life on the Rocks Trail, 1 1/5-miles.

explorers can enjoy the same amazing things.”

Don’t be surprised when you go to Little Jerusalem that you say to yourself, “Wow, I don’t think I’m in Kansas anymore, Toto.” Even native Kansans, who usually roll their eyes when someone says that, will nod with you in agreement.

Most importantly, do yourself a favor and spend some time when you go. This place has an unusual way of washing away the chaos and cares of life and replacing them with serenity and peace. The longer you stay in the park, the more she reveals her secrets with

from you. Be still long enough and you might hear coyotes yipping in the distance or catch a glimpse of the six-lined racerunner and Great Plains skink darting over the rocks. Look across the valley and you might see pronghorn antelope grazing or a bobcat slinking in the grass.

“I am always amazed how often I hear people ask, incredulously, ‘... and this is Kansas?’” Carrell says. “Even native Kansans are surprised by the landscape. It’s like each new corner in a canyon opens up to a whole new vista or a breathtaking formation. One of my favorite activities is to have people guess what various rock formations look like. The answers I get are anywhere from a Smurf to animals to famous historic people.

“There’s a point in the hike where you can look across and see the area where scientists discovered the first evidence of human inhabitation in this area,” Carrell says. “They found a spear head in the shoulder blade of the now extinct bison antiquus, which roamed the prairie 10,000 years ago.

“I have camped and explored in Kansas for 42 years and am still amazed at what I discover in each



season at the park,” Carrell continues. “I want to light a new little fire in people to get out and explore more. I hope to install a respect for the Little Jerusalem environment and that they take home a new awareness to protect and preserve nature around them so future

each whisper in the wind.

It’s places like this that make Kansans proud to call our state, “home.” And we agree with Dorothy; there is no place like home. 🐮

Little Jerusalem Badlands State Park – open year-round – is a day-use park only, meaning hours are from sunrise to sunset.





# Fishing

# The Flood

by Michael Pearce  
freelance outdoor writer/photographer

Anglers won't need a \$50,000 boat with more high-tech electronics than a space shuttle to cash in on the great fishing created by last year's high waters. Many lakes, especially in central and western Kansas, have been below normal for years but now have thousands of new acres of flooded trees and rock piles within easy casting distance of shore or for those who wade or paddle.

Here, you'll find tips on how to cash-in these great angling opportunities in all seasons.

See pgs. 24-30, or visit [www.ksoutdoors.com](http://www.ksoutdoors.com), and check this year's fishing forecast. Note: Many of the best places are smaller community and state fishing lakes. 🐻



*Expertise provided by Doug Nygren, Jeff Koch, Russ Vanover and Landon Stephens.*



# Crappie

Anglers are coming off of some of the best winter crappie fishing in decades. Both quality and quantity should hold for some time. Don't miss out!

## Spring



- Magic happens in the shallows as the water temperature gets around 62 to 65 degrees and crappie move shallow to spawn, normally in mid-April into May.

Remember, not all waters warm and cool the same. Some years searching out the right temperatures can help draw spawn fishing out for over a month.

- Smaller waters, like state fishing and community lakes, often warm several days ahead of reservoirs. Lakes in southern Kansas can warm a week or more faster than those to the north.

- Turbid water holds heat better than clear water. Rocky shorelines in full sun should warm faster than those of dirt and in the shade. Temperatures in one lake can vary 10 degrees from spot to spot. One section of shoreline can see similar changes through a single day.

- Riprap areas, like along dams, causeways and piers, are always good bets. Large coves, like those that hold marinas, can be easily accessed and productive.

- "Doodle-socking" – using a long rod to drop baits straight down into flooded brush and other structures – should be especially effective this year.

## Summer

- During the hottest days of summer, paddlers can catch crappie in flooded timber. Move from tree to tree and drop jigs or minnows along the trunk. Start at the bottom and reel up, letting the bait set every foot or so.

- Trees near creek and river channels are often best. The key can be finding the right depth.

- Summer action can be good up rivers and major streams that feed reservoirs. Crappie are often holding tight to woody cover as shallow as two-feet deep. Vertically dropping baits from long rods into flooded treetops and driftwood piles can produce. Look for patterns such as wood near deep channels, shady areas and outside or inside bends.

## Fall

- As waters cool into the mid-40s, crappie often gather in big schools to feed on gizzard shad. It's usually a deep bite, but it can last several months.

- Paddlers can often access sunken brush piles and other habitats in calm areas of lakes and reservoirs. GPS coordinates for many can be found at [ksoutdoors.com](http://ksoutdoors.com).

- Checking Google Earth images from past dry years can show rockpiles, brush piles and drop-offs that may now be flooded.

- Shoreline anglers can cover a lot of water using 10 to 12-foot rods and slip-bobbers to make long casts that will drop jigs straight down.

- Riprap along bridges can be great places for the long casts since they're often near river and creek channels. Crappie may also be feeding amid the rocks and deeper water that's easily reached from shore.

- Deeper holes and woody habitat up rivers and creeks can also produce.

## Winter

- The same deeper-water structure that produced in the fall could produce all winter.

- It's a good time to check into docks and marinas that allow pay-fishing. Some have heated enclosures over sunken brush. Marinas at Melvern, Perry, and Hillsdale Reservoirs usually have heated docks as does Lake Shawnee, Eureka City Lake and Marion County Lake.





# Walleye/Saugeye

Search out good saugeye waters since they're often found in shallower water. Note the best saugeye waters on the fishing forecast are lakes, not reservoirs.

## Spring

- At ice-out, both species stage near spawning areas, often off rocky points or flats near dams. Wading and long casts with slip-bobbers can work well. Saugeye may make foraging trips up onto flats near deep water in those areas.
- Water temperatures around 45 degrees – late March or early April – usually signal the spawn along any areas of riprap or rocky points. Nighttime is the right time. Persistence pays as the fish are more interested in reproduction. Throw suspending crankbaits or plastic jigs with tail action.
- Conditions permitting, safety-conscious paddlers can troll within a few feet of shore. Shoreline anglers can do the same with long rods on dams with packed surfaces.
- Outlets can be good when the water is released, drawing eyes from downstream as well as those recently released from the lake.
- Late spring, a week or so after the spawn ends, can move the fish to flats.



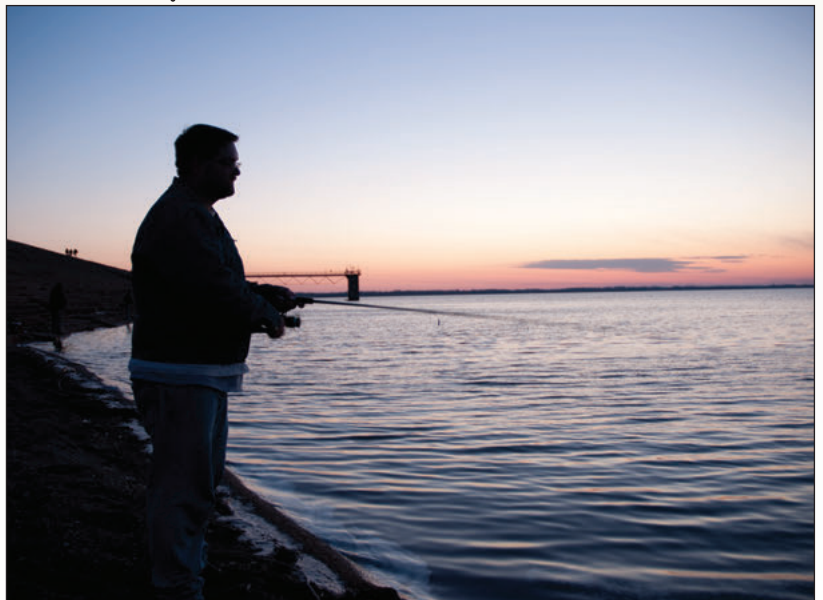
Staff Photo

## Fall and Winter

- Tougher bite as fish move to deeper water. Saugeye may be caught casting plastics and deep crankbaits off rocky points.
- This might be a better time to target other species.

## Summer

- A solid feeding pattern on flats usually begins mid-April and often goes into June and July. Paddle anglers can drift or troll jig heads tipped with nightcrawlers or crankbaits. Mark a spot where a fish is caught – where there's one, there could be more. Paddlers always need to show caution if larger watercraft are around.
- Early summer is a great time to wade-fish flats and long points for saugeye. Use a crosswind to drag baits fished below a slip bobber to cover a lot of water until a concentration of fish is found.
- Saugeye, especially, can be caught off rocky shorelines during the heat of the summer. Crankbaits and shad-imitating plastics work well, and fish are often in only a few feet of water.



Staff Photo



# White Bass/Wipers

Few species have made better use of higher than normal forage than wipers and white bass. Numbers and size should be up for several years.

## Spring

- Not long after ice-out, white bass will start schooling near the mouths of rivers and streams, then move up from hole to hole as the water warms. It may take heavy jigs or spoons to get deep enough, especially if there's much current.
- Water temperatures around 60 degrees – often early to mid-April – will usually push fish as far as they can to spawning riffles. Fish the riffles, but don't forget the holes below them will be holding fish.
- Any rocky area, especially riprap dams, can be good during the spawn.
- Excellent wiper fishing often comes by wading out long, shallow points near deep water when water temperatures reach 50 degrees.



Swimbait will work, as will big, weighted streamers cast from fly rods.

- Flow increases any time in the spring can bring white bass up from downstream. That includes the outlets below dams, too.

## Summer

- Paddlers can troll flats and points to find fish, then anchor or float the area to catch more.
- Wipers can be caught casting crankbaits and plastic in deeper water off rocky shorelines at smaller lakes. They will also take cut-bait, like shad or panfish, fished on the bottom, near deep water.
- Both species spend much of the summer pushing schools of shad to the surface. Anglers casting from dams and jetties can often reach such fish. That bite can be very patternable and predictable.

## Fall

- Early fall can see great top-water action as white bass and wipers continue to chase shad.
- Wading and casting from windswept points near deeper water will again work for wipers until the water temperature is below 45 degrees.



## Winter

- Ice-fishing can be great for white bass and wipers. Flats near river and creek channels are ideal places to fish with small spoons.
- Northern Kansas lakes may have safe ice while there's none in southern Kansas. Stay abreast of fishing reports and use extreme caution, no matter where you go.





# Hunting The Light Goose Conservation Order

by Rob McDonald, *outdoor blogger*

From February 17–April 30, hunters in Kansas can take advantage of a special season that allows for a more relaxed approach to goose hunting – the Light Goose Conservation Order.

## No Plugs Needed

During regular migratory bird seasons, hunters are limited to a three-cartridge capacity in their shotgun. During the conservation order, hunters can remove the plug.

## Call 'em!

Geese are vocal birds, and calling is a critical part of working birds into a decoy spread.

## License, Permit & Stamps

During the conservation order, regulations may be lax, but license requirements aren't. You should have a valid hunting license, state waterfowl stamp, state HIP permit, and federal migratory bird stamp.

## Keep it Light and Bright

Snow geese migrate in large groups, which means lots of eyes in the sky. A cost-effective way to stay concealed is by wearing white painters' coveralls.

## Blind Bag

What you have in your blind bag says a lot about your hunting style. Do you stick to the bare necessities, or are you a "let's pack extra just in case I need it" kind of hunter? Here are my blind bag must-haves when pursuing light geese.

## Electronics Are a "Go"

While against federal and state regulations during the regular waterfowl seasons, electronic calls are fair game during the Conservation Order. Use one to get a flock's attention and keep them interested in your spread.

## Non-Toxic Shot Required

Use 3s, 2s or BBs, making sure they've been loaded with non-toxic shot, such as steel, bismuth or tungsten.

## The Comfort Items

If you've got the room, consider throwing into your blind bag some ear plugs, extra gloves, snacks, a thermos, headlamp, and reading material, such as *Kansas Wildlife & Parks Magazine*.

Rob McDonald photo



# WILD TURKEY ROLLUPS

by Michael Pearce

freelance outdoor writer/photographer



Michael Pearce photo

My friend Gary long told the stories of trying to get his teenage girls to enjoy wild game. One Sunday lunch, he brought food in from the grill and set a bite in front of each doubtful daughter.

After a few chews, he said the girls first threw each other glances and then each other elbows as they bolted for the platter of remaining wild turkey rollups. The girls barely left any for their parents and have asked for wild turkey rollups every spring since.

It's a simple recipe that uses what some call the "duct tape and WD-40" of the kitchen – bacon and Italian dressing. The latter is as good for a marinade as it is on salads, with a great mixture of oil, vinegar, garlic and other spices. And who doesn't love bacon?

## Here's what you need:

- 1 wild turkey breast, membrane and fat removed, cut into ½-inch strips, 6 to 8 inches long
- 1 small bottle zesty Italian salad dressing
- 8-10 strips thinly-sliced, low sodium bacon
- Short, wooden kabob skewers or large toothpicks soaked in water for one hour

Place the turkey strips in a plastic, sealable bag, and pour in Italian dressing. Squeeze out the air, seal and marinate in refrigerator for 4-24 hours.

Pre-heat your grill to 350 degrees, or medium heat.

Lay out the strips of bacon and cover with a strip of turkey. Roll the two together, securing with a skewer or toothpick; several strips can be

put on one skewer.

Place on the grill, turning occasionally to prevent the bacon from burning. Cook until the juices go from pink to clear.

Serve and enjoy!

## Change It Up

### Asian Style

Marinate in three-parts teriyaki marinade and one-part pineapple juice. Wrap with a chunk of fresh pineapple in the center.

### Fajita Style

Marinate in three-parts mesquite marinade and one-part liquid smoke. Grill with a chunk of jalapeno in the center.



# Species Profile:

## Strecker's Chorus Frog

Measuring 1.5 to 2 inches long, this husky hopper is the largest of three types of chorus frogs in Kansas. The Strecker's chorus frog is earthy in color, sporting green, tan and gray with some spots on its sides. A distinctive stripe runs from its nose, through the eyes and down the sides to above the front legs.

Unlike most frogs that burrow into the ground back end first, the Strecker's chorus frog burrows headfirst into the soil using its front legs. Although it lives mostly in sand prairies and fields, the Strecker's chorus frog can also be found in ravines and woodlands.

The Strecker's chorus frog is nocturnal, and spends most of the year underground, coming

out to breed in late February to early May. Breeding takes place in flooded fields, ditches and ponds, and is largely dependent on weather.

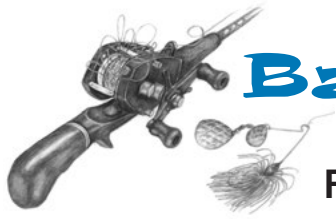
While they occur throughout parts of Oklahoma, Texas, Arkansas and Louisiana, the first Strecker's chorus frog was not found in Kansas until it was discovered in Harper County in 1977 by Eddie Stegall. Currently a Kansas threatened species, the Strecker's chorus frog is found only in the southcentral part of the state; surveys conducted by KDWPT have found them in Barber, Kingman and Pratt counties.

In the wild, the Strecker's chorus frog will live for just two to three years.



Daren Riedle Photo





# Backlash

with Nadia Reimer

## Fake It Until You Make It

Larva, chrysalis, pupa... they were all words I was familiar with, but rarely, if ever, used. That is, until, I attended a “Digging Deep Into Gardening” workshop hosted by our local K-State Research and Extension Office.

Leading the class was a lively and knowledgeable farmer, botanist and butterfly enthusiast who was captivating in every sense of the word - like a real-life version of the animated Ms. Frizzle from the Magic School Bus! I knew I was in the right place as soon as the instructor equated healthy soil to chocolate cake, explaining that healthy soil should be dark, fluffy, and fragrant; now, these were scientific analogies I could relate to! By the end of her presentation, I was ready to jump out of my seat and begin transforming my small, suburban backyard into a lush, green utopia, but not the one I had originally intended.

Our instructor had just begun the latter portion of her presentation, which focused on pollinator gardens and the species that desperately depend on them, including butterflies. Mind you, I went to this workshop thinking I would pick up tips and tricks for creating a thriving vegetable garden. And while I learned a great deal that will benefit me in that endeavor, as soon as the big “eyes” of an Eastern Tiger Swallowtail caterpillar hit the projector screen, I had forgotten all about my desire to grow English cucumbers and butter lettuce; I was fascinated!

Like my shopping receipts when I’m left unattended in Hobby Lobby, my interest in butterfly caterpillars grew with each new discovery. The punk-rock-like red “spikes” on a Pipevine Swallowtail caterpillar, the ability of Viceroy and Red-spotted Purple caterpillars to look like bird droppings, and the fashion-conscious ways of the Variegated Fritillary caterpillar unexpectedly left me in awe. I had no idea caterpillars could be so vibrant, diverse, and above all, strategic!

Our instructor elaborated on the cannibalistic tendencies of some caterpillar siblings, the defense mechanisms these plump, moving targets deploy to avoid being eaten by non-familial prey, and the lengths caterpillars will travel to find a safe place to enter the pupa stage. I found myself sympathizing with me new favorite creatures, thinking, “It’s hard being a caterpillar!”

The most fascinating defense tactic had to be the use of Batesian mimicry. The Merriam-Webster dictionary defines Batesian mimicry as the “resemblance of an innocuous species to another that is protected from predators by unpalatability or other qualities.”

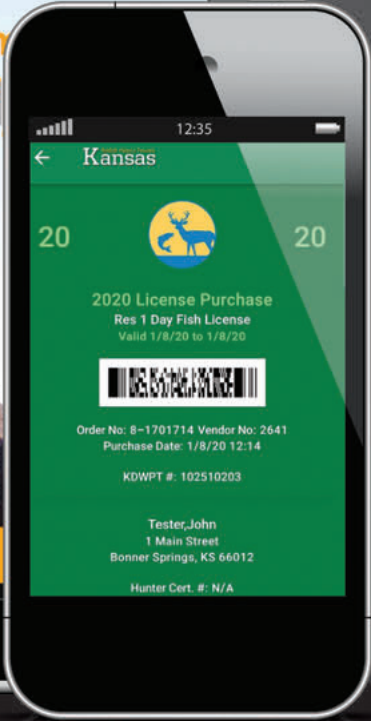
Here’s a very loose rendition of how it was explained to us during the workshop:

*“A bird eats a monarch butterfly, a “toxic” species. The bird gets sick. Eventually, that bird learns not to eat monarchs. Now, enter Viceroy butterflies. Though not exactly the same, a Viceroy butterfly resembles a monarch. The bird will not eat the Viceroy. Why? It has learned not to eat orange butterflies.”*

I think I found the concept of Batesian mimicry in butterflies to be so fascinating because here I envisioned butterflies as just being “simple” creatures that live a simple existence. What I’ve since learned is that butterflies are a multifaceted species that undergo an incredibly sophisticated metamorphosis, just to enter a world that’s even more complex than they are. The odds of survival are stacked against them in more ways than I have room to list here. And yet, they’ve evolved to adapt and survive. For me, butterflies now bring a whole new meaning to the phrase, “Fake it until you make it.” 🐃







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