

# KANSAS WILDLIFE

JULY/AUGUST 1987

\$1.75



# KANSAS WILDLIFE

JULY/AUGUST 1987

Vol. 44, No. 4

**GOVERNOR**  
Mike Hayden

**COMMISSIONERS**

Joe Fowler, Chairman  
*Weir*

Gary Caplinger  
*Larned*

William Carriger Sr.  
*Topeka*

Ronald Hopkins  
*Wichita*

John Ostmeyer  
*Colby*

**ADMINISTRATION**

**Director**

Bill Hanzlick

**Chief of Administrative Services**

George Axline

**Chief of Information-Education**

Mike Cox

**Chief of Fisheries**

Mike Theurer

**Chief of Game**

Darrell Monteil

**Chief of Law Enforcement**

Omar Stavlo

**MAGAZINE STAFF**

**Editor**

Paul G. Koenig

**Associate Editor**

Mike Miller

**Illustrator**

Patti Murphy

**Photographer**

Mike Blair

**Staff Writers**

Rob Manes

Mary Kay Spanbauer

Joyce Harmon Depenbusch

Bob Mathews

Martha Daniels

**Editorial Assistant**

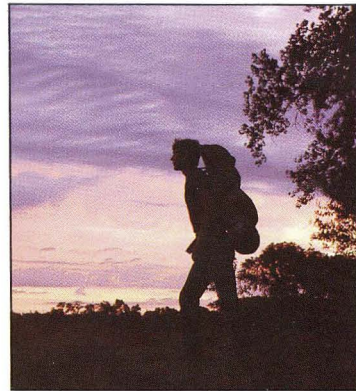
Bev Aldrich

**Circulation**

Kathy Gosser

KANSAS WILDLIFE (ISSN 0279-9030) is the official bimonthly publication of the Kansas Fish & Game Commission, Rural Route 2, Box 54A, Pratt, KS 67124 (316) 672-5911. Subscription rates: one year (6 issues) \$6; two years (12 issues) \$11; and three years (18 issues) \$15. Single copies are available at \$1.75 per copy. Articles in the magazine may be reprinted with permission provided proper credit is given. Second class postage paid at Wichita, Kan., and additional mailing offices. POSTMASTER: Send address changes to Kansas Fish & Game, Rural Route 2, Box 54A, Pratt, KS, 67124.

Postal I.D. Number: ISSN 0279-9030.



10

**THE BUCK STOPS HERE**

White Bobwhite

1

**Magic Bones**

Antlers are the fastest form of bone growth known. That's only one of many reasons why folks find these headgears interesting. by Mike Blair

2

**The Wild Santa Fe Trail**

The Santa Fe Trail was the major overland route through Kansas from 1821 to 1880. Here's what it was like. by Ken Brunson

6



13

**Hoofing It**

The only trick to enjoying yourself on the hiking trail is being comfortable and confident. A few tips to keep in mind . . . by Martha Daniels

10

**Dillos**

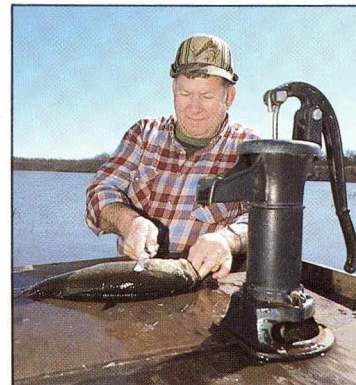
The common long-nosed armadillo, a curiosity and sometimes a nuisance, is here to stay in Kansas. by Mary Kay Spanbauer

13

**the center section**

edited by Mike Miller

15



32

**The Bows Of Summer**

Now's the time to hit the golf course, take an early-evening swim or get away with the family. Time, too, to get out your bow. by Mike Miller

28

**The Fishing & Boating Tax**

Since 1952 American fishermen have been paying a special tax to improve fishing. Now boaters are pitching in as well. by Mike Theurer

32

**KANSAS WILDLIFE Gallery**

photos by Mike Blair and Gene Brehm

36



**About The Covers**

**Front:** A whitetail buck in velvet nibbles in a corn patch. Mike Blair shot the photo using a 105 mm lens. He set his aperture at f/11, his shutter speed at 1/125th of a second. See Page 2 for cover story.

**Back:** A limestone inselberg that resisted erosion towers over the Gove County landscape. Gene Brehm used a 50mm lens, set his aperture at f/13 and his shutter speed at 1/60th of a second. See Pages 36-40 for related photos.

**HIGH GROUND**

The Fine Line by Bob Mathews

41

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

# THE BUCK STOPS HERE



## White Bobwhite

**D**an Snowbarger of Pratt enjoys hunting for quail, deer and spring gobblers, to name a few of his favorite game species. And he's like thousands of other Kansans, no doubt, in that he not only enjoys his time outdoors but also wants to learn more about what he's just experienced.

In mid-April, Snowbarger walked into the Pratt headquarters building with a 4½-year-old snapshot of a white bobwhite quail. He'd misplaced the photo soon after Iola's David Hopkins took it during the 1982 Kansas quail season. Then Snowbarger found the snapshot a few days before coming into the agency.

The dead bird, which lay in the palm of a man's hand, was marked by an ever-so-light dusting of brown feathers. The normal medium-brown eye streak was light brown and ash gray. Otherwise, the bird was white. Snowbarger said he knew the bird wasn't a complete albino because the telltale pink eyes and legs — characteristic of complete albinos — were absent. Yet he did have a question to ask and a story to tell.

It seems the bird in the snapshot was one of at least two white bobwhite in a particular Allen County covey. Snowbarger had spotted one of the white birds while scouting just prior to the 1982 bow season. Then while hunting from his tree stand a few days later, Snowbarger saw not one but two white quail walking out of a soybean field 200 yards away.

"At first I couldn't see the rest of the covey," Snowbarger said recently. "But I could see the white birds because they stood out like neon signs." Yet Snowbarger didn't share this information with his hunting buddies because he "didn't want the word to get out." He assumed, and rightly so, that either of those white birds would make a nice wall or table mount. And he wanted to be the fellow with a mounted brace of white bobwhite. "I did hunt early (in the season) but didn't find the covey," Snowbarger said.

Some other hunters did. Which is understandable. How can you keep a



Patti Murphy illustration

covey with two white birds a secret? Shortly after the 1982 Kansas quail season opened, Snowbarger learned that both white birds had been harvested — one by a fellow parishioner.

Oh, well. He'd harvested neither of the two rare birds, but the 46-year-old pastor did have a snapshot of one of them plus the memory of that covey feeding its way out of the soybean field. And recently, Snowbarger had this question: "What causes this white coloration in quail?"

Question to Kevin Church, Kansas Fish & Game's small-game project leader. The two Allen County birds, Church reassured, were only partially albino. True, or complete albinos — which have no pigment — have pink legs and eyes. The pink coloration results from blood vessels near the surface.

Church, based out of KF&G's Emporia research office, explained the white-quail phenomenon this way: "Two master genes — one from the mother and one from the father — determine coloration. If both code for albinism, the result is a complete al-

bino. However, if one or both code for normal coloration, partial albinism can result based on the coding of secondary genes."

How common is partial albinism?

A South Carolina study may shed some light. Of 3,558 bobwhite quail taken on three areas during three separate hunting seasons, only three birds were partially albino. None was a complete albino. Another estimate put a hunter's odds at bagging a complete albino bobwhite at something like 1 in 1 million.

"I've talked with men who've hunted all their lives and never seen a white quail," Snowbarger said. Most of us — regardless of whether we hunt — have never seen such a bird either.

Thanks for letting us in on your find, Dan.

Paul G. Koenig  
Editor

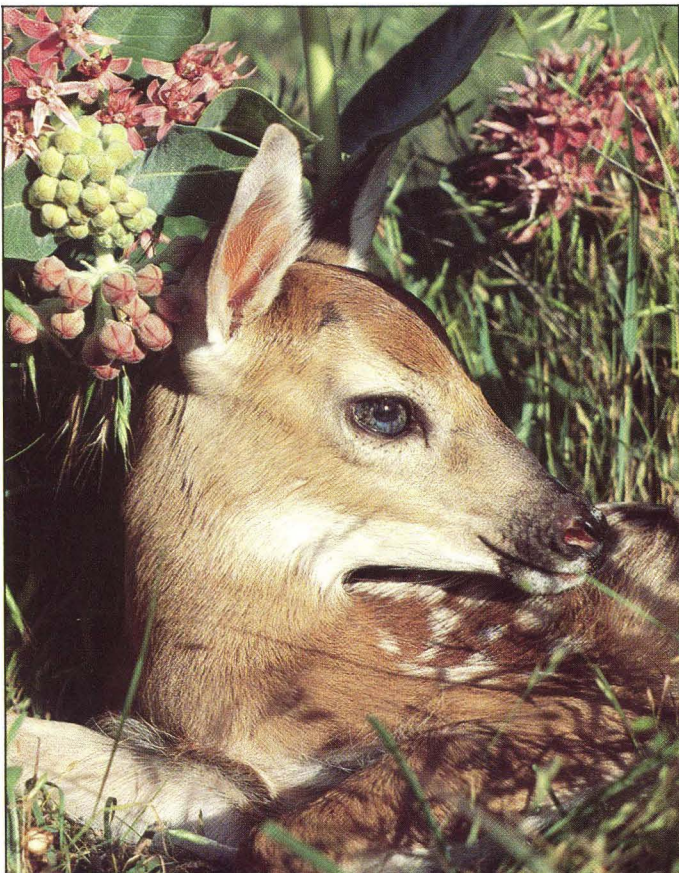


# Magic Bones

Antlers are the fastest form of bone growth known. That's only one of the many reasons why folks find these headgears interesting.

text and photos  
by Mike Blair  
Staff Photographer

Antlers are the fastest form of bone growth known, sometimes elongating one-half inch per day. While developing, the soft bone is protected by a fuzzy velvet covering that also helps cool the animal during summer. Deer, elk, caribou and moose also produce antlers. The earliest signs of antlers are black swirls of hair (shown below) that mark the future pedicel.



American Indians believed it and bestowed their chiefs with these symbols of power. Modern hunters are fascinated by them, too. Even scientists are nodding their heads and pondering medical applications of this long-held notion:

There's something special about antlers.

Antlers, the bony outgrowths produced each year on male deer, provide both a means for fighting and a visual cue of social status. Impressive racks are at once a threat to lesser bucks and an attraction to does. In short, antlers ensure that does are mated with the most vigorous animals.

Found also on elk, caribou and moose, antlers differ from horns in their growth and structure. Horns are composed of keratin — the same material as your fingernails — and have a porous, bony core. Horns grow continuously and are never shed. If one is broken off, it cannot grow back. Usually both the male and female of a horned species have horns.

But antlers are true bone, composed of calcium and phosphorous. Unlike most other bones, they are solid and contain no marrow. Antlers are the fastest form of bone growth known, and have been studied as they relate to human bone diseases. Females in the deer family (with the exception of reindeer and caribou) rarely grow antlers.

Antler growth among males, however, is programmed before birth. Tiny buck fawns have swirls of black hair where the pedicels, or antler growth centers, will develop. These pedicels form the link between living skull and the growing antler, which eventually hardens and dies. The pedicel holds the antler tightly in place.

Pedicel formation usually begins when a fawn is 2 to 3 months old. This once-in-a-lifetime event is critical to antler growth. If a fawn is castrated before the pedicels form, the deer will never grow a rack.

Once formed, though, a nervous connection between the pedicels and the part of the brain termed the antler growth center is set for life. Removal or destruction of the pedicels then will not matter; antlers will continue to grow and shed normally anyway.

Remarkably, if a pedicel is surgically transplanted to another part of a deer's body, a new antler will grow there. Such experiments have produced antlers between deer's eyes and ears, even on forelegs. These growths differ from normal antlers only in lacking a brow tine. The genetic coding of this time is destroyed in the transplant procedure.

In the buck's first autumn, the pedicels form elongated knobs about an inch long. These are called buttons and usually remain covered with hair, although buck fawns occasionally produce tiny polished spikes. These small spikes barely clear the hairline and are not to be confused with the formations on mature spike bucks, which have long single-antler points.

It's during the second year — when the buck is about 10 months old — that the first rack begins to grow.

In March or April, lengthening daylight enters through the deer's eyes and stimulates the tiny pineal gland in the brain. This releases the hormone melatonin, which causes the pituitary gland to produce LH (Luteinizing Hormone). It's thought the LH triggers production of testosterone, the male sex hormone, in the testicles. As the level of blood testosterone increases, the antlers begin to grow.

Due to their hormonal influence, the testes are essential to normal antler development. If injury or castration occurs while antlers are growing, the buck will continue to grow velvet antlers each season but will never rub the velvet off

and will never shed them. This type of deer is known as a cactus buck, and the antlers may become spectacular.

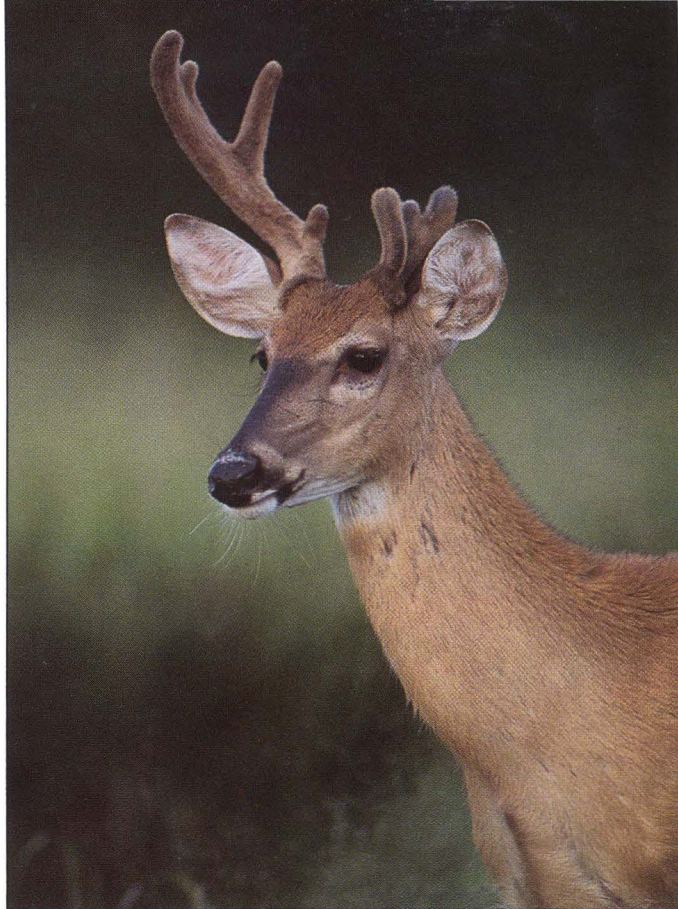
If hard antlers are in place at the time of testicular injury or removal, shedding usually occurs within two weeks. The buck will then begin his cactus rack the following spring.

As antler growth begins, blood vessels deposit minerals on the pedicels. The growth rate is amazing, for a time averaging one-half inch per day. While forming, antlers are soft and pliable and covered with a special skin called velvet. Laced with arteries and veins, the velvet supplies blood to the antlers and helps cool the deer in summer. Breezes passing across the shallow network of veins cool the blood, which circulates throughout the body.

Both the velvet and process of bone formation during antler growth may hold answers to medical problems. Antler velvet is the only regenerating skin found among mammals and is being studied for clues to burn treatment and skin disease treatment. Even more exciting to scientists is a buck's ability to supply minerals to his antlers from other skeletal parts. During the period of rapid antler growth, calcium and phosphorous are somehow transferred intact from the ribs and sternum to the antlers.

---

Injuries either to a deer's body or to the antler itself (at right) cause deformities that are replicated on each rack throughout the buck's life. Sometimes these deformities are spectacular. By autumn, antlers harden, and the velvet covering is stripped off (shown below).



Bodily stress to male deer is great during this time and may be about equal to that of a doe with developing fawns. The buck's ribs, which become brittle as minerals are depleted, are easily broken. The buck annually goes through a condition similar to osteoporosis, a bone disease that affects one-fourth of Caucasian women over the age of 50. But once the antlers harden, the minerals are restored to the depleted skeletal areas. Scientists are studying this process for improved treatment for both osteoporosis and osteosarcoma, a deadly bone cancer.

**W**hether on a forkhorn or a trophy-sized 12-pointer, antlers complete their growth in about four months. The number of points doesn't indicate age; old deer often lose points and may even become spikes.

Kansas bucks grow quickly due to an abundance of food. Yearling whitetails in our state often have eight points, compared with yearling spikes or 4-pointers found in some areas of the country.

Age is necessary to produce trophy-sized racks. While an antler from a yearling is usually less than 1 inch in diameter, mass increases as a buck reaches his prime. Some deer taken in Kansas carried racks measuring more than 8 inches in circumference at the antler bases.

Normally the largest and best antlers will be produced during the fifth, sixth and seventh years, although many bucks never reach this age. After this, the antlers may regress both in mass and number of points.

Injuries affect antlers and often cause impressive deformities. During growth, the soft antlers are vulnerable to cuts and bumps from tree limbs and fences. Bucks know this and maintain a retiring lifestyle during summer to protect their racks.

If the antler is injured, it will "overgrow" into an unusual shape. The earlier in the growing cycle an injury occurs, the more spectacular the antler will be. And the deformity will be most pronounced the year *after* the injury occurs. From year to year, the antler will "remember" the injury and grow in the same manner.

Deformed antlers also may occur if the deer's body is injured. If a back leg is hurt, the antler on the opposite side will be stunted. It's believed that this is a protective measure to lighten the load on the affected limb. When a deer walks, opposite front and rear legs work at the same time to support the deer's weight. Therefore a smaller antler opposite the injured back leg reduces the burden on that injury.

Conversely, if a front leg is injured, the antler on the same side will be smaller and lighter.

By August, hormones from the pituitary gland stop antler elongation and cause the testicles to enlarge and descend. The burr, or base, of the antler grows outward, causing the blood flow to shut off. The velvet dries, and the antlers grow into points, then harden.

In early September, the velvet splits and is rubbed free on saplings and shrubs. From start to finish, rubbing seldom takes longer than 24 hours. During this time, bloody, loosened velvet hangs in tatters from the antlers, giving them a ragged appearance. Bucks often eat the shed velvet.

Excessive blood present at the time of rubbing dries and stains the antlers brown. But if little blood remains beneath the velvet, the antlers will be light in color.

During the rut, polished antlers serve the bucks as weapons although deadly fights are rare. Antlers may break during a fight, but they're almost never knocked loose from the skull. There is a recorded case where a man with a pipe was unable to knock an antler loose from a deer's head.

As the rut tapers off and January rolls around, the buck's testosterone levels drop and the pedicels demineralize. The

antlers, once solidly attached to the skull, now simply fall off. Some evidence suggests that individual bucks drop their antlers the same day each year when conditions remain constant.

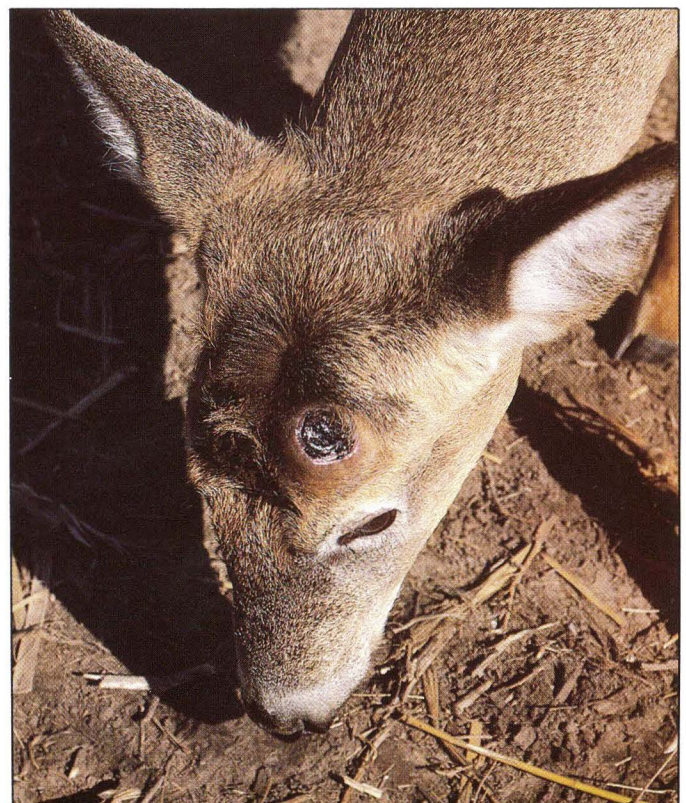
Shedding occurs from January to March, depending on the age and condition of the deer. Dominant bucks tend to cast their antlers earliest because of reduced testosterone through active breeding. Both antlers may drop at the same time, or they may drop weeks apart. After casting, the open pedicels appear as deep sores but dry quickly and skin over. This covering protects them until the cycle is renewed next spring.

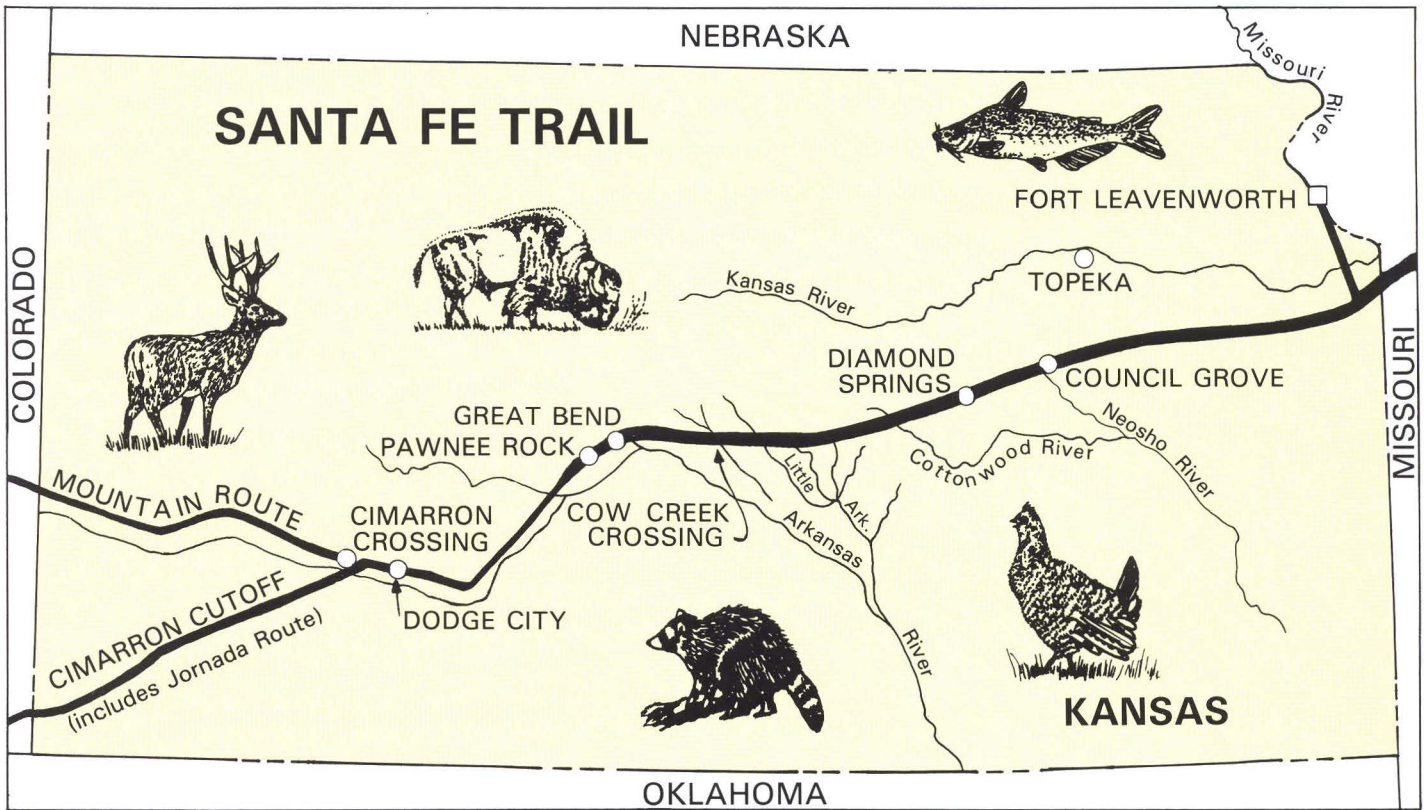
Antlers get a lot of attention and rightfully so. Whether studied and admired as a scientific process, biological function or personal curiosity, antler growth is one of nature's most amazing accommodations.

Truly, there's something special about them.

KW

Antler drop (shown below) occurs when changes in day length trigger demineralization of the pedicels. When an antler drops, the open pedicel quickly forms a scab (see lower photograph).





The Santa Fe Trail, which began in Franklin, Mo., stretched across the varied landscapes of Kansas to its terminus in Santa Fe, N.M.

# The Wild Santa Fe Trail

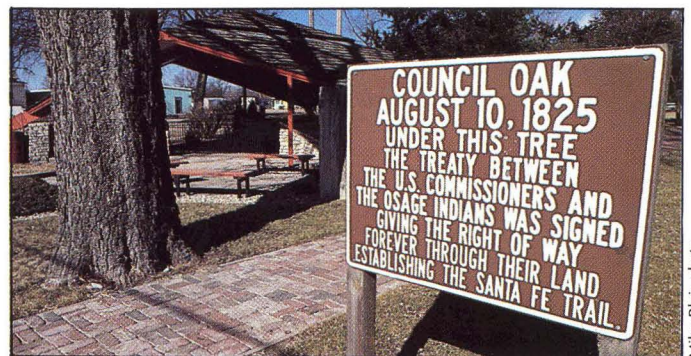
The Santa Fe Trail was the major overland route through Kansas from 1821 to 1880. Here's what it was like.

by Ken Brunson  
Stream Biologist  
Pratt

*Editor's Notes: The following story is largely adapted from journal and book accounts of Santa Fe Trail travelers. Many of these accounts have been taken from **The Santa Fe Trail**, a book by R. L. Duffus.*

• On May 8, President Reagan signed a bill designating the Santa Fe Trail, stretching 950 miles from Franklin, Mo., to New Mexico, as the Santa Fe National Historic Trail. For more information, see the related story on Page 24.

As the major overland route through Kansas in the early 1800s, the Santa Fe Trail was the slow-paced I-70 of the pioneers. As it traversed the state diagonally from northeast to southwest, it maintained an intimate and sometimes catastrophic relationship to the many waterways it dissected.



Osage Indians and white settlers reached a safe-passage agreement beneath an oak tree, the remains of which are preserved under a canopy (shown in left background) in Council Grove.



In 1839 a pioneer named Thomas Jefferson Farnham traveled this trail in search of an American dream. As he left Leavenworth, his anticipation and excitement for the trip probably obscured his understanding of the extensive natural resources around him. To his back lay the mighty Missouri River, which had already floated many white men in earlier explorations. In 1673 Marquette was one of the first to explore the Missouri and penned the river the Pekitanoui. Eleven years later Henry De Tonty named the river the Emissourita, following the name of an Indian tribe that lived along its banks. These names and others usually described the water's muddy appearance. In 1804 Lewis and Clark provided descriptions of the river bordering northeast Kansas as well as some of its wildlife. Their journals describe many delays due to the preponderance of shallow sandbars and snags in a wide-braided channel. And even though these frontiersmen had harvested deer since the beginning of the trip, Clark gives this particular account of the river and its wildlife on June 17, 1804. The words are penned as they approach the mouth of the Kansas River:

*The Countrey about this place is butifull on the river rich & well timbered on the S.S. about two miles back a Prarie coms which is rich and interspersed with groves of timber, the count[r]y rises at 7 or 8 miles Still further back and is rolling. on the L. S. the high lands & Prarie coms. in the bank of the river and and continus back, well watered and abounds in Deer Elk & Bear*

It had to have been an awesome and belittling experience to have navigated this huge, snag-choked river. This majestic character, however, would soon change. 1819 marked the first year a steamboat navigated this segment of the Missouri, making it almost as far as what is now Atchison. By the time Mr. Farnham was cracking the whip over his mules, the Missouri River was carrying considerable steamboat traffic. This was an early test of the river's navigability. For those of us used to living in a modern 20th century Kansas environment and knowing what the Missouri River was once like, it's hard to imagine why most of these early pioneers didn't

take stock of their good sense and stay in a region that seemed to generously offer all of life's necessities. In addition to the wildlife, the region also held fish — big ones, too. There are many 19th century accounts of people catching blue catfish well in excess of 100 pounds. One account lists a blue catfish caught in 1866 weighing in at 315 pounds. Another in 1868 tipped the scales at 242 pounds.

But Farnham would soon leave this wildlife mecca and its familiar Eastern hardwood forest. Farnham's account of the western edge of this woodland describes it as "A skirt of black oak timber occasionally lining the horizon or straying up a deep ravine near the trail." Farnham must have found it a little disconcerting to be leaving such familiar terrain but would soon be enveloped by a wildlife-rich tallgrass prairie. Resting at regular camps with such names as Round Grove and the Narrows, Farnham came to the Kansas River, named after the Kansas Indians who had claimed that waterway as early as 1500.

By the time Thomas Jefferson Farnham first glimpsed this broad river valley, Moses Grinter had been operating a ferry on the river for eight years. Eventually at least 56 ferry sites were developed at one time or another on the Kaw, as the Kansas River is also known. The largest interior river in Kansas, the Kaw also enjoyed some early steamboat travel. In 1819 Maj. Stephen H. Long made a short journey of about a mile up from the mouth. A few years after Farnham made his ferry crossing, Charles K. Baker successfully steamed his stern-wheeler to Fort Riley, becoming the first to navigate the entire Kansas River by steamboat.

Navigation for commerce, however, was not to be for the Kansas River. In 1864 the Kansas Legislature deemed the river unworthy of additional improvements. This opened the door to the development of bridges and dams. Yet the only major dam eventually built was the Bowersock Dam at Lawrence. Built in 1874, Bowersock remains the largest low head dam in Kansas. The dam originally provided the mechanical power for several local businesses, including paper and grain mills and a barbed wire factory. Bowersock was electrified sometime in the 1890s and became the focal point for Lawrence's industrial development. In the late 19th and

The great buffalo herds, which awed the westward-bound settlers, were frequently mentioned in journals and diaries of the time.





Mike Blair photos

Reminders of the Santa Fe Trail (clockwise, beginning at upper left): This part of the trail, between Cimarron and Dodge City, still shows the trail ruts. The remains of the historic Council Oak, including a cross-section, (upper right) are kept beneath a canopy in Council Grove, Kan. The stone Santa Fe Trail marker (bottom left) rests 50 feet from the Council Oak canopy. At lower-right, the monument to Pawnee Rock, another historic point along the long trail, sits just southwest of Great Bend.

early 20th centuries, many towns sprang up at river crossings or other intersections and with them went the need to generate power or provide water-supply pools. Every major river and most larger streams had several low-water dams. These dams had an adverse effect on fish that did not go unnoticed. As early as 1887, in the sixth Biennial Report by the State Fish Commission, S. Fee explained his concerns: "I find it a very difficult matter to get owners of dams to comply with the law in relation to the construction of fishways in their dams. County attorneys, when called upon to institute suits against owners of dams, seem to be inclined to evade their duty in the premises, for some reason or other." Fee went on to ask for more stringent laws, which never came about.

As Farnham ambled over the beautiful Flint Hills south of the Kaw, he was struck by the magnificent courtship ritual of the greater prairie chicken. Soon Farnham neared an already famous place in tallgrass prairie — Council Grove. He knew this as the site where a treaty had been arranged with the Osage Indians. This treaty permitted passage of immigrants and trade on the Santa Fe Trail. A natural setting for such a rendezvous, this oasis of the prairie now served as a meeting place for emigrants. About the Council Grove Valley, Farnham remarked: "The trees, maple, ash, hickory, oaks of several kinds, butternut, and a great variety of shrubs clothed in the sweet foliage of June, a pure stream of water murmuring along a gravelly bottom, and the songs of the robin and thrush, made Council Grove a source of delight to us . . ."

This upper reach of the Neosho River also impressed

earlier travelers such as Josiah Gregg, who proclaimed the virtues of the strip of hardwood timber and small gravel-bottomed stream threading through it. Naturalists would later marvel at the Neosho's diverse biology. Nineteenth century naturalists such as Cragin, Graham and David Star Jordan would collect and catalog numerous specimens providing early documentation of animal life in these pristine times. They were some of the first white men to glimpse such novelties as dusky striped shiners and redbfin darters hidden in the gravel riffles of this clear, clean river. With their destination in mind, Farnham and new trail friends plodded on. Their next stop: Diamond Springs, which produced at least 500 gallons of water per minute. This clear, cool water refreshed many weary travelers — both inside and out. Known as the Diamond of the Plains, it was the most noted spring along the Santa Fe Trail. Maj. George S. Sibley had assigned this white-man name to the area only 12 years earlier when he surveyed the trail's original route. Earlier traders had known of the springs as early as 1804; Plains Indians long before that. Farnham had camped at a number of springs along the route but nothing compared to the beauty and size of this one. On the trail, good dependable springs received as much or more attention as the streams and their crossings. Springs were a sign of hope for the weary travelers. Actually springs were common enough (more than 75) in the Kansas Territory to eventually have as namesakes more than two dozen Kansas towns. Included are such places as Diamond Springs, Baxter Springs, Conway Springs and Geuda Springs. Eventually there would be more than 60 Spring Creeks, branches or rivers named in Kansas.

The wagon train moved on to not-so-tranquil environments. The next major stop was the hated ford of the Cottonwood River, near present-day Durham in Marion County. Many wagons had been destroyed at this foreboding crossing. Pioneers refer to this crossing as a "Damnable Ford." In his book titled *The Santa Fe Trail*, R. L. Duffus cites a diary entry by Susan Shelby Magoffin, one of these earlier pioneers. Duffus reflects: "A wagon which got mired in Cottonwood Creek — how blue the air must have been sometimes at that loathsome crossing! — would not budge until eleven yoke of oxen were hitched to it." Farnham and company made it through only to be faced with several more challenges as they crossed Turkey Creek, the Little Arkansas River and then Cow Creek.

Cow Creek was not as large a river as the Cottonwood but just as formidable a crossing for rickety Conestogas. The caravan had traveled nearly 250 miles in about three weeks to get this far. The pioneers were starting to see many more changes in the landscape — more even terrain and shorter grasses. On this same road in 1846, Susan Shelby Magoffin would remark: "The grass was much shorter and finer as opposed to the lush tall grasses of the hills just transected."

As Susan Magoffin and predecessor Farnham would record, the next landmark was the Arkansas River's subtle valley. This great western river that led Zebulon Pike to a rendezvous with the Rocky Mountains earlier would be their escort and companion for the next 170 miles. It would also share its natural beauty and wildlife with them. Farnham's account of the Arkansas relates it as having banks of "sand and loam as hard as a public highway and generally covered with a species of wiry grass that seldom grows more than 1½ or 2 inches in height and growing thick in places as the hair on a dog's back." This part of the river near the present city of Great Bend was described as about three-quarters of a mile wide, 3½ to 4 feet deep and running about 5 miles per hour. The water was described as being alkaline with a chalky whiteness and "so delicious that some of the men declare it an excellent substitute for milk."



Gene Brehm photos

Prairie chickens (the lesser is shown here) and mule deer were just two of several wildlife species travelers observed along the Santa Fe Trail.

**D**own the road about 30 miles was one of the most noted landmarks along the Santa Fe Trail — Pawnee Rock, a natural rock feature composed of soft sandstone.

Another sighting that awed these early immigrants was the multitudes of buffalo. In her diary, Mrs. Magoffin remarked about “how the winding paths made by the buffalo cut innumerable lines across the plains.” Farnham and his trail companions had seen buffalo before but never in such great numbers. Farnham could not believe his eyes as thousands of buffalo spread out for 15 miles on both sides of the trail. There were many other wild animals, too. In his earlier trip through this country, Josiah Gregg wrote:

*Once there were antelope and buffalo in profusion. The wild mustangs sometimes came in droves of a hundred or more. The long and doleful bugle note of the grey wolf, king of the prairie, could be heard in the darkness. Elk and deer in great numbers frequented the Arkansas bottoms. There were black bear in the Cross Timbers and prairie dogs, rattlesnakes, horned lizards and coyotes.*

The area south of the Arkansas River was regarded as a hunter’s paradise because of the abundant wildlife. Yet only

a foolish white man with a death wish would dare spend much time there. The Arapaho, Comanche and Kiowa nations had laid exclusive claim to this country as their private hunting preserve until the Treaty of Medicine Lodge was signed in 1868. Even then, it was not safe for a white man to be found alone. Skunk Johnson flirted with danger, however. In the early 1870s, Johnson started south from Larned in search of fur. As a trapper he’d heard of the abundant wildlife and meant to harvest what he could before white settlers moved in. He made his home in a cave near the headwaters of the South Fork Ninnescah River. In addition to the numerous deer, elk and antelope, he also saw signs of bear, bobcat, mountain lion, wolf, fox and coyote. The fantastic numbers of furbearers and birds convinced him to stay. In accounts of Johnson’s adventures, J. Rufus Gray writes of “A profusion of quail, plover, prairie chicken, turkey, dove, swan, and geese” in this country.

Wildlife wasn’t the only interesting element of the Arkansas River Valley. Another early explorer through this country was Augustus Storrs, who drew up a statement on trade potentials with Mexico. Storrs was impressed by the sand geography on the south side of the river through much of its western Kansas reach. According to Storrs, these dunes were “of a nature resembling a flame of fire, 15 to 20 feet in height with the bottom (of the river) often full of quick sand but a wagon could be gotten across if plenty of horses or mules were attached and it was driven smartly.”

As Farnham’s group followed the Arkansas and camped beside it near Ash Creek, Pawnee Fork, Coon Creek and the Caches, they soon came to the place where they could ford the river. This was the famed Cimarron Crossing. West of what would become Dodge City, the Cimarron Crossing was perhaps close to the travels of yet another early traveler. It is believed that in 1541 — almost three centuries earlier — Coronado had crossed through this area in search of Quivira and the City of Gold. Coronado never found gold but if his interest and goals were that of a naturalist, he would have certainly considered this country a gold mine of wildlife treasures.

It was midsummer now. A desolate and dry country lay between Farnham and the Cimarron River. This was the forsaken Jornada. There were no springs or fresh water through this 60 miles of flatland prairie. Although many pioneers related fears and bad experiences on the terrible Jornada, Farnham and others were impressed by the large numbers of buffalo, elk and antelope. The pioneers had made it through unscathed.

After two more stops at springs along the Cimarron, Farnham and company left the Kansas Territory to continue their journey to Santa Fe. Their trip covered nearly 500 miles diagonally across a diverse country that eventually would become the state of Kansas. Thomas Jefferson Farnham had experienced the bounty of natural resource treasures that were both his friends and enemies. His was an adventure known by few, cherished by fewer yet. But how could they at that time truly have appreciated the land and its wildlife in such a pristine wilderness?

In this day of mass transit and tight schedules, it’s hard to relate to an earlier day when the goals, hopes and fates of our ancestors were tied much more directly to the land and the water it continually attempted to shed. To the early explorers and pioneers traveling westward, time was measured by the days or even weeks it would take to reach the next major stream crossing or landmark. Perils were many. While these immigrants had to depend largely on their own abilities to survive, they also counted on natural features of the land and its rivers. This terrain guided them through a wild country filled with wild animals on a wild road across a wilderness named Kansas.

**KW**

# Hoofing It

The only trick to enjoying yourself on the hiking trail is being comfortable and confident. Proper preparation helps, too.

by Martha Daniels

*Wildlife Information Representative  
Valley Center*

**W**hen relying on your feet as a vehicle to take you hunting, fishing or on some other voyage into the outdoors, the only trick to enjoying yourself is being comfortable and confident. All it takes is the right gear and a little planning.

## Outfitting

What gear you select depends on where you're going. No big investment is necessary to outfit yourself for a day's expedition, but you should keep a few basics in mind.

Let's start with the wheels that will get you there and back again — your feet. Boring. But assuming your last throbbing blister was an experience you'd care not to repeat, make sure your footgear fits comfortably. For Kansas terrain, a pair of leather work boots is a smart buy. They provide support for your ankles and arches and have a tread that gives traction without tearing into fragile soils.

The standard hiking boots have been replaced by a new breed of lightweights. Makes sense, too, considering that in measure of physical effort, 1 pound on your feet is equal to 5 pounds on your back. Lighter shoes and boots can be made water-repellent, require no breaking in and provide enough support on easy ground to carry light loads. In addition, the less awkward boot makes walking more quiet.

Socks should do two things for a walker's feet: provide padding and remove moisture. Two pairs of socks — a thin, inner stocking and a thick, outer wool sock — work well year-round. Wool socks not only cushion your feet, but also wick moisture away. Goodness knows, with 250,000 sweat glands in each foot, wicking is needed.

Dressing properly for the outdoors

requires quick-drying clothing that allows ease of movement. If the weather will be changing, dress in layers. Several light layers work to trap air next to the body and maintain body heat. Regulating your thermostat is as easy as adding or removing a layer. Wear a hat for protection, regardless of the temperature.

When the weatherman hints of thunderstorms, remember to pack a poncho or other raingear. Ponchos seem to have survived the blitz of new-fangled raingear thanks to their low cost and versatility.

Outdoor exposure makes the body demand more than the normal amount of water. Just in an average day, a person loses 2½ quarts of water. And, as in most of the U.S., Kansas water has become unsafe to drink unless it's boiled, chemically treated or filtered. Jaunting out for more than a couple of hours? Take along a small container of water. On longer trips you may want to carry water purification tablets.

For trips that will last long enough to include a meal and require high energy, be sure to pack fatty foods. Snacks with nuts, peanut butter and vegetable oils give you mucho calories without excessive bulk or animal fats. For a quick energy boost and a great snack, pack a trail mix of raisins, peanuts, dried fruit, chocolate chips and granola.

A few other assorted items fit easily into your pockets and are handy when you're out. Some of these items include a folding knife, water-resistant matches, a watch, a small first-aid kit, sunglasses, mosquito dope and sunscreen. Keep in mind that the most common problems faced are sunburn and blisters.

Free arms are a must for most activities, so even a day's trip may require a

small pack. A belt pack can hold necessities and places the load more comfortably than most day packs. Hunting, fishing or photography vests can also double as packs.

## Staying Found

Know where you're going — and where you've been. Most public area maps show landmarks, roads and points of interest. But for outdoor use, U.S. Geological Survey topographic maps have all the details. Topos, as they're called, are two-dimensional maps that represent the landscape's three dimensions by contour elevation lines. The terrain is easy to read. Streams, roads and towns are shown as well.

Topos, in brief, are based on the latitude/longitude grid system. The basic quadrangle maps illustrate a spot of the Earth that's usually either 15 minutes of longitude (about 18 miles) or 7.5 minutes (seven miles).

In deciding the map you need, consult an index map of the state you'll be visiting. This general map shows what smaller, more detailed versions are available. Index maps of all states are available free from the U.S. Geological Survey, Federal Center, Denver, CO 80225, or Kansas Geological Survey, 1930 Constant Ave., University of Kansas, Lawrence, KS 66045. In addition, most outdoor shops and cartography stores carry some of the more popular topos and have an index for you to ogle over. Individual maps range from \$2.50 to \$4.

To waterproof and strengthen maps, buy one of the protective liquids that

---

Some items you'll want to take on your hike include a first-aid kit, sunglasses, a compass, lighter, small flashlight, folding knife, insect repellent and an extra pair of socks.



can be applied to the paper and will shield it from drippy elements, yet still allow folding or rolling

Maps are great, and so are compasses. Both work well alone but better as a team. Especially a magnetic compass of the orienteering type — one that's inexpensive and designed for use with topographic maps. Compasses are accurate and fairly easy to use. They can make finding that secret fishing spot again a cinch.

Should you become disoriented, stop. Sit down. Relax. Panicking seems to turn our internal compasses into jelly and compounds the situation. Pull out your compass and find out where the North arrow points then walk in your intended direction, based on the map, the terrain and your own gut feeling. Keep checking the compass if traveling at night or in fog. During the day, simply locate a landmark in the direction you're traveling and go to it.

### Planning

When selecting an area to hike, you'll probably find the decision dictated by the amount of time you have. Consider the difficulty of the terrain, the distance to be covered, your physical abilities and the reason you left for the boonies.

If you're a bit soft when it comes to walking or running, do a little physical conditioning to prepare. Some of the

best workouts include taking stairs instead of elevators, walking short distances instead of driving and participating in a fast-paced sport.

With maps in order, get a weather forecast of the area you want to explore and dress accordingly.

### Equipping

Pursuing an interest by foot dictates equipment that's compact, light and efficient, especially when hunting, fishing or camping. Take along rods or tents that will break down into manageable pieces and fit well with the body's form.

Binoculars are a must for making many observations in nature. More active uses of binoculars has meant that the old heavy models are disappearing; the trend is toward compact scopes. When selecting a pair of the small ones, make sure they're rugged enough to take some beating.

Perhaps photography is the reason you ventured out. Cameras and their accessories can become quite a burden. Even the most basic lenses for a 35mm can quickly weigh you down. Photographers soon learn what works best for their style.

### Finding Wildlife

Enjoying the outdoors is an awareness. No two exposures are ever the same. Wildlife are always at home here; you're the one on new turf. No

problem. Just become part of your environment. Put your best senses to work — sight and hearing. Stay alert. As you move, walk quietly and think quietly. Maintain a walking pace that's easy so you're not breathing too heavily. And when you stop . . . STOP.

Watch for motion. You'll often see an animal's movement before you hear it. Whenever possible keep the wind in your face. Many animals rely on their senses of smell and hearing to warn them of intruders.

For field identification, pick up a nature guide at the local bookstore. Many such guides fit easily into your back pocket. With the help of a pair of binoculars, you'll be able to put together clues and identify the critter.

### Minding Manners

Don't forget your manners. Being a guest in the outdoors means being responsible for everything from gum wrappers to tracks. If you pack an item in, pack it out as well. Common courtesy and Kansas law tell you to ask permission before setting foot on private land. Going to be out for more than a couple of hours? Let someone know where you're going and when you plan to return.

Taking off afoot becomes addicting. Just ask the more than 30 million Americans who step into the outdoors each year. With some preparation and common sense, you, too, can be off . . . expanding the horizon. **KW**

## Kansas Trails For The Walking

**A** host of Kansas public areas provide ideal opportunities to watch wildlife. Several even have established trails maintained for walking and camping. They're great places to spend an hour or a weekend exploring.

**Cimarron National Grassland**, in extreme southwestern Kansas, does not offer marked walking trails, but the maze of primitive roads provides a good way to see parts of the area by foot. Watch for the prairie dog towns and lesser prairie chickens or follow the Santa Fe Trail. Write: Cimarron National Grassland, Forest Service, 737 Vilynaca, Elkhart, KS 67950.

**Clinton Lake**, just southwest of Lawrence, features the North Shore Hiking Trail, and an eight-mile trek of easy walking packed with scenic areas and woodland wildlife. In addition, the Woodridge area has been set aside for hiking and backpacking. Write: Clinton Project Office, U.S. Army

Corps of Engineers, Route 1, Box 120G, Lawrence, KS 66044.

**Elk City Lake**, near Independence, has five walking trails. Elk River Trail is 9.5 rugged miles of Ozark rolling hills. The trail takes you through dense forests, past spots of prairie and along steep bluffs. Write: Elk City Project Office, U.S. Army Corps of Engineers, P.O. Box 567, Independence, KS 67301.

**Flint Hills National Wildlife Refuge**, southwest of Emporia, is open to picnicking, camping and hiking. The changes of season bring teal and herons in summer, various waterfowl and shorebirds in spring and fall, bald eagles in winter. Write: Flint Hills National Wildlife Refuge, P.O. Box 128, Hartford, KS 66854.

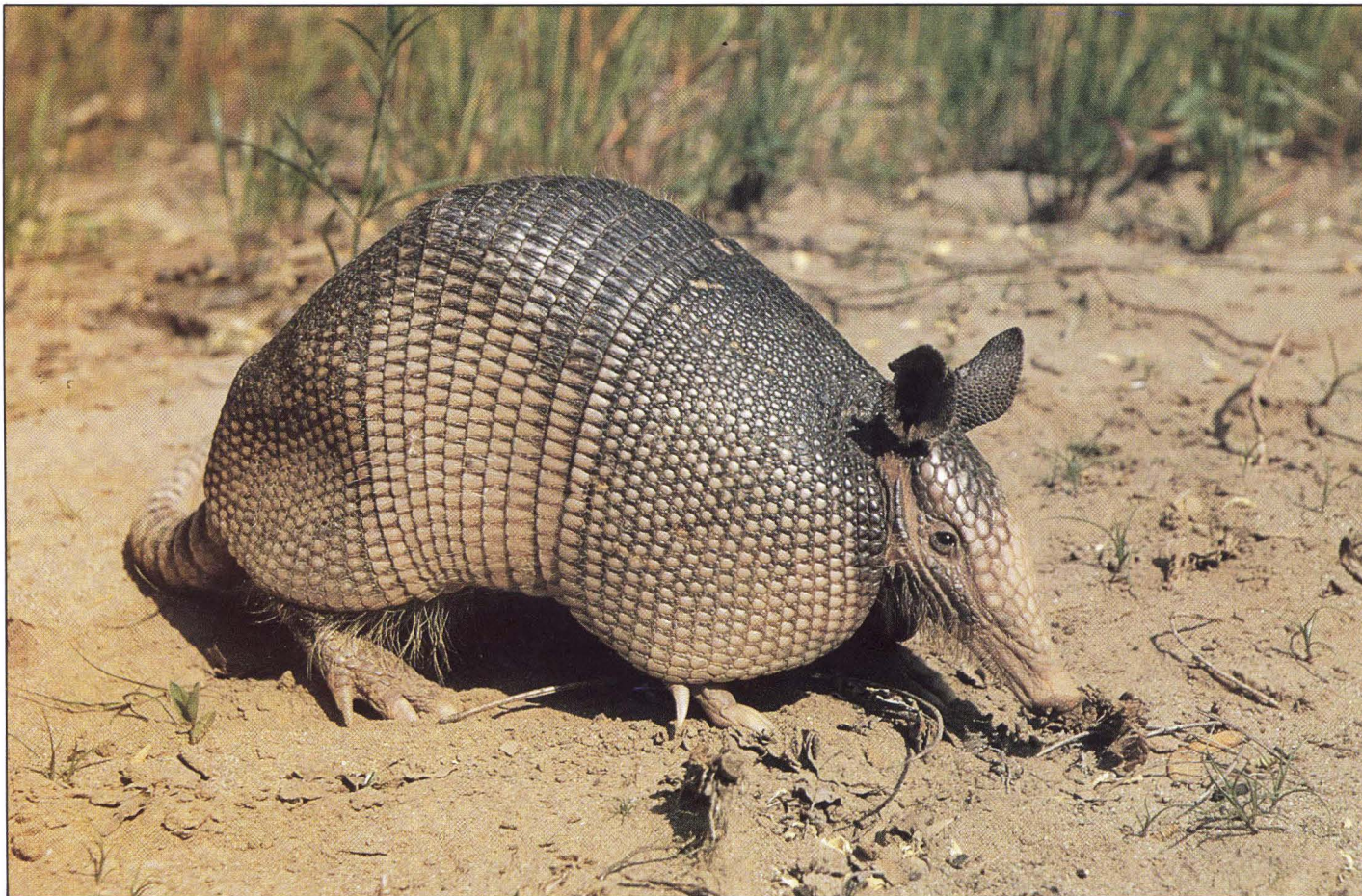
**Perry Lake**, 18 miles northeast of Topeka, boasts two trails. One 10-mile stretch of easy woodland walking is located on the eastern shore. Write: Perry Project Office, U.S. Army Corps

of Engineers, Route 1, Box 62, Perry, KS 66073.

**Toronto Lake**, south of Toronto, offers a four-mile trail that meanders around a northeastern point of the lake. Write: Kansas Park and Resources Authority, 502 Jackson, Room 502 N., Topeka, KS 66612.

**Webster Lake**, eight miles west of Stockton, is the trail head for the 10-mile Webster and South Solomon River Hiking Trail. Barrel cactus and mule deer are abundant on this rugged walk through bluestem prairie. Write: Webster State Park, P.O. Box 293, Stockton, KS 67668.

Learn the rules associated with each public area, especially if you'll be camping. For more information about other Kansas hiking trails, write: Kansas Parks and Resources Authority, 900 Jackson, Room 502 N., Topeka, KS 66612 or Kansas Trails Council, Information Office, 1737 Rural, Emporia, KS 66801. — *Martha Daniels*



The southern half of Kansas is the dillo's primary range in the state, although the species is found as far north as the Nebraska border.

# Dillos

The common long-nosed armadillo, a curiosity and sometimes a nuisance, is here to stay in Kansas.

by **Mary Kay Spanbauer**  
*Wildlife Information Representative*  
*Kansas City*

photos by **Leonard Lee Rue III**

**A**cross the prairie they scurry, seeking out new territory. Most Kansans are probably unaware that the Sunflower State is home to this likable little animal, whose numbers have been increasing here for the past 50 years. The funny-looking creature is the armadillo.

Worldwide there are 20 species of armadillos, (more fondly known as dillos) and all are found in the tropical Americas. One species, however, has expanded its range northward. The

common long-nosed, or nine-banded, armadillo is the only species found in the United States. Originally this armadillo ranged from Southern Patagonia through Mexico. In the past 100 years, however, it has slowly expanded its range northward. The elimination of large predators, changes in land-use and climate, introductions by well-intentioned individuals plus the occasional escapees have all contributed to this expansion.

The first written account of an arma-

dillo in Texas was at the Rio Grande in 1854. As armadillos moved north across the plains they hit Oklahoma, where the first one was spotted in the Verdigris River Valley in 1932. The first recorded armadillo in Kansas was found in Osage County in 1909. This, however, is discounted as a naturally occurring armadillo by E. Lendell Cockrum, then Professor of Mammalogy at the University of Kansas. He suspected that it was an escapee somehow transplanted far north of its

known home range. The second recorded dillo sighting in Kansas occurred in 1939 in Chase County. This is believed to be one of the first dillos to migrate into Kansas. Young male armadillos will often travel far beyond the breeding population to look for a mate. These young male pioneers moved north into Kansas probably looking for a mate.

The long-held assumption was that the armadillo wouldn't expand much further north than Oklahoma. But the dillo kept moving. Today armadillos are well-established in the Southeastern states and have been spotted in at least 13 states altogether. The armadillo's preference for riparian habitat has enabled it to disperse along stream drainages, and with Kansas' 10,000 miles of streams there is considerable dillo habitat. When staking out new territories, dillos have no problem crossing streams. Dillos swim and will gulp air into their intestines to increase buoyancy. They can also hold their breath for minutes at a time, enabling them to walk across the stream bottom.

Armadillos occur sporadically throughout Kansas — as far north as Nemaha County on the Nebraska border — although most are found in southern Kansas. Until recently every armadillo found in Kansas (where a sex could be determined) was a male, says Jerry Choate, Director for Museums and professor of zoology at Fort Hays State University. Choate believes a breeding population has moved into the southern tier of Kansas counties.

Dillos like it here as long as the weather is temperate. How far north will the armadillo venture? There's a lot of speculation on that question. Most experts agree that winter weather and drought seem to be the key limiting factors in dillo expansion. Armadillos don't hibernate and can't efficiently regulate their body temperature. They need drinking water and easy-to-dig soil for burrows and food. Cold, dry weather brings an abrupt end to many of the dillo's food sources.

At first glance, this peculiar animal's appearance is rather puzzling. With its scaly skin and armored, bony plates, a dillo looks more like a reptile than a mammal. These unusual characteristics bewildered Linnaeus, who in 1758 chose *Dasyopus* as the armadillo's genus. *Dasyopus*, roughly translated, is Greek for rabbit or hare. This was probably derived from the Aztec who called the armadillo *Azotochtli*, which means tortoise-rabbit. Armadillos have many nicknames: airstreamer with legs, running rock, pocket dinosaur, roly-poly and nature's little tank.

The armadillo is a primitive, yet in many ways, highly developed mammal. It ranges in size from 6 inches, nose to tail, to more than 5 feet. Shells from ancient armadillos were so large (up to 10 feet long) that they were used as roofs and tombs by early South American Indians. The long-nosed armadillo averages 30 inches long and stands only 6 inches high at the shoulder. The head, back and sides, and tail are covered with an armor of bony dermal plates, a material similar to your fingernails though much stronger. Dillos have eight or nine movable plates or bands on their back. These bands are connected by tough skin, which allows them flexibility. Dillos have naked, mulelike ears and long, sharp claws for digging. Dillos are mammals, yet are only sparsely covered with hair, mainly on the belly. Armadillos have poor eyesight but have acute senses of hearing and smell.

Ardent diggers, they prefer loose soils and regularly use several burrows at one time. Dillos usually burrow brushy, sloped sites such as a stream-bank. The burrows range from 5 feet to 20 feet long, average 7 inches wide and are rarely more than 4 feet below

ground. Burrows have at least two entrances, usually more. Armadillos are gregarious and will often share burrows with others of the same sex, sometimes with other species. Smith and Doughty in their book *Amazing Armadillo* report an unusual instance of a pregnant armadillo found sharing her burrow with a large rattlesnake and a half-grown cottontail rabbit, which occupied side chambers.

Cold weather stirs the dillos' nest-building urge. To line the burrow, the armadillo uses its front feet to gather plant material under its body. The dillo holds the material with its legs and hops backward to the entrance using its tail as a probe. Mating occurs in the fall. After a 14-week delayed implantation of the embryo, the young are born from February through April. Interestingly, armadillos give birth to identical quadruplets that are well-formed at birth, born with their eyes open and able to walk within a few hours. The bony plates are soft and pliable, yet harden as the dillo matures. Armadillos reach sexual maturity in six months to one year.

Armadillos travel by themselves, in pairs and occasionally in small bands.

*Please turn to Page 27.*

---

When threatened, an armadillo can roll into a ball to protect its vulnerable belly. Predators usually try to catch armadillos on the run. Even then, it's no easy task.





# the center section

Edited by Mike Miller

## LETTERS

### ANTELOPE FACTS

Editor:

First off, I would like to commend you and your staff for such an informative and colorful magazine. My question is about pronghorn antelope in Kansas. Did these antelope migrate from Colorado or Wyoming, and are there any differences between the two? In past issues you've printed state deer and fishing records. How about printing pronghorn rifle and archery records? How many points does an antelope have to score to make Boone and Crockett or Pope and Young, and who in western Kansas is certified to score Boone and Crockett?

Brent Rogers  
Scott City

Dear Mr. Rogers:

In the early 1960s there was a small herd of antelope in Wallace County. Through the 1960s and 1970s, Fish and Game has added antelope to that area and to other areas with animals trapped in Wyoming, Colorado and Montana.

The state-record antelope taken with a firearm scored 83 3/8. The state-record archery antelope scored 76 4/8. Boone and Crockett requires a minimum score of 82 points for the all-time record book but records heads with a score of 80 or higher for the awards book published every three years. Pope and Young's minimum score is 64 points. Kansas Fish and Game awards Big Game Trophy certificates for firearms-killed antelope scoring 70 points or better and for bow-killed antelope scoring 50 or more points. The Boone and Crockett measurer nearest Scott City is Scott Schowalter, P.O. Box 1001, Garden City, KS 67846.

Miller

### IMPRESSED STUDENT

Editor:

I'm a freshman at Kansas State University, and I just received my first issue of KANSAS WILDLIFE. I have to say that your magazine made quite an impression on me, and I plan to keep subscribing. The main reason that I am writing this letter is to let you know that I support the goals of Kansas Wildlife Heritage Month. I definitely think we need to educate the public so we can bring about more awareness of, and appreciation for, Kansas wildlife and natural resources. The article in the March/April issue by Jan Garton about saving the wetlands was very educational. I plan to give a presentation in my speech class about why the wetlands are so important. I would like to do my part in educating the public.

Darrel Loder  
Manhattan

### DEER PERMIT IDEA

Editor:

I have read that the time is drawing close when everyone in Kansas who wants to hunt deer will receive a permit. And that permits will be available to nonresidents.

There are a lot of Kansas hunters, like myself, that like to hunt deer with a gun and a bow. Now we have to choose between them each year. I'm sure we would all be glad to pay a fee twice as high for the second permit just to be able to hunt deer in both seasons.

Dave Leiber  
Augusta

Dear Mr. Leiber:

We had hoped to be able to satisfy every applicant for firearms deer permits by now. However, we are still turning down hunters each year and do not feel that we can offer two permits (firearms and bow) to some hunters while others don't get to hunt at all.

There will be an increase in the number of firearms permits offered this year as well as other new ideas including: a special "hunt on your own land" permit for landowners who don't draw a permit in the regular drawing and a special antlerless deer only season in January. We hope these changes will lower the number of hunters who don't receive a permit.

We will be considering the issuance of multiple permits as well as split seasons, special seasons and other innovations in the future. Your input is appreciated and will be considered in future deliberations concerning Kansas deer management. Bill Hlavachick, species management supervisor

### BACKYARD BEARS

Editor:

My brother Bill Reynolds and Lewis Sannes live across the road from each other at the foot of Little Bear Mound, just northwest of Neodesha. This was once the site of Carr Rock Company, and there's 700 acres of hills and rough terrain suitable only for cattle grazing. On the morning of March 17 at 2 a.m., they heard noises in their yards like nothing they've heard before. Upon investigation with a lantern, Reynolds saw one male brown bear, two smaller female bears and four cubs digging in a large walnut pile that he'd raked up.

I thought I would draw your attention to this as this is unusual in southeast Kansas. I'm a retired railroader, and we have a section of rail around the river cliffs south of the Fredonia Cement Plant called Ox-bow Bend. Once there were some small black bears living here, and train crews often saw them.

Joseph J. Reynolds  
Neodesha

## MORE ON SNAGS

Editor:

I noticed a fishing tip from Larry Riat in the March/April issue. He used a sinker to release a snagged hook. I think I have a better way, without using an expensive sinker.

For the last 20 years I have used an old spark plug and a paper clip. Fasten the paper clip to the plug points and thread the clip on the line. It will slip much better than the sinker and cost less. I have also used this technique with good success from the bank. Just bob the line up and down, and you'll be surprised how many times it works.

H.J. Campbell  
Holton

## OPINION

Editor:

I enjoy reading every issue of your magazine. I got quite a kick out of George Schlecty's recipe for "Wowie" channel cat bait. I'm going to have to mix up a batch and try it. Doubtless it will work because you can't get anything too rotten or odoriferous for the beautiful channel catfish.

Another article that caught my eye in the March/April issue was a letter to the editor titled "Save the Rivers" by Dave Markowitz. I also am from the Emporia area, having lived and farmed on the Cottonwood River bottom all my life. My great-great-granddaddy homesteaded here in 1855, so I come from a long line of river rats.

I would invite Mr. Markowitz to ride his canoe down the South Fork to where the Cottonwood merges with the Neosho. I am sure he would see the awful devastation of trees and rivers banks; also the fields, if he would care to take a stroll. Much of this has happened in the last 23-25 years. I believe if all the proposed detention dams had been in place during that time, we would still have a beautiful river, not a miniature Grand Canyon.

Just think of the millions of tons of farmland that now lay in John Redmond Reservoir, along with millions of dollars worth of crops. Many of us riverbottom farmers believe it is not too late to change this pattern. Though scars will long remain, time and nature will heal a lot with the help of detention dams. These small lakes

will also provide good fishing and a never-ending water supply for cattlemen.

I feel that not only would we have much better flood control with these water improvements, we would also benefit from a more consistent wildlife population for the betterment of the whole state.

Wayne Fowler  
Emporia

## DEER TROUBLE

Editor:

After reading "Kansas Deer: A Biologist's View" in your January/February issue, I thought I'd drop you a few lines on that matter. A few months ago one of your very fine wildlife conservation officers Tim Schaid, came by to sign my game breeder's permit. He gave me some deer repellent for my deer problems. I used it as directed with little or no success. Tim didn't give me any promises, however. So I used the repellent I've used for years with good success. The repellent I'm talking about is Hopkins Thiran 42-S fungicide and repellent. It works for rabbits and deer.

The article "Measuring Up" also brought back good memories. I have a mountain lion in the Boone and Crockett book.

I really think the commissioners, administration and magazine staff of KANSAS WILDLIFE are doing a great job. But let's get the deer numbers down to where we have fewer problems.

Paul F. Gabel  
Kansas City

## JACKRABBITS AGAIN

Editor:

In the March/April issue's Letter section I noted a letter on jackrabbits. The reply said that the decline in jackrabbits was due to loss of large areas of grassland. I have lived in the Flint Hills for 53 years, and there has been very little change in the total acres of grassland. It is not habitat loss that spelled doom for the jackrabbit in the Flint Hills.

One reason is the large coyote population, which is considered somewhat sacred. Another reason could be the expanded soybean production. As soybeans became common, the jackrabbit population started shrinking. These may or may not be the reasons the jackrabbits are gone, but it's not that the grasslands are gone.

Jerry L. Rathke  
Madison

Dear Mr. Rathke:

According to animal distribution records, the black-tailed jackrabbit was never as abundant in the Flint Hills as it was in the mid- and short-grass prairies. The highest densities of jackrabbits have always been found in western Kansas, especially west of the Flint Hills.

One of the jackrabbit's defenses against predators is being able to see over a large area. This is more difficult in areas of tall grasses.

Jackrabbits tend to have high and low population cycles. These trends, coupled with diminished and altered habitats and increased predation due to being confined to shrinking areas of habitat, have all led to a decreased population over their range. *Bill Hlavachick, species management supervisor*

## BIOLOGY HUMOR

Editor:

My husband, a nonresident college student, is doing his practice teaching in Hays. I was amused when he came home from school and told me this story.

The high school field biology class was reviewing the 1987 Kansas Fishing Regulations. A pretty blonde student asked the teacher what would happen if she got caught without a license. Not knowing the answer, the teacher stalled for time by asking, "Does anyone in class know the answer?" A student in the back of the room said he thought offenders must pay a fine and forfeit their equipment.

"Oh!" exclaimed the pretty blonde girl. "You mean I'm going to lose my equipment?"

"Just your fishing equipment, dear," the teacher replied, as the whole class erupted with laughter.

Marcia Pinkham  
Hays

# THE LAW

## THE FINE SYSTEM

Kansas game wardens of the late 1930s had a direct impact on fines paid by poachers they caught. In those days, the officers collected a \$10 "bounty" for each violator they arrested and convicted. Poachers often complained that the wardens were arresting them unjustly in order to get the bounty money. The officers were sometimes reluctant to cite violators because there was too much talk of greedy game wardens. So the 1941 Kansas Legislature abolished the bounty system. The lawmakers believed the change would bring higher fines in the courts and allow game wardens to better enforce wildlife laws.

Records from the late 1940s show some stiff fines were, indeed, imposed on those who broke the wildlife code. Penalties in those days were sometimes as low as \$6.50 for using too many trotlines. But they went as high as \$133.75 for hunting pheasants without a license and during closed season. In today's dollars, that hefty fine would be about \$500. Modern laws prescribe fines of not less than \$50 and not more than \$500 for similar first-time offenses.

The harshest sentence a first-time Kansas wildlife law violator can receive for a single conviction includes a \$1,000 fine, six months in jail and loss of hunting privileges. Such a sentence can be prescribed under big-game statutes. Minimum and maximum penalty limits are set by the Legislature, and Kansas judges have the authority to impose appropriate penalties. *Rob Manes, education coordinator*

## SAFER MISSOURIANS

Beginning Jan. 1, 1988, Missouri hunters born after Jan. 1, 1967, will be required to complete a hunter-safety course. For many years, Colorado was Kansas' only neighbor that also had a mandatory hunter-education program. This created a problem for nonresidents who came to Kansas to hunt.

In 1976 Nebraska initiated a mandatory program, but Oklahoma and Missouri held out. Oklahoma's hunter-education program went into effect this year. Next year, all of Kansas' border neighbors will have mandatory hunter-education programs. *Rob Manes*

## ILLEGAL TRAPS

A Miami County man was fined for illegal trapping this winter. It was the man's second conviction, and the judge made this one count.

After receiving a complaint from a landowner, wildlife conservation officer Terry Cloutier and a Miami County Sheriff's Office detective went to investigate. The investigation resulted in two counts of trapping without permission, one count of untagged traps/snares and one count of snaring along a traveled roadway being filed against the man.

Miami County Judge Stephen Hill found the man guilty of the last two counts. The trapping without permission counts were dropped in plea bargaining. Judge Hill fined the man \$500, plus \$28 court costs and \$25 supervision (probation) fee, and sentenced him to 60 days in jail. The jail sentence was suspended, but the convicted man was placed on one year of probation. The judge also revoked his current hunting, fishing and furharvesting licenses for one year. All traps already seized plus those at his residence were confiscated. *Miller*

## GRIZZLY REWARD

A Montana man who led federal and state agents to an illegally killed grizzly bear and helped them convict the poacher was rewarded with \$5,000. The U.S. Fish and Wildlife Service paid \$3,000 of the reward and the National Fish and Wildlife Foundation contributed \$2,000.

The National Fish and Wildlife Foundation, a private, independent organization, plans to pay more rewards in the future. The foundation was established by Congress in 1984 to help raise funds to support high-priority fish and wildlife conservation programs.

In September 1985, the Montana man overheard in his hunting camp that another man had killed an adult male grizzly bear in a portion of the Flathead National Forest that's closed to grizzly hunting. The man gave the information to U.S. Fish and Wildlife Service officers and later flew into the wilderness area to help the officers find the bear's remains.

As a result, a Columbia Falls, Mont., man was charged with one count of illegally taking a threatened species and a second count of

possession and transportation of an illegally-taken grizzly bear. Through a plea arrangement, the defendant pled guilty to the second count, was fined \$8,500 and placed on probation for two years. This was the largest fine ever assessed against an individual for transportation and possession of an illegally-taken grizzly bear.

Grizzly bears in the 48 contiguous states are protected as a threatened species under the U.S. Endangered Species Act. "Threatened," a less dire category than "endangered," means that an animal is likely to become in danger of extinction within the foreseeable future. Under the provisions of the Endangered Species Act that allow for flexibility in managing a threatened species, a limited hunt for grizzly bears is allowed in northwestern Montana. Grizzly bears are neither endangered nor threatened in Alaska or Canada. *U.S. Fish and Wildlife Service.*

## ALL BAD LUCK

Jack Stowe, a Missouri conservation agent, knows where the saying, "If it weren't for bad luck, I'd have no luck at all," comes from.

"I followed two roadhunters on a cold Sunday and thought for sure they'd spot me before they found anything to shoot at, but finally they spotted a rabbit and the passenger shot out the window.

"I drove up and gave them tickets. It was the only rabbit they had seen and they missed it.

"If it weren't for bad luck . . ." *Missouri Department of Conservation*

## MACK LONG HONORED

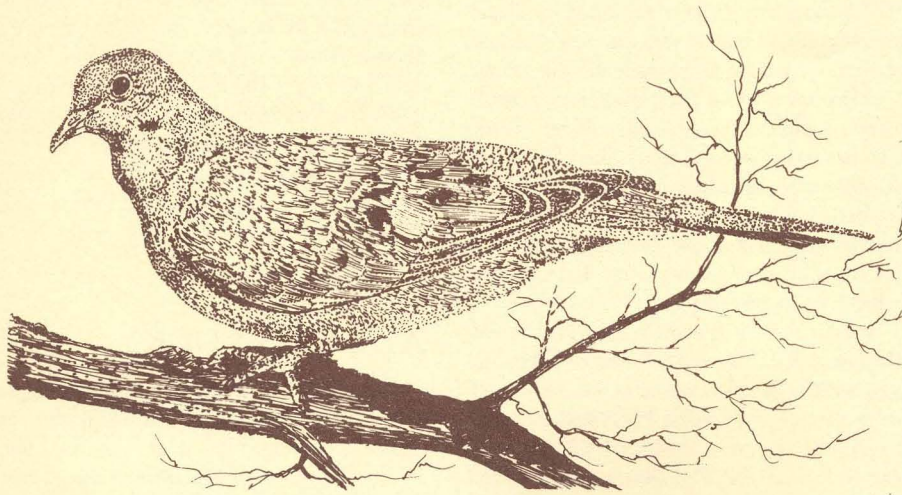
Wildlife conservation officer Mack Long of Haysville received the Kansas Fish and Game Hunter Education Liaison of the Year award for 1986. Long has shown continued dedication to the program and to Wichita-area instructors since he started work for KF&G in 1984.

Long has been involved with many different groups of instructors in his area. He's been a program teacher, sponsor and administrator, and in the process has sacrificed much of his time to make hunter-education work.

Across Kansas, 67 wildlife conservation officers like Long are closely involved with hunter education. Some of them cover parts of four or five counties. Other KF&G employees from the Fisheries, Game, Administration and Information-Education divisions also dedicate themselves to hunter education in Kansas.

Mack Long is representative of the spirit and dedication required to make the Kansas Hunter Education Program continue to work. *Rob Manes*

# HUNTING



## DOVES: GET READY

Anyone who's hunted doves knows the frustration and humiliation that the little gray bombers can cause. Under no circumstances are they ever easy to hit as they careen by at 30 miles per hour, but a little summer shooting practice can ease the suffering a little.

Most bird hunters do not practice shooting enough. Practice sessions with Blue Rock or clay pigeon targets will teach the gunner about his gun, the loads he shoots and his own shooting ability. And in dove hunting, it can keep the hunter from hauling a pickup-load of shells to the field.

A skeet range is the ideal place to practice. The oncoming and crossing shots are much more realistic than shots from behind the trap box. If a skeet range is not available, you can practice with the help of a friend and a hand thrower or portable mechanical thrower.

The secret is to make the shots as much like hunting situations as possible. The mechanical thrower can be staked out in front of the shooters. With a line to the release trigger, rocks can be thrown at different incoming angles. With a hand thrower, rocks can be thrown from beside and slightly behind the shooter at various angles. Be especially careful, and always know exactly where the thrower is.

Be sure to shoot the same loads and shot size that you intend to shoot at doves. It's also a good idea to pattern your shotgun at a station-

ary paper target. You'll learn where it shoots and the effectiveness of your chosen load at different ranges. *Miller*

## KANSAS DUCK STAMP

The picture for Kansas waterfowl looks brighter thanks to a new state waterfowl habitat stamp program beginning this year. The bill requires all waterfowl hunters who are required to buy a hunting license to also buy the state waterfowl habitat stamp. The new stamp will cost \$3, and vendors may charge an issuance fee of up to 25 cents. The state stamp is required in addition to the federal migratory bird hunting stamp.

Money collected through sale of the stamp will go directly to the Kansas Fish and Game Commission (KF&G) to be used specifically for waterfowl habitat improvement, development and acquisition.

Kansas Ducks Unlimited (DU) proposed the stamp program to KF&G last August to provide funds to match the monies DU provides for habitat development under its MARSH program. KF&G commissioners voted to support the legislature effort 4-0 with one commissioner absent. The Kansas Wildlife Federation also supported the habitat stamp program.

The bill calls for a non-profit waterfowl con-

servation organization to enter into contract with KF&G to select the stamp art and publish the stamps. DU has been designated as the non-profit waterfowl organization. Development of the stamps and accompanying prints will be done through a reputable art publisher. The stamps will be provided to KF&G at no cost. DU will retain publication rights to any art prints or other stamp facsimiles.

It is estimated that KF&G will receive approximately \$90,000 to \$100,000 from stamp sales as there are currently 30,000 to 33,000 federal stamp buyers in the state. In addition, another \$30,000 to \$45,000 is likely to be received from stamp collectors from across the nation. DU expects to receive \$35 to \$40 for each print of the waterfowl stamp sold by the art publisher. Proceeds are difficult to estimate, but other state stamp programs have sold more than 15,000 prints in the first year.

In April, DU selected Peterson Prints of Los Angeles to publish the stamps and prints. DU will give 20 percent of the print sales receipts to Kansas for physical restoration of Cheyenne Bottoms. Peterson paid a \$250,000 cash advance, \$50,000 of which went directly into an account to be used at Cheyenne Bottoms.

The 1987 selection was made on a bid-proposal basis with no restrictions on who the artist can be. In 1988 and every second year thereafter, the selection will be made through a contest among Kansas wildlife artists. *Miller*

## BOWHUNTER REPORT

The report card is in on 1986 Kansas archery deer hunters, and it's a good one.

Of the 13,291 active hunters, 4,356, or 33 percent, were successful in filling their tags last fall. That figure is even more impressive when compared with surrounding states. According to *Bowhunter* magazine's "Deer Forecast," Colorado bowmen recorded a 19 percent success rate in 1985; Missouri, 10 percent; Nebraska, 24 percent; Oklahoma, 6 percent; and Minnesota, 11 percent. And if you look at some Eastern states, Kansas' percentage looks even better: Maine 2.5 percent; Maryland and New York, 5 percent.

Kansas bowhunters are successful for several reasons. One: There are few large tracts of unbroken forest, which concentrates deer and makes them easier to find. Two: There aren't the sheer number of bowhunters in

Kansas. Minnesota, for example, has 65,000 bowhunters. Kansas also supports a healthy and expanding deer herd, due in part to a strictly controlled management program. Kansas bowhunters are lucky indeed.

The management program also provides a large number of trophy-sized bucks for Kansans to pursue. In the latest Pope and Young newsletter, Kansas bowhunters listed eight bucks in the last entry period. Minnesota was the only state with more.

Western Kansas bowhunters enjoyed the highest success rates in the state, with many northwest counties tallying success rates above 40 percent. Logan County was tops with a success rate of 59 percent but also had a low number of hunters (27). Butler County saw the most hunters (447), but they still enjoyed a success rate of 30 percent. Butler County bowmen also harvested more deer than any other county (137).

The top public hunting area was Cedar Bluff Wildlife Area, where 41 percent of the 240 bowhunters there bagged deer. Other public areas that had good success rates were Norton, Webster and Glen Elder.

Bowhunters were choosy with 67 percent waiting to take a buck. There were 591 mule deer and 3,764 whitetails taken across the state.

The last three weeks of November were by far the most productive with nearly 40 percent of the total harvest taken between Nov. 8 and Nov. 28. This time period coincides with the rut when deer, especially bucks, move more during the day. *Miller*

## ABOVE AVERAGE?

Most hunters don't claim to be expert shooters, but they'd probably bet they are better than average. The only question, then, is how good is average?

To find this out, the National Shooting Sports Foundation (NSSF) tested a random group of hunters at a series of rifle, shotgun and handgun events. After learning how well the average hunter shoots, the NSSF is challenging the nation's hunters to find out whether they really are better than average.

In the rifle marksmanship event, the hunters fired 20 shots offhand with a .22 rimfire at the standard NRA 50-yard small-bore target. Out of a possible 200 points, the hunters averaged 95.

To test handgun skill, they shot at both the 25-yard slow-fire and 25-yard rapid-fire NRA targets. In the rapid-fire event, the hunters average 125 points out of 200. In the slow-fire event, the average score was 92 out of 200.

In the shotgun events, the hunters shot trap and skeet. Their average trap score was 13 of 25; the average skeet score was 11 of 25.

None of the hunters tested had ever shot regulation events before, so the scores indicate the ability of the average hunter, not the average target shooter.

The NSSF will honor any hunter who takes the test and beats the average scores by offering a "Gold Award Qualifier" patch or hat with the patch on it. The hunter can send his or her scores with \$1 for the patch or \$5.85 for the hat to: NSSF, P.O. Box 1075, Riverside, CT 06878. Add \$1.50 for postage and handling.

*National Shooting Sports Foundation*

## SEASONS SET

In April, the Kansas Fish and Game commissioners approved recommendations for fall turkey, rabbit and hare, deer, antelope, coyote, elk and furbearer seasons. Most seasons remained similar to last year, but there were a few changes.

The biggest change is the addition of Kansans' first elk season. Only Morton County will be open for elk hunting from Sept. 26 through Oct. 11. The season was proposed to reduce the size of the elk herd established on the Cimarron National Grasslands. The herd has a high number of mature bulls and has been causing crop damage on adjoining private land. Four permits will be issued by drawing. Two will go to general residents for \$75 each and two to landowners or tenants for \$38 each. Two of the permits will require the hunter to harvest a bull with four points on at least one antler, and two will be for either a mature cow or bull with at least four points on one side. The application period will be Aug. 3-21. There is no agency application form, so hunters should merely send their name, address, birthdate and telephone number to the Pratt Fish and Game office. Don't send the permit fee with your application. If you're selected, you will be notified to pay the fee.

Firearms deer season will be Dec. 5-13. There will be 50,615 permits drawn this year, an increase of 8,860 from 1986. There will also be an unlimited number of "hunt on your own property" permits available for landowner/tenants who don't draw a permit in the regular drawing. The commission also approved a special deer season for Jan. 2-10, 1988. Two areas, northern Reno and Harvey counties and the Chautauqua Hills unit, will be open for

antlerless deer hunting. Deer numbers in these areas have not been stabilized with the regular season harvest. Rather than put an unsafe number of hunters in the field during the regular firearms season, biologists proposed a special late season. The Chautauqua Hills unit will have 3,500 permits available and northern Reno and Harvey counties will have 1,200. Hunters must apply for the special season Aug. 1-14. Even hunters who received permits for the regular season are eligible.

Fall firearms turkey season is Oct. 17-25, and the fall archery season will run Oct. 1 through Nov. 15. The application period for both is Aug. 1-21. Five counties that have been open to fall turkey hunting in the past will be closed in 1987. Finney, Ford, Gray, Hamilton and Kearny counties will be closed as a result of habitat loss due to dewatering of that area's streams and rivers. Efforts will be made during the closure to re-establish both habitat and turkeys. *Miller*

## SNOWSTORM DEATH

Kansas pheasant hunters were looking forward to the 1987-1988 season. After a mild winter, pheasant numbers could have recovered to the high levels of 1982. But that may have changed during the week of March 22-29, when two tremendous snowstorms hit western Kansas.

"It's hard to say what percentage of the birds were killed in the storms, but it was substantial," said Randy Rodgers, small-game biologist for the Kansas Fish and Game Commission. Rodgers said dead birds were found in all areas of the western third of the state. He spent time in the field after the storms and didn't see as many live birds as he did last spring.

The first storm didn't have extremely cold temperatures, but the snow was wet and heavy. However, it still drifted because of two days of relentlessly high winds. Then a few days later, a second storm hit, dumping more snow with the same high winds. But colder temperatures accompanied the second storm. Some areas received more than 20 inches of snow in the two storms, and drifts of 8 feet weren't uncommon. The drifting snow and the second storm's cold temperatures proved lethal for the pheasants, Rodgers said.

The full effect of the storms won't be known until this fall, but Rodgers isn't optimistic. "I'd say the pheasant comeback has been set back a year," he said. Nesting conditions appear to be good, however, and a successful hatch could bring pheasant numbers up to last year's levels. *Miller*

# FISHING



## BULLFROG COOLER

If you're looking for a fun way to cool off this summer, try frogging. Wading along the shore of a farm pond on a warm summer night is a great way to beat the heat. Bullfrog season opens July 1 and runs through Oct. 31.

Bullfrogs are most easily caught at night. Carefully wade just out from the bank, shining a flashlight along the water's edge. Bullfrogs are easy to spot with the light, and if the light is kept on them they'll stay put. This gives you the chance to ease up on them. Frog hunters will vary in their frog-grabbing technique. Some grab for the front half of the frog, others grab at a point just in front of the frog's back legs. Whatever the technique, hold tight. A big bullfrog has amazing strength in its back legs. Carry a burlap sack with a drawstring at the top. Throw your frogs in and drag the sack in the water, keeping the frogs wet.

If you want to hunt frogs during the day, a fishing pole and fly or brightly colored jig will do the trick. Cautiously approach shorelines, especially ones with overhanging grass or cattails. Frogs usually sit in shaded areas during the day. When a frog is spotted, dangle the lure in front of it. They'll usually engulf the lure. If you can't reach the frog, cast the lure near the frog. It's best to hit just on the bank or on some floating vegetation. Then just twitch the lure slightly. Sometimes frogs will move several feet to take a lure.

A valid fishing license is required to hunt frogs. Frogs also may be taken with a dip net, or bow and arrow (during daylight hours). The arrow must have a barbed point, and a line must

attach the arrow to the bow. Any other method, including gigging, is prohibited. The daily limit is eight. *Miller*

## BOWFISHING FUN

As I slowly eased up on my intended prey, my hand felt cramped around the bow handle. I had been gripping the bow tightly for what seemed like hours, and my body was tense from the deliberate stalk. Finally, I was in range. I drew my bow carefully and released. My mark was good, and I suddenly had a 3-pound carp thrashing on the end of my arrow.

Bowfishing is a sport many anglers overlook. It doesn't take a lot of fancy equipment or money. A simple 45-pound bow, a line spool or reel and a fiberglass fishing arrow with a barbed point are all that's needed. Wading can be done in jeans and tennis shoes. Most shots are quite close, so even an inexperienced archer can hit fish with a little practice. And best of all, it won't take hours of driving to find carp. They are numerous in waters all across the state.

That's it for the easy part. Getting close to a big carp feeding on the surface can be tough. The fish are surprisingly wary. Heavy-footed stalks, splashes or excessive ripples will send them off in a boil.

During the summer, carp can be found in shallow water of impoundments and rivers. Look for swampy backwater areas. Carp will cruise the surface feeding on floating vegetation. On calm mornings and evenings, anglers can quietly wade the shallows while scanning for

ripples or listening for "piping" (a sucking sound as carp suck food in) carp. When a fish is spotted, begin a slow, painstaking stalk, or wait for the fish to swim by if it's working steadily in your direction. Moving slowly or holding still is very important. Quick movements will spook fish, so raise and draw the bow slowly.

Light refracted by the water makes the fish below the surface appear to be shallower than it really is. When shooting fish that aren't right on the surface, aim slightly lower than you normally would.

Under Kansas regulations, only roughfish may be shot with bows. Those include carp, buffalo, carpsucker, sucker, gar, gizzard shad, drum, white amur (grass carp), threadfin shad, goldfish, eel, sturgeon, goldeye and bowfin. Bowfishermen must have in possession a valid Kansas fishing license, unless exempt by law. Arrows must have barbed heads, and each arrow must be attached by a line to the bow and must be shot from the bow. All waters are open to bowfishing unless otherwise posted. Some bowfishing is permitted on city, county, township or private lakes, but regulations vary so local rules should be checked. Water within 50 yards of occupied boat docks, swimming areas or picnic sites are closed to bowfishing.

It takes some preparation, but carp can be surprisingly good table fare. Other roughfish such as buffalo, white amur and drum also provide excellent eating.

Bowfishing is a fun and cool way to spend summer mornings and evenings. It also can be good off-season practice for big-game hunters.

*Miller*

## WALLEYE SUCCESS

Kansas Fish and Game fisheries biologists enjoyed a banner year for walleye this year. More than 89 million eggs were collected and delivered to the Milford Hatchery. Egg-taking crews collected 25.7 million eggs from Glen Elder Reservoir, 15.3 million eggs from Kirwin Reservoir and 11.2 million eggs from Webster Reservoir. Michigan delivered 10 million eyed eggs (eggs that show an eye and have already begun to develop) in a trade for channel catfish, and Colorado sent Kansas 25.5 million green (undeveloped) eggs and 1.7 million eyed eggs because their hatching facility couldn't handle them. Kansas received 75 percent of the fry hatched from the Colorado eggs in return for hatching them.

The Milford Hatchery turned out 60.5 million fry for a very good hatch rate of 67 percent. Hatchery superintendent Verl Stevens

was pleased. "We had an excellent year," he said. "Overall, this is one of the best hatch rates we've had, considering the large number of eggs we handled."

Many Kansas reservoirs received a boost to their walleye populations this spring. Distribution of fry is as follows: Milford Reservoir, 16 million; Clinton Reservoir, 6.8 million; Cheney Reservoir, 5 million; El Dorado Reservoir, 4 million; Melvern Reservoir, 4.3 million; Marion Reservoir 3.2 million; Cedar Bluff Reservoir, 3.2 million; Lovewell Reservoir, 3 million; Kirwin Reservoir, 2.9 million; Webster Reservoir, 2.5 million; Glen Elder Reservoir, 3 million; the supply lake at the Milford Hatchery, 200,000; and the Pratt Hatchery received 204,000 (to be raised to fingerlings). Two million fry were traded to Virginia in exchange for striped bass broodfish and hybrids, and 4.2 million fry were sent back to Colorado. *Miller*

## LIVELY FISHING

To catch fish more successfully during summer, fishermen must change their tactics. Lures and hotspots that produced fish during spring will fail as the water temperature warms. To catch fish through the hot summer, more fishermen are switching to live bait.

Striper fishermen at Glen Elder, Wilson and Cheney reservoirs are catching stripers by drifting live green sunfish. But they're fishing in much deeper water than they were in spring and early summer. The key in most Kansas reservoirs is finding the river channel. Use a topographical map and depthfinder to locate the channel. Then look for an unusual bend in the river, or find an area where the channel swings close to the bank or a point. As the water warms, fish will find a comfort zone, an area where temperature and oxygen are to their liking. Most fish associate with some kind of structure, and will move within the comfort zone along this structure. Often, this zone is deeper than 20 feet. Most lures, however, don't get this deep.

To fish bait in these deep-water spots, use a one-quarter or half-ounce slip sinker above a barrel swivel. Tie your hook 15 to 18 inches below the swivel. Most fishermen will hook bait-fish through the lips, but they can also be hooked just below and behind the dorsal fin. If it's breezy, mark the drop-off with a buoy and let the boat drift across it. Make sure your bait is near the bottom. If it's calm, use your trolling motor to keep the boat along the drop-off, bouncing the weight along the bottom.

Another bait that's catching on is shad. Gizzard shad are the main forage for most gamefish

in Kansas reservoirs. In the summer, shad can be seined or caught with a throw net. It's extremely tough to keep shad alive once you catch them. Some of the more serious bait fishermen have rigged large bait wells with aerators, but this isn't necessary. Stripers will also hit dead shad.

White bass can also be taken on live bait. Small, young-of-the-year shad can be drifted for whites and, surprisingly, small crawdads are also effective bait. Whites will move in large schools in the same areas as stripers but may be a little shallower. If you've found a ledge or drop-off with deep water nearby, stay over it. Whites will travel along the channel ledge.

Crappie can be taken in midsummer, but they're tougher to find. They don't cruise the open water like the whites and stripers. After they spawn, most crappie will be found near structure or brush in deep water. Most reservoirs have man-made brushpiles. Search out these brushpiles in water over 20 feet deep. Once you've found the brush, drop a quarter-ounce jig tipped with a shiner straight down into the brush. Jig the bait vertically as you hold the boat over the brushpile.

Walleye will also stay close to deep brush in midsummer. They can be caught with the same method used for crappie. Merely substitute a nightcrawler as bait. *Miller*

## TOPWATER FRENZY

Fishing in the heat of midsummer can be a frustrating experience. The extreme heat will push most sportfish into deep water and make finding them difficult. But don't give up entirely. In July young gizzard shad will be just the right size for white bass food. These young shad are usually found in open water in large schools. And usually, lurking below these schools, are hungry white bass.

The real fun comes when a school of white bass corrals a school of shad on the surface and begins a feeding frenzy. Whites will literally jump out of the water chasing the shad, and the shad will froth the surface with their escape maneuvers. If you're lucky enough to see this activity on the surface and can get a boat into casting distance, you're in for the easiest fishing of your life. Almost any lure thrown into the melee will get a strike. Topwater plugs and quarter-ounce jigs are best. Topwater baits are probably the most exciting because the frenzied whites will thrash the plugs viciously. But the jig will catch bigger fish. Usually the larger whites will hang below the feeding school picking up stunned and injured shad that slowly sink by. A sinking jig will get down to these larger fish.

The best day to catch surfacing whites is a calm one. Not because they feed better on calm days, but because you can see the surface activity from a greater distance away. When the water is choppy, you have to be right on top of the school to see them feeding. Many anglers will use binoculars to watch the calm surface. Smart fishermen also watch gulls as they'll circle and dive above a feeding frenzy. When feeding whites are spotted, get to the area as soon as possible. But don't motor right into the school. Cut the motor and let the boat glide up. If you have a trolling motor, put it in and quietly move in on the feeding fish. Use the trolling motor to keep up with the school.

The length of time the whites will actively feed will vary with the size of the schools and the amount of boat traffic. Some may stay up for 10-15 minutes, others will only surface for two to three minutes. For as long as white bass feed on top, you're almost assured of getting a strike as soon as your lure hits the water. And a 2-pound white worked into this feeding frenzy can pull like a mule. *Miller*

## UNDER THE LIGHTS

If you're looking for a different kind of fishing this summer and don't mind cleaning a mess of fish, try nightfishing under the lights. Using a floating crappie light or a submersible halogen light, fishermen are finding enjoyable, productive fishing without the hot summer sun.

Fishing with lights is basic in theory: Light attracts a concentration of microscopic organisms, which in turn attract minnows and shad, which in turn attract gamefish. It's amazing to watch the progression as the school of baitfish grows beneath your light.

You'll attract baitfish just about anywhere you put your light, but that doesn't mean you'll have sportfish there, too. It's best to find some kind of structure near the river channel or submerged point. Gamefish will associate with the deeper water during the summer days, staying near drop-offs, points, submerged islands and bridges, to name a few types of structure.

When you've gathered your baitfish, drop a jig or minnow down below this activity. Most gamefish will hang below the baitfish school, so it's a good idea to start fishing just above the bottom. Fish at different depths until you catch fish.

One of the exciting things about fishing under the lights is that you never know what kind of fish you'll catch. White bass and crappie may be the most common, but stripers and walleye are also possible. *Miller*

# ISSUES

## LEGISLATIVE RESULTS

The Kansas Fish and Game Commission (KF&G) enjoyed a successful legislative session in 1987. Several agency-sponsored and supported bills were passed and signed. The biggest event, however, was Gov. Mike Hayden's Executive Reorganization Order (ERO). The order, which will become law on July 1, will combine the Fish and Game Commission and the Kansas Park and Resources Authority into one agency: The Kansas Department of Wildlife and Parks.

ERO calls for the addition of a governing secretary, appointed by the governor, and two undersecretaries to run the new agency. The Park Authority will become a division along with Wildlife, Fisheries, Administration, Law Enforcement and Information-Education. The governor will also appoint a seven-member bipartisan commission to advise the agency on policy.

Here is a partial listing of other signed bills that will affect sportsmen:

\*Senate Bill 60 will allow KF&G to designate two free fishing days. By allowing people to fish without buying a license for a day, KF&G hopes to promote fishing and the appreciation of our fishing resource.

\*House Bill 2067 will change the process for getting a duplicate license. The process will now require an affidavit form to be sent to the agency's Pratt office. This will simplify the process, which used to require the license holder to contact a County Clerk's Office.

\*House Bill 2058 establishes a state waterfowl stamp. The stamp is required of all waterfowl hunters in addition to the federal stamp. The stamp will cost \$3 and will be required during the 1987 season. Ducks Unlimited proposed the idea and will select the publisher and furnish the stamps to KF&G. All proceeds from sale of the stamps will go to KF&G to be used specifically for waterfowl habitat improvement and acquisition. Twenty percent of the print sales money will also be spent on Kansas waterfowl habitat.

\*House Bill 2067 will allow lifetime license holders to apply for big-game hunting permits after they move out of the state.

\*House Bill 2091 authorizes law enforcement officers to examine hunter-safety certificates. According to the bill, a hunter who is not carrying his certificate would be cited but not prosecuted so long as the certificate was

produced before the court date. The bill was amended to incorporate the same concept for furharvester certificates.

\*House Bill 2241 creates a 48-hour nonresident waterfowl hunting permit, which can be used instead of a nonresident hunting license. The two-day permit will cost \$20.

\*House Bill 2292 prohibits harassment of persons lawfully hunting, fishing or trapping. The House Energy and Natural Resources (ENR) Committee amended the bill to exempt law enforcement activities, Fish and Game activities and agricultural activities.

\*Senate Bill 42 will allow KF&G to use conservation easements for protecting riparian and wetland areas as recommended in the riparian and wetland protection subsections of the State Water Plan. The bill was amended to restrict its use to riparian areas and wetlands and to make it available only to government agencies. The bill now specifies that watersheds have rights-of-way.

\*Senate Bill 50 will return interest on Wildtrust Funds to the Wildtrust account.

Other bills of interest to sportsmen include:

\*Senate Bill 364 would have prohibited KF&G from accepting gifts and grants of land valued at \$5,000 or more, or to buy, sell, exchange or condemn land valued at \$5,000 or more without legislative approval. This bill would have adversely impacted the Wildtrust and land acquisition programs. The bill passed both houses but was vetoed by the governor.

\*Senate Bill 39 (the Stream Alteration Act — Kansas Water Plan) would have allowed natural resource agencies to review stream alteration projects before construction. Currently, the state has no provisions to consider environmental consequences of many stream alteration projects. The bill remained in the House ENR Committee; no action was taken.

\*Senate Bill 59 would have raised maximum permit and license fees in KF&G's fee structure. The bill was left in the House ENR Committee, and no action was taken.

\*House Bill 2216 would have required issuance of free deer permits to landowners and tenants (and apparently immediate family members). This bill would have resulted in an estimated loss of \$350,000 to \$400,000 to KF&G and reduced the general resident's ability to get permits. The bill was referred to the House ENR Committee, and no action was taken. *Miller*

## ROADSIDE UPDATE

An article on the management of wildlife habitat along Kansas highways and roads appeared in the November/December 1985 issue of this magazine. Here is an update on that story.

On April 21, 1987, Kansas Wildlife Federation (KWF) members Dr. Robert Robel, Charles Allen and Mary Winder met with Gov. Mike Hayden and Secretary of Transportation H.B. Edwards. The KWF members presented Gov. Hayden with a plan they developed with Robert Mounsey titled "Roadside Wildlife Habitat." The plan received an enthusiastic response from both Hayden and Edwards. Hayden directed Edwards to work with KWF and other conservation organizations to find ways to improve Kansas roadside habitat.

"It was a very positive meeting," said Dr. Robel. "Gov. Hayden expressed interest in the plan, and Mr. Edwards indicated that Kansas Department of Transportation (KDOT) personnel who reviewed it responded favorably."

KWF also presented the plan to the Kansas Fish and Game Commission (KF&G). "We basically concur with the roadside management proposal and believe its goals and objectives are very attainable," said Darrell Montei, chief of the Game Division. "It certainly will provide benefits to the wildlife resources of Kansas and in a cost-effective manner. We would look forward to the opportunity of working with the various (groups) for improving roadside habitats."

The plan recognizes that some progress has been made by the KDOT and KF&G in improving roadside habitat in past years. But there's room for more progress, and the plan suggests ways to accomplish this. These suggestions include providing cover, nesting sites and food for wildlife along roadsides without compromising safety. Properly implemented, the plan can improve the quality of 400,000 to 500,000 acres of Kansas roadside habitat.

Other suggestions in the plan include delaying roadside mowing until after July 15, adjusting mower height to 9 inches, mowing less often, spot spraying noxious weeds rather than blanket spraying, planting native grasses along roadsides and planting seedling shrubs and trees to establish living snow fences. Many of these suggestions would not only benefit wildlife, but also save money for the state. *Mary Winder, Troy*

*EDITOR'S NOTE: Mary Winder is a dedicated member of the Kansas Wildlife Federation. The author of "What's Wrong At Roadside," which appeared in the November/December 1985 issue of KANSAS WILDLIFE, Winder has worked on improving roadside habitat management for several years.*



# NATURE

## TREE VALUE

For years, city officials have planted trees along metropolitan thoroughfares, mainly for aesthetic reasons. Now, however, scientists are discovering that trees have other attributes. According to an article by Mike Toner in *National Wildlife* magazine, urban planners are planting trees because they clean up air pollution.

During photosynthesis, trees not only convert carbon dioxide into oxygen but also filter the air of many of its man-made and natural pollutants. Hence, many city planners are using these natural cleaners to help purify the urban environment.

The air-cleaning potential of trees is well-documented. Scientists in New Haven, Conn., for example, have determined that one large sugar maple can remove as much airborne lead as the city's cars emit by burning a thousand gallons of gasoline. Similarly, city planners in Los Angeles say that by the year 2000, trees will remove some 200 tons of dust and smoke from the region's air each day.

There are drawbacks to the effectiveness of this plan, not the least of which is the potential damage to the trees themselves. Specifically, too much ozone can actually destroy stomata, tiny pores, on tree leaves. Worse yet, there is ample evidence to suggest that toxic substances and polluted air can kill trees not only in the city but in forests many miles from any urban environment as well.

Another shortcoming is due to the limited filtering capacity of the trees themselves. A graphic example are the 440,000 maples, oaks, and lindens planted in St. Louis in the early 1870s. Although these trees have the potential to remove 340 tons of dust and soot a year from the city's air, that is still less than 1 percent of the city's total annual particulate pollution.

Nonetheless, city planners from Europe to Australia are including trees in their future urban development plans. "In most cities of Eastern Europe and the Soviet Union, you find tree plantings on a scale that most Americans would not believe," says Leon Dochinger, a plant pathologist at the U.S. Forest Service. And, in the U.S., cities such as Dayton, Ohio, have used trees to cleanse the urban atmosphere.

Despite the limitations, future use of trees in city landscapes seems assured. In just the last five years, Los Angeles has planted a million seedlings to help improve its air quality. Local groups in London and Chicago have also undertaken efforts to revitalize their urban forests. More ambitiously yet, Australian groups have proposed a plan to plant 200 million trees by 1988. *National Wildlife Federation*

## STREAMS RESCUED

Kansas streams received another reprieve from overexploitation in the 1987 legislative session. Nine new streams received protection in the form of minimum desirable streamflows. The newly protected streams are: Medicine, Chikaskia, upper Smokey Hill, upper Saline, Republican, Big Blue, Little Blue, Delaware and Mill Creek in Wabaunsee County. This brings the number of Kansas streams and rivers protected to 18.

Four streams were initially given standards in 1984. These were the Neosho, Marais des Cygnes, Cottonwood and Little Arkansas rivers. In 1985, five more were protected — the Ninnescah and its two branches, the mid-portion of the Arkansas River and Rattlesnake Creek in southcentral Kansas. No minimum desirable streamflow bills were passed in 1986.

The signing of Senate Bill 41 means that the state is continuing its commitment to this program. All streams that have established minimum desirable streamflows granted prior to July 1, 1990, are given a priority date of April 12, 1984, thereby being treated much like any other water right with a priority number. Therefore, the Kansas Fish and Game Commission will be pushing to gain accepted minimum desirable streamflow standards for any remaining candidate streams before the end of the 1990 legislative session. State water agencies and some local groups will be meeting this summer to decide which additional streams and rivers should be included.

The Kansas Water Office is expected to recommend standards for most, if not all, remaining candidate streams to the 1988 legislative session. If this is successful, two remaining years will be available for adding last-minute

candidate streams and perhaps revising some of the existing standards to take advantage of the 1984 priority designation. *Ken Brunson, stream investigator*

## LAST CONDOR

The last wild California condor has been captured by biologists from the California Condor Research Center. The 7-year-old male condor was captured April 19 on Bitter Creek National Wildlife Refuge.

Veterinarians at the San Diego Wild Animal Park said the condor was healthy and in good condition. After a brief quarantine, the bird will join 13 other condors at the wild animal park where biologists hope to breed the rare birds. An additional 13 condors are held in a similar breeding program at the Los Angeles Zoo. Although there have not yet been any successful matings of California condors in captivity, biologists believe the two programs offer the best hope for preserving this endangered species.

William P. Horn, Assistant Secretary of the Interior for Fish, Wildlife and Parks, said, "Our goal remains the same — a healthy, self-sustaining population of California condors in the wild. We plan to return what we have temporarily taken from nature at a time when we better understand the threats that the species faces in the wild, and when we are successfully producing new birds."

The California condor is North America's largest flying bird with a wingspan of up to 9½ feet. It once ranged from Florida to British Columbia, but its range has been restricted to California in the past century. *Department of the Interior*

## NONGAME FUND

The Kansas Chickadee Checkoff fund is ahead of schedule for 1987. As of May 26, more than 19,000 contributors had given \$173,073.53. At that time last year, 15,800 contributors had donated just \$101,748.86.

"I think we'll end up with more than 25,000 contributors and over \$200,000 when all the donations are tallied up," said Bill Hlavachick, species management supervisor. That would be an increase of more than \$69,000 from 1986's total.

The Chickadee Checkoff Fund was established to provide funds specifically for nongame animals in Kansas. The program finances reintroduction projects, habitat development and research. *Miller*

# NOTES

## IN MEMORY

Gaye Boley, a secretary in KF&G's Law Enforcement Division in Pratt, died April 27 after a long bout with cancer. She was 44.

Gaye began working in Pratt headquarters in August 1966. She was the division secretary for the Administrative Services Division for the first 10 years of her career with KF&G and was division secretary for Law Enforcement for the second 10 years.

If ever there was a person who's first name matched her constant disposition, it was Gaye. Happy. Cheery. Sunny. That's how Gaye's co-workers will remember her.

"She always made you laugh," remembers one of Gaye's co-workers. "She just brightened wherever she was. Gaye was always sunny. I don't care where you saw her — golf course, at sorority, in the grocery store or at work, she was always sunny."

"Gaye always found something good to say about everybody," recalls another co-worker.

"She was one of those exceptional people, one of the first to volunteer for a job. Her husband and son were the center of her life, but she still had time to give to everyone else."

That was Gaye Boley. She is missed dearly.

## CARP CONTEST

The town of Norton will roll out the red carpet for carp fishermen for the seventh annual Busch Carp Derby. The fishing contest will take place July 18-19 at Sebelius Reservoir just west of Norton.

The Norton Area Chamber of Commerce is expecting 100 two-man teams this year. The top team will receive a cash prize of \$125. More than \$500 in prize money will be awarded. In addition to the fishing, anglers will be treated to a hog roast Saturday night. For more information, contact the Norton Area Chamber of Commerce at (913) 877-2501.

Miller

## SANTA FE TRAIL

On May 8, President Reagan signed a bill designating the Santa Fe Trail, stretching 950 miles from central Missouri to New Mexico, as the Santa Fe National Historic Trail. More

than half of the trail lies in Kansas.

The bill's signing means the government will develop a plan for marking and managing segments of the trail, once a major commercial trade route with the Southwest from 1821 to 1880. Furthermore, all significant natural, historical and cultural resources along the trail will be identified and protected, where voluntary agreements with landowners can be reached.

The trail passed through many modern-day Kansas cities and towns. A 100-mile shortcut, called the Cimarron Cutoff, passed through what is today the Cimarron National Grassland, then branched south into Oklahoma and on to Santa Fe, N.M.

For more information, write: Santa Fe Trail Center, Rt. 3, Larned, KS 67550. *The Associated Press and the Wichita Eagle-Beacon*

## TICK CHECKS

Nobody likes ticks, but they can be more than just an inconvenience. At least one case of Rocky Mountain spotted fever was diagnosed in Kansas this spring. The disease, transmitted by only a small percentage of ticks, is serious and can be fatal if not treated.

A turkey hunter, hunting in Chautauqua and eastern Cowley counties, was infected with spotted fever in April. The turkey hunter was treated soon enough that his case didn't become serious. Persons spending time outdoors in this area should be especially careful.

According to "Ticks in Kansas: Their Habits and Effect on Man" by Keith D. Wadlington of the State Biological Survey of Kansas, there are three species of ticks that bite humans in Kansas. The most common is the American dog tick. It gets its name from one of its favorite hosts but will attach itself to humans, too. Kansas also is home to the lone star tick, common in the southeast part of the state, and *Ornithodoros turicata*, a southwest Kansas tick with no common name.

There are three stages of a tick's life: larva, nymph and adult. The American dog tick bites humans only in its adult stage. This tick is teardrop-shaped, narrowest toward the front. The male is 1/10-inch wide and is brown with gray reticular markings. Females are slightly larger with silver markings on a brown body. American dog ticks are found in fields and prairies and along streams and wooded areas.

Adults are active from mid-April through September, but their numbers peak in June. They ascend tall vegetation and wait for an appropriate host such as a deer, fox, coyote, dog, horse or man. They can survive as long as two years of starvation waiting for a host.

The lone star tick's name refers to a white spot on the back of the adult female. The male is shiny red-brown with white specks around the edges of its flat, oval-shaped body. The lone star tick adult is about the same size as the American dog tick. The larva is about the size of a pin head, and the nymph is 1/20th of an inch wide. All three phases of the lone star tick are known to bite humans.

Both the lone star and American dog ticks can carry Rocky Mountain spotted fever. Because all three stages of the lone star tick bite man, it's a threat from spring to fall. The threat of getting spotted fever from the American dog tick is greatest in spring and early summer, when the number of adults is highest.

A third tick that will bite humans, *Ornithodoros turicata*, is soft-bodied and found in rodent and tortoise burrows and dry caves. The tick, which readily bites humans in all three of its life stages, also will attach to a variety of hosts including mammals, birds and reptiles. The most common hosts are jackrabbits, cottontail rabbits, prairie dogs, burrowing owls and tortoises. On rare occasions, *Ornithodoros turicata* can transmit relapsing fever to humans.

Tick numbers appear to be high in parts of Kansas this year. Precautions should be taken whenever venturing outdoors. Protective clothing, such as long pants tucked inside socks or boots and long sleeve shirts, will help discourage ticks. And some commercial mosquito repellents are effective against ticks. After an outing, thoroughly check clothes and body for ticks, which take several hours to attach. Infection with spotted fever would take place sometime after that. If a tick is found attached to the skin, grasp it firmly with fingers or tweezers and pull gently. Don't jerk or pull too hard, or mouth parts may remain and cause infection.

Only a few cases of Rocky Mountain spotted fever are reported each year, but a person who spends time in tick-infested areas should be careful. Because the infection's so rare, it's sometimes difficult to diagnose. The fever has some telltale symptoms, however. Several days after infection, a rash may develop on the ankles and wrists. The rash will later spread to the legs and arms. Other symptoms include intense headaches, aching in the lower back and depression.

If you notice any of these symptoms, see your doctor immediately. Early treatment will prevent serious illness. Miller

# NATURE'S NOTEBOOK

by Joyce Harmon Depenbusch Wildlife Education Coordinator

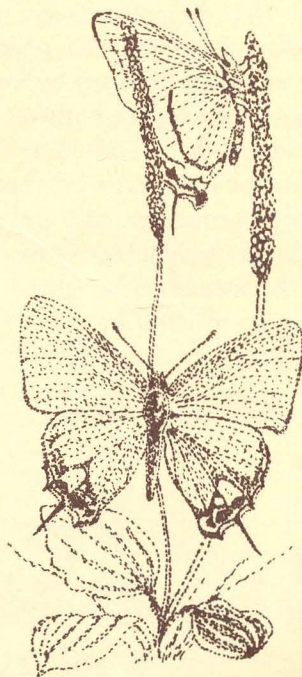
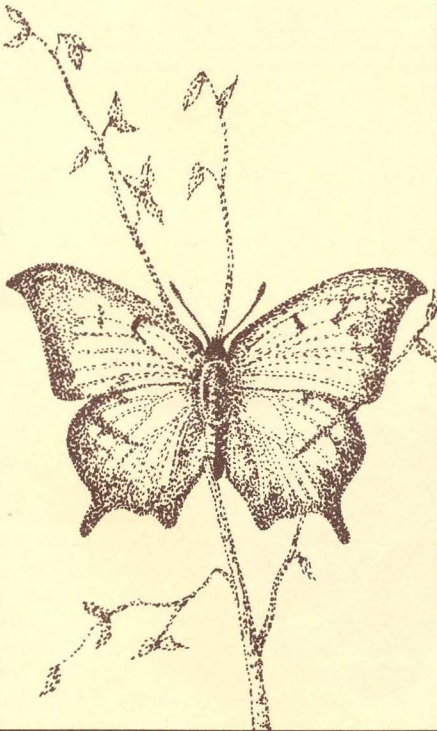
## FLUTTERBYS

Whether flying, crawling, or molting, butterflies are interesting creatures. Because butterflies go through four stages of development, they can be found in a variety of forms. They **metamorphose**, or change from egg into larva, or caterpillar, which feeds, grows, and molts to form a pupa. Eventually the winged adult emerges from the pupa case. Adult butterflies have a long sucking tube, or **proboscis**, to feed on nectar and other fluids. Caterpillars eat a variety of plants.

A few of the many butterflies found in Kansas are shown on these pages. See how many butterflies you can find and how much you can learn about these flying insects. For more information on butterflies, check your local library.

### Goatweed Butterfly

This kind of butterfly is found statewide, but especially in the east. They can be found near streams or trees in the prairie. The adults are attracted to ripe fruit, while caterpillars eat goatweeds. The undersides of their wings look like dead leaves. The larva hides in a rolled leaf during the day.

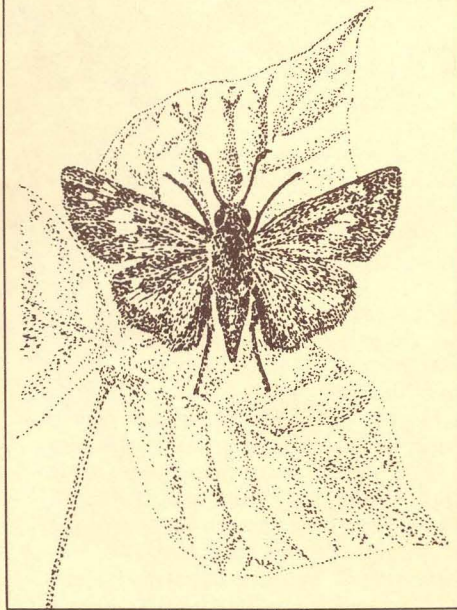


### Gray Hairstreak

Found in all Kansas counties, this butterfly species is attracted to flowers. Gray hairstreaks live in open areas, such as prairies, roadsides, and alfalfa fields. The larvae eat clover, mallow, vetch, and a variety of other plants. They have a swift, darting flight.

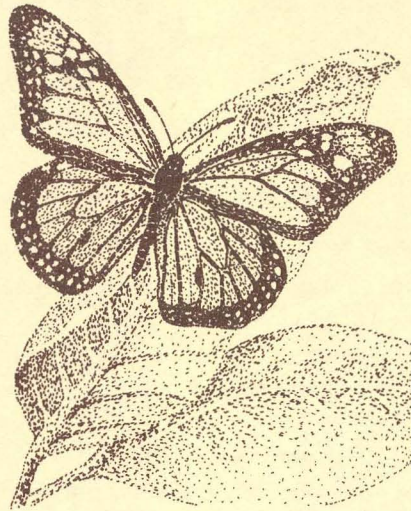
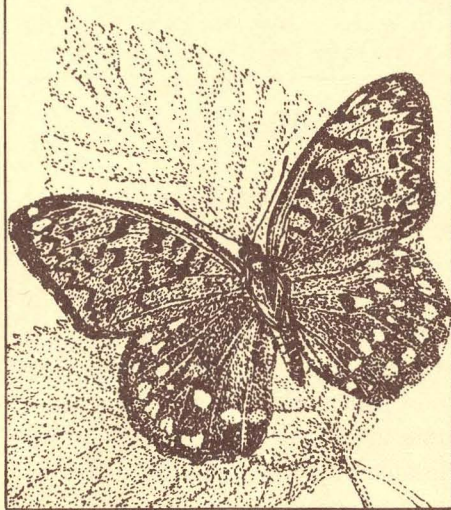
### Mottled Skipper

Mottled skippers are fairly common in the east and central regions of the state, but are uncommon in extreme western Kansas. They are found in lawns, gardens and roadsides. Crabgrass and foxtail are some of the caterpillars' food plants. Skippers earn their name from their skipping flight and can be distinguished from other butterflies by their antennae.



### Regal Fritillary

This butterfly species is considered to be in "need of conservation" so that its numbers are not depleted. It has been found in about 50 eastern and central Kansas counties. It lives in prairies, near roadsides and occasionally flower beds. The violet is the caterpillar's food plant. The male and female can be distinguished by the number of rows of cream colored spots on the hindwing markings. The male's wing has only the inner row of markings with these creamy spots.

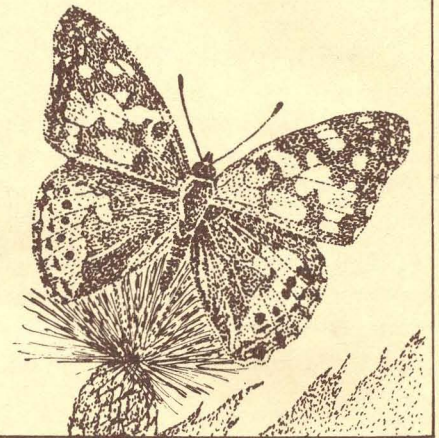


### Painted Lady

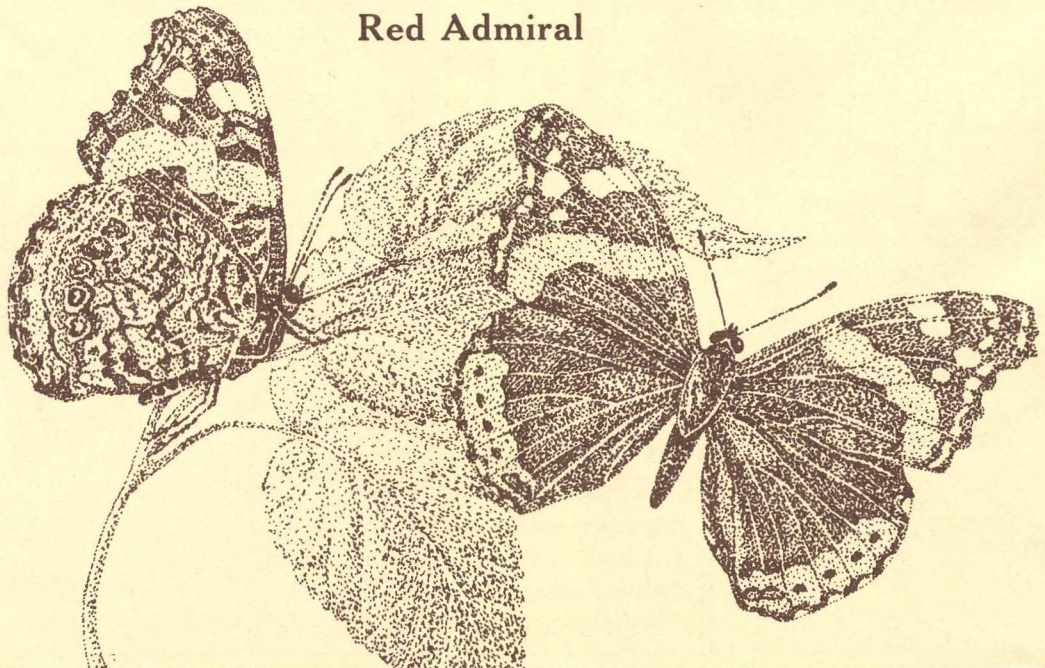
A nickname for this species is "the cosmopolitan" due to its wide range and abundance. Their numbers were so numerous in southwestern Kansas during one spring migration that driving was hazardous. Alfalfa fields, flower beds, or any open habitat is preferred by the painted lady butterfly. Flowers and rotting fruit attract this species. The spiny caterpillars feast on a variety of plants, including sunflowers and thistles.

### Monarch

Monarchs are common all over Kansas. They make their homes in or near fields, roadsides, and prairies. During migration they can be found anywhere, especially if there are flowers close by. They generally make their fall migration in September. The male monarch has dark scales in the center hindwing that serve as scent glands. Milkweed and dogbone are eaten by the caterpillars.



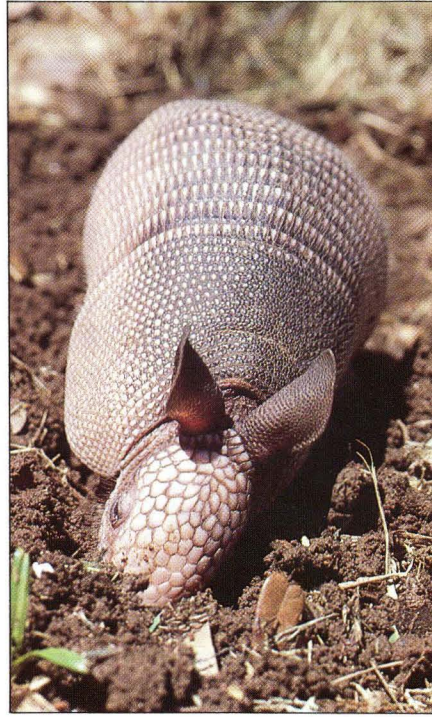
### Red Admiral



They are primarily nocturnal but with the onset of cool weather become more active at dawn and dusk. Armadillos are busy constantly, spending most of their time searching for food. The armadillo is a true opportunist and will eat most invertebrates and some vegetation. They scurry about, grunting constantly like pigs, searching for food with their nose. With its keen sense of smell, the armadillo can detect insects and worms as deep as 8 inches in the soil. When a dillo finds a potential meal, it digs rapidly and prevents dirt from getting in its air passage by holding its breath up to six minutes.

Coyotes and dogs are the primary natural predators of armadillos in the United States. When threatened, an armadillo can roll into a loose ball to protect its vulnerable belly. Predators can have a tough time opening a rolled dillo so they attempt to catch them on the run. That's no easy task as armadillos are surprisingly swift, agile and slippery to catch. The armadillo's main defense is its speed, maneuverability and streamlined body. When danger threatens, it runs to its nearest burrow through the thorniest, roughest country possible in the hope the predator will not follow. Armadillos can dig amazingly fast and will often burrow their way out of danger. Once they lodge themselves in a burrow, they are extremely difficult to extract. Dillos do have a backup line of defense — a pungent spray. Although it can't be squirted like a skunk's, the spray is potent and still discouraging.

**W**hile dillos may fall prey to coyotes and dogs, man seems to have a greater impact than wild predators. If you've ever driven across Texas or Oklahoma, you've probably seen evidence of the armadillo's unfortunate roadside manner. When threatened, the armadillo huddles down on the road. When the danger is almost upon it, a reflex action makes the armadillo jump straight up — just high enough to get taken out by the car's bumper or undercarriage. Of course, many of these silly critters wouldn't be hurt if they'd just hold tight and wait for the vehicle to pass over them. One researcher gives a possible explanation for this bizarre behavior. He speculates that it's a defense against predators. When an ar-



Armadillos can dig amazingly fast and will often burrow their way out of danger. Once they lodge themselves into a burrow, they are extremely hard to extract. Dillos do have a backup line of defense — a pungent spray.

madillo is cornered, it huddles motionless until the predator nudges the shell. The armadillo then springs upward, hitting the predator in the face. The predator is startled and takes a few seconds to regain its composure. In that short time the armadillo takes off like a bullet.

For all their amusing antics, armadillos have a tendency of using their feet to get into trouble. In their quest for food, dillos can wreak havoc on the manicured greens of golf courses as well as beautifully groomed lawns. Dillos also have been known to burrow under houses and on dikes; this digging can cause erosion. And more than one homeowner has complained of the noise dillos make when they rub their shells together or against the house foundation. There once was some concern that dillos destroyed wild bird eggs, but most research has shown that dillo depredation is negligible. It's generally agreed that the good armadillos do far outweighs any negative impact they might have.

Benefits of the armadillo are many. The armadillo is a popular critter partly because it feeds on harmful insects and venomous snakes. Snakes, even poisonous ones, don't mess with dillos. Sugar cane farmers in Southern

states are reportedly delighted to have armadillos, which feed on cane beetles and thereby help to eliminate a problem. Dillos also provide burrows for other wildlife, they incorporate organic material into soil, and they contribute shell products to the curio trade.

Dillos are edible, too. In South America, armadillo meat (said to taste like young pork) is considered a delicacy. In a few Southern states, armadillo is a common dish on some dinner tables. And while some folks may turn up their noses, others weren't quite so picky during the Depression when the dillo's palatability earned it the nicknames "poor man's pig" and "Hoover's hog." The Portuguese call them tatu galinha, or chicken armadillo, another reference to the edibility.

With its peculiar looks and habits, the armadillo is the object of folklore and folk art. Armadillos were often thought of as gods. Ancient South American Indians attached armadillo liver to their dogs as a hunting charm.

Dillos adorn T-shirts, mugs, hats and are popular in their expanded range. Armadillos and Texas are almost synonymous, so it's no surprise that this state is the center for the armadillo curio trade in the United States. Armadillo shells are often used to make decorative baskets. The town of Comfort, Texas, even had an armadillo basket factory where dogs were used to hunt the dillos. Armadillo racing is a growing sport in the South, and many foreigners in dillo territory take part in dillo chasing. Bus tours will often stop when an armadillo is spotted. The tourists are then permitted to catch and release a dillo.

Lots of fun maybe, but not a great idea due to the chance, albeit slim, that the armadillo may have leprosy. Researchers have known for years that armadillo's can develop leprosy through inoculation. Using armadillos as subjects, researchers have developed a leprosy vaccine that will be used by the World Health Organization.

The armadillo, a curiosity and sometimes nuisance, is here to stay. Next time you're out driving the Kansas roads, keep an eye out for armadillos. You might be lucky enough to see what looks like a rock running across the road. And if you spot an armadillo, we'd like to hear from you. Just jot down where and when you saw the dillo and mail the information to: Kansas Fish and Game Commission, Kansas City District Office, 6811 W. 63rd St., Suite 221, Shawnee-Mission, KS 66202. KW





# The Bows Of Summer

Now's the time to hit the golf course, take an early-evening swim or get away with the family. Time, too, to get out your bow.

by Mike Miller  
*Associate Editor*

photos by Mike Blair

Sooner or later, a bowhunter learns that white-tailed deer can materialize out of nowhere. I discovered this fact one morning last fall. I'd just about convinced myself that it was too late in the morning for deer to be moving when, there it was. A beautiful 8-point buck appeared on the trail where a second ago I'd seen nothing. I felt a rush of excitement as I prepared to draw my bow. My heart pounded, thoughts raced in my mind, my right leg tried to quiver uncontrollably, and I felt the shakiness of an adrenaline surge in my bloodstream. I waited for just the right shot as I forced myself back to composure. When the buck turned quartering away, I picked

a spot behind the ribs and released the arrow. The shot looked perfect.

As I waited before trailing my deer, I relived the episode. But I could remember little about the actual shot. I'd been concentrating so much on where I wanted my arrow to hit that I hadn't thought about the release or any of the shooting fundamentals. I didn't need to. Last summer's daily practice sessions had made shooting my bow automatic. All the hours of preparation were worth it when I found my buck a short time later. Bowhunting deer may be the most exciting and most rewarding hunting Kansas has to offer, but it's not an easy sport.

Two words, depending on your

point of view, can be used to describe bowhunters: dedicated or obsessed. Many bowhunters become so consumed by the sport that they eat, breathe and talk nothing but bowhunting. It becomes a year-round dedication rather than a once-a-year hobby. You don't have to become obsessed with the sport, but it does require a certain commitment to become a successful bowhunter. When you decide to hunt with a bow, you bear a responsibility to the game you hunt and other bowhunters to become as proficient and knowledgeable about the sport as you can.

If you'd like to get started in bowhunting, begin now. Bowhunting's not

Items to stash in your backpack (shown below) include a safety belt, canteen, scent pad, orange surveyor's tape and hand saw. These items should be gathered a few days before the season opener, but the time to practice is now.



a sport where you can go out a few days before the season, buy a bow and be ready to start hunting on Oct. 1. The best way to get started is to talk to a reputable dealer or visit a local bow-hunting club. This lets you examine and shoot a variety of quality bows. Buy the bow you're most comfortable with and can shoot most accurately.

A dealer will also measure your draw length, tune your bow if it's a compound and sell you the proper arrows. Shooting a bow that doesn't fit or using improper arrows is not only frustrating but dangerous.

Next learn shooting fundamentals. Again, there are many different shooting styles. Find one you're comfortable with and stick with it. There are three important principles in any shooting style. First, your anchor point must be consistent. Anchor point refers to your hand position while holding the bowstring at full draw. I have three points to touch: my forefinger to the corner of my mouth, my thumb to the back of my jawbone and the string to the middle of my nose. If I hit all of those points, I know my anchor is right and my shot will be on line.

The second fundamental is the release. A smooth release is extremely important. Jerking your fingers from the bowstring or pulling your hand out away from the bow on release will cause misses. Your hand should remain at the anchor point after the release or should follow through directly behind the string.

The third fundamental concerns your bow arm, which holds the bow at full draw. It must remain firmly in position when you release. Dropping your bow arm or kicking it to either side will result in stray arrows.

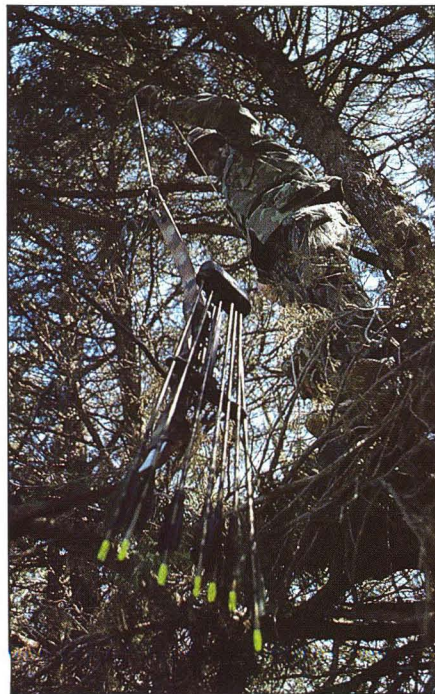
Learning the fundamentals takes hours of practice, so practice sessions should be frequent but not long. Quit shooting as soon as you tire or lose concentration. Shooting beyond this point will often create bad habits. I shoot several times a week for about 45 minutes per session in early summer. Then in late summer and fall, I increase my practice to five or six times a week.

**M**ost bowhunting clubs have target courses with 20-30 target butts set off a trail. The butts have game-animal targets with the vitals outlined although no bull's-eye is marked. Shooters walk the

course shooting each target once. This provides much better practice than shooting at one target from set distances. The course trail helps you learn to judge distance because each target is shot from a different, unknown yardage. If you're planning to hunt from a tree stand, practice shooting from an elevated stand as well.

Most of your summer shooting will be done with field, or target, points. As the season draws near, begin shooting your broadheads. Many bows will shoot differently with broadheads and may require sight adjustment.

Choosing a broadhead is almost as difficult as choosing a bow. Don't pinch pennies here. Buy a quality broadhead with at least a 1-inch cutting width. Most broadheads on the market fill this bill, so your first priority is shootability. Borrow some practice broadheads from a friend or dealer and find one that shoots well in your bow. Some of the one-piece heads have to be hand-sharpened with a file and stone. Whatever the brand, broadheads must be razor-sharp, so if you don't want to take time to learn to sharpen them, choose one with insert blades. These blades can be bought separately and old ones replaced when they become dull. Hunting with sharp broadheads is every bowhunter's re-



The author shows the correct way to carry the bow into a tree stand.

sponsibility. I keep mine hair-shaving sharp, so I'm assured of good penetration and clean kills.

These regular practice sessions do two things for you: give you confidence in your shooting and make you familiar with your equipment. Becoming confident with your shooting ability is very important. You don't want any self-doubts when a deer walks by. And you'll learn your own limitations. Taking a shot outside of your skill limitation can leave you frustrated and saddled with a bad hunting experience.

Being familiar with your equipment is important not only for success but for your safety as well. After hours of shooting practice, you'll notice if anything feels or sounds different on your bow. Check even the slightest creak or catch. Before each outing, check the bow limbs, string, cables, arrow rest and pullies. Never shoot a bow that shows limb cracks or damaged or frayed string. A tremendous amount of energy is released when you release the bowstring; you could be seriously hurt if a limb, string or cable breaks.

Examine your arrows. Straighten or discard bent or damaged arrows and replace cracked nocks, which can shatter on release. This can be like dry-firing a bow . . . very dangerous.

By September, you should be fine-tuning your shooting for the hunting season. Practice with broadheads as often as possible. Another great way to fine-tune your skills is to enter club tournaments, often shot at life-size, three-dimensional Styrofoam targets of game animals. Judging distances is a little more difficult with the 3-D target than it is with a large target butt. It's also more realistic. Shooting 3-D targets is probably the best possible practice for a hunter.

Practice shooting in your hunting clothes. A new camouflage jacket might have bulky sleeves or buttons that will catch the bowstring. Find these things out on the practice range, not in your tree stand. I missed a 4-point muley buck one year when the bowstring slapped my jacket as I released the arrow. The noise caused the buck to jump and avoid the arrow. If you plan to wear a face mask or gloves, do some shooting with these on as well.

September also is the time to scout your hunting area. But that's another story. You can learn a lot about scouting and deer behavior from hunting literature. Twenty years ago, bowhun-







The days of practice and preparation are behind you. It's opening day, and you're ready.

ters learned from their own mistakes. Today many of the best bowhunters have written volumes of information about bowhunting. An excellent article by veteran bowhunter and photographer Gene Brehm on scouting titled "Bucking The Odds" appeared in the September/October 1986 issue of this magazine. Go along with an experienced hunter when he scouts his area, and then get out on your own. That's usually the best way to learn. Look at scouting as an enjoyable part of bowhunting. After all, it gives you that much more time in the field. The more intimate you become with your area and the more you observe deer, the more enjoyable and successful your hunting will be.

**L**earning is what bowhunting is all about. Sitting silently in a tree stand for hours gives the

bowhunter a front-row seat to wildlife in their natural behavior. A successful bowhunting outing rarely ends with a deer in the freezer. But when a bobcat or a family of raccoons passes by or you watch a sharp-shinned hawk hunting through the trees, you can indeed call it a successful outing.

Last season, a good friend bowhunted seriously for the first time. At the end of the season, he was disappointed that he'd not bagged a deer. He hunted hard and saw lots of deer, but his only shot hit an unseen limb. I questioned his disappointment, asking about all the things he'd seen and learned — deer nearly every time out and a front-row seat for an awesome battle between two Pope and Young-size bucks. He rattled in a huge buck the first time he tried rattling antlers. After giving it some thought, he decided that it hadn't been such a bad season after all. He grinned and said,

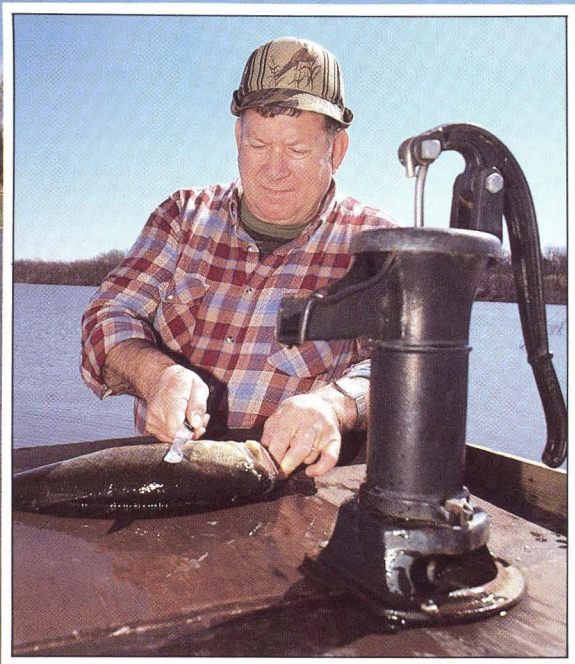
"Next year." My friend learned more in one season than a mountain of hunting literature could have taught him. And he had a great time in the process. That's bowhunting.

The beginning bowhunter shouldn't make the success of his hunt hinge on whether he brings a deer home. Getting within 20 yards of a whitetail deer is never easy, even for veterans. A bowhunter must love to be in the field and enjoy learning about wildlife. Some first-time bowhunters set their sights too high. They decide that they *will* shoot a trophy-sized deer the first year. A more realistic and less frustrating goal is to take the first good shot that presents itself — doe or buck. It's important to develop confidence in your skills and to know that you can keep your composure when you're a few yards from a deer. It's also important to make that first shot count. Practice this line of thinking on the shooting range. Make each shot count. If you do this in practice, you'll do so when a deer is on the line.

Another facet of bowhunting is trailing a deer after it's been hit. An arrow kills by hemorrhage, not shock. A sharp broadhead is extremely lethal when put through the vitals, but a deer doesn't drop on the spot. Blood trailing is a skill in itself and shouldn't be overlooked. Read some of the literature on this subject and jump at the chance to help a friend find his deer. If possible, get an experienced friend to help with your first deer. The only way to become good at trailing is experience.

Bowhunting is a solitary sport. Usually the hunter is far from his vehicle and his hunting buddies. So it's a good idea to carry some essentials when you hunt. I carry a small day pack. In it I have a small saw to cut limbs from the shooting lanes, a penlight, a roll of fluorescent surveyor's tape to mark a blood trail, a knife, extra finger tabs, a canteen of water, my tree-stand safety belt, a length of rope and some basic first-aid supplies.

The bowhunter's rewards are many. I cherish each sunrise and sunset I've witnessed from the tree stand, each chorus of coyote music I've heard. I vividly recall the red-tailed hawk that chased a rooster pheasant, the flock of turkeys that roosted near my tree stand and all the deer I've been fortunate enough to see. The actual kills are thrilling but almost insignificant when added to the entire bowhunting experience. KW



Earmarked tax dollars have paid for floating fishing piers (shown in large photo) and fish-cleaning stations (inset).

# The Fishing & Boating Tax

Since 1950 American fishermen have been paying a special tax to improve fishing. Now boaters are pitching in as well.

by **Mike Theurer**  
*Chief  
Fisheries Division  
Pratt*

photos by **Mike Blair**

**W**hether you call it D-J, Dingell-Johnson, Wallop-Breaux, W-B, the Deficit Reduction Act of 1984 or, quite simply, federal aid, all these names and initials represent an important and simple user-pay principle — the Sport Fish Restoration Fund. You, as a fisherman, pay into this fund when you buy certain fishing items and gas for your boat. This system came into existence more than 35

years ago, but even today most anglers don't know they're contributing to their state's fisheries program — actually making fishing better — when they buy certain items.

Congress made this funding source possible in 1950 when it passed the Federal Aid in Sport Fish Restoration Act, popularly referred to as D-J, or Dingell-Johnson, after Rep. John Dingell and Sen. Edwin Johnson, the bill's primary

sponsors. D-J established a tax on certain pieces of fishing equipment including fishing rods, reels, creels, artificial lures, baits and flies. Later amendments clarified this list to include fishing spears, spear guns and spear tips, fishing hooks, bobbers, sinkers, snaps, swivels, fish stringers, landing nets, fishing vests and fishing tip-ups and tilts.

Since 1950 more than \$600 million has been collected nationwide from the tax you've been paying on your fishing equipment. Once these taxes are collected, the U.S. Fish and Wildlife Service disperses the money under guidelines Congress established 37 years ago. Those guidelines stipulated that 1) the money was to be spent on land acquisition, research, development and management for the benefit of sportfishes; 2) the money was to be made available to the states under a formula using the total land mass of the state and the annual number of fishing licenses sold; and 3) the U.S. Fish and Wildlife Service cannot spend more than 6 percent of the current year's collection for administrative costs. A portion of these monies, the excise tax Kansas anglers have been paying for more than 35 years, are apportioned annually to Kansas. These earmarked funds fluctuate annually although Kansas usually receives about 1.5 percent of the national total. Traditionally these funds have been used for management-based research projects as well as lake construction and development.

Since the tax is based on a percentage, it fluctuates with inflation, product pricing and buyer whim. At the same time, recreational fishing in Kansas has been growing dramatically. Last year roughly one-half million anglers spent 7.8

million angler-days fishing the Kansas waters. An angler-day is a common unit of measure among fisheries research biologists. One angler who fishes any part of a day is counted as one angler-day.

As the accompanying chart on Page 34 shows, funding increased fairly steadily until 1986, when federal monies jumped by more than \$1 million over the previous year's apportionments. This increase wasn't due to sales increases or inflation but rather to the Deficit Reduction Act of 1984. Within this act, Sen. Malcolm Wallop, R-Wyo., and Rep. John Breaux, D-La., supported by the nation's sportfishing public and equipment manufacturers, gave birth to an expansion of the Sport Fish Restoration Act of 1950. These D-J expansion dollars have been popularly dubbed Wallop-Breaux, after the bill's co-sponsors.

Along with this new act came new money and new rules for using it. The new Sport Fish Restoration Fund's coffer and its companion Boating Safety Account were increased by adding more fishing-related items to the taxable list, which now includes flasher-type depthfinders (3 percent tax), tackle boxes (10 percent), imported fishing equipment (10 percent), all duties assessed on imported yachts and pleasure craft and a portion of the taxes on motor boat fuels.

A few other requirements also are tied in with this funding. Overall, these funds must be used to restore, conserve, manage and enhance sportfish resources; and to provide for public use and benefits of these resources.

Adding emphasis to these requirements, the congressional conferees stated: "In establishing this expanded funding

D-J dollars paid for this pontoon boat, shown here adding cedar trees and thereby fish habitat to a Kansas impoundment.





Earthen piers, in addition to boat ramps, fish-cleaning stations and other worthwhile facilities, are funded by this special tax.

source, intend that the new revenues be added to existing state fishery program funds available from traditional sources and not as a substitute . . ." This provision means each state must expand its fisheries management efforts in order to qualify for the new money, which cannot simply be used to replace established funding sources.

The new tax generated significant revenues from boating-related items. Most boaters, studies show, use their boats to fish. And a new congressional stipulation has meant these boating interests must be considered. At least 10 percent of the total fish restoration funds a state annually receives must be spent on boating facility development. This recognition of the boating contribution is vital to the program's success. In addition, each state may allocate up to 10 percent of the yearly allocation toward an aquatic resources education program.

All D-J monies are provided to the state on a cost-share basis. The U.S. Fish and Wildlife Service will reimburse each state up to 75 percent of its eligible expenses, up to the yearly maximum established for each state. For Kansas, this means the federal government will reimburse us 75 cents for each dollar we spend on fisheries management, up to a maximum of \$2 million in 1987.

**W**allop-Breaux is a new program, so we don't have a track record by which we can predict how much money will be available to Kansas each year. But some estimates are possible. If the national collection amounts to \$120 million per year and given that there are 60 million anglers in the U.S., then over the long run each angler will pay \$2 in fishing excise taxes per year.

During the first full year of D-J expansion (FY 1986), Kansas was eligible for \$1.3 million. The primary intent of the first year's budget for Kansas was to finance projects with direct, identifiable angler and boater benefits and to fund surveys and investigations that would mean better fishing for those paying the tax. There were 19 accounts set up in the Kansas Fish and Game Commission budget to commit these monies in FY 1986. Development projects accounted for 75 percent of these earmarked dollars. The money went toward construction of nine floating fishing piers and boat dock facilities, 16 earthen fishing piers, five earthen pier extensions, five single-lane boat ramps, two boat-ramp extensions and 12 fish-cleaning stations. Monies also have been allocated and carried forward for development of stream access sites (both boat and shore), and negotiations continue for work to be done on six sites. Engineering studies are almost complete on our Pratt and Farlington hatcheries. Improvements from this study should improve efficiency of water use, increase on-site facilities and increase fish production. Fully-equipped pontoon barges were purchased to place brushpiles in our public fishing water. Funds also were allotted to an engineering study for repairing Rocky Ford's low-water dam, improvements at Ottawa State Fishing Lake, road and crossing construction and spillway repairs at several lakes. A Community Lake Grant Program was initiated. Some of the funded projects include roughfish eradication and facility construction (ramps, parking lots and roads) at new impoundments. And an aquatic resources education program was developed for use in

### D-J Apportionments To Kansas Since 1952

1952	49,714	1971	225,141
1953	46,786	1972	228,751
1954	80,948	1973	300,196
1955	83,060	1974	248,640
1956	84,681	1975	280,247
1957	79,415	1976	329,459
1958	71,576	1977	404,725
1959	74,208	1978	328,882
1960	83,751	1979	426,079
1961	89,534	1980	442,560
1962	92,965	1981	482,290
1963	98,910	1982	469,932
1964	104,961	1983	501,658
1965	119,532	1984	478,943
1966	115,289	1985	534,014
1967	128,646	1986	1,616,290
1968	156,847	1987	2,047,405
1969	148,553		
1970	193,392	TOTAL	11,301,992

schools and fishing clinics. The instructor's manual is currently in use.

Management-based research remains one of our top priorities. On-going research focuses on crappie dynamics and fishing pressure, seasonal water quality in our streams and walleye and hybrid bass studies, to name a few projects.

New projects will be undertaken each year, and FY 1987 new project listings (either completed or under way) include a Reservoir Development Account to fund new boat ramps as well as parking lots and earthen piers on three Kansas reservoirs. Monies also have been budgeted for an education center at the new Milford Fish Hatchery. This center will feature exhibits and informational displays of Kansas' fish and wildlife resources plus future plans for enhancement. On-going programs such as state fishing lake development will provide new facilities at lakes not developed in FY 1986.

All these projects were designed so that the person paying this excise tax could look at one of these projects and say: "That's what we've done with our D-J money in Kansas." The important point to be made is that Kansas anglers buy fishing equipment, and when they pay for it, they also pay a D-J tax that comes back to Kansas to improve sportfishing. Let's make out a short shopping list of fishing equipment and figure out what the D-J tax would be.

	Equip- ment Cost	D-J Tax (percent)	D-J Tax Paid
1 Zebco 33 spincast reel	\$12.99	10	\$1.30
1 package bobbers	1.29	10	.13
1 Minn Kota trolling motor	69.95	3	2.10
2 Bomber Model A crankbaits	4.70	10	.47
Total	\$88.93		\$4.00

Keep in mind that we've just spent double the tax paid annually by the average U.S. angler. Now, where does this \$4 excise (D-J) tax go in Kansas? See the diagram at right for the breakdown.

How the new D-J money is spent will become even more important to the Kansas angler next year, when Congress holds oversight hearings that will grade the states on their use of D-J dollars. If the states receive high enough marks, the program will continue unchanged.

Since D-J was passed, however, there has been at least one attempt per year at diverting monies from this fund. The Department of the Interior made the most recent attempt. Under the proposed plan, \$25 million would be spent elsewhere in the Fish and Wildlife Service in an attempt to further reduce the federal deficit.

Now you know that D-J is a user-pay system whereby all anglers (not just those buying permits or licenses) finance the Kansas Fisheries Program. You know you pay these taxes when you buy fishing equipment, and you know where the money goes (more importantly, you know that it comes back to Kansas).

As a reminder of this user-pay system, a D-J logo is being developed and is scheduled to be used nationwide. You'll begin seeing this designation on lake-entrance signs, fish-habitat buoys, electrofishing boats and habitat barges. The fishing tackle industry even intends to mark the taxed products with the logo. When you see it, remember your D-J dollars are working for you in Kansas. Good fishing! **KW**

## WHERE THE MONEY GOES

This table shows how \$4 of D-J tax money is distributed for state projects. Three-fourths, or \$3, goes toward ramps, parking lots, hatchery improvements and other projects that ensure better recreational opportunities for Kansas sportsmen. The remaining dollar is funneled to five related areas.



Development (boat ramps, roads, parking lots, hatcheries, habitat and other angler facilities)



# KANSAS WILDLIFE

## Gallery

photos by Mike Blair and Gene Brehm

*Editor's Note: This issue we bring you a special, five-page Gallery dedicated to all those times you wish you'd carried along a camera . . . but didn't.*

Gillardia, or Indian Blanket, stretches across a Scott County pasture. Wide-angle shot taken with 28mm, f/22 at 1/30. Closeup taken with 50mm, f/16, 1/30.

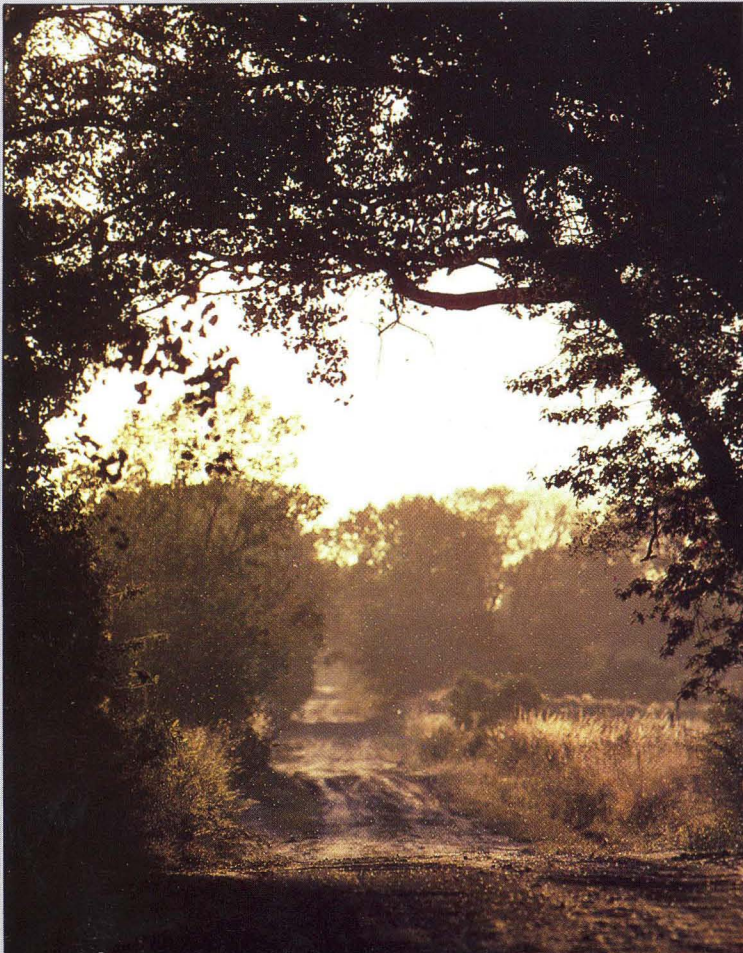




Mike Blair photos

An early spring storm passes Reno County cottonwoods and bluestem grass still dressed in winter garb. Shot with 55mm, f/8, 1/60.

Swarms of flying insects (lower left) battle summer's heat on a Rice County road. Taken with 55mm, f/5.6, at 1/125. A sandstone rock formation in Barber County (lower right) attests to the cutting force of water. Once part of an extensive formation called the "little city" by the land's owners, this natural sculpture is one of the few that has withstood weathering. Shot with 50mm, f/16 1/125.





**Above:** The Ninnescah River, which cuts through several south-central Kansas counties, helped create this scenic stretch in Pratt County. Shot with 50mm, f/11, 1/60.

**Left:** Water hyacinth drinks up sunlight on a Pratt County pond. Shot with 50mm, f/22, 1/60.

**Right:** A wide-angle lens and a slow shutter speed captured this magnificent Stafford County sunrise on film. Shot with 28mm, f/16, 1/15.





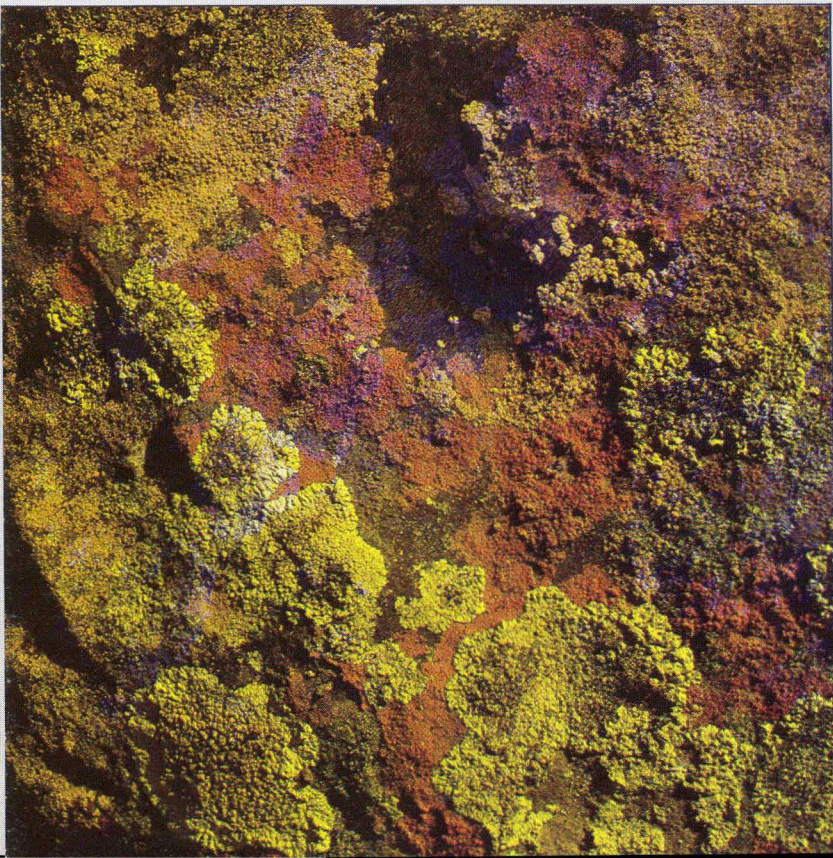
Mike Blair photo



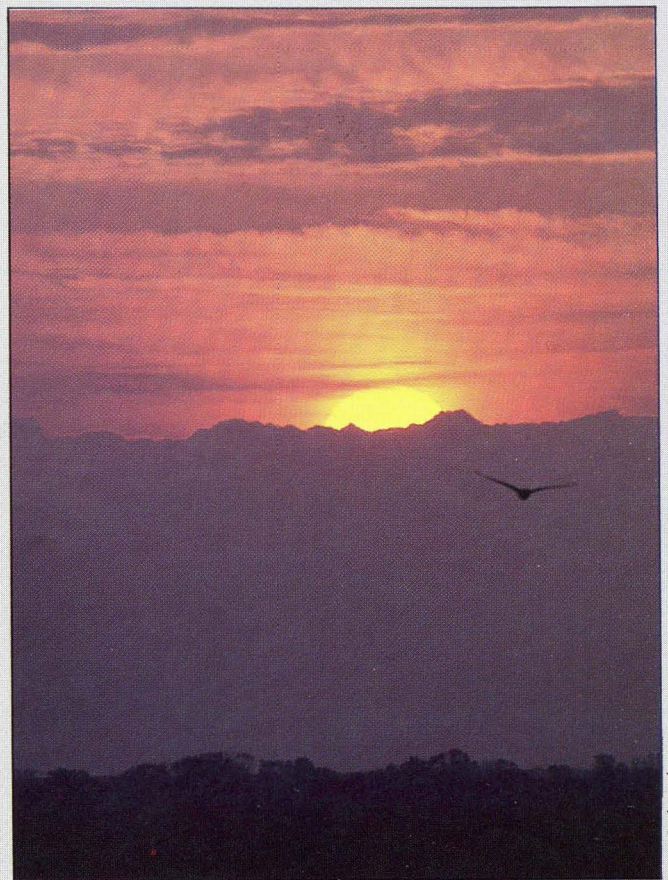
**Above:** An abandoned farmstead in Ottawa County weathers away on the Kansas prairie. Shot with 28mm, f/16 at 1/60.

**Left:** Multi-colored lichens hug a sandstone rock near Kanopolis Reservoir. Shot with 28mm, f/16, 1/30.

**Right:** A marsh hawk glides silently above the water as the sun sets on Quivira National Wildlife Refuge. Shot with 400mm, f/13, 1/250.



Mike Blair photo



Gene Brehm photo



by Bob Mathews

## The Fine Line

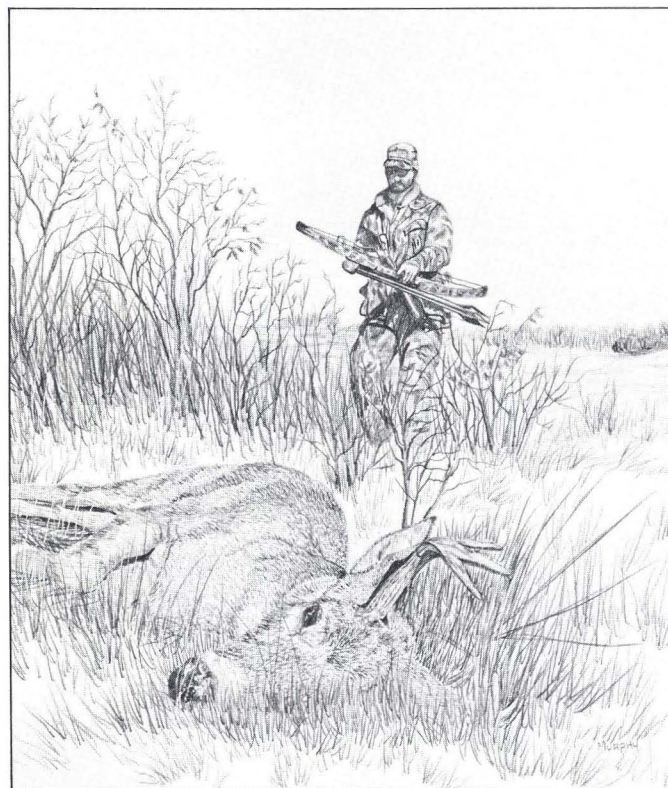
**T**he subject of killing, as it relates to hunting, has been discussed from just about every angle. Many arguments have been advanced for the reasons we continue to hunt when we have other means to feed and clothe ourselves. Often these reasons are offered in response to a tirade from one of the anti-hunting groups that have popped up in the past 20 years. Sometimes, out of consideration for those who don't hunt, we substitute kinder words: Harvest. Bag. Take. But it's killing and while there's no reason to flaunt the killing aspect of hunting, there also is no reason to apologize for it.

The primary difference between hunters and the anti-hunters is one of perspective. Anti-hunters are concerned about the deaths of individual animals; hunters, the deaths of species. That may seem an unfair generalization, but there is no doubt that American sportsmen (primarily hunters and fishermen) have played the major role in virtually every wildlife conservation milestone and are among the first groups to recommend closing or curtailing a season whenever a species' numbers drop below the acceptable population level.

Sportsmen took this active role simply because they were the main ones who were out there, seeing firsthand what was happening to the natural resources. Despite the dramatic growth in the number of Americans who pursue so-called non-consumptive uses of wildlife, sportsmen still are the abiding human presence keeping watch over our wildlife resources. That means sportsmen are eyewitnesses to changes in our environment. They comprise the major political pressure group working for wildlife through habitat preservation.

Good habitat generally makes for good hunting, which is a subtle extension from simply observing. One of the rewards of hunting is what it teaches us about ourselves. To hunt is to affirm that we are predators. Humans adapted and survived as predators. Each of us, despite our individual politics, is born with a predator's instincts.

Hunter's exercise those instincts and, despite the disdain anti-hunters express for that, there is simply no getting around the fact that every living person is still a predator. There are more buffers and middlemen between us and our prey than there were centuries ago, but we still exact a toll on other living things by simply existing. We eat. We clothe ourselves. We drive cars. We build new subdivisions. We set aside land to dispose of our garbage. We confuse ourselves with an overabundance of material goods that all are obtained — directly or indirectly — at the expense of other living things. Our modern way of life is more profoundly predatory than ever before because each advance in man's cultural evolution has had a greater impact on the environment than the previous one. As hunting gave way to agriculture, then industrialization, then the technological complexity of today's world, we lost touch with the fact that we are and always will be predators. What changed, however, was the link between us and our prey. Outside of the



Patti Murphy illustration

hunting experience, that link has become so convoluted today that it can barely be understood.

Hunters are the first to admit the inconsistency that exists in the shooting of animals. An anti-hunter wonders how a hunter can treasure a beautiful pointer or retriever for years, yet go out every fall to shoot an equally beautiful deer or duck or pheasant. It's an inconsistency that will never be explained to everyone's satisfaction. It also is an inconsistency that can best be understood by participating in the hunting experience.

For me, the whole exercise is brought most vividly into focus in the sport of bowhunting. Last fall, I spent nearly 30 mornings in a tree stand. I didn't kill a deer . . . but I learned. About deer. About myself. And about the inconsistency of shooting, or attempting to shoot, an animal as beautiful as a white-tailed deer.

In the clear air of a November morning, I find that life makes better sense as I view the passing world from a tree stand. Death makes sense, too. In a world we've made more complicated than it need be, there truly is something beautiful about the simplicity of the predator-prey relationship. Wildlife is a priceless resource, both for its own sake and for what it can teach us about ourselves. **KW**

