KANSAS
Wildlife & Parks

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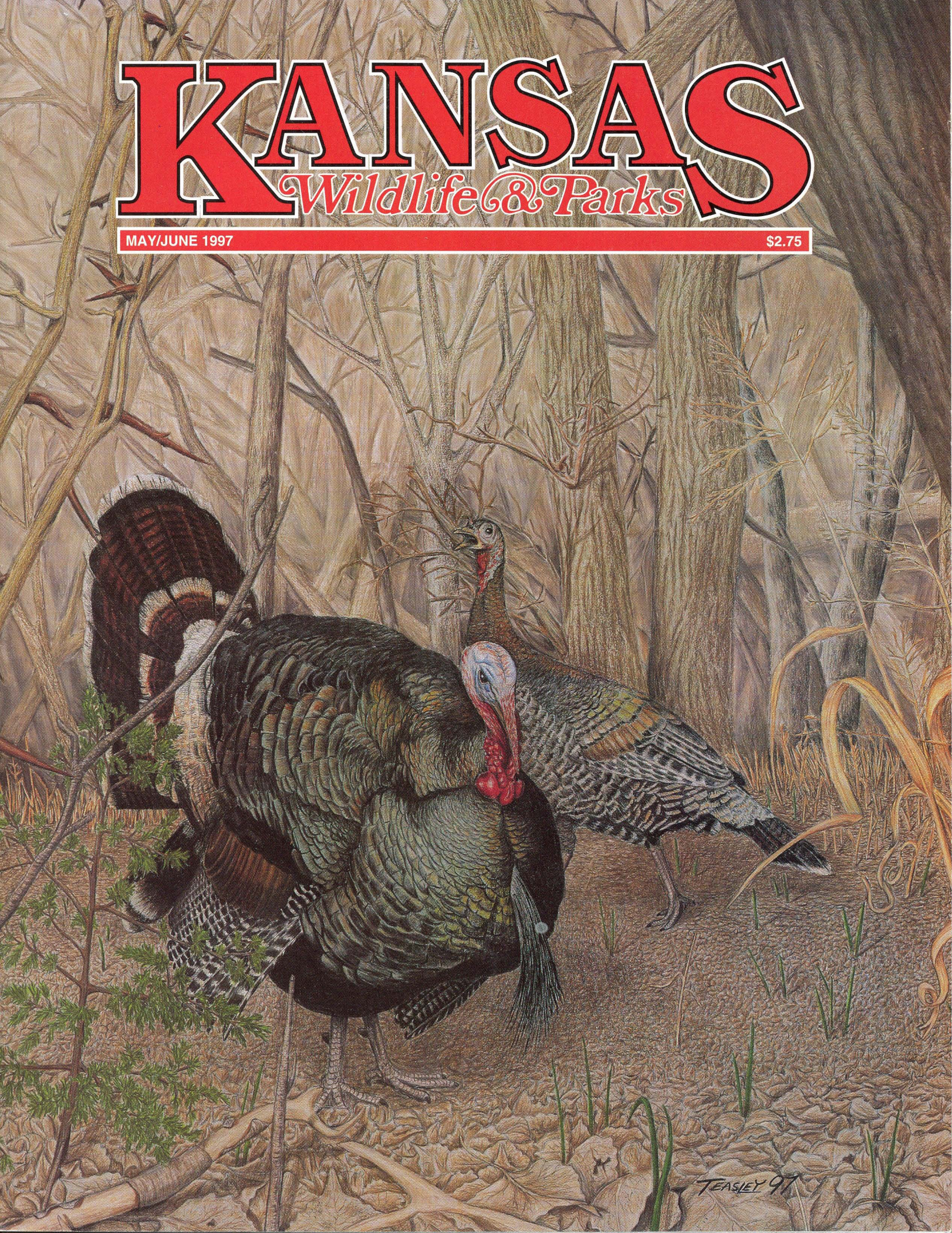
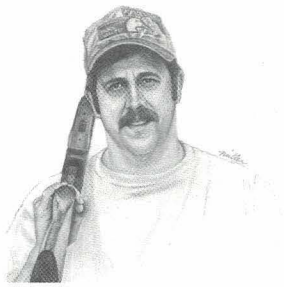


The View From Here



by Steve Williams

Kansas: More Than Meets The Eye

It was nearly two years ago that my family and I moved to the Midwest, where I would assume the duties of overseeing the management of Kansas' natural resources. Prior to our move, I collected books, magazines and brochures on Kansas. We spent evenings around the fire poring over maps, flipping through brochures and talking about what we might encounter in Kansas.

When we arrived in late spring of 1995, we had an agenda of places we wanted to visit. One of our first expeditions was to the Flint Hills where, in the small town of Peabody, we saw where my grandmother was born. The brick streets and restored 1800s-vintage buildings took us back to the days when Kansas was a young state. The limestone structures that dotted the hillsides created special memories, and we feasted our eyes on our first Flint Hills sunset.

Not long after our first expedition, my family and I decided that it was time to get down to business and do some serious fishing, Kansas style. With map in hand, we set out to try our luck at several reservoirs and state lakes. As we traveled to different regions of the state, we discovered how diverse Kansas landscapes can be. Whether fishing from the wooded shore at Perry State Park, or trolling for stripers at Wilson Reservoir on the open prairie, each experience produced a special Kansas memory. Along the way we were treated to genuine, down-home Kansas hospitality.

Coming from the Northeast, I was unprepared for this diversity of landscapes and still marvel at the panoramic view of blue sky and horizon. I have been pleasantly surprised with the tremendous hunting, fishing and outdoor activities. While hunting pheasants through head-high CRP in the west, hunting quail in the rolling Flint Hills, deer hunting in the timbered southeast, or catching slab crappie on a northeast reservoir, I've found that Kansas has something to offer anyone who enjoys the outdoors.

So, I was surprised to learn that Kansas placed last in the nation's race to capture travel and tourism dollars. My work with the department has allowed me to travel throughout the state. I often boast of traveling from Baxter Springs to Atwood and from Elkhart to Atchison, with stops at many points in between. Seeing Kansas through fresh eyes provides a perspective that I believe may offer some ideas for the promotion of tourism, travel and recreation. Passers-through may view Kansas as a flat land covered with wheat fields, or a dusty place ravaged by tornados like the one Dorothy and Toto made famous. But, as I've learned, there is much more to Kansas than meets the eye along Interstate 70, and there are many groups working to promote that.

The Department of Commerce and Housing's Division of Travel and Tourism pitches Kansas to travelers year-round. And the legislature, recognizing the need to emphasize tourism, recently established a committee to study tourism in the state. The Department of Wildlife and Parks has long promoted one of Kansas' greatest attractions: its natural resources. We play a role in many of the goals set by the Travel Industry Association of Kansas. These goals include, in part, the assurance of adequate public access to natural resources, the creation of an environment conducive to tourism business, and promotion and marketing of tourism activities, attractions, events, and businesses. These efforts have and will continue to pay dividends for the economy of the state.

Thousands of people from across the U.S. travel to Kansas each year to enjoy upland bird, turkey and deer hunting, crappie fishing, and even birdwatching (More than half of the continental shorebird population will stop at Cheyenne Bottoms Wildlife Area near Great Bend during migration). These travelers quickly discover that Kansas is much more than they anticipated, and they appreciate the rural lifestyle, low population densities and abundant wildlife. But they talk about something else — something we take for granted: the people. Nonresidents are captivated by our friendly nature and welcoming attitudes. Pheasant hunters from other states call our offices each fall to ask about prospects for the upcoming season but, they confess, they're coming no matter what the forecast. They love Kansas, and they love the Kansas people.

There are rich historical sites, too, including Ft. Larned on the Santa Fe Trail, Council Grove's Hays House Restaurant opened in 1857, the Peace Treaty Pageant in Medicine Lodge, Boot Hill in Dodge City, the Dalton Gang Hideout in Meade, and many more. Kansas is a western history buff's paradise. I guess Kansas is still one of America's best kept secrets, but we're spreading the word. Please help us enhance the nation's vision of this diverse and beautiful state others know as "where the deer and antelope play," — a state we simply call home.

KANSAS Wildlife & Parks

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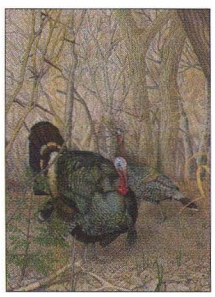
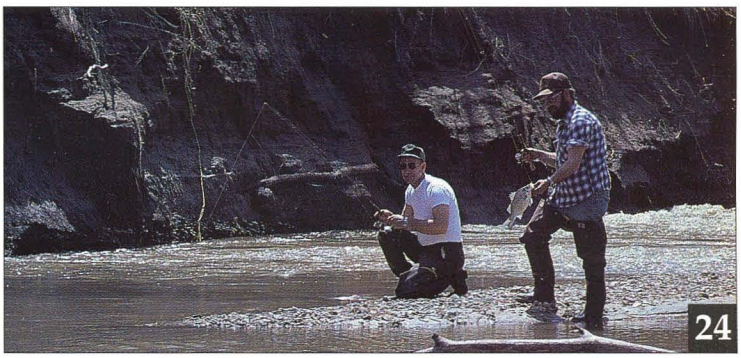
About the covers

Front: Colored pencil illustration of Rio Grande gobbler and hen by Dustin Teasley.

Back: A mother helps her children watch their lines at Bourbon State Fishing Lake. Mike Blair photographed the scene with a 600mm lens, @ f/4, 1/250 sec.





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

The Wild Turkey Story

by Bill Hlavachick, *wildlife biologist (retired), Pratt*
and Mike Miller, *editor, Pratt*

photos by Mike Blair

Wild turkeys disappeared from most of their native range by the turn of the century. Today, thanks to the efforts of some far-sighted wildlife biologists, turkeys inhabit every Kansas county and offer tremendous hunting and viewing opportunities.

In the beginning there was firmament and water and grass and trees, but no turkeys — and it was not good. (Just kidding!) Actually, there were turkeys in the beginning. Early accounts of Kansas prior to the turn of the century mention wild turkeys in the eastern portion of the state and, according to an article in the July 4, 1872 edition of the Hutchinson News, Barber County offered great hunting grounds, with "deer and wild turkey in great abundance." By 1900, however, turkeys had succumbed to unregulated subsistence hunting and dramatic changes in their habitats.

The wild turkey's plight in Kansas was a mirror of that across the nation. When Europeans first arrived on North American soil, the wild turkey was abundant and provided an easy food source. The birds were so common that in Eastern markets, dressed wild turkeys sold for only 1 1/2 cents per pound in 1730. By the early 1800s, however, they were becoming scarce in the Eastern forests. Turkeys were susceptible to overhunting, since they could be shot from the roost at night, or even captured in walk-in traps. By 1952, the turkey had been nearly wiped out of its original range across the U.S. It is estimated that less than 100,000 of the birds remained, mostly in scattered pockets of the deep South. Today, with management programs and recovery efforts similar to that in Kansas, more than 4 million turkeys inhabit 41 states.

Turkeys were absent from Kansas for the first half of the 20th Century. But in 1958, Rio Grande turkeys hopped across the border from Oklahoma and took up residence along the Arkansas River near Arkansas City. This small population of turkeys convinced the then Kansas Forestry, Fish and Game Commission that turkeys could survive elsewhere in the state. The first trap and transplant efforts actually came from this first flock of Oklahoma immigrants. Records are unclear where these first releases were made, however, and it would be several years before a serious restoration program was started.

With the hiring of a turkey study leader in 1962, Kansas began an odyssey that would culminate in turkey populations in each of our 105 counties. Not even the visionaries that originated the turkey reintroduction program could have forecast the magnitude of the eventual outcome.

In order to better judge Kansas turkey habitat potential, the study leader traveled to Oklahoma and Texas to get a first-hand look at turkey management. He reported that "Kansas has excellent Rio Grande habitat." His report went on, however, to say "the extent of this range will be restricted, at least to begin with, to the timbered watercourses of central Kansas." How right, and how wrong, that assessment was. Who would have thought then that these prolific and adventuresome birds would one day be found in isolated tree sites — in the middle of nowhere, surrounded by prairie — and doing quite well?

The first order of business was to determine how many turkeys already existed in Kansas, where they were and where they came from. A review of a 1960 game protector (conservation officer) survey

revealed the Arkansas City flock, as well as an additional 36 flocks of turkeys across the state, totalling 545 birds. A similar survey in 1961, recorded 32 flocks and 377 birds. A follow-up survey done by the new turkey study leader in 1962 reported a statewide turkey population of 360.

Where did these birds come from? It was determined that 61 percent of the birds counted in the survey came from pen-reared stock, brought to Kansas and released by well-meaning private interests. It was also determined that the pen-reared birds were failing to establish thriving populations.

Following up on the inspection trip to Texas and Oklahoma, the study leader surveyed potential turkey habitats in the central and west-central parts of Kansas. Habitat criteria included long stretches of riparian (streamside) timber, running water, large roost trees, and nearby native grass, located within the 20-inch or less annual rainfall belt. All this was interspersed with crop fields, mostly milo, to provide a supplemental winter food source. Landowners were contacted to sign an agreement that would allow the agency to release turkeys and conduct population surveys on their property. Most landowners were interested and supportive, and this turned out to be one of the easiest parts of the program.

Although the turkey restoration program began in 1962, it was not until 1966 that the agency obtained wild turkeys for release in the identified areas. The agency's director at the time was George C. Moore. While attending a meeting involving other state wildlife agencies, he cut a deal with the Texas department. Kansas would trade 250 lesser prairie chickens for 125 Rio Grande turkeys. (How was he to know how easy it was to trap turkeys and how difficult it was to trap lesser prairie chickens?)

These Rio Grande gobblers appear in the fog on a southcentral Kansas ridge. The big picture concerning wild turkeys in Kansas is much clearer – they are here to stay!

During the winter of 1966, 125 turkeys were trapped on the King Ranch near Kingsville, Tex. and delivered to Pratt. Ten release sites were identified in Elk, Pottawatomie, Ellis, Graham, Sumner, and Harper counties, as well as the Cimarron National Grasslands in Morton County.

Summer brood surveys by landowners and agency personnel during that first nesting season recorded 28 broods with more than 125 young turkeys produced by the Texas transplants. By comparison, the pen-reared populations in other areas of the state showed a reduced rate of production. With this early success, the state was anxious to continue introductions. In 1967, channel catfish fry were traded to Oklahoma for 85 additional wild turkeys.

In the winter of 1968, after only three nesting seasons, Kansas' turkey populations at several of the initial release sites had increased enough to warrant in-state trap and transplant operations. From then on, birds in established flocks were captured each

The Rio Grande subspecies is at home on the open prairie, although they do require mature timber for nighttime roosting.

winter and moved to new locations. Today we have viable turkey populations in all counties and, in all but the western part of the state, turkey numbers continue to grow.

It would take 10 long years for the agency to honor that first trade commitment of 250 prairie chickens. In retrospect, the trade was a good one, but the payback chickens seemed, in the end, to be worth their weight in gold.

During the trap and transplant operations, it was soon discovered that Rio Grandes did poorly in eastern portions of the state where annual rainfall is more than 30 inches. In 1974, greater prairie chickens were traded for 30 eastern turkeys trapped in Missouri. In subsequent years, Kansas traded native forb (weeds beneficial to wildlife) seeds to Missouri for turkeys, and later more prairie chickens were traded to Iowa for eastern turkeys. These wild-trapped easterns were released in timbered regions of eastern Kansas.

The restoration of eastern birds was similar to that of Rio Grandes. When local populations grew sufficiently, they were trapped and transplanted. Today populations of eastern wild turkeys are thriving in much of the eastern one-fourth of Kansas.

In the Flint Hills, Osage Questas and Chautauqua Hills regions, mixed releases of Rio Grande and eastern turkeys were made. The two races crossbred, and the resulting hybrids are thriving in these habitats.

All Kansas wild turkeys belong to the same species, but are divided into two races, or subspecies, the eastern and Rio Grande, as well as hybrids of the two. There are actually two species of wild turkeys native to North and Central America. *Meleagris gallopavo* includes the six races we are most familiar with: the eastern, *Meleagris gallopavo silvestris* (meaning forest turkey), which is native to the eastern half of the U.S.; the Florida turkey, *M. g. osceola*, (named for the Seminole Chief Osceola) which inhabits the pine-palmetto forests of southeast Florida; *M. g. intermedia*, (named for its intermediate appearance) which inhabits Texas, Oklahoma and

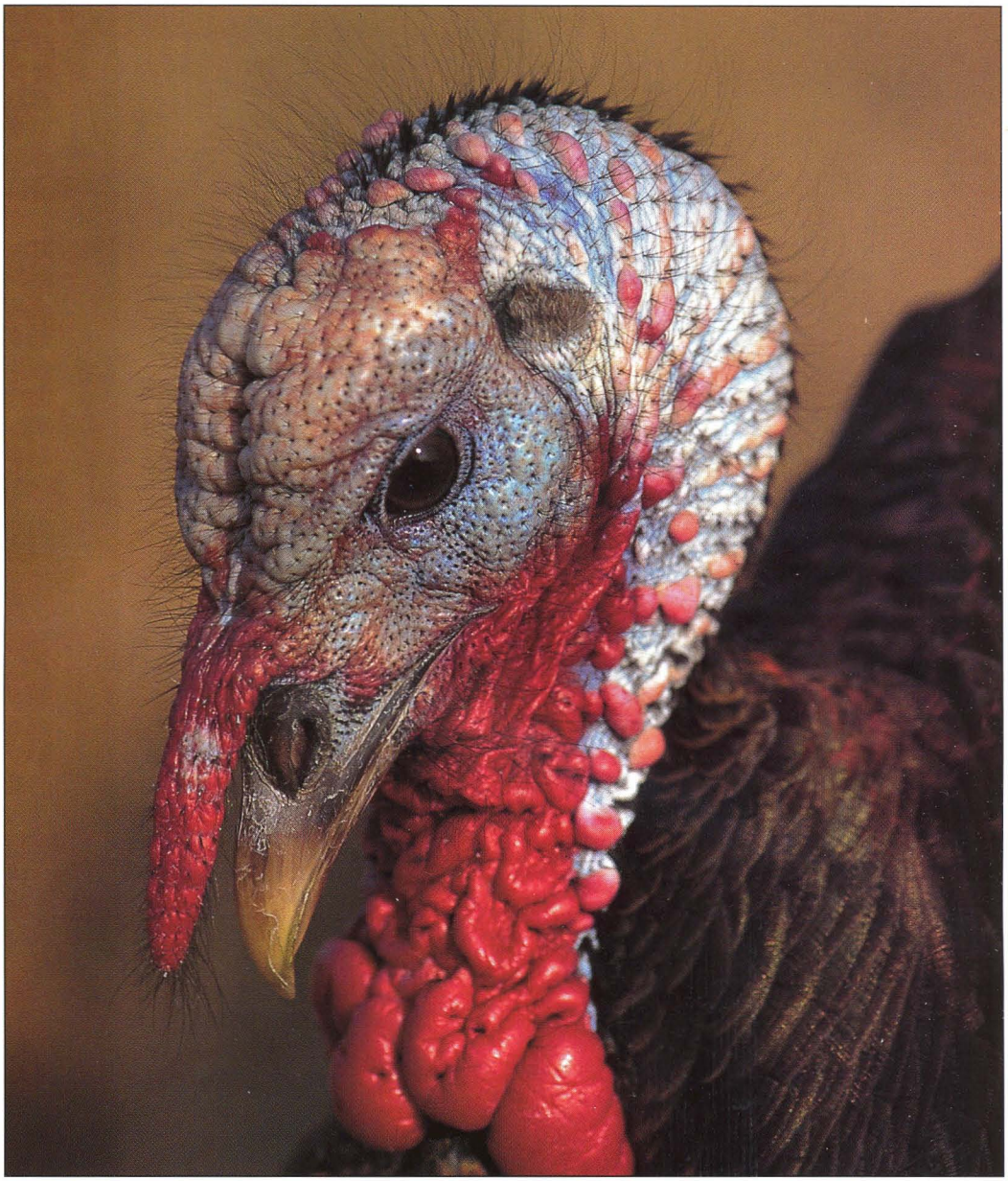
A drop net is used to capture Rio Grande turkeys over a baited site. Present day turkey populations came from wild birds trapped in Texas and Oklahoma and later from Kansas populations. Pen-reared birds released privately never flourished.

The Rio Grande subspecies was released over a broad area of the state, but biologists learned that it did poorly in regions with more than 30 inches annual rainfall. The eastern subspecies, seen above, was obtained through trades with Missouri and released in the eastern fourth of Kansas beginning in 1974.

Kansas; the South Mexican, *M. g. gallopavo*, which is limited to Michoacan,a Mexican state along the Pacific Coast; the Gould's, *M. g. mexicana*, which is found in northwest Mexico; and the Merriam's turkey, *M. g. merriami*, (named for C. Hart Merriam, the first chief of the U.S. Biological Survey, now the U.S. Fish and Wildlife Service) which inhabits the Rocky Mountains, as well as the Black Hills of Nebraska and the Dakotas.

The other species of wild turkey is the ocellated, *Agriocharis ocellata*, which is native to the subtropical lowlands of Mexico.

The turkey is our largest upland bird. A mature eastern male, or gobbler, may weigh up to 30 pounds, but 20-25 is average. A mature Rio Grande gobbler rarely weighs more than 25 pounds, usually 18-21 pounds. Hens weigh about a third less. Both sexes have nearly bald heads and necks, except for tiny tufts of feathers that run along the back of the neck and head. Both sexes have a fleshy appendage above the beak called a snood, as well as a thin flap of skin along the underside of the neck called the wattle. At the base of the neck, featherless globs of flesh called caruncles are much more prominent in the gobblers. These strange features become important to the gobbler during the breeding season.



The fleshy appendage over the beak is called a snood. It is present in both sexes, however, it is much more prominent in gobblers, especially during breeding display, when it will enlarge and fill with blood. The large globs of flesh on the lower neck are called caruncles.

Although similar in appearance, Rio Grandes and easterns prefer very different habitats. Eastern turkeys are at home in heavy timber and brush and are generally considered the more wary of the two races. Rio Grandes inhabit the lightly timbered water courses, shelter belts, and homesteads on the open prairie. While it might be rare to see easterns far from timber, it wouldn't be unusual to see Rios in an open grassland far from timber. Both races require mature timber for nighttime roosting.

The body feathers of both eastern and Rio gobblers are dark and iridescent with black tips. Eastern gobblers appear more black, while Rios exhibit coppery/green iridescence. Body feathers of the hens are iridescent brown with buff tips. Feathers at the base of the tail and tail feathers are brown with dark brown to black barring. The tips of these tail feathers are buff to light beige on Rio Grandes and chestnut or copper on easterns. Wing primaries are white with black barring. Gobblers and a small percentage of hens have a protrusion of hair-like feathers at the top of the breast called a beard. One-year-old gobblers, called jakes, have beards less than 4 inches long, while mature gobblers' beards can measure 8-12 inches.

Turkeys have powerful legs and large feet, which can propel them to running speeds of 30 mph, yet they are nimble enough to roost on tree branches 30 feet high. Gobblers

have spurs on the backs of their legs, which are used to defend against predators and in battle with other gobblers over dominance. Spurs on a jake may be nothing more than bumps, but they can be longer than an inch, curved and sharp on a mature gobbler. While turkeys will often run from danger, their broad wings and wingspan of about 4 feet allow them to take flight quickly when necessary. They are efficient fliers and can reach speeds of 50 mph.

Turkeys are social, and winter flocks of Rio Grandes have been known to number more than 500, but 100-200 is probably more common. Winter flocks of easterns are usually less than 50 birds. Turkeys are quite vocal and have a large vocabulary of putts, clucks, yelps, cackles, purrs, whines, and of course, the male bird's namesake gobble. Gobbles are most commonly heard in late winter and spring, during the breeding season.

Winter flocks will begin breaking up in late winter, and birds will return to traditional nesting sites. One Rio Grande hen fitted with a radio transmitter took researchers on a wild turkey chase from a wintering site in southcentral Kansas more than 20 miles to a nesting site in Oklahoma. It's during the early spring breeding season that turkeys are most fascinating.

This Rio Grande gobbler shows the typical black-tipped body feathers and buff-tipped tail feathers. The hen is identified by the buff-tipped body feathers.

The show actually starts in February while the birds are still in winter flocks, separated into groups of mature gobblers, jakes, and hens with last year's poults. It's time for big boys to find out who the boss gobbler is, and they will begin gobbling and strutting.

Battles for dominance among mature gobblers can be violent. Two birds will square off, posturing with tails half-fanned and wings out and to their side. They may lunge and strike with a wing or entwine necks and wrestle, while alternately jumping and lashing with spurs. Fights can be bloody but usually aren't. Dominant birds will do most of the breeding. Jakes will usually stick together, and while they won't be doing much breeding, they will also banter for dominance, gobble and strut.

As days lengthen and temperatures warm, usually mid-March, the winter flocks break up and courting and breeding will start. Gobblers will become

These eastern birds show the copper or chestnut-colored tail feather tips that help distinguish them. Easterns are usually somewhat larger than Rio Grandes and generally appear darker in color.

increasingly vocal, gobbling before sunrise from the roost and through the early morning to announce their presence to any hens within earshot. On a calm day, gobbles can be heard up to a mile away.

Daybreak is an important time for breeding, and gobblers will usually have an open ridge they will fly to from the roost. Here they gobble and strut, displaying for hens or trying to attract hens. When hens are present, the gobbler will strut constantly, puffing up body feathers, fanning the large tail and dragging the primary wing feather tips as it walks in tight "S" patterns. As the bird puffs up, a resonant "spit" sound is emitted. The snood becomes engorged with blood, and it "grows," hanging over and nearly covering the bird's beak. The gobbler's forehead turns white or light turquoise, and is striking tucked tightly against the black feathers on the bird's back. The caruncles will become bright red. It's a stunning sight as the early-morning sun floods the strutting ridge, and the gobbler will turn and spin as if to show the hen every angle of his splendor.

The courtship display is a spectacle to see. The gobbler puffs its body feathers out, making the body appear nearly round, and a resonant "spit" is heard. The magnificent tail is held in a perfect fan, and the primary wing feathers are dragged along the ground as the bird walks in tight S's.

For the next two months, the gobbler will spend most of every morning in full strut, as long as hens are present. If an unseen hen calls, the gobbler will immediately stretch his neck and gobble a reply, but rarely will he break out of his strut. In fact, dominant gobblers do little else than strut, gobble, breed and search for hens this time of year. The breast sponge, a ball of fatty reserve located at the juncture of the neck and breast, allows the gobbler to forego eating. Turkeys are polygamous, and a dominant gobbler will breed with many hens.

Breeding usually takes place soon after daybreak, when the hen will squat down in front of the gobbler. The male bird climbs atop the female's back and stimulates her by treading his feet. The gobbler presses his cloaca opening against that of the hen and sperm moves up the oviduct where the eggs are fertilized. Hens that are bred may feed with the flock for part of the morning before sneaking away to a hidden nest.

The nest is a shallow depression lined with leaves and grass. A research project sponsored by the department, the Kansas chapter of the National Wild Turkey Federation, and Texas Tech University, measured vegetation at nest sites. Texas Tech graduate students Mike Miller and Dan Buford used radio telemetry to locate nesting hens in southcentral Kansas. They found that nests were always in thick, tall, herbaceous (non-woody) vegetation. Good rangeland and CRP grass were particularly

popular nest sites. Trees were not a necessary ingredient, but nests were often located at the base of a small sapling or shrub.

The hen will visit the nest to lay an egg, then she'll cover the nest to hide it and return to the flock. While fertilization may be complete after the first breeding, the gobbler will attempt to breed with the hen each morning until the clutch is complete. An average nest will contain 10-12 cream- or buff-colored eggs.

With the clutch complete, the hen is now devoted to full-time incubation. She will no longer feed or roost with other turkeys, and leaves the nest only for short feeding sessions. As the 27- to 28-day incubation period grows to an end, the hen will become increasingly attentive, rarely leaving the nest, even in the face of danger. It is during this time that the hen and nest are most vulnerable to predation. Hens have been known to remain on a nest even as a hay swather approached, and have been swept up and killed by the machine's cutters. Mammalian predators, including coyotes and bobcats kill hens on the nest, and skunks, opossums and raccoons will eat eggs.

After hatching, the hen leads the poults away from the nest site. The chicks are precocious, and while the hen may return to the nest site for the first night, she soon moves her brood to a selected brood-rearing location. In another telemetry study, Texas Tech graduate student Randy Hennen found that CRP was never used for brood rearing, probably because of its thick undergrowth which is difficult for young birds to maneuver in. The poults require a high-protein diet of insects for the first few weeks. Preferred sites included properly-grazed rangeland, riparian areas and shelter belts, generally with open vegetation and a canopy of overhead cover. Poults remain with the hen through the fall, often joining other family groups to form winter flocks.

After the 28-day incubation, the hen will move the poults to a suitable brood-rearing site. Good brood habitat includes open vegetation, overhead cover, and lots of insects.

A hen will lay an egg each day, covering the nest before leaving. When the clutch is complete, incubation is full-time.

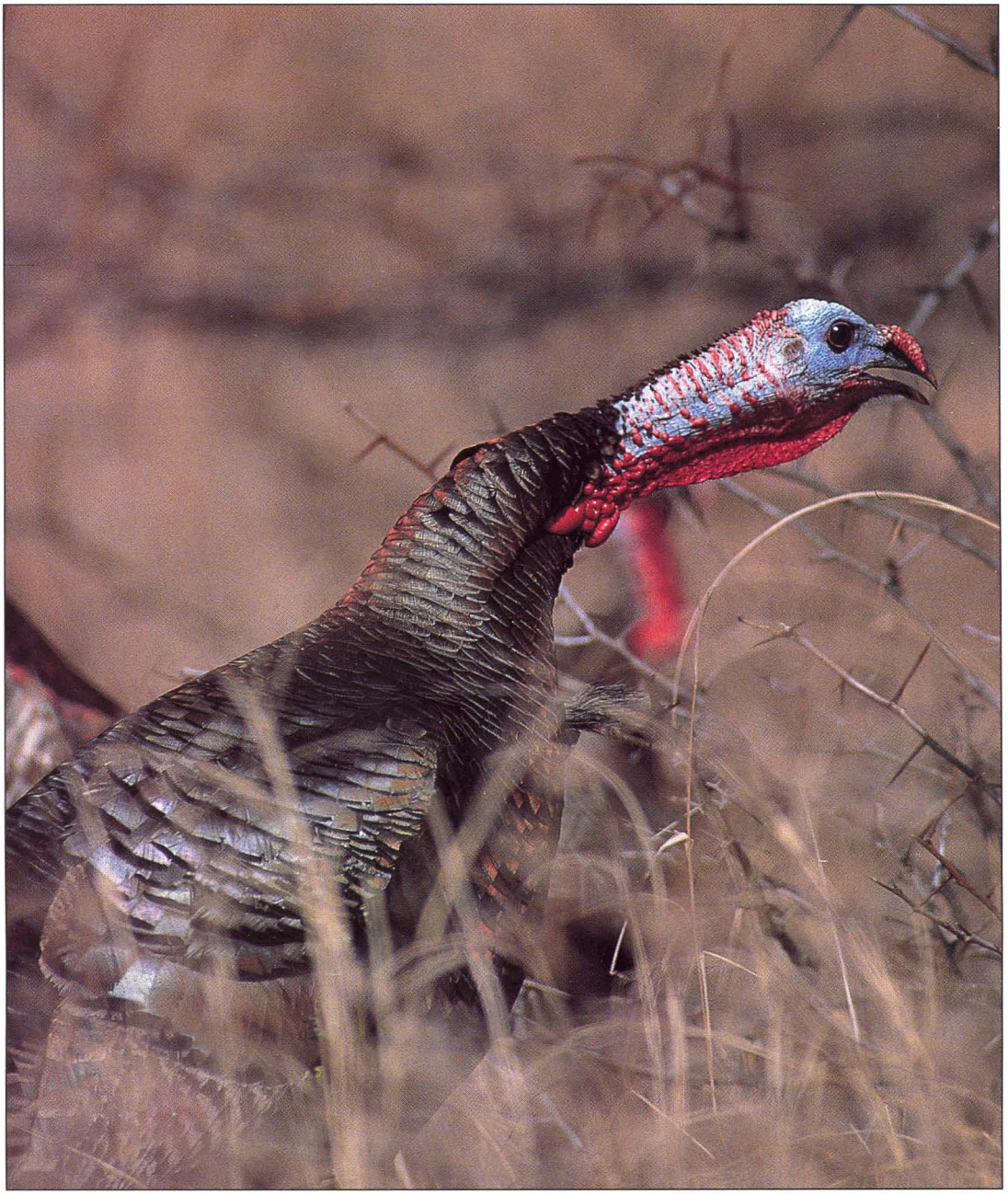
By 1973, Rio Grandes were doing so well in southcentral and southwest Kansas, biologists were considering a spring hunting season. The goal was a statewide population of 1,500 birds before hunting was allowed. Surveys showed 1,400 in 1972.

April 20-28, 1974 was Kansas' first regulated hunting season for wild turkeys. Four hundred permits were allotted for an area of southcentral and southwest Kansas, and biologists predicted that Morton and Barber counties would offer top hunting prospects. Only 308 hunters hunted, and they killed 123 turkeys.

Turkeys and turkey hunting have come a long way since that first hunting season. Today, the entire state is open to turkey hunting. In all but the southwest quarter, permits are unlimited, and in much of the eastern half of the state, hunters can purchase a second turkey game tag. In the west, turkey numbers have struggled in recent years, due probably to changes in habitat. The river courses provide critical Rio

Grande habitat here, and flow has significantly decreased in many rivers. Timber along the dry rivers has suffered and in some cases, many of the mature cottonwoods have died. Research continues, attempting to identify the problem. In the meantime, hunting is restricted.

The spring season allows hunters to take only bearded turkeys, restricting most of the harvest to gobblers. The traditional spring season is allowed because turkeys are difficult to hunt. With good hearing and excellent vision, turkeys can be next to impossible to get close to. (Only shotguns and archery equipment are allowed.) During the breeding season, however, hunters can attract gobblers by imitating the call of a hen. It's still not easy and requires full camouflage, hours of patience and some degree of skill. Since turkeys are polygamous, harvesting gobblers has little effect on their population.



A jake is caught in mid-gobble, a common sight and sound today. Interest in spring turkey hunting has grown steadily since the first season 23 years ago. More than 20,000 hunters are expected in 1997.

Nearly 20,000 spring turkey permits were issued in 1995, along with more than 7,000 second turkey game tags. Total harvest was estimated at nearly 15,000 turkeys, for a success rate of 48 percent. About 4,000 non-residents hunted turkeys in 1995. A fall archery season was set in 1979, and a fall shotgun season was added in 1981. Hunters with fall turkey permits can take either a gobbler or hen. In the 1994 fall season, hunters killed fewer than 2,000 turkeys. Hens make up approximately 40 percent of the fall harvest.

Spring turkey hunting has caught on slowly in Kansas. But as turkey populations have spread and become more accessible, hunter numbers have grown. In many of the Southern states, even as close as Missouri, spring turkey hunting is a time-honored tradition. As more Kansas hunters experience the thrill and excitement of calling to a gobbler in the early-morning woods, that tradition is developing. There may be no better time to enjoy the Kansas outdoors. The landscape literally comes alive in spring, and the turkey hunter will see countless other wildlife. It is also a good time to introduce youngsters to hunting, as outings can be short and the temperatures mild.

The wild turkey's future looks bright in Kansas. In all regions except the west, turkeys continue to thrive. The big birds are popular with hunters and wildlife watchers alike. The department continues to monitor turkey numbers with rural mail carrier and hunter surveys, brood surveys, spring gobbler counts, and winter flock counts. A

disease testing protocol has been developed for turkeys intended for in-state release or shipment out of state to maintain the health of wild populations. Three research projects have been completed and others are continuing.

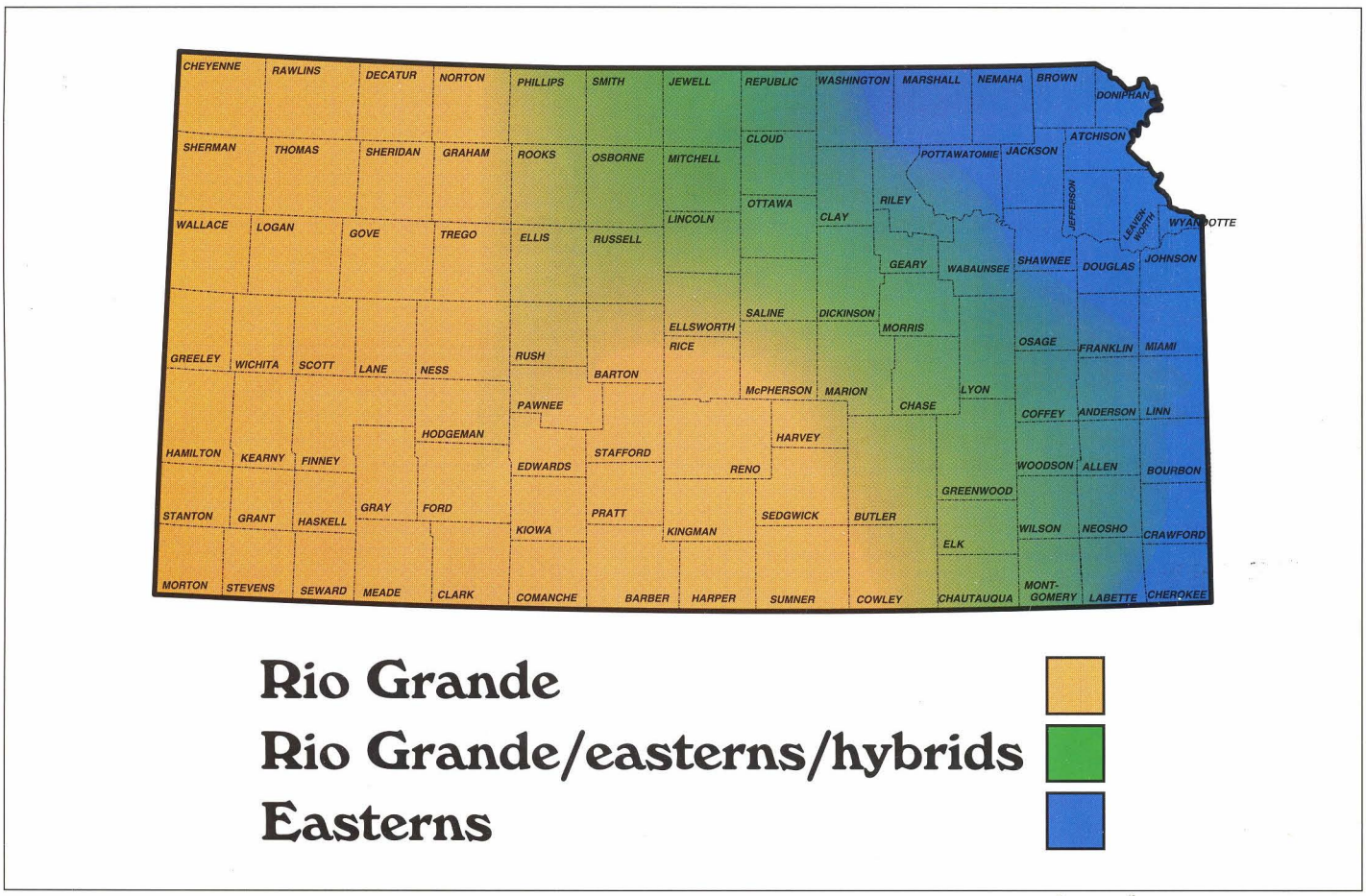
The department is working with the National Wild Turkey Federation's Target 2000 program, supplying turkeys to California and Utah for introduction. The goal of Target 2000 is to have wild turkey populations established in all suitable habitat by the year 2000. Three hundred and thirty-three turkeys have been trapped in Kansas and sent to California since 1992. The department has also traded turkeys to Utah in exchange for rainbow trout. Utah biologists trapped 125 turkeys in Kansas in 1997.

In-state trapping and transplanting continues wherever necessary to supplement local turkey populations. Since 1992, more than 500 turkeys have been relocated. In January 1997, 43 Rio Grande/eastern hybrids were captured in the Flint Hills and released near the Jeffery Energy Center in Pottawatomie County to bolster a stagnated population. This project was a cooperative effort of the department, the Kansas Chapter of the National Wild Turkey Federation, and Wildlife Forever.

We owe a debt of gratitude to those first biologists who had the vision and inspiration to develop our turkey reintroduction effort. The wild turkey's comeback is truly one of our greatest wildlife management successes. And to any who have tingled with awe at a thundering gobble in the dawn's stillness or thrilled at watching a brilliantly-colored gobbler display in the spring ritual, the program is paying huge dividends. But just knowing the birds are back where they belong is comforting. It can remind us that our wild places and wildlife don't have to continue deteriorating but can be restored, conserved and enjoyed.

The Wild Turkey Story on video

The department has produced a 44-minute video chronicling the wild turkey's comeback in Kansas. Photographed and edited by Gene Brehm and narrated by Bob Mathews, the video will thrill you with amazing scenes of wild birds, trap and transplant activities, as well as hunting tips. The video can be purchased through the department's Pratt office by sending check or money order for $21.20 to Kansas Department of Wildlife and Parks, Public Information, 512 SE 25th Ave., Pratt, KS 67124, or call (316) 672-5911 with your Visa or Mastercard order.



The ranges of the eastern and Rio Grande races are not exact. Eastern birds are common along the eastern counties, Rios are common in the southcentral and west, and in the middle, you may find hybrids or either of the two races.

There Are Herps In Them Hills!

text and photos by Marc Murrell, *public information officer, Great Plains Nature Center, Wichita*

Looking for things that crawl, slither, and live under rocks may send shivers down your spine, but learning more about these misunderstood creatures might erase your fears and open a whole new world of discovery.

Herping: looking for herps. Herps: slang for reptiles and amphibians — those creepy crawly creatures included in the branch of zoology dealing with amphibians and reptiles called herpetology. Herpetologists study herps, which brings us back to herping.

Most people might be better classified as anti-herpers, meaning they purposely avoid any contact with herps. Although it doesn't sound like much fun at first mention, herping is actually popular with thousands of people across the country. And Kansas, with its diverse habitat from east to west, is a herper's paradise.

Herping isn't anything new. People have enjoyed looking for and learning about these mysterious and often maligned creatures for many years. The first reports of herpetological findings in Kansas were published in 1857. Since then, herpers have strived to identify and document each species that can be found here.

Herps include salamanders, frogs, toads, lizards, turtles and snakes. They are found all over the world and include 10,561 species. Of this total, 496 species are found in the continental U.S. and Canada. Ninety-seven have been documented in Kansas, including 31 amphibians and 66 reptiles.

Herping isn't restricted to biologists or herpetologists. It can be enjoyed by anyone regardless of age. It's a great activity for families and anyone with a remote interest in learning more about these fascinating creatures. One person who has likely spent more time herping than any other is Joe Collins. Collins is a herpetologist at the University of Kansas' Natural History Museum who jokes that he has been there since the Pleistocene Age. Actually, it hasn't been that long, but 30 years in the field has given him plenty of experiences to reflect on when he retires this fall.

"I like snakes and I like to chase them," admits Collins. "It was a childhood pursuit (one beginning 44 years ago) which got out of hand and wound up as a lifelong profession."

During that time, Collins has established himself as a leader in the field of herpetology and authored 18 books dealing with some form of amphibians or reptiles. *Amphibians & Reptiles in Kansas*, a Collins book detailing accounts of species found in Kansas, is a commonly-used resource book with excellent photographic support provided by Collins' wife, Suzanne.

Collins wrote the book for anyone with an interest in his cold-blooded friends that reside in Kansas. He addresses the most commonly asked questions, which include: What is it? Will it hurt me? How big does it get? Where is it found in Kansas and what habitat does it require? When is it active? How does it reproduce? And what does it eat?

For those who want to see the answers to these questions first hand, Collins recommends the peak of herping "season" — about the third week of April.

"As a rule, that's the time when people with a fear of snakes are at their most vulnerable," he joked. "If I were a person who was nervous around snakes, I probably wouldn't spend a lot of time in the wild during the month of April and the first two weeks of May.

"It's an exquisite time to wander amongst probably, for example in the Flint Hills, the single-largest concentration of reptiles anywhere

Youngsters have a natural curiosity about all wildlife and should not be taught to fear snakes. A herping field trip can teach children about these fascinating creatures and instill a healthy respect for them.

on earth," he added. "I've never seen reptiles taken in abundance anywhere else in the United States than are taken underneath the limestone rocks in April and May. In a day of looking with 20 folks on a field trip, we easily catch 700 reptiles. It comes down to ringneck snakes, Great Plains skinks, collared lizards, Great Plains rat snakes, racers, garter snakes, milk snakes and common king snakes. The diversity is not great, but you get them in enormous numbers. Virtually every rock bigger than 10 inches in diameter has something under it."

Across Kansas, the variety and number of specimens you may encounter is amazing. Above, a collared lizard.

But to the casual eye, these herps are likely never seen on a stroll through the rocky outcroppings of the Flint Hills. The key to herping is looking where they live. Under rocks and logs are likely spots as are creeks, rivers, and swamps. Collins admits herping can be casual or intense, depending on a person's preference. No fancy equipment is required.

"The nice thing about herping is it's not like fish people, or bird people, or mammal people. We don't take the kitchen sink along with us gear-wise," said Collins of necessary herping items. "A good old plastic bag and a cloth bag, maybe a short, steel army pick and a pair of gloves, and you're out in the woods. You can wear good, stout shoes or wear tennis shoes like I do, so you can move faster, as I like to jump away from venomous snakes."

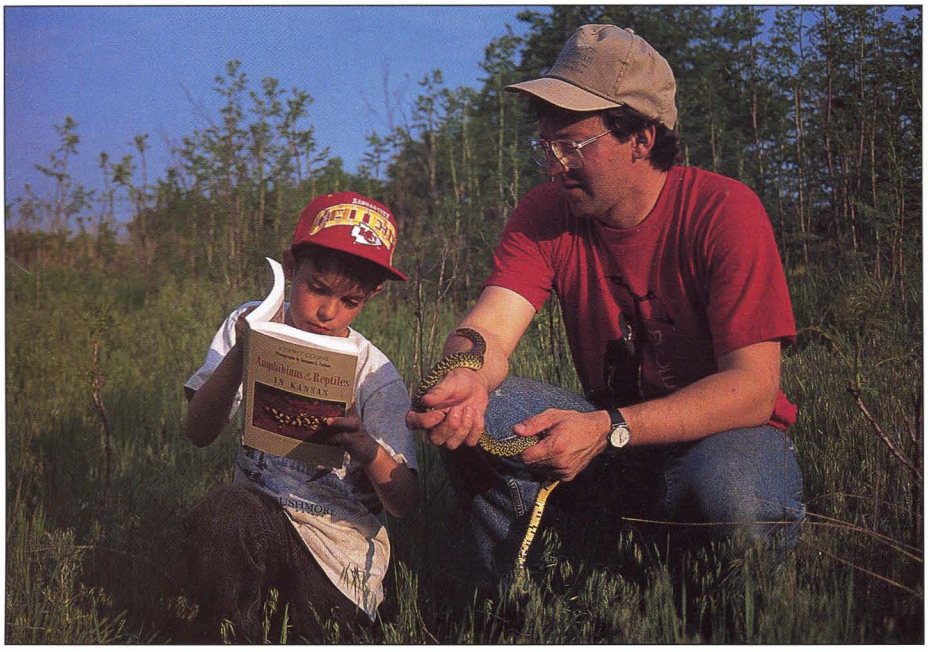
Obviously, venomous snakes are a concern, and extreme caution should be used with any of Kansas' five species (four that are common, the massasauga , prairie and timber rattlesnakes, the copperhead and the fifth, the cottonmouth, has only been found a couple of times in extreme southeast Kansas). Most venomous snake bites occur when someone tries to handle, harass, or kill a venomous snake, none of which is necessary. Although Collins jokes about instructing undergraduates to capture the venomous varieties, it's best to observe them from a safe distance. He recommends simply leaving them alone.

If bitten by a poisonous snake, the victim should be taken to the nearest hospital. Tourniquets and incisions are not recommended. And venomous snake bites, for the most part, are overrated according to Collins, who has been bitten by a copperhead and cottonmouth long ago, when he was admittedly careless.

"We've had one person die of venomous snake bite in the state of Kansas since 1950," Collins said. "It occurred back in the fifties on the High Plains, and I think it was a 1-year-old child bitten by a prairie rattlesnake. That's the only confirmed death attributable to a snake in the state since fifty. It's a very painful experience, and it does cause you to create a lot of new English word combinations, but dying from it just isn't in the books for you."

Herpers tromping the hillsides and woods in the spring should be careful where they step, put their hands, or even sit down for a break. Snakes often remain motionless unless disturbed but will defend themselves if cornered or surprised.

This Great Plains skink was discovered under a rock in the Flint Hills. Herpers should remember to replace all turned rocks and leave the area as they found it.



The fun of herping is enhanced with a quality field guide. The guide can not only help identify specimens but can also provide interesting information about them.

All snakes will bite, and large snakes, even non-venomous ones, will inflict a painful bite. Given the opportunity, most will simply crawl away and avoid confrontation.

Collins encourages anyone with an interest to try herping and hopes people learn something along the way.

"The message I hope they get is that amphibians and reptiles are pretty much like the rest of our wildlife," Collins said. "These are animals that belong where they belong. They're native and natural. They should be there. There's a place for (the venomous snakes) in our environment, and it's extremely important to have them. It's silly to run around with a snake phobia this day and age. Treat reptiles and amphibians in the normal context of things."

Although most herpers release everything they catch on-site, Collins admits it's okay for people to keep the occasional snake. It is legal for individuals with a hunting license to keep up to five of a particular species, with the exception of any listed on the Species In Need of Conservation, Threatened or Endangered lists.

"Capture them in the spring, feed them, watch them, observe them, then turn them loose in the fall in time for hibernation," Collins advises. "It tends to get people to understand the animals more, to get closer to them and develop some empathy for them. And then, during the course of that learning experience, if you think you really would like to keep one of these creatures in captivity year-round, go to a pet store and get one of these genetically-produced "designer" (a term coined by Collins and several of his colleagues to reference herpeculturists' efforts to genetically produce various snakes) herps and keep it as a full-time pet."

Herping isn't for everyone. But if you've ever had an interest to learn more about these creatures, this activity may be a short course to better understanding. So the next time you're looking for something to do on a spring Sunday afternoon, find a place that looks like it might be home to an amphibian or reptile. You might be surprised what you'll find!

Herping Is Fun and Easy

Excellent herping can be found within an easy drive of just about anywhere. It doesn't have to be an all-day affair or involve much preparation, planning, or special equipment. With a few hours to spare, I recently joined Newton herper Jerrod Pearce and his dad, Mike, for an enjoyable excursion.

Our destination was an old rock quarry in the Flint Hills of Chase County where we had permission from the landowner to herp. The beautiful spring afternoon turned interesting only strides from the truck as an unidentified critter slithered through the grass in front of us. The action to follow was fast and furious as Jerrod turned rock after rock. More often than not, something awaited the eager 8-year-old, as I busily snapped photos.

In less than two hours, we encountered 10 different species and a total of 30 specimens. We observed Great Plains rat snakes, a common king snake, a milk snake, ringneck snakes, collared lizards, Great Plains skinks, a Great Plains narrowmouth toad, a Plains garter snake and a racer. We handled a few of the less aggressive specimens, and I kept two snakes for summer educational programs. To help identify specimens, we consulted *Reptiles & Amphibians of Kansas*.

There are organizations created specifically for the study and conservation of herps, including the Kansas Herpetological Society (KHS), formed in 1974. This group has developed active programs that promote the understanding and acceptance of herps in our natural world. During April and May, the KHS conducts its annual herp count. The count, started in 1989, has yielded thousands of observed specimens with generally more than half of those species commonly occurring in Kansas observed. While these counts serve as an indicator of abundance, a more important result of this activity might be the education of those invited to participate.

For more information on herpetology or the KHS, contact Joe Collins, Natural History Museum, University of Kansas, Lawrence, KS 66045, or call (913) 864-4920.

To Be Water Wise

by Cynthia Dierks, *U.S. Army Corps of Engineers, Milford Lake*
and Steve Prockish, *U.S. Army Corps of Engineers, Tuttle Creek*

With nearly 100,000 registered boats and 200,000 acres of public waters in Kansas, water safety is an important issue. To educate and increase awareness about water safety, state, federal and local agencies have created the annual Water Wise Expo.

A 16-year-old boy, a known non-swimmer, is allowed to go out on a boat without wearing a life jacket during a church picnic. He jumps from the boat into 25 feet of water and drowns. A 22-year-old Army soldier who has been drinking while boating jumps into the water to relieve himself and drowns. He was not wearing a life jacket. A young father is working on his boat at a boat ramp. The boat begins to drift away into a protected cove. Without thinking, he dives into the water without a life jacket and drowns while his family looks on. All of these incidents happened in Kansas in recent years. Is personal water safety education important?

The Water Wise Expo began in 1991 to address often overlooked water safety issues. This free event promotes water safety in an educational and entertaining way. On-the-water demonstrations, static displays, and on-shore, hands-on activities provide educational fun for any age group. The Expo was designed to include all of the local agencies and organizations involved with water safety education, rescue, and enforcement. The Water Wise Expo also gives the professionals an opportunity to work and train together, practice their skills, and meet the public.

In the beginning, the Expo alternated each year between two U.S. Army Corps of Engineers lakes, Milford, just north of Junction City, and Tuttle Creek, near Manhattan. After the Expo's second year, it received national recognition. The National Water Safety Congress

awarded the Expo one of eight regional awards issued in 1993. In 1996, 500 people attended the Expo, and the event found a permanent home at Tuttle Creek. This year, the seventh annual Water Wise Expo will be held June 7, at the River Pond State Park below the Tuttle Creek dam.

Water safety encompasses many issues. Expo topics include the illegal use of alcohol and drugs, hypothermia, swimming, safety while fishing and hunting, diving, boating, the proper use of life jackets, waterskiing, and self rescue. At the Expo, the on-water demonstrations showcase these topics through mock rescues. The demonstrations feature a helicopter and crew from the 82nd Medical Company at Fort Riley and personnel from Riley County EMS Technical Rescue Unit, Fort Riley Fire Department Water Rescue Team, Riley County Police Department, Kansas Department of Wildlife and Parks, Kansas Canoe Association, and the Marysville Water Rescue Team. The 1992 Expo at Milford was called to an abrupt halt when rescue personnel present were called to an actual rescue at Tuttle Creek.

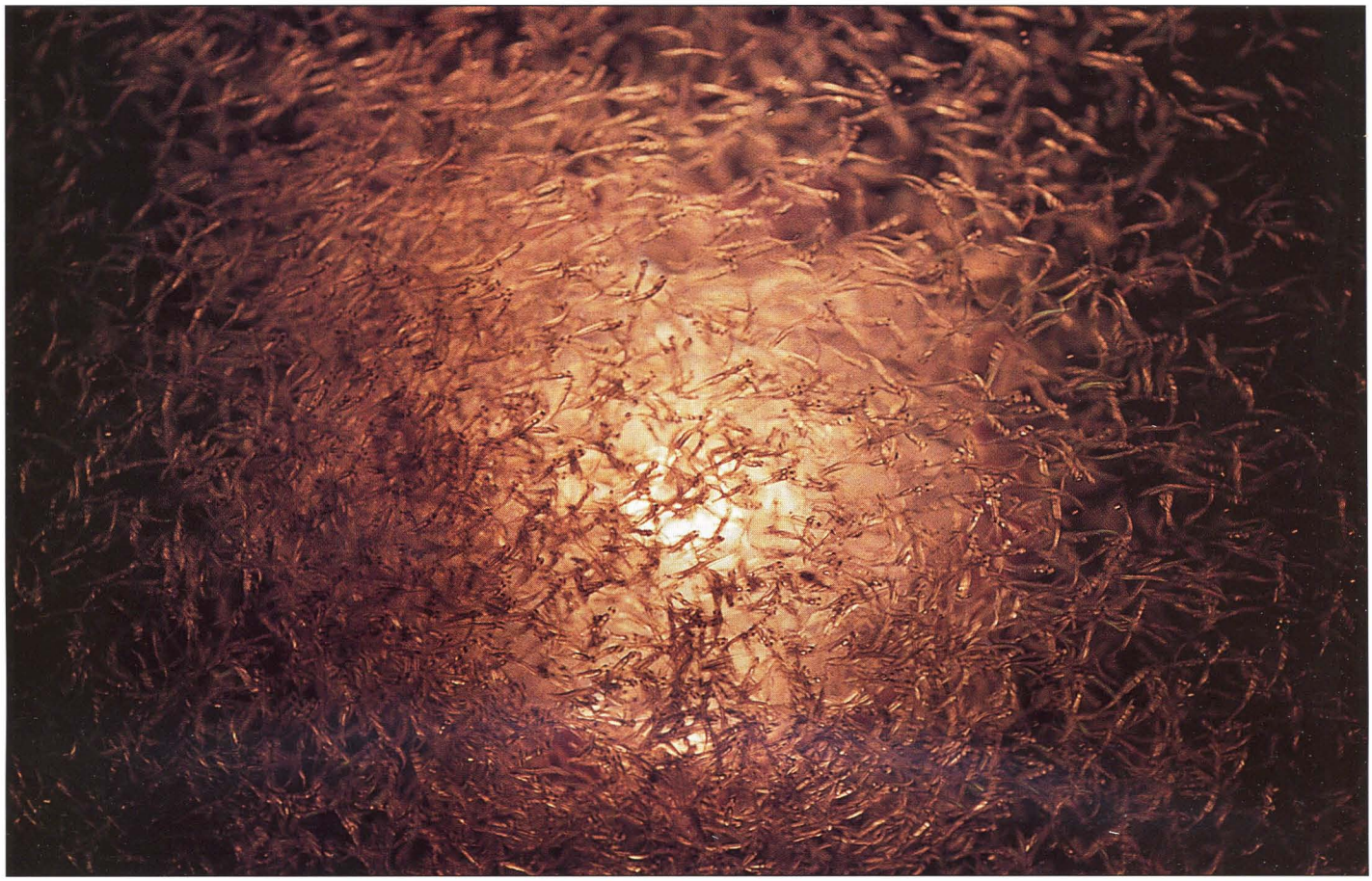
Displays and demonstrations take place throughout the Water Wise Expo. Here a local radio station interviews former boating enforcement specialist Tom Swayne.

Although the schedule varies from year to year, other demonstrations may include water skiing, rowing, sculling, kayaking, canoeing, the safe operation of personal watercraft, an airboat, and a Curach (an Irish canoe used to haul livestock).

Displays on shore support the water demonstrations, providing additional sources of information and opportunities for questions from the public. Have you ever wanted to learn how to properly fit a life jacket to your toddler — find out where you can take a safe boating course or swimming class — or discover what the help and huddle positions are? You'll find answers to these questions and more at the displays, as well as information on boating organizations, local yacht clubs, U.S. Coast Guard Auxiliary, the Kansas Navy and others. Area merchants and local media also support the Expo through food donations, prizes, promotions, displays and donating their time.

Safety is a personal commitment. Unfortunately for some, recreational outings turn into family tragedies because safety concerns are ignored. It's easy to convince yourself that the park or lake is as safe as your backyard. Don't wait for a tragedy to learn otherwise. Be safe. Be water wise.

The 82nd Medical Company from Fort Riley and the Fort Riley Fire Department Water Rescue Team demonstrate a mock rescue at a past Water Wise Expo.



Growin' Fish

by J. Mark Shoup
associate editor, Pratt

photos by Mike Blair

From a pond system built in 1911 to a state-of-art raceway system constructed in 1983, the department's four hatcheries help provide quality fishing opportunities across the state.

If I might be judge, God never did make a more calm, quiet, innocent recreation than angling. Izaak Walton, *The Compleat Angler,* 1653

Long before and long since Izaak Walton wrote his famous book on the virtues of fishing, anglers have understood the serenity that comes from fishing. As Datus Proper explains in one of my favorite quotes on fishing, even man's best friend may feel the calming affects of angling: "Dogs are not really good at fishing, but they understand why it is important."

In Kansas, while we may not have the aquatic resources of Missouri or Minnesota, fishing is still very popular. Almost 258,000 fishing licenses were sold in 1995, and that doesn't include 24-hour licenses or those anglers younger than 16 or older than 65, who aren't required to have a license. These anglers do much of their fishing on department-managed waters that

include 24 federal reservoirs, 40 state fishing lakes and 200 community lakes. Providing quality fishing opportunities at these waters for so many Kansas anglers is a tall order.

Enter the Kansas Department of Wildlife and Parks' hatchery system. The department operates four hatcheries — Farlington, Meade, Milford, and Pratt — and each contributes in its own way to supply the varied demands of Kansas anglers. In 1996, this system produced approximately 39.5 million fry, 3.5 million fingerlings, and 385,000 intermediate fish for stocking in Kansas public waters. Species included bluegill, channel catfish, crappie, largemouth bass, northern pike, rainbow trout, redear sunfish, sauger, saugeye, smallmouth bass, striped bass, wiper, and walleye.

Production of this volume requires a cooperative effort among the state's hatcheries, which are strategically located across the state. The Farlington Fish Hatchery is north of Girard in Crawford County. Construction of this facility began in 1939, was interrupted by World War II, and was finished shortly after the war. Thirty earthen ponds provide more than 32 surface acres of water, which is supplied by Crawford State Fishing Lake.

Three full-time employees, manager Steve Mense, and fish biologist specialists Dan Mosier and Randy Nelson, operate the facility, producing striped bass, channel catfish, blue catfish, wipers, walleye, saugeye, bluegill, redear sunfish, and grass carp. In addition to the hatchery, a rearing pond at Woodson State Fishing Lake, some 60 miles to the west, near Toronto, is used to produce intermediate channel catfish.

To bring the 50-year-old facility up to date, renovation began in 1989. As with most hatchery ponds built in the early days, Farlington's were constructed with simple concrete drain structures. In order to harvest fish, the ponds were lowered and the fish seined, causing considerable stress to both fish and fisheries biologists. Depending on

Above, Randy Nelson, Farlington fish biologist specialist, grades channel catfish fingerlings. Below, Farlington staff harvest fish from a pond using one of the new concrete kettle structures, which have been constructed as part of the renovation.

Dan Mosier Photos

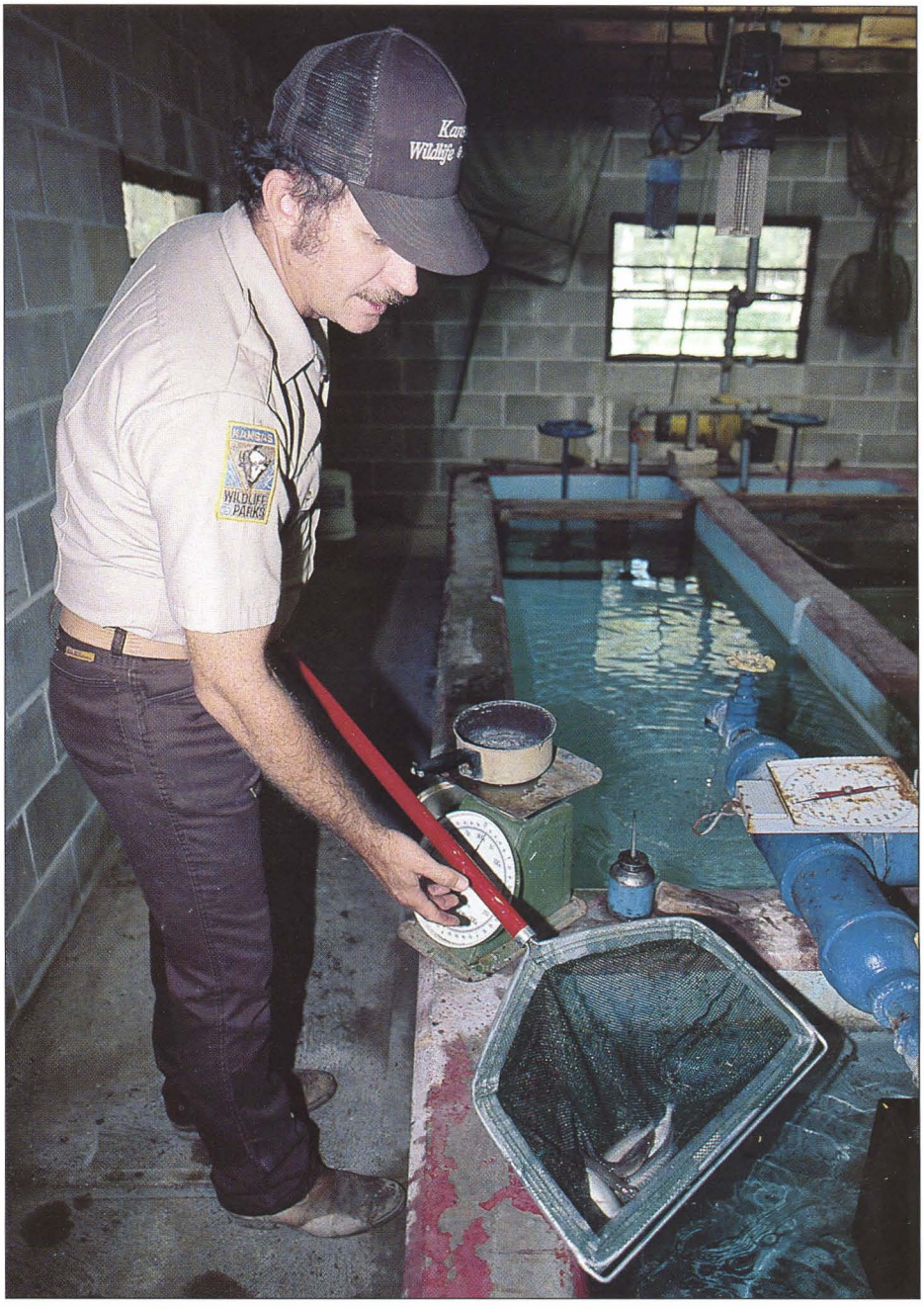
conditions, many fish could be lost in this process. With money from fishing license sales and the federal Sport Fish Restoration Act, some of these drain structures have been replaced by modern concrete water distributors with fish harvest "kettles," which trap the fish in a small raceway as the pond is drained. As a result, fish are harvested more efficiently and in better condition.

Fish harvest kettles are not the only improvements at Farlington. Leaking concrete drain lines have been replaced with PVC pipe, a new micro screen drum water filter has been installed, dike roads have been reshaped and repaired, the deteriorating concrete water distributor at Woodson Rearing Pond has been replaced, and a new fish house has been constructed.

Meade Fish Rearing Station, in Meade County, is the only hatchery in the western portion of Kansas. Constructed in 1926 by the Civilian Conservation Corps, the facility has 12 ponds totalling 14 surface acres of water. Most of the hatchery pond water comes from a well, but four 700-gallon concrete holding tanks are filled with spring water, providing 58- to 60-degree water for year-round fish culture.

Joe Lillie is the manager at Meade and the only full-time employee. Still, the facility cultures largemouth bass, redear sunfish, smallmouth bass, and grass carp. In 1995, about 43,000 channel catfish fingerlings were overwintered at Meade.

The newest hatchery in the Kansas system is Milford. Constructed in 1983, the facility is a state-of-the-art warmwater intensive hatchery, situated below the dam at Milford Reservoir, near Junction City. (The department also operates the Milford Nature Center on the grounds of the hatchery.) Tommie Crawford is the hatchery manager at Milford. Two fish biologist specialists — Harold Jagerson and Chris Clouse — and three fisheries technicians — Cecil Hazlett, Steve Kramer, and John Jameson — help Crawford keep this complicated facility operating.



Meade Fish Rearing Station manager Joe Lillie checks on fingerlings. Largemouth and smallmouth bass, redear sunfish, channel catfish and grass carp are cultured at Meade.

The heart of Milford Fish Hatchery is a raceway system that employs 24 concrete raceways 100 feet long, 8 feet wide, and 4 feet deep filled by a combination of well and surface water. The primary hatchery building includes 1,200 square feet of production space. During the winter months, fish are maintained on 58-degree well water. As surface water temperatures reach 60 to 65 degrees, water is taken from a 130-acre "borrow" lake adjacent to the complex.

All water is filtered through a large rotating disc screen and is aerated through an aeration tower. Water in the incubation and rearing area is further filtered by a series of in-line sand filters.

Fish cultured at Milford Hatchery include walleye, sauger, saugeye, channel catfish, blue catfish, striped bass, rainbow trout, and paddlefish. One exciting new project at Milford is the develop-

ment of a domesticated striped bass broodfish population. Currently, striped bass for stocking in Kansas are obtained through trades or purchased from other states. If this program is successful, Kansas hatchery stripers should begin spawning in 1998.

Another exciting project at Milford should increase production at the facility. Six one-acre, plastic-lined ponds have been constructed. These ponds have several advantages over conventional mud-bottomed ponds. The plastic prevents fish from creating holes in the bottom where they may become trapped when the ponds are drained. The plastic also prevents leaking. Once the ponds are drained, they sun-dry quickly, preventing disease and allowing for double- or triple-cropping in a single growing season. Various species and sizes of fish may also be reared in the ponds during a single season.

The oldest facility in the Kansas system is the Pratt Hatchery at the department's Pratt Operations Office. Work began on the facility in 1905 and was completed in 1911. At the time, the Pratt Hatchery was state-of-the-art. One of the first of its kind in the U.S., it boasted more than 80 productive ponds. Today, 87 culture ponds and two concrete raceways help produce fish for distribution statewide. A small reservoir on the South Fork Ninnescah River and two wells provide consistent sources of clean water for the hatchery.

In addition to the impoundments, a fish house and wildlife museum are located on the hatchery grounds.

Not only is the Pratt Hatchery the oldest in the system, its manager, Don Patton, has the longest tenure of all managers in the state. Patton hired on as a fisheries culturist in 1958 and became manager of the facility in 1968. Three fish biologist specialists, Mark Kumberg, Brett Houdyshell, and Troy Amspacker, and a fisheries technician, Kevin Becker, produce walleye, sauger, saugeye, smallmouth bass, wipers,

Milford Hatchery, situated below the Milford Reservoir dam, is the state's only intensive hatchery, raising fish in 24 100-foot-long raceways, in addition to six lined ponds.

channel catfish, bluegill, and black and white crappie. Adult broodfish and forage fish are also maintained, and grass carp help control vegetation in hatchery ponds.

With the distinction of being the oldest hatchery in the system comes the disadvantage of age. Many structures simply wear out. Last year, work began to repair such structures and prepare the facility for the 21st century.

One structure badly in need of repair was the 81-year-old concrete water distributor box, which controls and distributes water flowing into the system. The distributor was cracked, leaking, and in danger of collapse, and the control valve was so rusted that hatchery staff had to

The Pratt Hatchery has 87 earthen ponds where channel catfish, walleye, sauger, saugeye, wipers, bluegill and crappie are raised. If you've ever caught a channel cat from a state fishing lake, it more than likely was hatched at the Pratt Hatchery.

stuff burlap bags in the cracks to completely shut off water flow. And as with the Farlington Hatchery, the Pratt ponds had been equipped with simple concrete drains — instead of the modern drains with fish kettles — that made harvesting fish difficult.

In a months-long effort that slowed production at the Pratt Hatchery in 1996, some of these structures were replaced. In addition, five 220-foot PVC water distribution lines were connected to existing PVC lines installed in the late 1980s. If funding is available, hatchery staff also hope to build a 2,500-square foot addition to the existing fish house. This would allow room for 20 fiberglass hatching and rearing troughs, improve worker safety, and increase production.

With these additions, the Pratt Hatchery should continue its essential role in the Kansas fish hatchery system well into the next century.

The Department of Wildlife and Parks' hatchery system and the biologists who work within it — not just in the hatcheries but at waters throughout the state — are among the finest in the country. However, it's easy for the average angler to take this for granted. Pulling a fish from the water seems a natural thing, and it is. But Mother Nature needs a hand to keep pace with the demands of today's recreational anglers. Next time you're gliding across your favorite lake or wading a peaceful stream, think of these folks and the role they play in providing those calm, quiet moments away from the pressures of everyday life.

From Hatchery To Hook: How It Works

You've got a basic idea of where Kansas hatcheries are and what they do, but one question still remains: How do those fish get to the water where you catch them? Jim Beam, chief of fish culture for the department, oversees the operation, and he's got a few answers.

"Each year, fisheries biologists sample the fish populations in the state's public fishing waters," Beam explains. "Based on sample data and success rates from previous years, they compile lists of their fish stocking needs and submit them in January. Hatchery staff then review the requests and decide which hatcheries can handle which needs."

Beam adds that fish requested that are unavailable from the Kansas system are sometimes obtained from other states or federal hatcheries.

Once hatchery assignments are made, fish eggs must be collected. With the onset of spawning season — from late March to early June, depending on species — biologists and their assistants begin collecting sexually mature broodfish. The process is interesting and complicated, as Beam explains.

"The ripe eggs and sperm are gently squeezed from the fish and mixed in a small holding pan. If the eggs are adhesive, they may be washed in a slurry of fine clay or similar substance to keep them from sticking together. After fertilization, the eggs are allowed to absorb water and harden before we box and transport them to the hatchery assigned for their incubation."

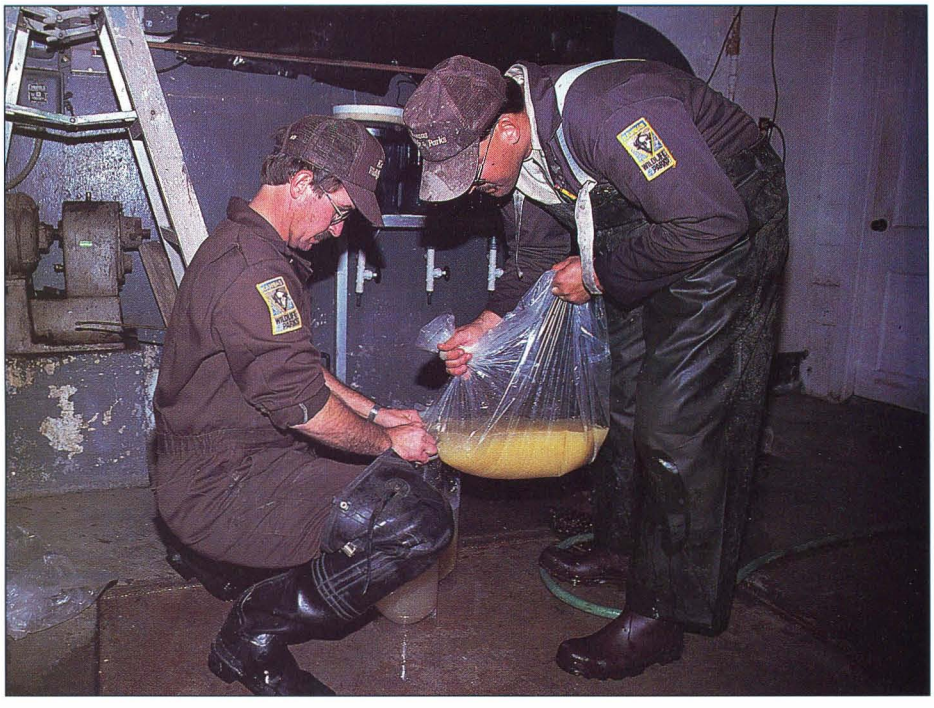
In some cases, wild broodfish may be transported to a hatchery where they are artificially spawned, or hatchery broodstock may be allowed to spawn under managed conditions in hatchery ponds.

Once at the hatchery, fertilized eggs are cleaned and counted, then placed in hatching jars, tanks, or troughs. Flowing water is used to gently roll or fan the eggs to provide required oxygen. As tedious at it may seem, dead eggs are routinely siphoned off to prevent fungal growth that would kill developing embryos.

"Generally, the fertilized eggs will hatch in seven to 10 days," says Beam. "It just depends on the water temperature and the species of fish, but they are extremely vulnerable during this stage of development."

One of the most fascinating aspects of this stage of culture is the appearance of the fish's eye, which becomes visible in the egg. Once the eye develops, the egg is considered viable and can actually be boxed and shipped by overnight express, as might be necessary in trades with other states.

As the eggs hatch, the emerging



Pratt fisheries biologist specialists Mark Kumberg (left) and Troy Amspacker pour walleye eggs into hatching jars. The eggs were stripped from fish caught in reservoirs, fertilized and delivered to the hatchery, where they will hatch in seven to 10 days.

Eggs are kept in continuous circulation and monitored constantly. Any eggs that die are meticulously siphoned off.

fish are called sac-fry because the yolk sac remains attached to the fish's abdomen, providing essential nutrients until the fry's mouth parts are developed enough to eat on its own. Once the sac is absorbed, the fry eat microscopic plants and animals called plankton. As the fish develop, culturists may also train them to feed on artificial diets.

"Fish are considered fry until they're about 1 inch long," Beam adds. "At this size, they can be stocked in lakes and reservoirs where fry have been requested, or they may be transferred to rearing ponds or tanks for further growth."

From the end of the fry stage until mid-winter, fish are referred to as fingerlings. Depending on species, a fingerling may range from 1-5 inches. The size of fish stocked depends on a number of factors, according to Beam.

"Fisheries managers often request fingerlings because they have a greater chance of survival than fry, even though fry may sometimes benefit from the fact of their sheer numbers. In cases where predation may be especially severe, managers may opt to stock an even larger fish."

This is where "intermediates" come in. Intermediate-sized fish are generally one or two years old and may be 12-14 inches long. However, largemouth bass, wipers, and some other predaceous fish reach intermediate size by the end of their first year.

While the spawning and rearing season may seem the busiest time of year for hatchery staff, their work is truly a year-round job. Much time is spent monitoring water quality and environmental conditions that directly influence the health and well-being of the fish. During the growing season, fish must be constantly monitored for signs of viral, fungal, or bacterial infections and the parasites. If any of these problems is detected, medical treatment must be immediate.

Education is another continuing activity of the fisheries biologist, who must remain up to date on a myriad of environmental and safety regulations.

And of course, maintenance is a constant. Hatcheries are elaborate facilities, and buildings, roads, dikes, water lines, drain lines, and a variety of equipment must kept in top operating condition. Screens covering outlets must be kept clean, ponds must be kept free of vegetation, and culture equipment must be kept disinfected.

Of course, the busiest time of year is fish harvest time.

"With well over 100,000 pounds of fish handled annually, our hatchery staff have their hands full during harvest," Beam explains. "Fish have to be weighed and counted, and delivery schedules are developed to accommodate the priorities of the waters to be stocked. Hatchery staff use pickups and larger delivery trucks to stock waters accessible to anglers all over Kansas, from Elkhart to Atchison, from St. Francis to Arma."

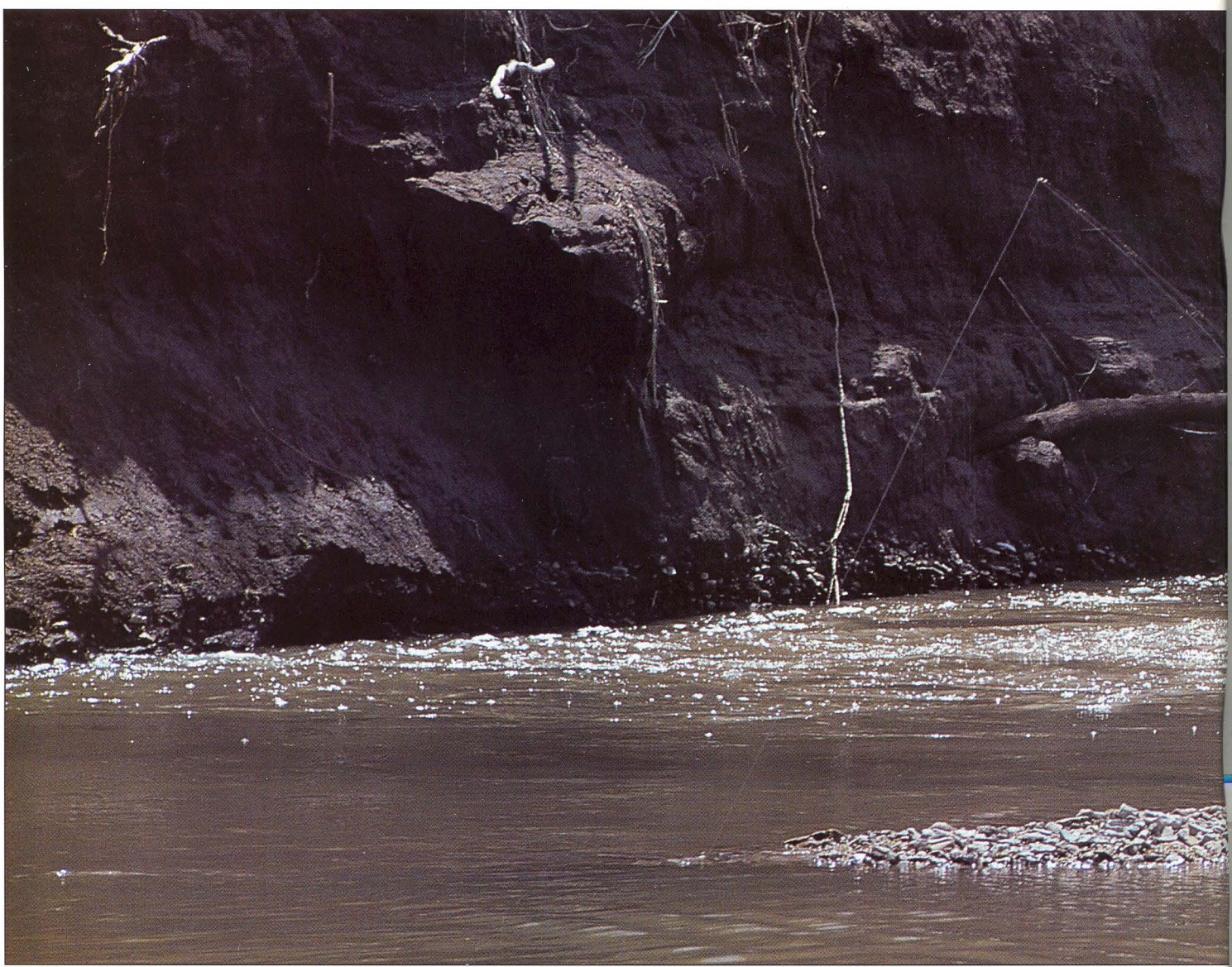
It's a big job, but few people enjoy their work more than these hatchery biologists and their field counterparts. After all, they understand why it's important.

Hauling and stocking fish is the last job for the fish culturist. Fish are stocked as fry, fingerlings or intermediates, depending on the district fisheries biologist's request.

River Whites

by Marc Murrell, *public information officer*
Great Plains Nature Center, Wichita

White bass are plentiful in many of our reservoirs, and they provide consistent fishing fun. It's in the spring, however, when whites move into the rivers and streams on their annual spawning run, that anglers really get excited about white bass fishing.



As spring emerges, fishing fever is in its final stages for many anglers. Feverish victims need fishing fixes desperately, and just about any old fishing hole will do. In early spring, however, it's tough to beat creeks and rivers. The running water warms more quickly than ponds or lakes, and the warm water attracts white bass. These silvery-white bundles of energy leave the confines of reservoirs and move upstream looking for love. It's the spawning run, and there's not a better way to spend a warm spring day than kicked back in the boat waiting for the attack of hungry white bass.

White bass are foreigners to most Kansas waters. Probably native to rivers in eastern Kansas, the white bass' native range included rivers and lakes in the central U.S. from Minnesota through the Great Lakes and down the Ohio and Mississippi river valleys. First introduced in Fall River Reservoir in 1950, white bass are common in nearly all Kansas reservoirs today. It is a member of temperate bass family, which includes the striped bass.

In spring, when water temperatures warm into the 50s, white bass travel into feeder streams and creeks to spawn. Silt deposits in the upper ends of many older Kansas reservoirs can inhibit this movement, however, spring rains often increase river flows enough for whites to make the annual run. While some whites may spend their entire lives in the river, and others may spawn on suitable substrate within the reservoir, the majority head upstream when conditions are right. The annual event draws many anglers like Larry Buchholz, a river fishing veteran from Wichita.

"I've been fishing for river-run white bass for at least 30 years," said the 47-year-old Buchholz. "It's fun floating down the river and anchoring up in the sunshine. It's a simple way of fishing and a good way to catch a lot of fish and relax."

Weather plays a big factor in determining when Buchholz heads to his favorite river haunts. Not so much temperature, but the amount of rainfall causing rivers to rise and stimulate movement in the fish. When stable weather patterns follow a spring rain and the water

Gene Brehm photo

clears, the fishing can be excellent.

"You can start in the middle of March if you've had the water to move them and bring them up out of the reservoirs," Buchholz has learned. "But probably the hot month is April."

Although a river has miles and miles of fishable water, Buchholz narrows his search to areas white bass prefer to spawn in, including rocky and weedy areas along riffles. He concentrates on deep water above and below riffles. Deep water by small river standards may only be 4-7 feet, but he's found that to be plenty of depth to hold staging whites. Brush piles will also hold white bass, as well as many other species of fish, something Buchholz considers a welcome bonus.

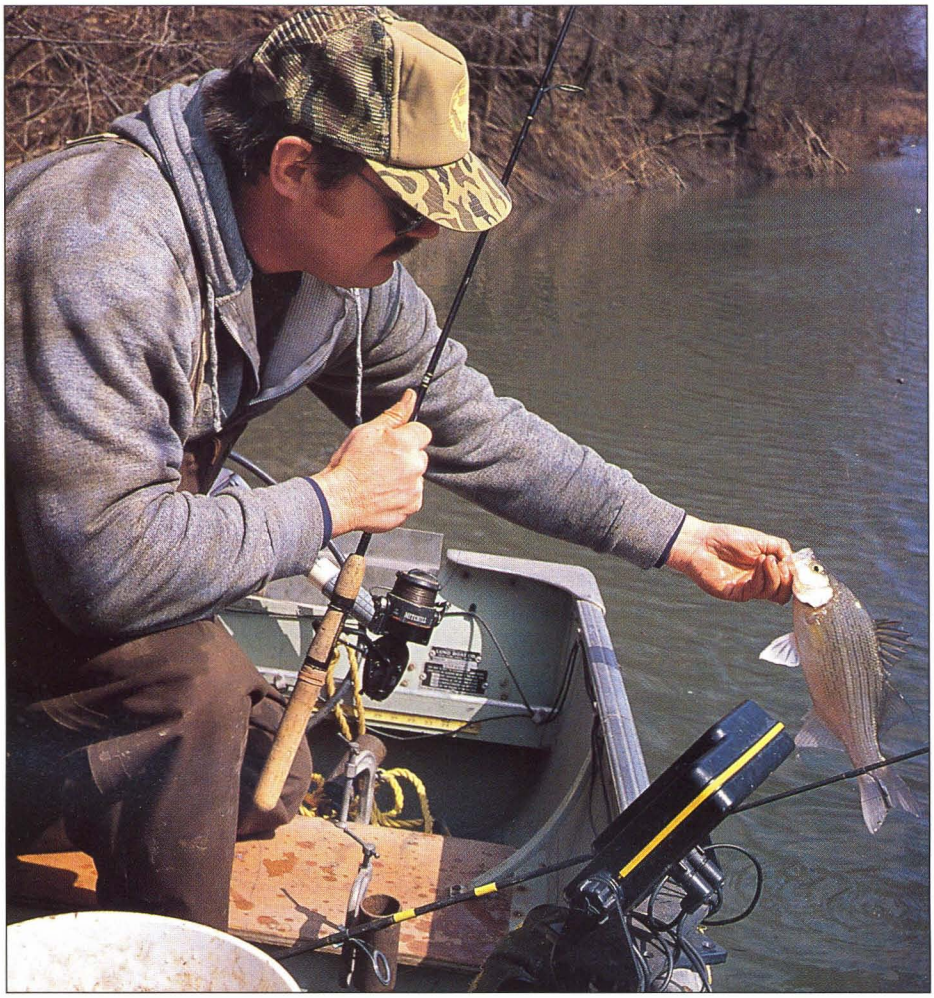
Some white bass anglers prefer to use artificials such as jigs, Roadrunners, Rooster Tails, small spinner baits, crankbaits and spoons. Buchholz, however, believes it's hard to beat live bait.

"The fun thing about fishing with minnows, other than it's simple and easy, is you never know what you're going to catch," Buchholz adds. "Everything eats them. It's always a variety."

Buchholz and his father Bill, a frequent fishing partner, seine their own minnows because he says, "It would break us if we had to buy them in the amount we use." They find plenty of shiners, stonerollers and fathead minnows in the riffles or deep holes of small, rocky- or sandy-bottom creeks. Having fresh, lively minnows is critical to success as is a good supply. On good days he and his dad may use several hundred minnows.

"I put one to four or five (minnows) on at a time, especially if they're small, " Buchholz said. "It's an attractant. They're all wiggling, and that's more vibration concentrated in one area. And then you've got the chumming factor. As you catch fish, it knocks those other minnows off in the area you're fishing."

Buchholz isn't too choosy about his equipment and says light- to medium-action rods in the 5- to 7-foot range work with a spinning reel loaded with 6- to 10-pound test line. An average white will weigh about a pound, however, they can weigh up to 4 pounds. It will require a good quality line to keep one of these giants out of a brush pile. A sensitive rod with a fast action can also help. You'll need some backbone for larger fish, and some action in the tip for finicky fish.



Marc Murrell photos

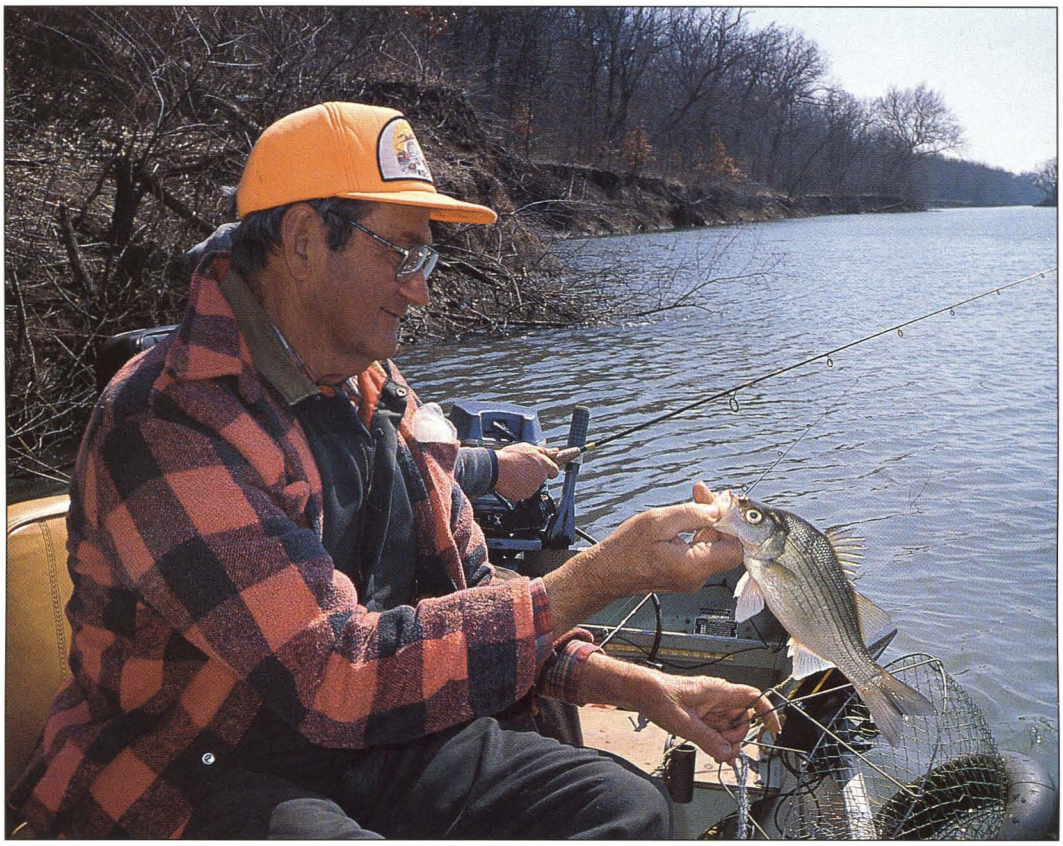
White bass fanatic Larry Buchholz lands an average spring white. Buchholz looks for increased stream flows along with warmer water temperatures to start the spawning run.

Buchholz prefers live bait over artificials, and always baits with several minnows.

"You've got to be real attentive on a strike," Buchholz has learned. "A lot of times they bite like a little sunfish and peck your bait off. You've got be real observant and watch your line."

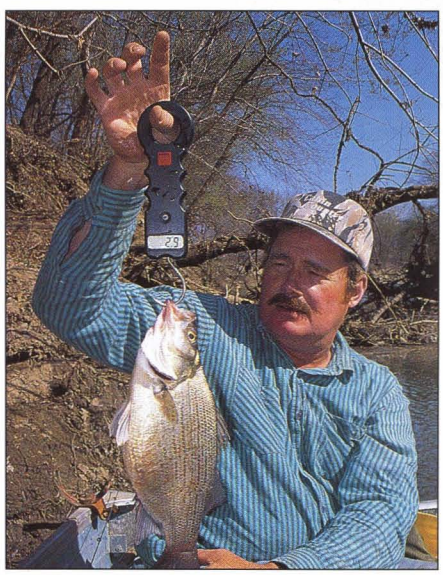
On larger rivers, a boat is a big advantage, allowing anglers to move around and locate fish. On most Kansas streams, a canoe or small jon boat equipped with a trolling motor will work well. A small boat can be hauled in the bed of a pickup and carried down river banks and launched anywhere.

On many of the western Kansas rivers, wading is the best way to fish. Many of the prairie streams are shallow, and floating them is difficult. Wading the river, searching for the deeper holes and catching whites can be a great way to cool off on a warm spring day. And if you want real adventure, try combining a turkey hunt with white bass fishing. The turkey season usually opens in early April and runs through the first of May. Many reservoirs have extensive public hunting areas along the inlet streams, where you'll find not only good white bass fishing, but excellent turkey habitat as well.



Anchoring in the deep holes above and below riffles, the Buchholzs' live-bait method catches a variety of fish in addition to whites. Here, Larry's dad, Bill, adds another white to the basket.

While most white bass are caught within the public land on the rivers above reservoirs, whites will move many miles upstream, even moving onto private land. You might find great, uncrowded fishing by visiting with landowners and getting permission to fish private streams above reservoirs. Remember, except for our navigable rivers — the Arkansas, Missouri and Kansas — and the portions of rivers above reservoirs within public land boundaries, all rivers and streams are privately owned, and you must get permission to fish them.



Marc Murrell photos

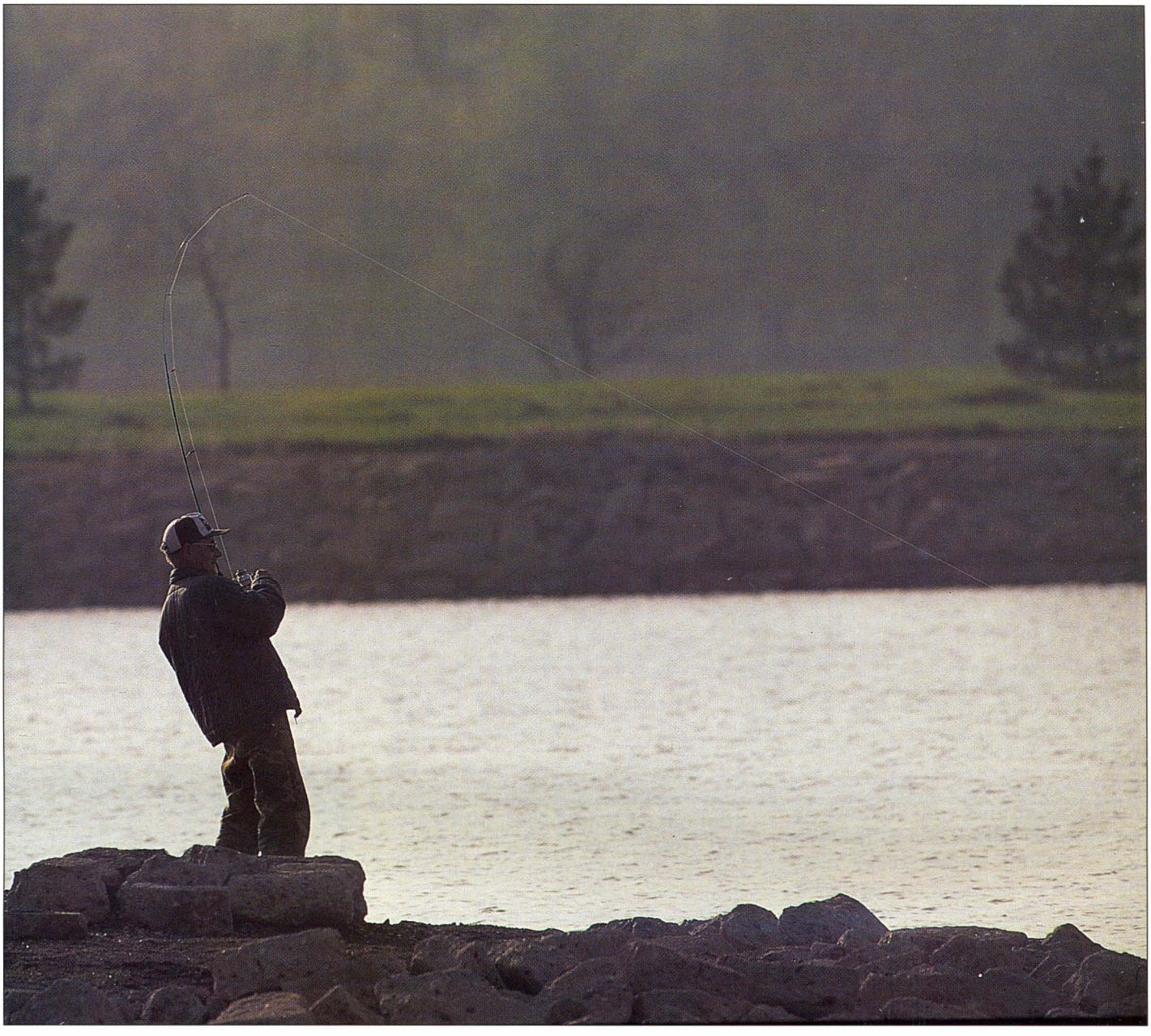
Most whites will weigh less than 2 pounds. This one is a true heavyweight.

White bass have relatively short lifespans — most don't live past 4 years — and they are prolific when conditions are favorable, so there is no creel limit. Use common sense and keep only what you can use. Release the rest for another day. White bass are scrappy fighters, and with the river's current to help them, they'll give you all you want. Catching river run whites can be addictive, and it's a sure way to cure your fishing fever.

River White Bass Tips

White bass can begin moving into rivers as early as March, but it's usually April before the spawning run gets underway. Depending on the weather, it can last into early May. The smaller males usually move up first, followed by the females. As mentioned earlier, spring rains play a big factor, not only in increasing flows to spur spawning movement, but they can also shut fishing down. A cold front with lots of rain that causes a quick rise and muddies the river can delay the run until things stabilize. It's a good idea to call local anglers or area bait shops before traveling any distance to a river. With changing spring weather, fishing can be sporadic.

According to the 1997 Fishing Forecast, the following reservoirs will offer top white bass fishing opportunities (in order of their ranking): Fall River, La Cygne, El Dorado, Melvern, Perry, Cedar Bluff, Marion, Milford, Clinton, Wilson, Kanopolis and Tuttle Creek. Smaller lakes that will offer good white bass fishing include Middle Creek State Fishing Lake and Shawnee Lake. The entire 1997 Fishing Forecast can be seen on Pages 28-32 , or call the department's Pratt office (316) 672-5911.



Fishing 1997 Forecast

The Fishing Forecast was first created in 1995. Since then, fishermen have learned to use this information to select a reservoir or lake that provides the type of fishing they enjoy. The 1997 Fishing Forecast brochure is available from the department's Pratt office or you can access it through the Internet on the department's Homepage at www.ink.org/public/kdwp/

Here's how it works: The information is formulated from data collected by fisheries management biologists through their annual lake monitoring activities (which include test netting and electroshocking). Not every lake is sampled each year, so some lakes are not included in the tables.

The data is separated into two categories -- reservoirs (those larger than 1,000 acres) and lakes (those less than 1,000 acres) — because sampling on small lakes may not always be comparable with that on larger reservoirs.

Tables have been created for eight popular game species and include a **Power Rating**, a **Lunker Rating**, the largest fish taken in sampling, and a **Biologist's Rating**.

The Power Rating is the number of fish that were quality size or larger sampled per unit of sampling effort. Quality size, listed in parentheses at the top of the Power Rating column, is the length of fish considered acceptable to most anglers and is different for each species. The higher the Power Rating, the more quality size or larger fish per surface acre in the lake. Theoretically, a lake with a Power Rating of 30 has twice as many quality size fish per acre as a lake with a Power Rating of 15.

The Lunker Rating is similar to the Power Rating, but it tells you the relative density of lunker-sized fish in the lake. A lunker is a certain length of fish considered a trophy by most anglers. It also differs with each species and is listed in parentheses at the top of the Lunker Rating column. For example, most anglers consider a channel catfish longer than 28 inches a lunker. Many lakes may have a lunker rating of 0, however, this doesn't mean that there are no big fish in that lake. It just means that no lunker fish were caught during sampling, and they may be less abundant than in lakes with positive Lunker Ratings.

You can use the Power Rating and Lunker Rating together. If you want numbers, go with the highest Power Rating. If you want only big fish, go with the Lunker Rating. Somewhere in the middle might be better choice -- a lake with a respectable Power Rating and a positive Lunker Rating will provide the best of both worlds.

The biggest fish column lists the weight of the largest fish caught during sampling. A heavy fish listed here can give the lunker fishermen confidence that truly big fish reside in that lake.

The Biologist's Rating adds a human touch to the forecast. Each district fisheries biologist reviews the data from annual sampling of their assigned lakes. This review considers environmental conditions that may have affected the sampling. They also consider previous years' data. A rating of poor, fair, good, and excellent will be in the last column. Sometimes the Power Rating may not agree with the biologist's rating. This will happen occasionally and means the Power Rating may not accurately reflect the biologist's opinion of the fishery.

You may notice an asterisk next to the name of some of the lakes in the channel catfish table. This indicates that the lake is included in the 1997 Urban Fishing Program and will receive multiple stockings of 3/4-pound channel catfish from April through September.

Be sure to keep a copy of the 1997 Fishing Regulations Summary in your tackle box. The pamphlet includes a listing of laws and regulations, as well as a table with all the length limits for the various reservoirs and state and community lakes. The pamphlet also has applications for Master Angler and Catch & Release Awards.

Good luck and good fishing!

WHITE BASS

IMPOUNDMENT RESERVOIRS	Power Rating (>9")	Lunker Rating (>15")	Biggest Fish (Lbs.)	Biologist's Rating
Fall River Res.	92.49	6.99	2.0	Very Good
La Cygne Res.	43.65	0.32	1.6	Excellent
El Dorado Res.	40.66	0.33	1.4	Good
Melvern Res.	35.2	1.0	1.7	Excellent
Perry Res.	34.33	0.32	1.6	Good
Cedar Bluff Res.	31.99	2.99	2.6	Good
Marion Res.	27.57	0.0	2.0	Fair
Milford Res.	27.49	0.0	1.0	Good
Clinton Res.	25.71	1.14	2.2	Good
Wilson Res.	20.0	1.8	2.3	Very Good
Kanopolis Res.	18.3	2.0	2.8	Good
Tuttle Creek Res.	17.0	1.0	2.7	Good
John Redmond Res.	16.74	0.0	1.5	Fair
Cheney Res.	16.0	0.3	1.8	Fair
Wolf Creek Res.	10.6	0.9	3.3	Fair
Elk City Res.	8.99	0.0	1.7	Good
Glen Elder Res.	6.7	0.4	2.4	Good
Lovewell Res.	2.9	0.4	2.3	Fair
LAKES				
Middle Creek SFL	124.99	17.98	2.4	Excellent
Shawnee LK	23.49	0.49	1.8	Good
Clark SFL	17.99	1.99	1.22	Fair
Paola CL	7.0	0.0	0.6	Fair
Fort Scott CL	4.5	1.0	1.8	Fair
Sedan New CL	1.99	0.0	1.2	Fair
Centralia CL	1.0	0.0	0.7	Fair

CHANNEL CATFISH

IMPOUNDMENT RESERVOIRS	Power Rating (>16")	Lunker Rating (>28")	Biggest Fish (Lbs.)	Biologist's Rating
Fall River Res.	13.49	0.0	8.5	Excellent
Cheney Res.	9.2	0.2	11.0	Good
Clinton Res.	8.8	0.33	9.3	Good
Marion Res	8.14	0.14	9	Good
Milford Res.	7.24	0.99	14.8	Excellent
Webster Res.	5.5	0.0	7.3	Good
Sebelius Res. (Norton)	5.49	0.0	7.0	Excellent
Glen Elder Res.	5.3	0.1	11.1	Good
Perry Res.	4.66	0.0	6.1	Good
Hillsdale Res.	4.5	0.5	15.75	Good
Kanopolis Res.	4.49	0.0	8.8	Very Good
Melvern Res.	4.2	0.0	5.2	Good
Wilson Res.	4.0	0.0	6.6	Fair
Kirwin Res.	3.99	2.0	20.7	Good
Lovewell Res.	3.6	0.1	10.4	Good
Wolf Creek Res.	3.5	0.0	4.8	Excellent
Pomona Res.	3.0	0.0	3.6	Good
Council Grove Res.	2.99	0.0	4.5	Fair
El Dorado Res.	2.33	0.33	9.1	Good
Tuttle Creek Res.	2.3	0.0	8.1	Good
La Cygne Res	2.24	0.24	12	Poor
John Redmond Res.	2.0	0.0	10.8	Fair
Cedar Bluff Res.	0.99	0.0	4.8	Good
Elk City Res.	0.0	0.0	0.3	Fair
LAKES				
McPherson SFL	35.7	0.0	6.6	Excellent
Pleasanton CL - East	30.5	1.0	12.4	Excellent
Mound CL	23.99	1.49	11.9	Excellent
Lyon SFL	20.0	0.0	5.9	Excellent
Crawford SFL	18.74	0.24	11.2	Good
Osage SFL*	18.0	1.0	12.7	Excellent
Bourbon Co. Lake	18.0	0.5	8.0	Excellent
Wabunsee Lake	17.99	0.0	6.0	Good
Finney SFL	15.99	0.99	10.5	Fair
Leavenworth SFL*	15.0	0.0	9.5	Excellent
Atchison SFL*	13.99	0.0	4.8	Good
Garnett CL - South	13.0	1.0	11.1	Good
Centralia CL	13.0	0.0	5.1	Good
Yates Center CL - New	13.0	2.0	18.5	Excellent
Butler SFL	11.99	0.0	5.5	Good
Carbondale CL - East*	10.9	0.5	14.3	Excellent
Bourbon SFL	10.0	1.0	9.4	Excellent
Clark SFL	8.99	0.0	7.0	Good
Lonestar Lake	7.5	0.0	6.6	Good
Yates Center CL - Old	7.0	0.0	6.7	Good
Afton Lake	7.0	0.0	5.2	Good
Jeffrey EX Makeup Lake	7.0	0.0	6.5	Good
Geary SFL	6.49	1.49	17.8	Good
Douglas SFL*	6.49	0.0	5.1	Fair
Rock Creek (Ft. Scott)	6.0	0.99	11.0	Good
Alma CL	5.99	0.0	1.5	Fair
Kiowa SFL	5.99	0.0	3.2	Fair
Shawnee Lake	5.5	0.0	4.8	Fair
Montgomery SFL*	5.5	0.0	3.5	Good
Kahola CL	5.0	0.0	0.0	Fair/Good
New Strawn CL	5.0	1.0	9.5	Good
Sedan CL - Old	4.99	0.0	4.1	Fair
Middle Creek SFL	4.99	0.0	6.2	Fair
Paola CL	4.5	1.0	10.1	Fair

CHANNEL CATFISH cont.

IMPOUNDMENT LAKES	Power Rating (>16")	Lunker Rating (>28")	Biggest Fish (Lbs.)	Biologist's Rating
Ottawa SFL	4.49	0.0	4.6	Very Good
Melvern River Pond	4.0	0.0	4.5	Good
Jeffrey Aux. Lake	4.0	0.0	5.3	Good
Garnett CL - North	4.0	0.0	8.6	Good
Meade SFL	3.99	0.0	2.6	Fair
Pratt CL	3.5	0.0	5.3	Fair
Pottawatomie SFL #2*	3.0	0.0	1.6	Good
Cowley SFL*	3.0	0.0	3.7	Fair
Osage CL	2.99	0.0	4.4	Fair
Miami SFL	2.99	0	1.6	Poor
Neosho SFL	2.66	0.0	6.6	Fair
Winfield CL	2.5	0.5	8.7	Fair/Good
Parsons CL	2.0	0.0	4.1	Good
Ft. Scott CL	2	0	3.2	Poor
Prescott CL	2	0	3.5	Poor
Sedan New CL	1.99	0.0	1.3	Fair
Jewell SFL	1.5	0.0	3.1	Fair
Madison CL	1.0	0.0	1.4	Fair
Shawnee SFL*	1.0	0.0	1.2	Good
Pottawatomie Co. Lake	1.0	0.0	0.9	Fair

* indicates lakes enrolled in new urban stocking program

BLACK CRAPPIE

IMPOUNDMENT RESERVOIRS	Power Rating (>8")	Lunker Rating (>12")	Biggest Fish (Lbs.)	Biologist's Rating
Sebelius Res. (Norton)	70.8	0.0	0.8	Excellent
Webster Res.	22.1	0.0	0.8	Excellent
Glen Elder Res.	6.3	0.0	0.8	Fair
Wilson Res.	5.1	0.0	0.7	Fair
Kanopolis Res.	3.5	0.0	0.4	Fair
Cedar Bluff Res.	3.38	0.0	0.7	Good
Kirwin Res.	2.9	0.16	1.4	Fair
Clinton Res.	2.17	0.04	0.9	Fair
El Dorado Res.	1.75	0.0	0.3	Poor
Marion Res.	1.63	0.0	0.6	Fair
Lovewell Res.	1.3	0.0	0.8	Fair
LAKES				
Centralia CL	69.0	0.0	0.6	Good
Miami SFL	34.05	0.0	1.0	Excellent
Garnett CL - North	24.9	0.0	0.8	Good
Pottawatomie CL	19.0	0.0	0.6	Good
Garnett CL - South	14.0	0.5	1.0	Fair
Osage SFL	11.25	0.0	0.4	Good
Alma CL	11.11	0.0	0.8	Good
Atchison SFL	7.8	0.0	0.6	Fair
Shawnee SFL	5.0	0.0	0.5	Fair
Bourbon SFL	4.16	0.0	0.5	Excellent
Yates Center CL - New	4.0	0.0	0.7	Good
Cowley SFL	3.68	0.0	0.5	Good
Richmond CL	3.68	0.0	0.4	Good
Pottawatomie SFL #2	2.85	0.0	0.4	Fair
Madison CL	2.5	0.0	0.3	Fair
Montgomery SFL	2.4	0.0	0.8	Fair
Rock Creek LK (FT Scott)	2.0	0.0	0.2	Good
Crawford SFL #2	1.82	0.12	1.2	Fair
Clark SFL	1.11	0.0	0.4	Fair

WHITE CRAPPIE

IMPOUNDMENT RESERVOIRS	Power Rating (>8")	Lunker Rating (>12")	Biggest Fish (Lbs.)	Biologist's Rating
Cheney Res.	86.5	3.6	1.4	Excellent
Kanopolis Res.	51.6	1.8	1.2	Excellent
Kirwin Res.	36.1	0.6	1.5	Excellent
Sebelius Res. (Norton)	35.9	0.35	0.8	Very Good
Perry Res.	33.0	2.52	1.8	Very Good
Hillsdale Res.	32.6	1.6	1.4	Good
Marion Res.	31.42	2.61	1.4	Good
Pomona Res.	30.37	7.7	1.3	Excellent
Council Grove Res.	21.4	0.87	1.0	Good
La Cygne Res.	20.49	0.12	1.0	Good
Big Hill Res.	20.0	0.0	0.0	Excellent
John Redmond Res.	10.83	0.0	0.6	Good
Wolf Creek Res.	8.8	6.9	2.1	Fair
Tuttle Creek Res.	8.0	0.5	1.2	Good
Fall River Res.	7.87	1.51	1.7	Good
Cedar Bluff Res.	6.56	0.56	1.1	Good
Milford Res.	5.99	0.54	1.1	Fair
Clinton Res.	5.65	0.26	1.0	Fair
El Dorado Res.	4.12	0.17	0.9	Fair
Wilson Res.	4.1	0.0	0.6	Fair
Melvern Res.	4.0	0.3	0.9	Excellent
Glen Elder Res.	3.6	0.4	1.5	Fair
Webster Res.	2.7	0.1	1.0	Good
Elk City Res.	1.21	0.9	1.1	Good
Lovewell Res.	0.8	0.08	0.9	Fair
LAKES				
Pleasanton CL - East	82.5	0.0	0.92	Excellent
Ottawa SFL	48.91	0.1	0.7	Excellent
Logan CL	40.3	3.0	1.1	Very Good
Miami SFL	34.82	1.33	1.3	Excellent
Bourbon SFL	22.49	0.0	0.5	Excellent
Lyon SFL	15.27	0.0	0.6	Good
Rock Creek (Ft. Scott)	13.99	0.49	0.7	Excellent
Winfield CL	13.2	0.0	0.5	Fair
Chase SFL	12.36	0.0	0.5	Fair
Sedan CL - New	11.24	0.83	1.1	Good
Barber SFL - Lower	10.58	0.58	1.0	Good
Pottawatomie SFL #1	10.52	0.0	0.6	Fair
Mound CL	10.24	0.74	0.7	Good
Kahola CL	9.5	0.5	1.0	Good
Carbondale CL - East	8.0	0.0	0.6	Good
Osage CL	7.6	2.08	1.2	Good
Garnett CL - South	7.5	1.0	1.2	Good
Meade SFL	7.36	0.0	0.5	Fair
Coldwater CL	6.09	0.0	0.4	Fair
Bourbon CL	6.0	0.0	0.5	Fair
Pratt CL	5.08	0.0	0.8	Fair
Geary SFL	4.99	0.0	0.6	Fair
Parsons CL	4.76	0.95	1.1	Fair
Madison CL	3.43	0.0	0.5	Fair
Osage SFL	3.3	0	0.5	Fair
Montgomery SFL	3.22	0.64	1.0	Fair/Good
Sedan Old CL	2.91	0.0	0.3	Fair
Clark SFL	2.85	0.0	0.6	Fair
Shawnee LK	2.21	0.0	0.6	Fair
Melvern River Pond	2.0	0.0	0.7	Good
Pottawatomie SFL #2	1.29	0.0	0.2	Fair
Shawnee SFL	1.0	0.0	0.3	Fair
Afton LK	0.99	0.0	0.6	Fair

LARGEMOUTH BASS

IMPOUNDMENT RESERVOIRS	Power Rating (>12")	Lunker Rating (>20")	Biggest Fish (Lbs.)	Biologist's Rating
Sebelius Res. (Norton)	61.5	0.0	4.3	Excellent
Kirwin Res.	46.7	0.0	3.8	Excellent
Cedar Bluff Res.	46.18	0.36	6.4	Excellent
Fall River Res.	38.99	0.99	8.7	Very Good
La Cygne Res.	36.29	3.33	7.1	Excellent
Wilson Res.	31.4	1.0	6.9	Very Good
Webster Res.	24.5	0.0	3.8	Very Good
Kanopolis Res.	24.3	0.0	5.5	Good
El Dorado Res.	17.6	0.3	4.0	Good
Perry Res.	11.21	1.4	6.9	Poor
Tuttle Creek Res.	11.0	0.0	4.9	Fair
Hillsdale Res.	10.5	0.0	4.0	Fair
Big Hill Res.	7.68	0.0	4.2	Excellent
Milford Res.	5.1	0.0	2.2	Fair
Clinton Res.	4.88	0.69	6.3	Poor
Wolf Creek Res.	0.25	0.0	1.7	Poor
LAKES				
Meade SFL	209.5	4.75	5.0	Excellent
Ottawa SFL	114.42	4.79	6.4	Excellent
Lebo Kids PD	99.99	7.68	4.6	Good
New Strawn CL	92.29	0.0	2.3	Excellent
Barber SFL - Lower	89.46	0.0	2.8	Excellent
Goodman SFL	89.27	3.56	5.2	Excellent
Atchison CL #9	86.94	4.34	5.8	Good
Atchison CL #7	85.69	0.0	4.1	Good
Clark SFL	72.21	7.4	6.9	Excellent
Pottawatomie SFL #1	72.0	0.0	3.0	Good
Pottawatomie SFL #2	68.0	0.0	3.1	Good
Logan CL	65.7	2.9	5.0	Good
Severy CL	65.11	0.0	1.1	Good
Yates Center S.Owl LK	63.63	0.0	1.8	Fair
Osage CL	59.21	2.63	6.2	Good
Moline CL	57.77	0.0	3.4	Good
Woodson SFL	56.9	0.0	3.0	Good
Great Bend Stone Lake	56.51	0.0	2.8	Fair
Lonestar Lake	55.84	2.59	5.0	Good
Yates Center CL	53.26	0.0	3.1	Excellent
Crawford SFL	51.73	1.98	5.1	Good
Shawnee SFL	51.0	2.5	0.0	Good
Finney SFL	49.97	0.0	3.4	Excellent
Great Bend Mem PK LK	48.37	0.0	2.0	Fair
Sedan CL - New	48.19	0.0	2.8	Good
Melvern River Pond	47.72	0.0	3.2	Good
Centralia CL	46.99	0.0	4.2	Good
Pottawatomie Co. Lake	46.0	0.0	3.3	Good
Sedan CL - Old	45.94	0.0	4.7	Good
Shawnee Lake	44.93	1.75	5.9	Good
Neosho SFL	44.23	3.02	5.8	Good
Middle Creek SFL	41.71	1.14	5.3	Good
Jones Park Pond - East	41.17	0.0	1.2	Good
Jones PK Middle PD	41.17	0.0	1.6	Good
Geary SFL	40.0	0.0	4.0	Fair
Butler SFL	39.99	0.0	4.1	Good
Atchison SFL	39.99	0.0	3.2	Fair
Barber SFL - Upper	38.45	0.0	2.8	Fair
Miami SFL	36.55	0.0	5.0	Good
Spring Creek	36.35	0.0	3.7	Fair
Madison CL	34.99	0.99	7.2	Fair
Browning Oxbow	33.96	0.0	3.6	Fair

LARGEMOUTH BASS cont.

IMPOUNDMENT LAKES	Power Rating (>12")	Lunker Rating (>20")	Biggest Fish (Lbs.)	Biologist's Rating
Osawatomie CL	32.5	1.2	5.0	Fair
Allen CL	31.81	0.0	2.6	Fair
Douglas SFL	30.7	0.78	5.1	Fair
Jeffreys Aux LK	30	0.0	2.0	Good
Garnett CL NO	29.6	0.0	2.6	Good
Wabunsee Lake	28.99	0.0	4.8	Good
Horton Little Lake	28.94	0.0	4.4	Fair
Mound CL	28.88	1.1	7.0	Good
McPherson SFL	28.1	1.8	5.6	Good
Leavenworth SFL	27.13	0.5	3.6	Good
Kiowa SFL	25.92	3.7	5.6	Fair
Ft Scott Comm Col LK	25.71	2.85	4.9	Good
Pratt CL	25.57	0.0	3.1	Fair
Mary's Lake	24.99	4.99	5.1	Fair
Sabetha Pony Creek	24.82	0.0	2.0	Fair
Kahola Lake	23.99	0.0	3.3	Good
Bourbon SFL	22.72	1.81	5.3	Good
Osage SFL	22.57	0.0	2.4	Fair
Garnett Cedar Creek LK	22.0	2.0	5.6	Poor
Atchison CL #23	20.92	0.0	4.4	Fair
Montgomery SFL	20.66	1.33	7.1	Good
Alma CL	20.0	0.0	2.6	Good
Cowley SFL	19.99	0.0	2.9	Fair
Emporia Peter Pan PD	19.99	3.33	4.4	Fair
Ford CO SFL	17.63	0.0	1.6	Fair
Atchison CL #2	17.23	0.0	4.3	Fair
Sterling CL	16.0	0.0	2.0	Fair
Chase SFL	15.75	0.0	3.9	Fair
Troy 4-H Lake	15.0	0.0	4.2	Fair
Holton Prairie Lake	12.04	0.52	4.7	Fair

* Includes spotted bass data

WIPER

IMPOUNDMENT RESERVOIRS	Power Rating (>12")	Lunker Rating (>20")	Biggest Fish (Lbs.)	Biologist's Rating
Cedar Bluff Res.	104.99	0.0	1.6	Good*
Sebelius Res. (Norton)	28.49	11.99	7.7	Very Good
La Cygne Res.	22.24	3.99	8.8	Excellent
Webster Res.	16.5	6.0	12.2	Excellent
Milford Res.	12.99	2.49	5.1	Good
Marion Res.	10.25	3.99	6.9	Fair
Lovewell Res.	3.8	0.9	4.5	Fair
Cheney Res.	2.0	0.0	3.9	Fair
Wolf Creek Res.	1.0	1.0	5.2	Good
LAKES				
Jeffrey Makeup Lake	24.0	6.0	4.6	Good
Coldwater CL	11.0	0.99	8.5	Good
Pleasanton CL - East	11.0	4.5	4.2	Excellent
Melvern River Pond	9.0	7.0	4.6	Fair
Shawnee Lake	7.0	0.5	4.9	Fair
Pratt CL	4.0	4.0	10.7	Good
Lonestar Lake	3.5	2.0	5.2	Fair
Winfield CL	3.0	0.0	1.6	Poor/Fair
Yates Center CL - New	2.0	1.0	6.4	Fair
Garnett CL - South	1.0	1.0	8.9	Fair

*All fish under 3 pounds

WALLEYE

IMPOUNDMENT RESERVOIRS	Power Rating (>15")	Lunker Rating (>25")	Biggest Fish (Lbs.)	Biologist's Rating
Marion Res.	30.99	1.57	7.9	Excellent
Wolf Creek Res.	14.1	0.0	4.4	Good
Webster Res.	11.0	1.5	8.5	Fair
Wilson Res.	10.8	1.6	8.8	Fair
El Dorado Res.	9.99	0.0	4.6	Good
Kirwin Res.	9.5	0.0	4.4	Good
Hillsdale Res.	8.0	3.0	8.8	Good
Lovewell Res.	7.9	0.3	6.7	Good
Cedar Bluff Res.	7.5	0.49	7.5	Fair
Glen Elder Res.	7.2	0.6	10.0	Good
Milford Res.	6.99	0.0	5.1	Fair
Kanopolis Res.	6.0	1.3	8.3	Fair
Clinton Res.	5.19	0.79	7.9	Fair
Cheney Res.	2.0	0.0	7.0	Fair
Tuttle Creek Res.	2.0	0.0	6.4	Fair
Sebelius Res. (Norton)	1.5	0.498	4.8	Fair
Melvern Res.	1.0	0.0	1.3	Fair
LAKES				
Yates Center CL - New	25.0	1.0	5.7	Excellent
Atchison SFL	17.0	0.0	4.6	Good
Kahola CL	17.0	1.0	7.1	Good
Jeffrey EX Makeup LK	15.0	0.0	1.7	Good
Pratt CL	14.0	0.0	4.8	Fair
Garnett CL - North	10.0	0.0	1.6	Good
Melvern River Pond	9.0	0.0	2.0	Good
Centralia CL	8.0	0.0	6.5	Fair
Carbondale CL - East	8.0	1.0	3.3	Good
Jewell SFL	7.5	0.5	7.3	Fair
Paola CL	7.5	0.0	5.5	Fair
Crawford SFL	7.33	0.0	3.4	Fair
Mound City CL	7.0	0.99	5.4	Excellent
Shawnee SFL	6.0	0.0	3.4	Fair
Barber SFL - Lower	6.0	0.0	3.8	Fair
Bourbon SFL	5.0	1.0	6.0	Good
Pottawatomie SFL #2	5.0	0.0	2.3	Fair
Shawnee Lake	4.99	0.99	6.9	Fair
Alma CL	4.99	0.99	5.5	Fair
Cowley SFL	4.0	0.0	3.1	Fair
Lyon SFL	2.0	1.0	5.6	Fair
Osage SFL	1.5	0.5	5.6	Fair
Winfield CL	1.5	1.0	7.2	Fair

SAUGER & SAUGEYE

IMPOUNDMENT RESERVOIRS	Power Rating (>14")	Lunker Rating (>22")	Biggest Fish (Lbs.)	Biologist's Rating
Sebelius Res. (Norton)	21.5	3.5	7.6	Very Good
Elk City Res.	17.0	0.0	1.7	Good
Council Grove Res.	5.0	0.0	1.4	Fair
Perry Res.	5.0	0.0	1.4	Fair
John Redmond Res.	2.0	0.0	1.5	Spillway Good
Tuttle Creek Res.	0.25	0.0	1.1	Fair
LAKES				
Chase SFL	14.0	2.4	0.0	Good
Clark SFL	13.0	0.0	1.8	Fair
Marion CL	1.5	0.0	3.5	Fair
Middle Creek SFL	0.0	0.0	0.6	Poor

Edited by Mark Shoup

TAKINGS, DEER PERMITS

Editor:

I subscribed to your magazine last fall upon discovery of my prospective move to Kansas this July. Being from Oklahoma, I appreciate your views from there. I have written to you earlier in praise and now in praise, concern, and query.

I believe your publication is improving issue by issue. The quality of composition and photos in the March/April issue is outstanding. Randy Rodgers for president. He obviously does his homework.

My concern is, in your words, ". . . their efforts would be to rob the American people of the few places they have to enjoy" (end of "Take Our Land?" beginning on Page 34). Besides prayer, what, if anything, can I do to help stop such an atrocity from occurring?

Now for two questions to which I found no answer in the hunting regs for 1996. First, I will be a 60-day resident well before opening day for the deer firearms season this winter but not before the application deadline. May I apply as a non-resident? Second, are Kansas lifetime license holders exempt from the purchase of any permits such as big game or turkey?

John Vassaur
Hailey, Indiana

Dear Mr. Vassaur,

Thanks for your letter. Regarding "takings" legislation, I would certainly continue to pray. It's also a good idea to keep abreast of these issues when it comes time to vote.

Your questions concerning deer hunting are interesting. You are in an unusual situation. The law states that a "general" deer permit is reserved for a resident of Kansas. Therefore, if you have not been a resident of Kansas for 60 days prior to the early-July application period for resident deer permits, you cannot apply. However, you do not have to have a hunting license to apply for a permit, so you could go ahead and apply for a non-resident deer permit in May and wait until you have been a resident of Kansas for 60 days before buying a hunting license. This would put you in the unusual, but legal, position of hunting with a resident hunting license and a non-resident deer permit.

Another alternative I might suggest is that you wait until you are a resident and then purchase an over-the-counter resident archery permit. If you move here in late August, say, that would put you legal just in time for rut.

Just like other license holders, lifetime license holders are not exempt from purchasing any permits, stamps, or tags. However, the lifetime license gives them the privileges of a resident in terms of permits available and prices, even if they move from the state.

Hope this answers your questions. Good luck on your move to Kansas.

- Shoup

WISHY-WASHY MAG?

Editor:

I am pleased to find you finally online with your home page [http://www.ink.org/public/kdwp]. It is excellently prepared and informative.

I am sad to say, however, that your magazine, to which I have been a subscriber for almost two decades and my father for two before that, has deteriorated to the point of being a little brother to *Ranger Rick* and *Your Big Backyard.* When it was *Kansas Game and Fish,* your focus was a little more directed to the interests of the gamesmen who support it and your department.

Please do not assume that I do not consider parks and reserves at which hunting and fishing are controlled or banned important. As we all know, being a sportsman demands responsibility for the land and the game that is dependent upon it. I assume that it was the intention of former Governor Hayden to protect those resources by combining them with the Fish and Game Department. I do not believe that it was his intention to turn the bible of Kansas sportsmen into a preschool primer or a substitute for the Audubon Society.

I am tempted to allow my subscription to expire but probably will not as it has always occupied a position of pride in both my home and my office for the wonderful state in which I live. I would hope that perhaps this missive might redirect your priorities.

Michael Liebau
Wichita

Dear Dr. Liebau:

You're right. The scope of our magazine has changed over the last 20 years, as has the department's. The change wasn't necessarily caused by the addition of parks, but it has been more a process of evolution. The department is responsible for managing all wildlife and their associated habitats, as well as state parks and public lands and waters, not just game animals.

The magazine attempts not only to satisfy the interests of our readers, but also to promote the philosophies and responsibilities of the department. In this age of specialization, having subject matter with such a wide variety may not appeal to some. But we have a responsibility to all our constituents.

While all of us who contribute to the publication of this magazine are hunters and anglers, we feel strongly that understanding more about all wildlife enhances any outdoor activity. By providing hunters with information about wildlife management and conservation issues, we give them the power to effectively argue the benefits of hunting when it is attacked.

Subject matter in the magazine is seasonal. In the fall and winter, we include mostly hunting articles, in the spring and summer, fishing articles dominate. Sprinkled throughout the mixture are wildlife natural history, wildlife management, and public lands articles.

A review of 1996 magazines shows that 52 percent all the feature articles dealt with hunting and fishing or hunting- and fishing-related subjects. A review of 1976 magazine features found

that 56 percent dealt with hunting and fishing. Maybe we haven't changed as much as we thought.

I would hope you continue to read our magazine. We will continue to keep readers aware of department programs, conservation issues, research projects, and of course, hunting and fishing in Kansas.

-Miller

WILDLIFE PHOTO GROUP

Editor:

I am a professor of psychology at Bethany College in Lindsborg. During the last decade, I have developed a passion for wildlife photography. A group of fellow enthusiasts and I are starting a statewide organization of nature and wildlife photographers. We will hold our first meeting on Nov. 22 in Lindsborg.

The primary purpose of this organization will be to share information about nature and wildlife photography and thereby promote the growth and development of its member photographers.

While an important purpose of the first meeting will be to give structure to the organization, interested individuals are suggesting that we meet twice a year. Each meeting would be for the better part of a Saturday, once in the fall and once in the spring. The location of our meetings would vary. Perhaps there could be six different locations throughout the state.

To indicate your interest and for more information, contact Larry Rosenkoetter, 204 W. Columbus, Lindsborg, KS 67456, (913) 227-3294.

Larry Rosenkoetter
Lindsborg

TOO MUCH POACHING

Editor:

As the Kansas Department of Wildlife and Parks is aware, illegal poaching is on the climb in the state. As an individual who loves the outdoors and is an avid hunter, I find it appalling to see and find deer that have been poached.

During the 1996 season, I reported a poached deer on the property I hunt to our local conservation officer, Gene McCauley of Winfield. The professionalism that this individual showed was beyond reproach. I understand that his hands and the state's hands are tied to an extent. I have also heard numerous individuals talking about the great many deer being taken illegally between Sedan, Cedervale, and Arkansas City.

Would not it be a good idea to put extra officers on this area during the Oklahoma season, which runs just prior to ours? I am sure the presence of other law enforcement officers would curtail illegal kills. Thank you for your time.

Jack E. Landrum
Arkansas City

Dear Mr. Landrum:

Thanks for your e-mail letter. Our COs appreciate the respect you show for their efforts and your understanding that making cases is sometimes difficult. I have no statistics on whether or not poaching is up, but I do know its a problem. In recent years, we have put extra officers in your area during the Oklahoma season, and it has had some affect.

However, the most effective defense against poachers is the quick response of responsible citizens such as you. The sooner poaching incidents are reported, the more likely a case can be made. Unfortunately, they all too often go unreported, either through neglect or cynicism.

-Shoup

MAG PROMOTING ABUSE?

Editor:

It was with great interest that I read Mark Shoup's article, "Natural Mussel," in the March/April issue of ***Kansas Wildlife and Parks*** (Page 43). Due to the fact that mussels are low-profile creatures and ones that are seriously declining, I felt the article was timely and educational.

That is, until I read the last line: "You might find a pearl." While Mr. Shoup mentioned that only about five in every 100 mussels produce a pearl, the average reader will most likely hold onto the idea that maybe they will be the lucky individual who finds one that is worth something. Some friends of mine told me of how they used to haul mussels out of the river "by the gunny sack full." For what reason? To shuck them in search of pearls.

Now they lament over the present situation that the mussels are no longer as common as they used to be. Since I work extensively with mussels (most frequently the shell only), I am asked about their pearl-producing abilities. Opening a mussel's shell beyond what the animal does for natural functions causes severe injury or death. I try to tell people that mussels are more valuable alive than dead, and besides, they are protected by law, not only in Kansas, but in most other states, as well.

So, what good is a live mussel? In addition to being indicators of environmental health, as the article stated, mussels serve as food for various fish, birds, and mammals. In good numbers, they stabilize the substrate they live in. Mussels have the ability to filter and cleanse the water, provided it isn't overloaded with pollutants. The mussel's lack of fur or feathers does not make them less interesting or more expendable.

Karen Couch
Olathe

Dear Ms. Couch:

I'm glad you found the article interesting and informative, even if you didn't like it. Obviously, if I felt the mussel's lack of fur or feathers made it less important than other creatures, I wouldn't have highlighted it on the Nature's Notebook page – a section of the magazine devoted to giving children a greater appreciation of nature.

Part of the philosophy of this magazine is to understand the value of all species, including but not limited to those that are hunted or fished. In this, we seem to agree.

Perhaps you misunderstood the focus of the article and its ending five words. This is a page for kids, and even if some young readers do not see the clause, "You might find a pearl," as a metaphor for something very special, I think there is little chance the article will inspire children to wholesale slaughter of mussels. This was certainly not my intent.

As you must know, the primary reasons for the decline in mussels is not the kind of behavior your friends engaged in, but pollution and habitat degradation.

-Shoup

Fish Poachers Netted

Early last summer, Conservation Officer Bill Ramshaw, Sedan, received an Outdoor Alert report (1-800-228-4263) of two men taking fish illegally on Fall River with nets. Ramshaw contacted CO Everett "Tiny" Wilnerd, Howard, (now retired) and Fall River Wildlife Area manager John Bills, and the three staked out the section of river that the netters were reported to be operating in.

The officers did not find the netters because they had already left the area, but they did find two other men who had 31 bank lines set. Not only did they have too many lines (legal limit is 8 per person), but none were tagged, and the two were charged on both counts.

The following October, Bills prepared to pump water from Fall River into a duck marsh on the refuge north of Rocky Ford when he heard a boat coming toward him. As the boat came into view, Bills recognized the two men and the boat from descriptions in the illegal netting report of five months earlier.

As the two men got within range of his voice, Bills waved and asked how they were doing. They replied that they were just running lines and pole fishing. Bills didn't see any poles, and he asked them to come to shore. At first, they hesitated, but Bills identified himself and they complied. Bills asked for their licenses and IDs, tied the boat to shore, and went to his truck where he radioed for backup. Wilnerd and CO Bob Funke, Fredonia, heard the call and responded.

By the time Funke arrived, Bills had statements from both subjects. They had been camped downstream near Rocky Ford and told Bills that they had been at Fall River before and had run nets there. There were three 100-foot gill nets in their boat, along with one flathead catfish, two carp, two buffalo, three gar, and 19 turtles.

Both men were placed under arrest. One was taken with Funke, and the other went with Bills in the boat back to their camp where he met Funke and Wilnerd. The men gave permission to search their pickup, which contained a large cooler full of ice and a freezer with 11 fish in it. The boat, motor, trailer, gill nets, fish, turtles, freezer, and cooler were seized. Both men were taken to the Greenwood County Sheriff's Office where they had to post a $500 appearance bond.

Later in court, they pleaded guilty to all charges and were fined $500 plus $45 court costs each. The court seized all the equipment and ordered the boat, motor, and trailer sold at auction with the proceeds going to the Wildtrust Program.

–CO Bob Funke, Fredonia

H.O.L. -- *NOT!*

On Dec. 3, I (Ellsworth County Conservation Officer Greg Salisbury) uncovered questionable hunt-own-land permits while reviewing deer permits at Kanopolis State Park. Upon further investigation, I could not confirm that the two men met the requirements of a landowner or tenant.

Kansas law states: " 'tenant' means a resident of this state who is actively engaged in the agricultural operation of 80 acres or more of Kansas farm or ranch land for the purpose of producing agricultural commodities or livestock and who: (A) has a substantial financial investment in the production of agricultural commodities or investment in the production of agricultural commodities or livestock on such farm or ranch land and the potential to realize substantial financial benefit from such production; or (B) is a bone fide manager having an overall responsibility to direct, supervise, and conduct such agricultural operation and has the potential to realize substantial benefit from such production in the form of salary, shares of such production, or some other economic incentive based up such production."

"Landowner" is defined as "a resident owner of farm or ranch land of 80 acres or more located in the state of Kansas."

Each year, conservation officers review permits throughout Kansas to find fraudulent applications. The men from Saline County were two such applicants because they did limited part-time work as farm hands. **Working as a wage earner does not qualify a person as a tenant for a hunt-own-land permit.** Both men paid fines and court costs for falsifying their applications.

–CO Greg Salisbury, Salina

I-70 Mulеys

The case began when an Outdoor Alert caller reported seeing "many deer" in the back of a pickup but was unable to get a complete tag number. However, he provided an excellent description of the vehicle. CO Dick Kelly, Norton, figured that the hunters were on their way home, so he called CO Wes Wikoff, Hays, who was at the Hays Region 1 Office.

Wikoff estimated that the vehicle had to be nearing Hays if it was using I-70, so he drove to the west Hays interchange and waited. Less than 10 minutes later, a vehicle matching the description came past. Wikoff pulled in behind the suspect vehicle and saw deer antlers through the window of the pickup topper. He stopped the vehicle and obtained permission to examine the deer. There were three large untagged mule deer bucks in the pickup.

Wikoff immediately informed the hunters that they would have to return to the Ellis County Courthouse in Hays, and he called Kansas Highway Patrol Trooper Mark Deterding to help escort the hunters to the courthouse.

One poacher was charged with one count of taking a mule deer without a permit and one count of failure to tag. He was assessed $545 in fines and court costs. The other was charged with two counts of taking mule deer without a permit, two counts of failure to tag, and one count of no hunting license. He was assessed $1,050 in fines and court costs and paid an additional $500 in court-ordered wildlife restitution.

–Jerry Bump, Region 1 Law Enforcement Division supervisor

PRONGHORNS COMPLAINTS OFF MARK

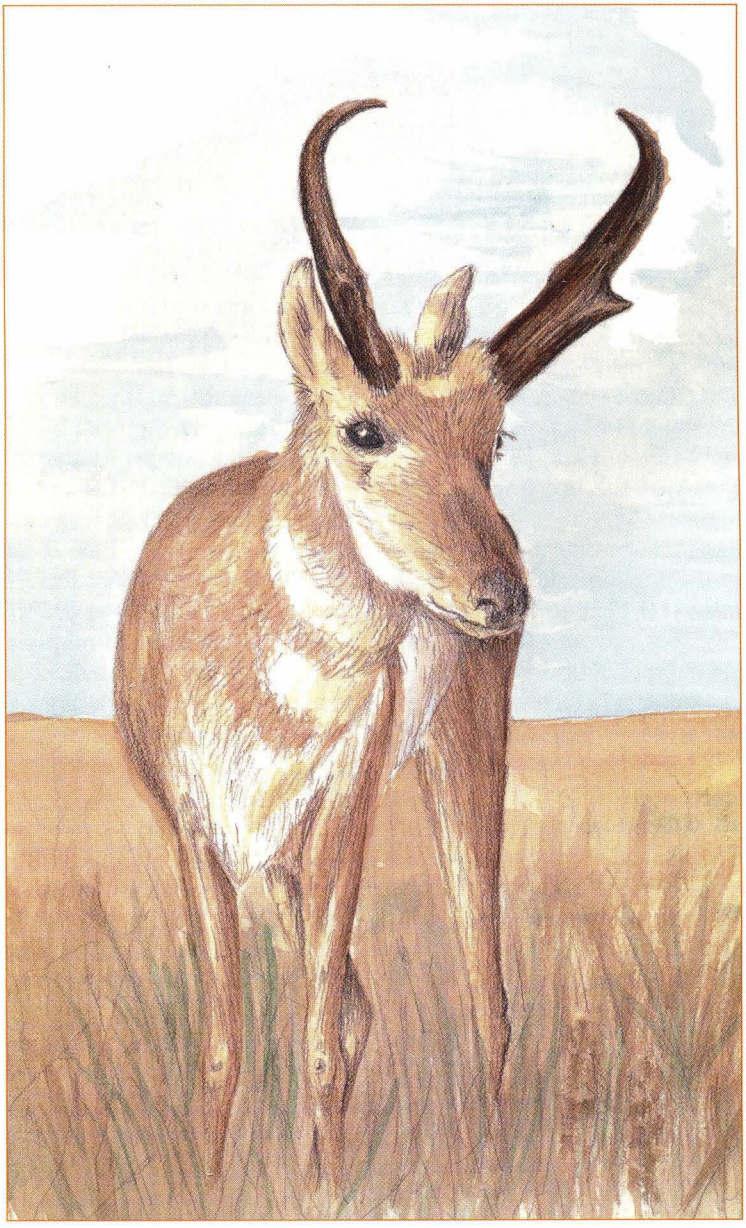
The pronghorn antelope historically ranged over the western three-quarters of Kansas. The eastern edge of the Flint Hills region was probably as far east as pronghorn roamed, near the modern day towns of Manhattan and Emporia. The species was nearly as abundant as buffalo in pre-settlement Kansas, but by 1933, the pronghorn had nearly disappeared from Kansas due to unregulated hunting and habitat destruction. The latter limited pronghorn to areas in westcentral Kansas and other scattered habitats around the state.

In 1965, pronghorns were re-introduced in Kansas, and today the population is near 2,000, with most located in Wallace, Logan, Sherman, and other surrounding counties of western Kansas. Smaller herds are located across the state, including a herd in the Flint Hills near Emporia. Many of these animals were translocated from Wallace County.

Pronghorns were re-introduced in some areas of Kansas as late as 1991. None, however, have been released in the primary range of westcentral Kansas since the initial stocking of the mid-1960s, with the exception of one stocking in Gove County in the early 1980s. All stockings were made with cooperating landowner permission.

The pronghorn reintroductions have been successful enough to allow a limited pronghorn hunting season. The first firearms pronghorn antelope season was allowed in 1974, and an archery season added in 1976. The first firearms season lasted for three days, and 80 permits were allowed. Since that time, the season has been increased to four days and permit quotas are set each year with a high of 420 allowed in 1984. For the last few years, 120-150 permits have been authorized. Permit quotas are set each year in order to achieve management goals set for the herd. Hunters are required to submit a questionnaire card provided with their permit and provide the front two teeth from their animal. Biologists use this information to estimate an age structure profile of the herd and collect other information, such as distribution of the herd.

Kansas Department of Wildlife and Parks (KDWP) staff also conduct two aerial surveys for pronghorn each year. One is conducted in mid-winter when the individual herds are larger. This survey is an attempt to get a total population estimate. The summer survey is conducted to get an idea of how many fawns are produced that year. All this information is used to make recommendations to the Wildlife and Parks Commission for setting seasons, hunting permit quotas, and other management decisions.



With the success of the pronghorn re-introduction have come some complaints. Most antelope complaints are limited to fence damage, spreading bindweed, grazing damage to winter wheat, and causing wind erosion to fields of winter wheat.

Pronghorn do not normally jump fences but prefer to go through them. Woven wire fences can be a barrier, and barbed wire fences can be damaged. However, research has shown that if the bottom wire is raised to about 16- to 18 inches, pronghorn can go under and not damage the fence.

Competition with wheat production is another perceived problem. Some feel that pronghorn grazing on wheat can reduce the yield of a wheat crop. Pronghorn generally graze wheat during the winter and spring. A controlled study conducted in eastern Colorado with similar climate and farming practices showed that pronghorn even at the density of 432 per square mile did not reduce the wheat yield. Indeed, it is common practice to graze domestic livestock on wheat during most years, with no reduction in wheat yield.

Pronghorn and field bindweed have long been a topic of discussion.

Pronghorn do eat bindweed, but food habit studies show that it is a very small percentage of their diet. One study conducted in Kansas showed 40 percent of antelope diet was cacti, 36 percent forbs, 22 percent grasses, and 2 percent other plants.

In a controlled experiment, captive pronghorn were fed viable bindweed seeds. Field-ripened seeds, collected after frost to ensure maximum hardness, were used in this experiment. Of the seeds fed in the experiment, 82 percent were destroyed in the digestive tract. A food habit study conducted in Montana found pronghorn used bindweed during summer, but not during the fall when the seeds were ripe and at maximum hardness. Consumption of seeds before they reach the hardened stage would likely result in their destruction because more than 80 percent of hardened seeds are destroyed.

It is known that bindweed can be spread by tillage equipment, harvest equipment, and domestic livestock. More research is needed into the potential distribution of bindweed by wildlife of all kinds, as well as other methods of spreading.

Pronghorn antelope have provided many hours of recreation in hunting, viewing, and photographing since reintroduction. Pronghorn also provided a diversity of diet for primitive man and early settlers. They are a symbol of the free spirit of the prairie. Hopefully this symbol of a wilder time in Kansas will be here to enjoy for generations to come.

--Leonard R. Hopper, district wildlife biologist, Gem

BOTTOMS WORK NEAR END

Plans for Cheyenne Bottoms Wildlife Area in 1997 center on the last phase of the area's renovation. Pools 3, 4A, and 4B are slated to be kept dry through most of the summer. A dividing dike in Pool 3, as well as 10 nesting/hunting islands are to be built in Pools 3 and 4. These pools are to be burned as soon as possible, while dry, to allow for this work. While the construction is progressing, the Challenger tractor will be discing cattail in the dry pools.

Pools 1A and 5 should remain at or near their current levels, depending on spring weather. Pool 2 will need to be lowered to accommodate the inflows that will probably occur this spring. As much of the water as possible from Pools 2 and 3 will be pumped into Pool 1A. Pool 1C will act as an additional storage pool. Once the spring migration is past, Pool 1B could receive water as well. As fall approaches, stored water in Pool 1B will be used to reflood any perimeter pools. This could also lower Pool 1B to serve as a pool for use by whooping cranes and other migrating birds. As always, these plans depend on the weather between now and next fall.

--Cheyenne Bottoms Wildlife Area newsletter

CRP FOR WILDLIFE

CRP acres planted to native grasses have benefitted many species of wildlife. Pheasant populations, however, have not rebounded as was once predicted. These grass fields provide excellent escape and winter cover for pheasants, yet CRP grass fields need special management to be more productive.

Biologists believe that the most important factor limiting pheasant numbers is the availability of brood rearing habitat. Simply defined, this is vegetative cover that supplies overhead protection from predators, is easy for small chicks to walk through, and supports high numbers of small soft-bodied insects.

CRP grass fields certainly offer the overhead protection; however, if left unmanaged, these acres support low insect populations and are impossible for newly-hatched pheasant chicks to travel through. Since pure stands of grass support relatively low insect populations, a hen must lead her brood to weedy areas in search of insects. (Chicks cannot eat seeds.) Because of old-growth residues, it is quite possible that the majority of chicks hatched successfully in unmanaged CRP fields die of exhaustion shortly after the hen leads them from the nest.

One-half of the solution is fire. The old growth stems that matt the ground's surface must be removed so that chicks can move freely between grass plants. The most efficient way to clear the way is to burn CRP acres every two years. To do this safely, the cooperator should contact the local FSA office and amend his contract to add a food plot strip around the outside edge of the field. This amendment is titled CP-12. Just prior to burning (mid- to late March), the foodplot strips can be tilled to bare earth, creating a perfect fire break and isolating the field from bordering properties, thus allowing for a very safe burn.

The food plots should be planted in the spring to milo, millet, or forage sorghum. The growing crop and invading forbs support far more insects that the grasses of the CRP field, greatly enhancing the food supply for young pheasants. Burning half of a property each year ensures a good balance for many species of wildlife.

Those cooperators wishing to do the most for wildlife can add extra food plots within the acreage. This will greatly maximize the habitat diversity within a CRP grass field and possibly offer young pheasants just what they need.

To obtain a video detailing the design and use of CP-12 foodplots as firebreaks, contact Gene Brehm at the Pratt Operations Office of KDWP, (316) 672-5911.

--Gene Brehm, videographer, Pratt

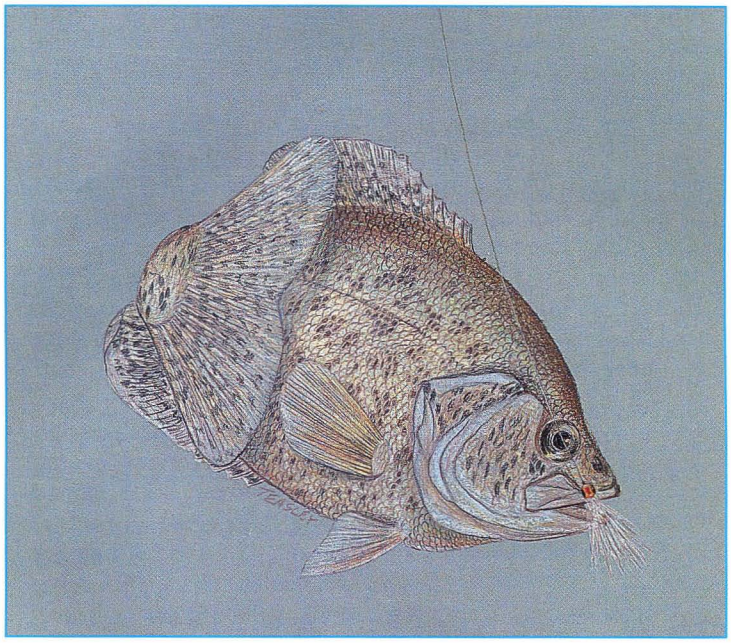
KWF HONORS KDWP

Last March, the following KDWP staffers took home Kansas Wildlife Federation Conservation Achievement Program (CAP) awards:

Bob Wood, Pratt - Conservationist of the Year.
Cindy Konda, Dodge City - Wildlife Conservationist.
Mark Gauntt, Silver Lake - Outdoor Skills Instructor.
Pat Silovsky, St. Paul - Conservation Educator.

--Mathews

SPRINGTIME *Crappie*



Spring is synonymous with fishing, and anglers all across Kansas are frothing the waters in search of their favorite fish. Crappie are likely high on the list of many anglers, and the spring spawn is an excellent time to catch them. You don't have to have a boat, fancy equipment, or even exceptional fishing savvy. A mess of these tasty fish is only a couple dozen minnows, a spare afternoon, and a shoreline away.

There are two species of crappie in the Sunflower State. The black crappie is found in many small impoundments that remain relatively clear while the white crappie inhabits many reservoirs and can tolerate turbid water. General appearance can distinguish the two. White crappie have evenly-spaced vertical bars of black spots along the side while the black crappie has black spots randomly along the side with no pattern.

However, a positive identification can be made by counting the spines on the front part of the dorsal fin. White crappie have six or less while black crappie have seven or more.

May is an excellent time to catch crappie as they move to shallow water, often less than 10 feet deep, to spawn. As the water temperature approaches 70 degrees, males seek a nest site, making a shallow depression in the bottom. After the female deposits the eggs, the male fertilizes them and guards the nest until the young hatch.

Doodlesocking, or dipping, as some call it, is an excellent way to catch spawning crappie. Many anglers use an 8- to 9-foot fly rod with a small spinning reel loaded with 4- to 6-pound test line. Small jigs are dangled around brush, stumps, cattails, or any other form of structure near the shore. A hit is often ferocious and sudden, and several fish can be taken from the same area. Wading is beneficial in many instances and helps you reach submerged structure in water less than 4 feet deep.

Another way to catch crappie in May is a bit more relaxing. Minnows dangled several feet below a bobber will often yield good catches. The same areas mentioned earlier work well, and even deep water adjacent to these can produce fish just before they spawn or right after they're done. This method is an excellent way to introduce youngsters or people new to fishing to the sport. It's easy to do and can be done at most any reservoir, state fishing lake, or pond with good crappie populations.

The statewide crappie creel limit is 50 fish per day. (The possession limit on all fish is three daily creel limits.) Several impoundments have more restrictive creel limits, and some have a 10-inch minimum length limit, too. Anglers should check the *1997 Kansas Fishing Regulations Summary* for more information.

--Murrell

ANGLER ACCESS PROGRAM

Following on the heels of the highly successful Walk-In Hunting Area (WIHA) program, which grew from 10,000 acres two years ago to more than 180,000 this past season, the Kansas Department of Wildlife and Parks (KDWP) is planning another new program to provide similar benefits to Kansas anglers. Tentatively called the "fishing access program," this new project will seek to lease private waters to allow public fishing, much like the WIHA program has leased land for hunters.

In 1998, a pilot fishing access program will be conducted in KDWP's Region 4, which includes Wichita and much of southcentral Kansas. The agency plans to spend $75,000 on the program that year, with as much as $250,000 to expand statewide in 1999. All expenditures could be 75 percent reimbursable through the Federal Aid To Sport Fish Restoration Act.

First-year plans include leasing as much as 500 acres of impounded water and 15 miles of streams. Although quality of fish habitat and fishing will be paramount, the program will likely require that impounded waters be more than 30 acres, with larger lakes receiving priority.

Streams will follow somewhat different enrollment criteria. Only streams classified by KDWP as Class 1, Class 2, or Class 3 will be considered, with Class 1 streams given priority. A Class 1 stream has the highest valued fisheries resources, including water quality and fish habitat. Kansas has about 3,000-4,000 miles of such streams in the state. Examples include portions of the upper Ninnescah, Chickaskia, Saline, and

Smoky Hill rivers and Grouse and Mill creeks. Class 2 streams may have fair water quality and habitat. Class 3 streams may have fair water quality but not much habitat. Just which portions of which streams will be included in the program has yet to be determined, depending on willing landowners.

Big river access on the state's public rivers -- the Arkansas, the Kansas, and the Missouri - will also be a priority of the program. The rivers are part of the public domain, but the land along them is largely private. The fishing access program will look for private land along these rivers that provides easy access for anglers. From there, fishermen can wade or boat the river to fish - as long as they stay in the river - and return to that entry point or others enrolled in the program to disembark.

Current plans are to focus on lakes with good bass fisheries and streams with good numbers of bass and channel catfish. Urban fisheries and those in areas of western Kansas, where few public fishing opportunities currently exist, will also be emphasized. Length and creel limits will likely be established for most waters enrolled in the program.

Prices for land leased under the Kansas Department of Wildlife and Parks fishing access program will vary depending on the quality of the fishery. For more information, contact Steve Sorensen at KDWP's Region 4 Office, (316) 683-8069.

--Shoup

Why a GOOSE?

by Mark Shoup

Remember the old Marx Brothers shtick where Groucho is giving Chico and Harpo directions to some secret rendezvous point? As he explains, he points at a map and says go over this road and that, turn left and right, then over the viaduct. At this point, Chico interrupts with "Why a duck?" Groucho does a double take and starts over, but each time he gets to the viaduct, he is interrupted with something like, "Why a duck? Why not a goose? Or a chicken?"

Eventually, they get distracted by some other classic slapstick gem, and they're off and running with the question unresolved.

Well, now I'm off and running with a Chico-like conundrum rattling around in my brain, leading me down a line of reasoning that may be as disjointed as a 1930s comedy film plot: Why a goose? Or more specifically, why a *Canada* goose? Examining this question may lead us on a wild goose chase, but what the heck.

We are told by ornithologists that the correct name for the most common goose in Kansas is *Canada* goose, not *Canadian* goose. But why do we insist upon calling our favorite honker the Canada goose? How did the Canada goose come by it's moniker in the first place? Perhaps some northern school marm thought "Canadian goose" sounded obscene.

It has been suggested that "Canadian" implies propriety, as if to say "Canadian" means it belongs to Canada but to say "Canada" merely implies that it is of Canada. But a lot of Canada geese never see that country in their lifetimes. We have a pair that nest in front of our office every year, and I'm sure if they could put it in words, they would say that they were Kansans.

Of course, I have to admit that Kansan goose sounds a bit odd, but what about the Hungarian partridge, the Bohemian waxwing, the Caribbean martin, the Mexican crow, or the American wigeon?

What about Canadian bacon?

Shakespeare said that a rose by any other name would smell as sweet, but how would a goose smell if we changed its name. How about something logical that describes the bird, like white-cheeked goose or black-necked goose. The way Canadas have taken over some urban areas, city folks might prefer something like the fertilizer goose, the park-bench beggar, or the back-nine grazer.

I realize that if we changed the goose's name, it would take years to catch on. Our agency has been the Kansas Department of Wildlife and Parks for 10 years now, but most folks still call it the "Fish and Game," even in Pratt. Still, most people – even some avid wildlife enthusiasts – call the honker a Canadian goose. I hear it commonly. I agree that it *sounds* better than Canada goose, but why not end the confusion and start over with something descriptive enough that people could see the bird and make a logical connection between creature and name.

Of course, there's inherent danger in such a radical undertaking. We could risk war with Canada, eh? Or even worse – Congress could get involved. I can see it now: Congress passes a law making the (formerly) Canada goose the national bird of the District of Columbia and, ignoring the irony, renames it the "Congressional goose." Under pressure from the poultry lobby, President Clinton lets the bill slide, and it becomes law.

The Canadian Parliament retaliates with a total ban on the showing of Arnold Schwarzenegger movies. The Pentagon is incensed. Enraged Canadians riot in Toronto. The Bluejays boycott baseball and the season is threatened. Quebec washes its hands of the entire matter and secedes from the Commonwealth, and a movement begins to force the Montreal Canadiens to change its name, too.

Conspiracy theorists in the U.S. expose the entire affair as an attempt to divert attention from the fact that the two governments – in league with an international banking cartel – are hiding spaceships in suburban west Denver, ready to transport all elected officials, the 10 richest families in each country, and Madonna off the planet just in time to avoid the inevitable collision of Earth and Hale-Bopp . . .

Well, maybe changing the Canada goose's name isn't such a good idea after all.

SUMMER SQUIRRELS

Thoughts of hunting often hibernate when temperatures soar and mosquitoes rule the woods. But one of Kansas' tastiest and most challenging small game animals provides hunting opportunities in the summer jungle. Squirrels - both fox and gray - are abundant at this time of year, and the liberal hunting season extends from June 1 through the end of December. The difficulty of summer squirrel hunting lies in spotting this illusive quarry in its leafy world.

Due to the keen senses of these tree dwellers, squirrel hunting is an excellent way to sharpen skills for large game. Squirrels have excellent vision thought to include some color perception and a sense of smell capable of detecting a walnut buried deep in the earth. They also possess acute hearing, making it difficult to stalk them through dry leaves that carpet the woodland floor. Couple these defenses with the limitation of a single-shot .22, and you've got the makings of a challenging hunt.

Although summer conditions are often uncomfortable due to heat, insects, and poison ivy, they also provide certain advantages helpful to the squirrel hunter. The first of these is dense foliage. Leaves may make it hard to see a squirrel, but they also help to hide a well-camouflaged hunter. A hunter sitting against a tree virtually disappears, and even the slow-moving stillhunter is hard to detect in the understory. Because the hunter possesses the element of surprise, heavy cover can be used to advantage. Also, leafy branches swish together as a squirrel moves through the treetops, tipping off its location. Noise made by the squirrel helps to mask the sounds of a moving hunter below.

Summer provides another advantage through the production of mast crops. Walnuts, pecans, oaks, and hackberries produce small nutlets by midsummer, and this new feast is eagerly sought by squirrels. Mulberry trees are another squirrel favorite. Although these trees may be scattered throughout the woodland, it's possible to locate hotspots that can yield a bonanza of shooting opportunities. Summer squirrel hunters quickly learn to identify these situations.

Unlike winter months, summer squirrels are usually inactive during midday hours. The cool periods of early morning and late evening are the best times to hunt. Still, cloudy days extend activity, as do fog and drizzle. Wind and heavy rain keep squirrels in their dens or nests.

Because water is a constant need for all summer wildlife, squirrel hunting is usually good along creeks. Narrow, dry streambeds that empty into larger pools provide good cover and silent footing for the summer hunter. Fortunately, these situations often run through the heart of the best squirrel habitat. A slow, easy stalking pace of 100 yards every 15 minutes is best.

Squirrel calls are particularly effective in summer because they can arouse a protective instinct in adult squirrels. Distress calls mimic the sounds of a young squirrel being attacked by a predator, and these often cause older squirrels to bark and come running. Standard bark calls or cutting calls (the sound of a squirrel chewing through a nut) can also be effective at various times. Even if squirrels do not approach a call, they may answer and betray their position.

Many sportsmen favor summer squirrel hunting for the table fare. Most of the animals taken at this time are young and tender, providing a delicious wild-game dinner. Young squirrels are usually fried, while tasty-but-tough older squirrels are often slow-cooked to help tenderize them.

Kansans may hunt squirrels throughout the state, but the best habitat is found in the wooded regions of eastern and central Kansas. Fox squirrels are found statewide, but grays are limited to eastern counties. The daily limit is five with a possession limit of 20 on or after the fourth day of the season. Squirrels may be hunted with rifle, shotgun, or archery equipment.

- Blair

REFUGE HUNTING

On March 6, Rep. Don Young (Alaska) brought back his bill (HR 511) - passed last year in the House but not even considered by the Senate -- that would establish hunting and fishing as primary purposes of national wildlife refuges. The bill is opposed by many conservationists and the administration.

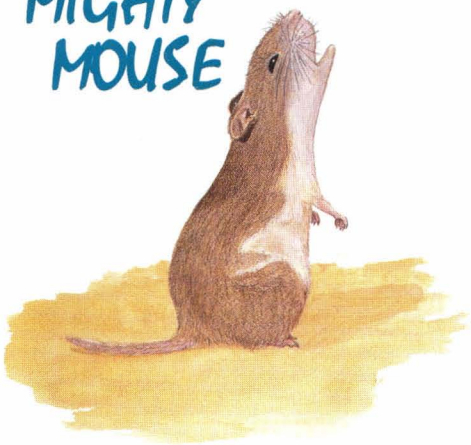
The core dispute revolves around the word "purpose." The administration says that the purpose of the system should be first, last, and always to protect fish and wildlife. Young says recreational hunting and fishing should be established as an equal purpose of the system with protection of fish and wildlife.

Secretary of the Interior Bruce Babbitt told Young he would recommend a veto of HR 511 if it reached President Clinton's desk. He made the fine but crucial distinction between "purpose" and "use" of a refuge. He said the bill scrambled that distinction by mixing hunting, fishing, wildlife observation, and environmental education as "purposes" rather than "uses."

Besides, Babbitt added, Executive Order 12996, signed by President Clinton on March 25, 1996, made recreational hunting and fishing a "priority public use" of the system.

- Federal Parks and Recreation

MIGHTY MOUSE



As the ultrasonic howl rolls out across the prairie, all mice go on alert. *Onychomys leucogaster* is on the move, and many a small creature will steer clear of an encounter. This nocturnal being may only weigh as much as a little odd change, but it is one tough mouse. That's right, mouse -- a northern grasshopper mouse.

When it comes to the prairies of Kansas, we really have a diverse community of small rodents. These range from the smallest of mice to voles and native rats. If all of these were lined up side by side, the northern grasshopper mouse would scarcely stick out as unusual. The average adult weighs from 1 to 1 1/2 ounces, which is neither large nor small for this class of animals. They can range in color from grays to browns to a light cinnamon hue along their tops and flanks, with snow-white bellies.

They inhabit the southern plains of Canada down through the Great Plains to the border of Mexico. In Kansas, they can be found in the western two-thirds of the state, which places them in sandsage, short, and mixed-grass prairies. Except for having a short, stout tail and looking rather strong for their size, these animals blend in with all the others.

But if attitude and behavior are the guiding rules for separating one mouse from all the others, then the northern grasshopper mouse sticks out like a sore thumb. Most small prairie rodents eat seeds, grains, grasses, and some insects. But the grasshopper mouse loves grubs, grasshoppers, crickets, and beetles, not to mention spiders and scorpions. Of course, this oddity is made even weirder by the fact that they hunt, stalk, and kill other mice - even mice three times their own size. Although they do eat seeds and will cache them during the winter when bugs are scarce, animal material makes up 80 percent of their diet.

Most Kansans have heard the howl of a coyote, but how many have heard the bay of the northern grasshopper mouse? Actually, probably quite a few people have but just dismissed the high pitched ring as an inner ear disturbance. Although it doesn't have the elegant, throaty sound of the grey wolf, the northern grasshopper mouse can howl with the best of them. The long , shrill whistle seems to be a signal for hunting, a mating call, or both. When the grasshopper mouse howls, it either stands on all fours or sits up on its haunches, supported by its tail in tripod fashion.

Being a solitary hunter, this mouse has a huge home range for a creature its size - as much as 6 acres. It is not known why this mouse has such relatively low numbers out in the field when compared to other mice. However, extensive prey studies on coyotes, foxes, owls, and hawks reveal that grasshopper mice are rarely preyed upon.

After a complex courtship, the female gives birth to an average of three or four offspring. This occurs from February to August, with more activity in the warmer months. The young are helpless at birth and develop rather slowly compared to other mice. This may serve to enhance their predacious behavior. Both parents dote on their offspring and actively defend the nest, even from human intruders. As the young get older, the adults will catch insects and gather seeds for them to eat. Although they live as long as four years in the laboratory, shorter lifespans are likely the case in the wild.

If you are ever camping on a warm summer evening, and you hear a high-pitched howl, you will know that the northern grasshopper mouse is out and about.

--Eric Wickman,
Pratt Education Center curator

HABITAT CORNER

Tips for attracting wildlife

One of the quickest and most effective ways of attracting wildlife to an area is to build brushpiles. Strategically located, they can be extremely beneficial to a variety of animals. Brushpiles should be located near or adjacent to cultivated land and in proximity to other cover. Field corners, odd grassy patches, and along the edge of creek timber are good spots. However, wildlife will not spend their whole lives in brushpiles, so their other needs must be close at hand: food, nesting cover, water.

A correctly constructed brushpile should be about 20 feet wide and from 3 to 5 feet high, in any shape. Don't make them too dense, especially along the edges. Along with placement, a dense center and loose edges are keys to a properly constructed brushpile.

Start with a base that will support the brush and branches that make up the pile. This base should be 6 inches to 3 feet off the ground. One method for creating a base is to cut a tree halfway through and push it over. If you don't have a tree you want to sacrifice, use a stump or rock to support a log that will act as your central base. Then add on smaller limbs and branches. Slash from logging and dead trees are good sources. Continue until you have added brush completely around the base.

In time, birds will carry seeds of wild plants to this site, and a few shrubs and seed-producing plants will sprout at the edges of the brushpile, creating a living thicket that will attract everything from rabbits and quail to finches and cardinals.

For more tips on creating wildlife habitat, look for this column in future issues of ***Kansas Wildlife and Parks.***

- Shoup

ARMY FOR DUCKS

The U.S. Army and Ducks Unlimited Inc. have forged a 30-year partnership to create and maintain wildlife and waterfowl habitats on federal lands, including on the Fort Riley military post.

Under the agreement, Fort Riley will develop and maintain existing waterfowl habitats in areas that are now firebreaks or near crop fields. Ducks Unlimited biologists and engineers will design and build as many as six waterfowl habitat projects over two years and provide technical advice for maintaining existing projects.

-- Lawrence Journal-World

TURKEYS EAT QUAIL?

Recently, Wildlife and Parks offices have been receiving reports from people who have heard a story about a turkey that ate quail. The story goes as follows: a hunter (even a wildlife biologist in one version) shot a turkey during the 1996 spring season and found baby quail in its innards.

Could there be any truth to this? In his 1931 book on the bobwhite quail, Herbert Stoddard describes an incident where a wild turkey destroyed a quail nest. From this, he drew the conclusion that turkeys must be eating quail eggs, even though he never observed it. In 1938, V. W. Lehmann described a similar incident, and in 1969, Walter Rosene listed wild and domestic turkeys as quail predators in a book on quail.

Despite these three accounts, there remains no proof that turkeys eat young quail or their eggs. Still, as turkey populations increase in some areas and quail decline, it is easy to place blame on the turkey. But when such rumors circulate, we lose sight of the real reason quail populations have declined.

Recent studies show that the quail's decline is caused by poor habitat quality. Over the past decades, crop fields have been cleaned of weeds; pastures and creekside woodlands have become intensively grazed; and remaining woodlots have become thicker. The end result is that bobwhite escape cover -- found in fencerows, hedgerows, and old fields -- is disappearing from farms and rangelands.

The best way to increase quail and other small game populations is to improve habitat. A landscape that is comprised of weedy fencerows, weedy fields, hedgerows, brushy draws, and woodlots containing weeds and brush makes good quail country. Creekside woods should be fenced to exclude cattle. Pastures should not be burned annually, and overgrazing should be avoided.

As habitat quality increases, quail survival and populations also increase. Therefore, if we want to improve the outlook of the bobwhite, it is critical that we avoid placing blame on turkeys and focus on the improvement of our own lands.

--Roger Applegate, small game coordinator, Emporia, and Christopher K. Williams, University of Wisconsin

PARKS IN NAT'L GEOGRAPHIC

Northcentral Kansas residents with a fondness for National Geographic books could recognize some familiar scenes and descriptions in the magazine's guide to the nation's state parks due out later this year.

Prairie Dog State Park, located along Keith Sebelius Lake 5 miles west of Norton, is one of four Kansas state parks scheduled to be featured in the guide. The others are Scott County's Lake Scott State Park in western Kansas, Elk City State Park near Independence, and Clinton State Park west of Lawrence.

-- Salina Journal

CRP VIDEO

Kansas farmers can glimpse "wildlife friendly" Conservation Reserve Program farming techniques on a video tape produced by the Kansas Department of Wildlife and Parks. The 25-minute video is a joint effort of Wildlife and Parks, K-State Research and Extension, and the U.S. Fish and Wildlife Service.

"Producers nationwide enrolled more than 36 million acres in CRP over the last decade," says Charlie Lee, K-State wildlife specialist. "Contracts on more than 24 million of those acres will expire in September 1997. Farmers will put some of that ground back in crop production.

"The video details farming practices that benefit wildlife, including grass terraces and buffer strips, field borders, no-till farming into warm- and cool-season grasses, pesticide-free brood strips, and wheat farming with wildlife in mind."

-- Osawatomie Graphic

YOUNG ANGLER

Sports Afield magazine has awarded its "Best in Species" citation to Bradley Todd, age 9, a youthful angler who resides at Seneca. A special certificate, pewter pin, and embroidered patch were presented to commemorate the outstanding catch.

Todd won the coveted national award by catching an 8-pound, 8-ounce largemouth bass, the largest entered in the program, which takes in all 50 states. Todd caught the award-winning fish in a farm pond on April 13, 1996.

-- Seneca Courier-Tribune

NEW TNC BOTTOMS MAN

The Kansas Chapter of The Nature Conservancy (TNC) has hired Robert L. Penner as the new full-time manager (called a land steward) for its Cheyenne Bottoms preserve.

Penner comes to TNC with almost 20 years of preserve management experience with the Nebraska Game and Parks Commission.

In explaining his decision to move, Penner says, "I really missed working closely with the land. As TNC's Cheyenne Bottoms land steward, almost all my time will be spent out on this incredible wetland preserve."

Penner will also play an important role at other TNC properties throughout the state.

--The Nature Conservancy

by Mark Shoup

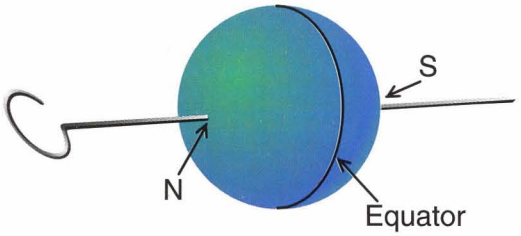
Space & Weather

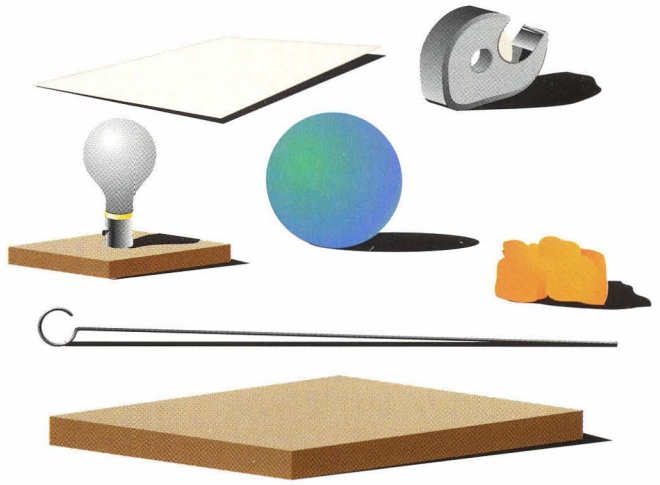
Ever wonder why summers are hot and winters are cold or why days are longer in summer? The answer is simpler than you might think: Earth is tilted on its axis as it orbits (moves around) the Sun. The axis is an imaginary line that the sun rotates (spins) on, just like a wheel rotates around an axle. A simple experiment will help you understand how Earth's tilt and orbit cause seasons.

Here's what you'll need:

- white construction paper and a roll of Scotch tape
- a styrofoam ball or small Nerf ball about the size of an orange
- a knitting needle or a cooking skewer
- a flat board about 6 inches square and some modeling clay (A thick styrofoam block about 12 inches square may also work.)
- a small lamp (Just a light bulb socket on 4-inch by 4-inch block is perfect.)

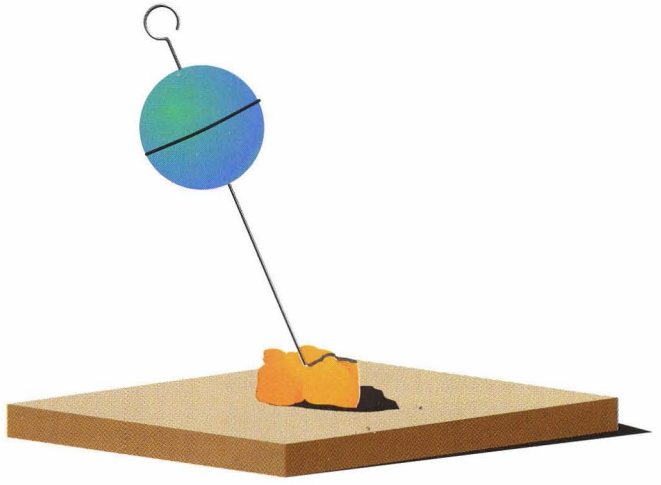
First, you need to make Earth. Push the needle or skewer through the middle of the ball. With a black marker, mark one end "North" and the other end "South." This is your Earth's axis. Then draw a circle all the way around the middle of the ball, perpendicular to the axis. This is the equator.





Next, press enough clay on the board to stick the axis in and hold the Earth firmly. (Or stick the axis in a thick styrofoam block.) Be sure the Earth is tilted and that the end marked "north" is up. The real Earth is tilted about 23 degrees.

Now find a clear space on the floor. You need an area about 6 feet by 6 feet. Cut a star out of the construction paper and tape it on one wall, about 3 feet off the floor and centered above one side of



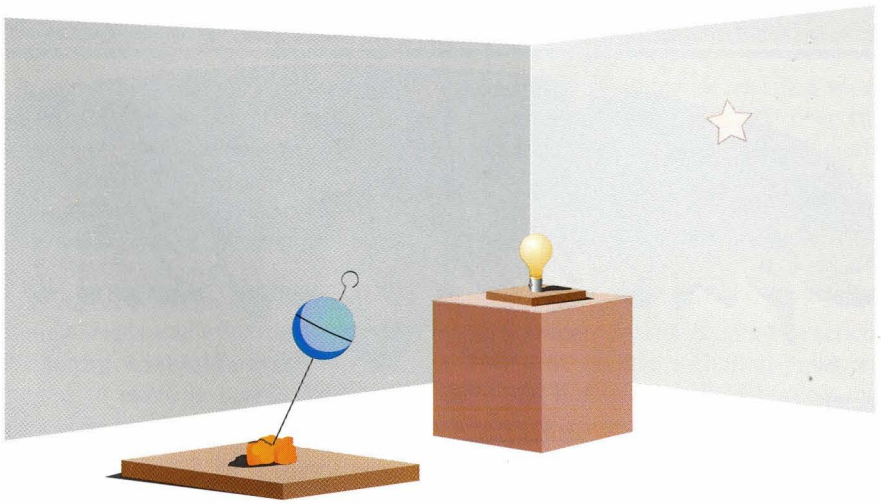
your area. Put the lamp (your Sun) on the floor in the center of this area and turn it on. With the north end pointed toward the Sun -- **and toward the star** -- put Earth on the floor about two feet from the lamp. Be sure that the north end of the axis points toward the Sun. On the first day of summer, June 21, the Earth is always in this position. This is called the summer solstice.

Everything on the north side of the equator is called the Northern Hemisphere. The United States is in the Northern Hemisphere. Rotate your Earth on its axis, just as the real Earth spins. Notice that the Northern Hemisphere receives the most direct sunlight. In fact, it is light here more than it is dark, making days longer than nights.

Can you see why the sun feels hotter in summer? This is because that part of the Earth in summer gets more sunlight and, especially, more direct sunlight. In the Southern Hemisphere, the sunlight hits Earth at an angle, so much of the light bounces off the atmosphere, like skipping a rock across water.

Everything is opposite in the Southern Hemisphere -- that part of Earth south of the equator -- where it is winter.

Okay, let's make it winter in the Northern Hemisphere. **Making sure to keep the axis pointed toward your star,**

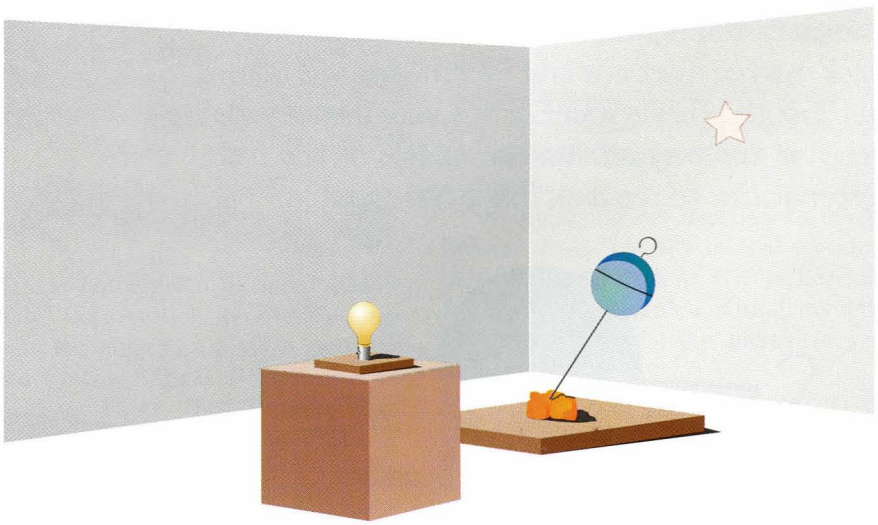


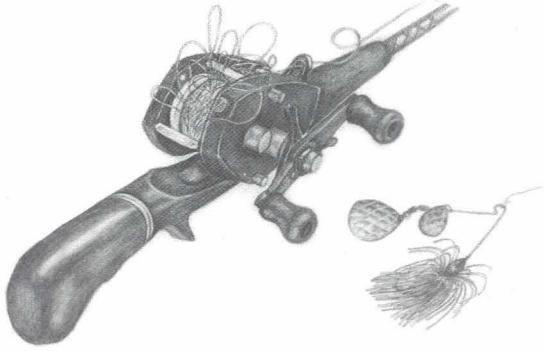
move the Earth halfway around the Sun. The Northern Hemisphere's axis will now be pointed away from the Sun. This move represents six months for your Earth. It is now Dec. 21, the winter solstice.

Have you ever found the North Star (called Polaris) in the night sky? Earth's northern axis always points toward this star. You have just moved your Earth just as the real Earth moves, with the northern axis pointed at the star on your wall -- your Polaris.

Now "spin" your Earth. Notice that more light now hits the Southern Hemisphere. Days are longer there, and this part of Earth gets more direct sunlight. It is summer "down" there and winter "up" here. The summer solstice there is Dec. 21. Do you know anyone who lives in the Southern Hemisphere? What would it be like to celebrate Christmas in summer?

Okay, you understand seasons now. Ask yourself this question: what would seasons be like if Earth were not tilted?





Backlash

by Mike Miller

Fishing For Fun

I'll admit it. I'm competitive when I fish. I'll secretly keep track of how many fish I catch, as well as how many the other guys catch. Words may never be exchanged about who caught the most fish, but each usually knows where he stands.

I don't know if I could hack it on the tournament circuit, though. It sounds like a dream, doing what I love most. But you'd have to fish the bad days as well as the good — even when the wind was blowing 50 mph and it was raining bullets. Fishing might cease to be fun. And worst of all, they weigh all of their fish on accurate scales. There would be no exaggerating.

Lennie and I were talking about it the other day. Lennie's as competitive as anyone I know, and he always knows the score, no matter what you're playing or what your fishing for. But Lennie said he didn't know if he would want to fish in a bass tournament. Thinking he had some of the same deep philosophical reasons I did, I prodded him.

"No, I don't think tournament fishing would be for me," he said thoughtfully. "I wouldn't want to make all those pros mad — going in and beating them in my first tournament."

Lennie managed a straight face and pushed a handful of chips in his mouth while I giggled at him. I was reminded of pond fishing tournaments we used to have.

We would split into teams and have "paper" bass competitions on a friend's bass ponds. We measured each bass longer that 12 inches and compared total inches at the end of the day. We fished from the bank, usually all of us at the same pond until we moved to the next. I'm sure some bass suffered anxiety attacks during our tournaments. On the smaller ponds, 10 or 12 lures were drug past a fish from different directions at the same time. Some of the biggest fish turned out to be two guys snagged to each other's line from opposite sides of the pond.

We always set rules before the tournament, and those rules always changed during the tournament. Rule changes were usually a desperate move by the losing team. For example, one rule was that only largemouth bass qualified. As one team was seeing its chances of winning slip away, one of the members caught a 15-inch crappie.

"Hey, do crappie count?" he asked.

"No way," the other team's members said in unison.

"Well, we've never caught a crappie that big in our tournament," said Lennie, who had just appointed himself tournament rules director and just happened to be on the same team. "I'd say any crappie that measures longer than 14 inches counts."

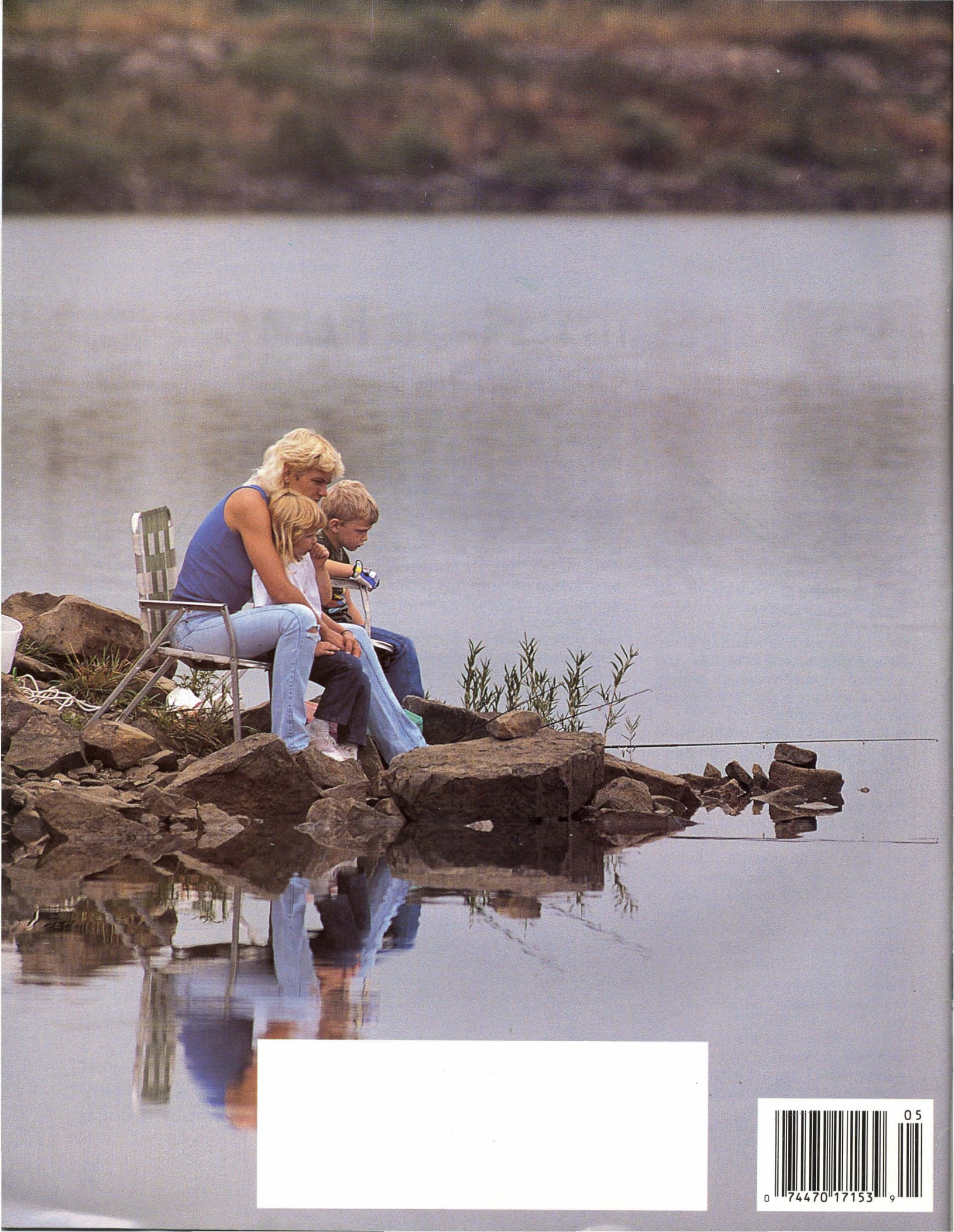
The other team bellyached for the next several ponds, but the rules director's decision was final. The next year, however, when one of other team caught a large crappie, Lennie had forgotten his decision and stood fast that only bass were allowed.

Initially, it was great fun. But we soon learned that inviting novice fishermen to compete was a huge mistake. Most of us grudgingly accepted it when another experienced fisherman outfished us. The winners had great fun ridiculing the losers, and the losers made up creative excuses. But when some guy who'd only fished twice in his life showed up with a ragged old rod and three rusty lures, things got ugly.

With a novice in the tournament, everyone forgot about the team competition. Each veteran's only goal became to beat the novice. Kind of like surviving a bear attack — you don't have to outrun the bear, just the person you're with.

"Holy cow! I got another one. Is 25 inches big for a bass? And you guys laughed at my Mr. Jiminy Cricket lure. Gosh, bass fishing is a lot easier than I expected," were the most dreaded words we could hear.

Our fishing went from lighthearted fun to serious casting and lip biting. You had to catch more inches of fish than that guy or risk serious emotional scars that might last a lifetime. Get beat by the novice and the ribbing, which could never be considered good natured, would go on for months. In fact, I think that's what finally ended our little tournaments. They were getting too serious. Like I said, we fish for fun.



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