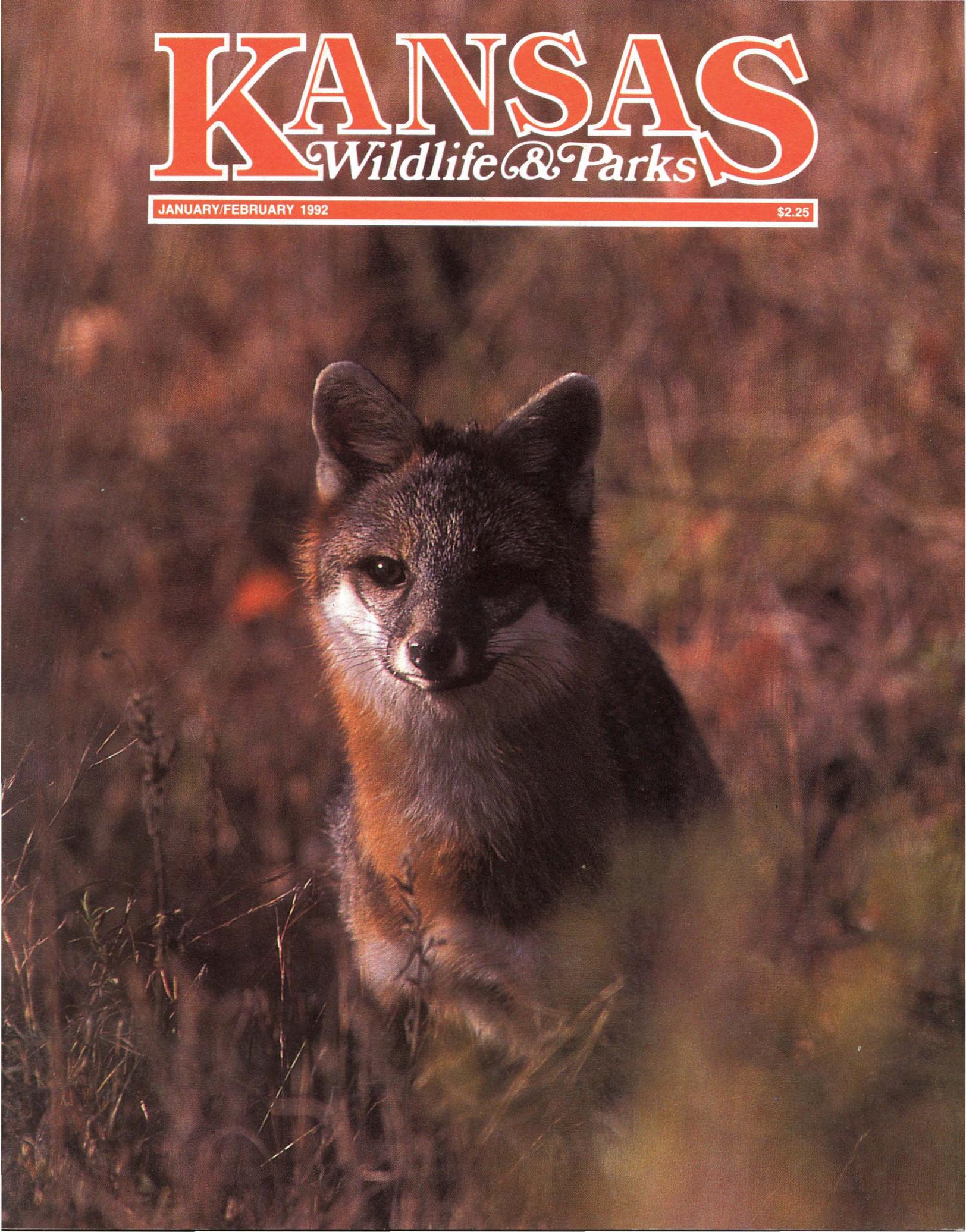


# KANSAS

*Wildlife & Parks*

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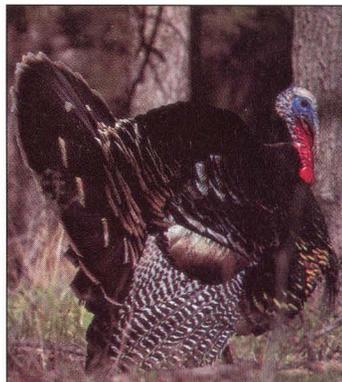
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**Front:** A two-year search for gray foxes paid off for Mike Blair with this shot taken via game calling. Blair used a 400mm lens, f/9.5, @ 1/125 sec. **Back:** A bull bison stands amid vetchling flowers at Maxwell Wildlife Refuge. Mike Blair took the photo with a 400mm lens, f/5.6, @ 1/125 sec.

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

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## Magic Ice

January. It is, by some standards, a long, cold month with little to look forward to except its end. But it's usually during this long, cold month that lakes freeze. I mean freeze hard, with enough ice to walk out on, cut a hole through and drop a fishing lure down. Those who've not tried won't understand, but there's something magical about icefishing.

I watched a comedian on television the other day slamming us icefishermen as those who can't stand to be at home. His shtick revolved around a man scheming ways to get out of the house and choosing one as "insane" as sitting on a frozen lake in a cardboard box. I, for one, was offended. I've never sat in a cardboard box.

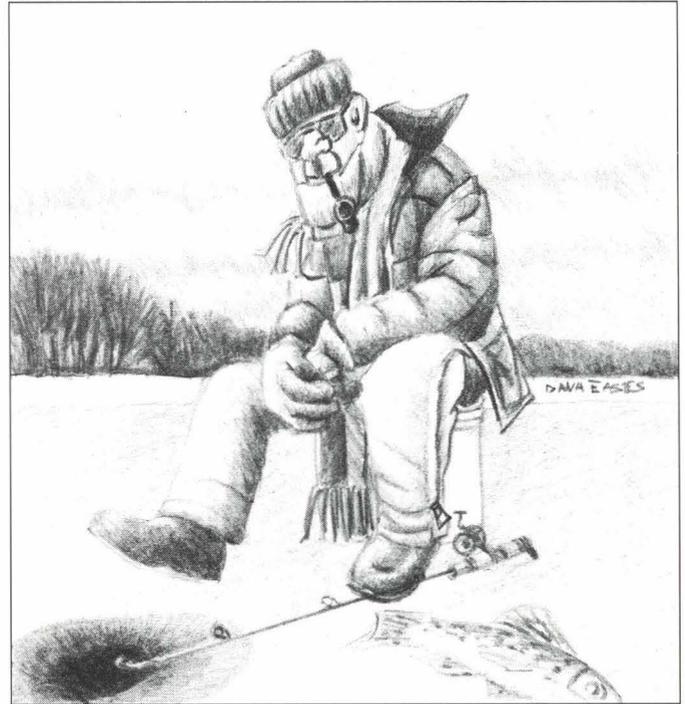
The comedian had obviously never icefished. I suppose from his point of view, icefishing must seem crazy, but once you've done it and caught fish, it's truly a magical experience—dropping a lure into the dark, icy depths and waiting for a tap from below. It doesn't sound like it should work. You sit for hours in the same spot, fishing straight down. But it does work, sometimes phenomenally well.

Icefishing is just one of those things you have to experience to understand. Nobody loves to fish more than me. But, until a friend took me icefishing several years ago, I didn't understand the attraction. Since then, all of my converts have become fanatics, too. It's a powerful addiction. For some, it takes only one icefishing dose and you're hooked.

We "icemeisters" long for frigid weather . . . sub-zero nights, battery-killing, finger-stinging, frostbiting cold. We smile as we scrape an inch of hard frost from our windshield in the morning. Everyone buzzes after the first real arctic blast. "How many Kastmasters do you have left? Is that old three-wheeler running? What about new runners on Eddie's fish sled? Does Wal-Mart have auger replacement blades?"

These words may be premature. It might not get all that cold this winter and, God forbid, we might not get to ice fish. But like most fishermen (especially icefishermen), I'm an optimist. I'm positive we'll get in some icefishing.

I've heard good reports from biologists, too. At one of my favorite lakes (the name shall remain unprinted), the white bass are plentiful and fat, some weighing up to 3 pounds. Writing this just about makes my teeth hurt. I



Dana Eastes illustration

can hardly wait to set the hook into a big ol' white, see the bend in my little ice rod and feel the pumping action of the fish as I coax it gently to the hole.

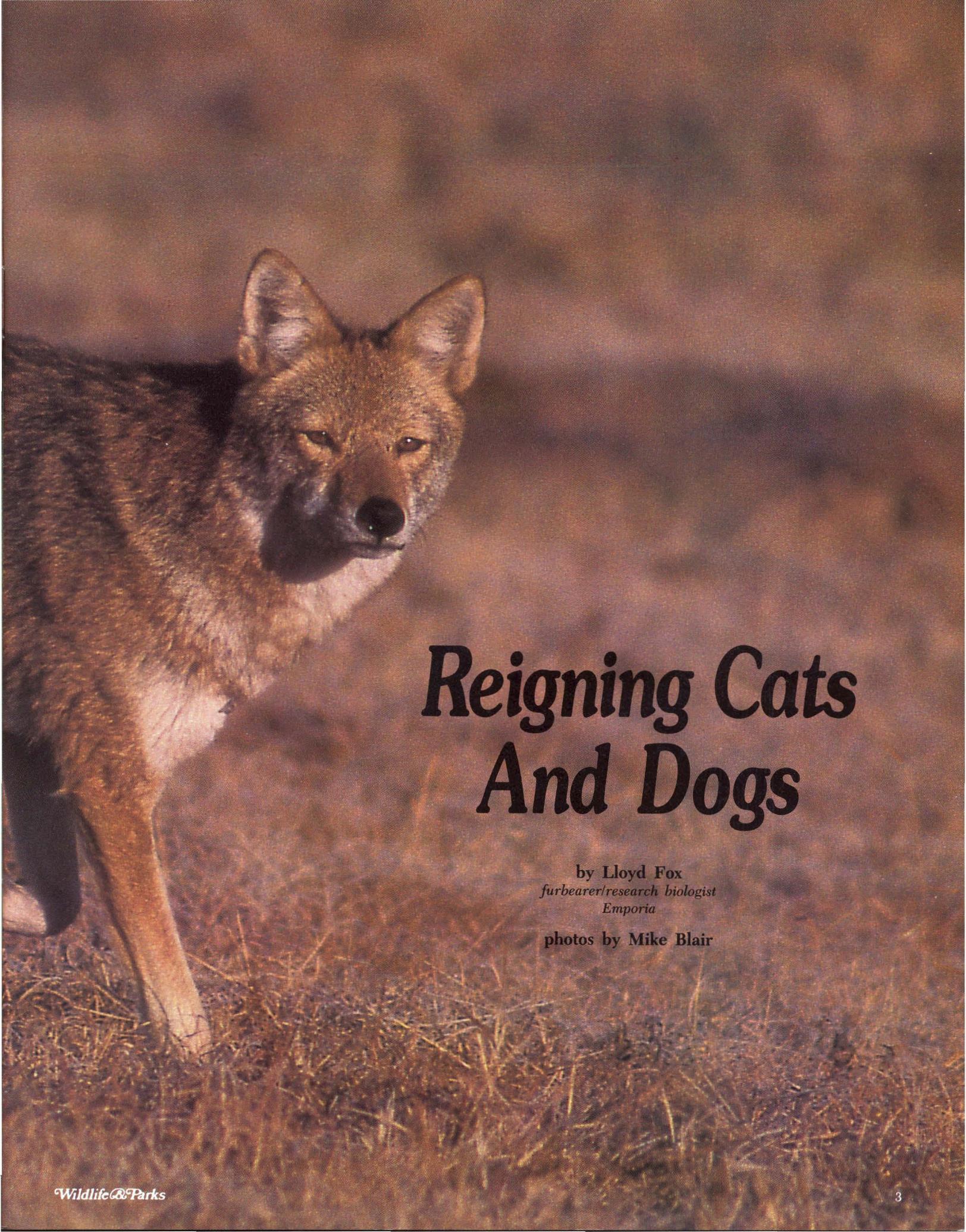
If you aren't getting the heebie-jeebies just reading this, than you've obviously never icefished before. I know my ice brothers are all starting to quiver . . . and will probably drop this magazine about now to go change line on their reels, sharpen hooks and make sure their pack boots are in good shape. (Where did I put those ice cleats last winter?)

I've said it before: things like this are what make Kansas such a great place. Just when one outdoor addiction subsides, another takes its place. Some detractors may say that I need to grow up. I hope I never do. And as long as Kansas outdoor opportunities remain so exciting, I don't think I ever will.

Until the ice is on, I'll bide my time hunting deer and birds and enjoying the fall. But my dreams will be of 2-pound whites and frosty mornings. Is this a great country or what?

*Mike Mill*





# Reigning Cats And Dogs

by Lloyd Fox  
*furbearer/research biologist*  
Emporia

photos by Mike Blair

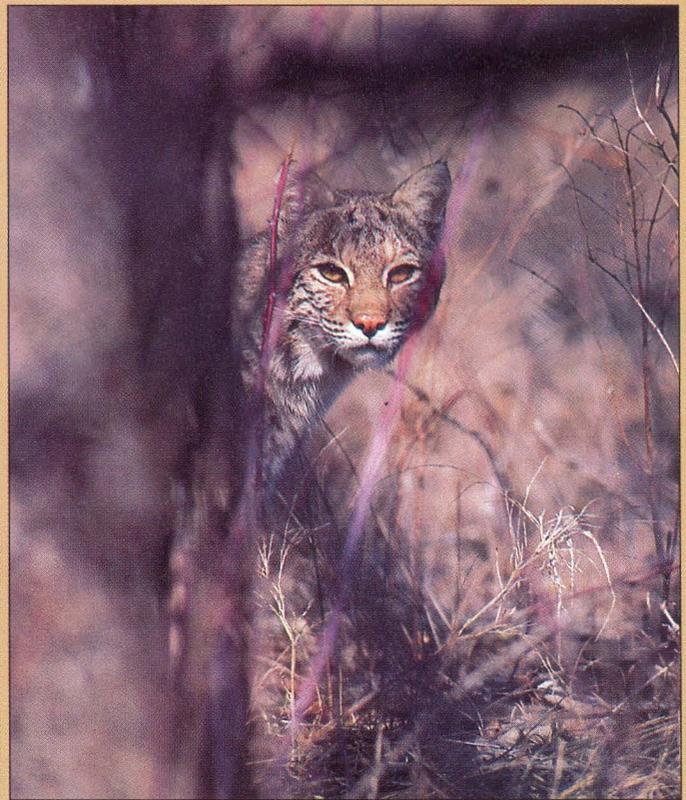
*The age-old struggle between predator species and the integral niche they fill in nature's scheme is an intriguing study.*

A blur of fur flashes in front of me. A tawny beast darts under the branches of a low shrub, springs to the trunk of a massive red cedar and shoots upward, propelled by muscles with strength like coiled steel and footgear with retractable claws. Yelps of excitement are tight on the feline's heels. The chase is over. A howl of satisfaction is bayed upward and a snarl and spit of disgust is fired down. Two additional members of the pack soon test the scent on the tree. When you spend a lot of time in the country, you expect to see a few spectacular wild things, but in your own backyard? I gather my composure and sort out the facts, then yell to my daughter, "Your puppy is chasing the cat again!" I am sure this was not what the editor had in mind when he asked me to write an article on the cats and dogs of Kansas. But what better place to learn about the wild relatives than with the animals in our backyard.

About 35 million years ago, the first catlike and doglike carnivores began to evolve. While the species have changed, the competition has always been intense. Domestication has not completely erased this age-old struggle. The next time you see a dog chase a cat, think of it as the continuation of something started millions of years ago.

The community of wild cats and dogs in Kansas today is not the same as that of a century ago, or in the epochs of geologic time. Two hundred years ago the wild cat and dog community would have been dominated at the top by mountain lions and the plains subspecies of the gray wolf. A few coyotes and bobcats occurred statewide. In the far southeast corner, there were red wolves. Swift fox occurred in western Kansas, but the edge of the red fox range would have been north of the state, while the edge of gray fox range would have been south of the state. Before those species there were prehistoric cats and dogs. Dire wolves, sabretooth cats, and an American lion probably hunted the plains of North America. Even more surprising is the record of cheetahlike cats as recently as 12,000 years ago. The evolution of the American pronghorn seems more logical knowing that at one time a predator with the speed of a cheetah may have shared the prairies.

Domestic cats and dogs dominate the gene pool of felid and canid communities in Kansas today. About 12,000 years ago, in the Near East, one of the small subspecies of wolves, either *Canis lupus pallipes* or *C. l. variabilis*, provided the seed stock for Man's best friend. There are now more than 800 true breeding types of domestic dogs in the world. The spread of domestic dogs was rapid. By



While plentiful in Kansas, bobcats are secretive and nocturnal, so they are rarely seen. They are the top predators of the rocky, hilly woodlands of Kansas.

8,400 B.C., they had reached mid-continent North America. Domestic dogs are still capable of breeding with wolves, and the hybrids are fertile. Because of some universal characteristics common to all dogs and different from wolves, it is believed that domestication occurred only once.

The ancestor of domestic cats was the wildcat of North Africa, *Felis silvestris lybica*. Domestication may have been as recent as 3,000 years ago or may have begun as early as 8,000 years ago. Unlike the situation with dogs, domestic cats had a triple ancestry. The Persian breed and Siamese cats originated from two other subspecies of the wildcat. As with the dog and wolf situation, domestic cats and true wildcats are still capable of breeding and producing fertile hybrids.

Kansas is still blessed with a magnificent assembly of wild cats and dogs. The coyote rules the range. Red fox hold sway at the village edge. Swift fox have regained the scepter of control in the short grass prairies of western Kansas. The regal monarch of the dense brushlands in southeast Kansas is the gray fox. Stately bobcats sit on the throne of predatory authority along the woody draws and rocky hills of our state. Each fills a unique niche, and yet, at certain times and places competes with other members of the community. This is not a picture of static balance of nature. It is a dynamic situation, with an unknown outcome.

The ebb and flow of cat and dog species on a geologic scale can help us understand how a species comes to be found in an area. For example, we tend to think of the bobcat as our wild cat. It is restricted to North America.

The edges of its distribution flirt with Canada and Mexico, but the core area is the United States. However, the origin of the species stems from Africa. A short-legged species called the Issoire lynx hit on the right combination of characteristics and spread northward to Europe and Asia. One of the variations of this species reached North America about 3 or 4 million years ago, and due to competition with ancestral pumas, underwent changes that resulted in the characteristics of the bobcat. Another variation of the Issoire lynx spread eastward through Asia and Europe. It would eventually be the northern lynx. Glaciers came and went, forcing the species out of some areas or allowing them to colonize new lands. Eventually the northern lynx spread eastward about 200,000 years ago and found a new bridge to North America. It then became isolated from its parental species resulting in the present-day Canada lynx.

Alternating periods of hot and cold or wet and dry weather may result in dramatic changes in the vegetation and in the animal community. We tend to think of these patterns only in geologic terms. Few people can disagree with the impact of a glacier. However, minor climatic changes can have dramatic ecological consequences. The fox community of North America provides an example of the impact of minor climate changes. Red fox are adapted

for cold climates while gray fox tend to do better in warm climates. Just prior to colonial settlement, it appears that red fox were restricted to the area north of 40-45 degrees N. Reds were present in the prairies of Manitoba but were not found in the area south of the Platte River. Along the east coast, the boundary was in Pennsylvania. Changes in the distribution and abundance of the two species have been documented by researchers examining various archeological sites. Between 5,000 and 2,000 B.C. the range of the red fox contracted north during a warm period. It then shifted south until about 1,000 years ago when a second warm period began. Recent situations are somewhat confusing because of complications due to man's effort to establish red fox. Red fox were released in the southeast United States starting about 1790. A dramatic increase in the distribution of red fox is associated with these introductions and the habitat alterations due to agriculture. However, this southward expansion in the range of the red fox also coincides with a climatic cooling during the 17th and 18th centuries called the "Little Ice Age."

#### **"It's Dog-Eat-Dog"**

Competition in the cat and dog world is intense and uncompassionate. To the victors go the spoils of home ranges with adequate food and shelter. The losers are



Gray fox are more adapted to warm climates and inhabit the heavily forested portions of eastern Kansas. Almost catlike in appearance, grays are also adept tree climbers. In competition among predators, the gray wins out in dense brush, however, in more open woodlands the red fox takes over.



Red fox were not common south of the Canadian border before settlement, as the species is adapted to colder climates. However, climate changes may have allowed reds to move south. In Kansas, they typically inhabit areas near towns and cities.

relegated to inferior habitat where they do not prosper, or they may even be killed. Canids and felids have a strong territorial behavior and species hierarchy. Size is important. Wolves outcompete coyotes. Coyotes outcompete red fox. In open habitat red fox outcompete gray fox, while at the brushy end of the habitat scale the tables are turned. The lowly swift fox clings by an evolutionary thread in the struggle of the strong. On the cat side of the ledger, woe be the bobcat that takes a mountain lion lightly.

If strength alone were the dominant factor determining species success then we should expect the monsters of the pleistocene to return. Things are seldom that easy in nature. Few niches can be defined in one dimension. Generalizations are dangerous, however, large cats and dogs tend to have large home ranges and occur at low densities compared to their smaller cousins. Removing the predators at the top can have dramatic consequences. For example, red fox increased when coyotes were reduced in the Dakotas. Red fox have smaller home ranges and can occur in higher densities than coyotes. They are also an excellent predator on nesting waterfowl. The results of a change in the predator community was an increase mortality on waterfowl.

Diseases and parasites can be important influences on species success. For example, rabies is an important viral disease which frequently kills 60 percent to 80 percent

of the red fox in an area. However, rabies is seldom common in coyotes. Canine distemper is a severe disease in dogs, weasels and raccoons. The gray fox appears to be particularly susceptible to this disease. The disease is nearly always fatal in gray fox and mortality rates of 50 percent of a local population have been observed. Sarcoptic mange causes a debilitating condition in coyotes and red fox and is nearly always fatal, however, it seldom infects gray fox, and those grays that acquire the mite quickly recover. Grays are also resistant to heartworm, a parasite which causes serious illness in most canids. Introduced diseases and parasites from domestic cats and dogs may change the so-called balance of nature.

#### **“Guess Who’s Coming To Supper”**

As you travel across Kansas in the winter you find yourself sharing an environment with wildlife. Some are easy to see and others are elusive. I keep a score card in my truck. I average about 25,000 miles between sightings of bobcats and red fox, however, at 55 mph, my eye catches about one buteo, large, broad-winged hawk, per mile during the winter. They sit on poles, in trees or soar over our plains and fields in such profusion as to make you think they are the dominant wild animal. They are not. They are, however, easy to see, and an excellent indicator that prey abounds.

It is said that an army travels on its stomach. The same



The abundance of prey controls predator populations, not the other way around. This swift fox has just captured a thirteen-lined ground squirrel, a common part of their diet.

could be said for predators. Successful predator species must have a strong prey base. From a numerical perspective it is the prey species that controls the predators, not the other way around. Cottontail rabbits and small mammals make up the bulk of the diet for the wild cats and dogs of Kansas.

People are always trying to describe wildlife behavior in human terms. Fairy tales are full of the big, bad wolf, the clever coyote and the crafty red fox. Wild cats are portrayed as blood-thirsty but always killing their own food. On the other hand, some people claim these predators are highly efficient opportunists. Other people will add that they only take the sick and the old, and only kill what they can eat. The truth is what happens in the field, not how somebody years ago tried to portray events. Depending upon your perspective, you might find the terms lucky, lazy and greedy useful in describing wild cats and dogs attempting to secure a meal. Many times I have followed the tracks of a fox or coyote and found not a careful stalk on an old or sick rabbit, but instead, the fortunate find of a tidbit of garbage or the remains of a dead farm animal. During the summer, a coyote may outsmart an unwary watermelon, take a few bites and then attack a second melon. They take what is easy and available, and at the same time they possess the keen predatory skills which allow some of them to survive when the easy items are not available. At the far end of the spectrum, I have tracked bobcats and coyotes in the deep snows of the northern part of their distribution and have seen where they successfully killed adult deer five times their weight.

In Kansas, large prey is seldom on the menu for our wild cats and dogs but one species of small mammal deserves mention. The hispid cotton rat can comprise the bulk of the diet for the wild cats and dogs in Kansas. The cotton rat is at the edge of its range and subject to spectacular population fluctuations. In fact, it just recently expanded its range into Kansas, and has been increasing in a northerly and westwardly direction. In 1915, Kellogg stated they reached north out of Oklahoma to Cairo and

Columbus. By 1933 this species had reached Greenwood County. By 1942 they had reached Lawrence and were spreading to the High Plains of western Kansas, and by 1952 they were being found in Brown County along the Nebraska border. Range expansion was faster during warm, wet years than during cold, dry years.

Cotton rats are important because of the energy source they provide wild predators. It is estimated they reach densities of 50 per acre. Adult cotton rats weigh about 7 ounces. Cotton rats in Kansas and other places along the northern fringe of their range tend to store fat during the summer and fall. This all translates into the wild cat and dog version of fast food—a handy, bite-sized meal.

We have examined hundreds of stomachs from bobcats, foxes and coyotes in Kansas and can assure you that our wild cats and dogs rank cotton rat near the top of their preferred diet. Professor H. T. Geir of Kansas State University examined 1,988 coyote stomachs during a 15-year study from 1948 to 1962. He stated, "Microtus and Sigmodon (cotton rat) are both preferred coyote foods and are hunted intensively, with many coyotes eating little else when these rodents are available." In 1980 we found the remains of cottontail rabbits in 50 percent of the bobcats we examined. In 1981 and 1982, we expected the prevalence of rabbits to increase because our index to the rabbit population had increased from previous years. To our surprise, the percent of bobcats eating rabbits decreased from 50 percent to 37 percent and then 33 percent. Cotton rat took up the slack in the diet. They increased from 14 percent in 1980 to 42 percent and then 39 percent during the three winters. I imagine that cotton rat populations increased at a faster rate than rabbits, and bobcats preferred the slower, easier to obtain prey.

A sad fact of growing older is that you find some of your heroes were wrong, or even that your ideas were wrong. I'll always have a warm spot in my library for Stanley Young. He summarized the existing scientific literature, interviewed the knowledgeable laymen and synthesized his findings into exciting and informative books. His four-part series on the wolf, puma, coyote and bobcat are classics. However he led many of us down an incorrect road when he said, "Bobcats are easily caught in traps." This sentiment dominated the thoughts of many naturalists and wildlife professionals during the 1970s when fur prices climbed to new heights. Many people predicted the demise of the species. Frantic appeals were made to prohibit the hunting and trapping of bobcats. A rather nasty period in wildlife management history occurred when organizations like Defenders of Wildlife sued the government to prohibit the export of bobcat pelts from the U.S. The basis for much of this action was a belief that high fur prices would cause bobcats to be hunted and trapped to extinction. It was a knee-jerk reaction based on a simple misconception. The sentiment is still present. A recent survey of Kansans showed that 77 percent of them believed that legal trapping endangered wildlife.

Kansas initiated a series of surveys in 1977 to monitor the bobcat population. Bobcat hunting and trapping seasons were controlled, but no further restrictions were put in place. The tactic was to monitor the situation and take action when and if it was needed. Had that tactic not



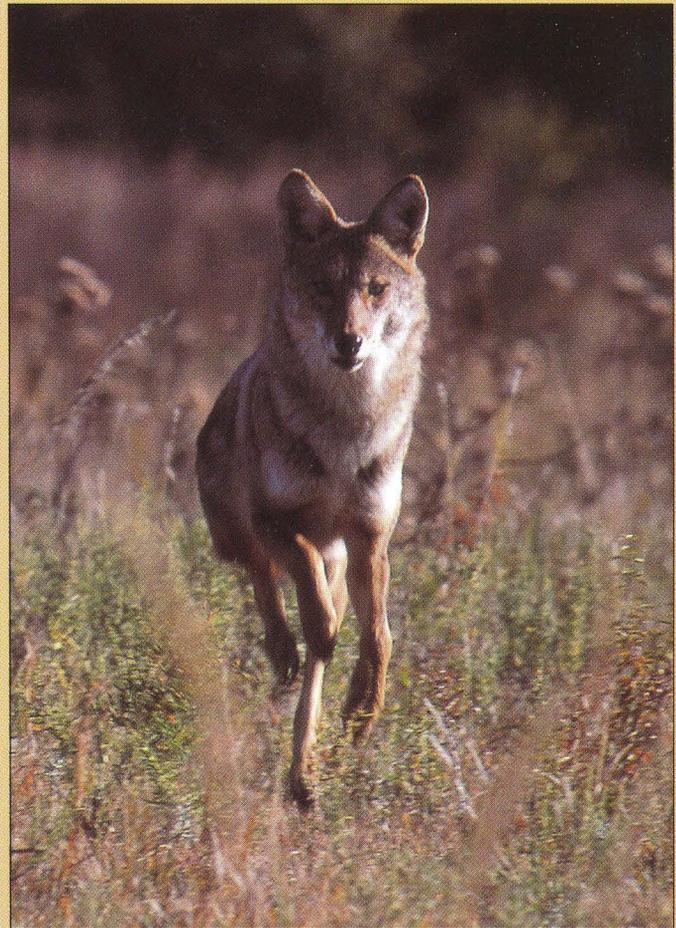
been taken, we might still labor under false notions. The decade from 1977 to 1987 had some of the highest pelt prices for bobcat, coyote and fox in history. However, instead of bobcat distribution contracting and/or population declining, the opposite occurred. Each year brought higher harvests of bobcats. Historically, bobcat populations were strong in the Chautauqua Hills and Red Hills of Kansas, but during the 1970s and 1980s, they spread and gained strength through the Osage and Flint Hills regions of the state, and even wider.

If bobcats are so easy to catch in traps, and so many people were after them because of high fur prices, how could their populations expand? I believe there are two parts to the answer. First, bobcats are not that easy to hunt or trap. The second part of the answer is that you should not look at the bobcat population alone. You must also consider other species and other factors.

I gained a great deal of respect for their guile after following radio-collared bobcats for a couple of years. One of my study animals was a 6-year-old female that lived on the west side of the Catskill Mountains in New York State. Her home range included some excellent deer habitat accessible to thousands of deer hunters. You would expect bobcats to be very vulnerable to hunting and trapping in such an areas, and many of them were.

This bobcat surprised me with its ability to hide. One place it used was a dense stand of dogwood around a small marsh. On three sides there were open fields. The fourth direction was a narrow, brushy draw. I located it at this spot one day and had moved to find another bobcat when I noticed a large group of deer hunters headed right for the female. They had been hunting on the mountain, but were walking in a direction that would take them directly at my hiding bobcat. I was half a mile away and had no chance of interfering. I could see no avenue of escape, but to my surprise, no shots were fired. By the

Coyotes are perhaps the king of Kansas predators in terms of abundance and distribution. While enormous effort has been made to eliminate them in certain areas, the coyote has actually increased its numbers and its range.



time I got there, the men were walking on the road. Not wanting to divulge the whereabouts of the bobcat, I asked them how the hunting was, and had they seen any bear. Many of them had seen deer and a couple had a seen a coyote, but no bear. How about bobcat? One hunter turned to me and said, "There are no bobcats in this part of the country." I waited until they left, then walked in to check. To my amazement, the cat was alive and well. I counted a dozen sets of hunter tracks in the snow within 50 yards of the cat's hiding spot.

That fall I knew of three skilled trappers who were very active within the bobcat's home range. We had made arrangements to pay them a bonus if they would let us have the cat alive so we could put a new radio collar on it. Nobody caught it. As the batteries in the transmitter began to fail, I made a special recapture effort. I had inside knowledge to all of the cat's favorite spots and used every trick I knew to no avail. On three occasions the cat was waiting for me at one of my large cage traps, apparently eyeing the bait but having no desire to step inside. I tried leg-hold traps, catnip, lure and various bait. We enlisted the aid of the most successful houndsmen in the area and chased the cat with hounds. The local conservation officer and I even tracked it down on one occasion and tried to drive it from a cave into a net. The cat beat us at every turn.

The transmitter eventually failed and I was no longer able to follow the bobcat. For all I know, it may still be sneaking around deer hunters and avoiding trappers. The cat obviously hadn't read Stanley Young's book. Some bobcats may be easy to trap, but many of them will outsmart the average hunter and trapper. Young used the best judgement he had, based on his experiences. If he had experienced the events of the 1970s and 1980s he probably would have rewritten a couple of sentences.

The key to the success of bobcats in Kansas during the 1980s was not their ability to avoid trappers, but the benefit of decreased competition and increased food. Sarcopic mange reached epidemic proportions in the coyote population of southeast Kansas in the early 1980s. The combination of disease and high fur prices resulted in a dramatic reduction in the abundance of coyotes in the southeast part of the state. As the fur prices diminished, the coyote population did not recover. Much of the areas where bobcat were able to increase were areas where coyotes were decreasing. Cottontail rabbit and cotton rat populations during the mid 1980s provided a ready source of energy to fuel a population explosion in bobcats.

Will bobcats continue to increase? I doubt it. The factors which brought prosperity to our bobcat population can't continue. A cold dry year may dramatically reduce prey abundance. The occurrence and virulence of diseases and parasites may shift. All we can be sure of is that the struggle will continue and humans will be an increasing part of the equation. Dr. Eric Fritzell summed up this situation when he concluded a chapter on gray fox management with, "In the long run, it is people who will determine the future of gray fox and other furbearers." Our actions have an impact on furbearers. For some people it is easy to blame the hunter and trapper, but they are just a small part of the people impacting furbearers.

A family of red fox living on the edge of town eke out an existence between home ranges of domestic dogs and



Man is the main factor in predator numbers and distribution. Although there is intense competition among different species, man's influence will determine the future of these animals.

coyotes. Each year nearly all of the young are killed by vehicles travelling the nearby interstate. Along the river is a family of gray fox. At the big bend in the river is a 200-acre block of mature hardwoods. It provides the core of their habitat. Last year one of the landowners bulldozed another chunk of it to make soybean habitat. I am not sure that the core will be big enough to support gray fox much longer. In western Kansas a swift fox runs for the safety of its ground den. This time it may evade a coyote, but what will happen as coyote densities increase? A family of bobcats prosper on the rock hillside east of my house. What will happen to them if one of my neighbors buys an ocelot or jaguarundi and brings in a new disease to which they are not resistant?

As far as the eye can see and the mind can imagine, the life and death struggles of cats and dogs continues. Some individuals will die of disease, others will succumb to the hunter, the slow and complacent will be killed while the fast and alert will survive. Territories will be lost and won, and to the survivors, a new generation of offspring will grace the area we call Kansas.

Feisty, my 15-year-old tricolor feline family member, purrs contentedly with the crown of her head resting on the chest of Coco, the overweight springer. The pups sprawl in the sunshine nearby. Their wildcat and wolf genes are dormant during the midday siesta. All is calm on the front porch. But in the wilds of Kansas, the struggles of wild and free members of the cat and dog clan continues. May we learn to live in harmony with them, and may the next 35 million years be as successful for cats and dogs as the last. 🐾



# Maxwell Wildlife Refuge: A Glimpse Of Kansas Past

by Cliff Peterson  
*area manager*

photos by Mike Blair



*A gift from the past, the Maxwell Wildlife Refuge allows us to enjoy the Kansas prairie as our forefathers must have.*

In 1944, Henry Erving Maxwell, a McPherson businessman, looked to the future to save a part of the past. Maxwell donated 2,254 acres to the then Kansas Forestry Fish and Game Commission so that a piece of the native prairie could be saved for future generations.

The Maxwell Wildlife Refuge is in McPherson County, 6 miles north of Canton. Herds of bison and elk, animals common in presettlement Kansas, are maintained under as natural conditions as possible. Visitors can see these magnificent animals in tallgrass prairie habitat similar to that found by the first settlers in Kansas. The Kansas Department of Wildlife and Parks manages the refuge and adjoining McPherson State Fishing Lake. Approximately 200 plains bison and 50 Rocky Mountain elk roam the area, which consists of rolling, grassy hills with deep, lightly-wooded drainages. Occasional outcroppings of Dakota sandstone mark the ridgetops and knolls and sandhill plum thickets are scattered on the hillsides. The draws are spring-fed and lined with willows and cottonwoods. Water for wildlife is never a problem due to the consistent flow of many springs.

In 1951, after fencing and corral construction, seven buffalo cows and three bulls from the Wichita Mountains National Wildlife Refuge in Oklahoma were released to form the nucleus of the Maxwell herd. Today, the herd averages around 200 animals, fluctuating from 160-170 through the winter to 230-240 by early summer. Dust rolls from the grassland in late summer as the bulls fight for dominance during the breeding season. Battles are short and serious injuries are rare. Nearly all breeding is done by a few dominant bulls. After a gestation period of nine months, tawny red calves are born, usually between April 15 and June 15. The calves' red coats are gradually replaced by dark hair, and in about four months, they are as dark as the rest of the herd.

To keep herd numbers suitable to the area, the Department conducts an annual bison auction each year in November. About 85-95 excess animals from the Maxwell, Kingman and Garden City herds are sold, 55-65 of those coming from Maxwell. The bison are sorted by age and sex, and sale animals are chosen. After the auction, the herd will number approximately 165 until the next calving season. The auctions started in 1978 and prices fluctuated considerably in the early years. Many of the early buyers were interested in buffalo merely for their novelty and only wanted one or two. Since 1986, however, most buyers have been ranchers looking for breeding stock to build

herds to produce bison meat. The lean meat has become popular in health food circles, and this demand has stabilized the prices at a higher level. The buffalo produce some revenue for the Department, as sale proceeds exceed the cost of operating the refuge.

Elk were also introduced to Maxwell in 1951. In earlier years, elk numbers ranged as high as 65 head, but today, the elk herd is maintained at around 50 animals. The rutting, or breeding season, starts in mid-September and lasts until mid-October. Dominant bulls gather cows into harems, and these dominant bulls do most of the breeding. Spotted calves are born after a gestation period of about 8½ months, usually in June. By August, they have lost their spots and have a solid reddish-brown coat like the cows.

In the past, surplus elk were slaughtered and a public drawing was held to determine who could buy the limited supply of meat. In the late 1970s, the Department began to consider the possibility of establishing small herds of free-ranging elk. Since 1982, elk from Maxwell have been transplanted at two sites, Cimarron National Grasslands and the Ft. Riley Military Reservation, and free-roaming herds have been successfully established.

Buffalo and elk graze on native, warm-season grasses. At Maxwell, the dominant species are big bluestem, little bluestem, Indiangrass and switchgrass, all growing on predominantly sandy soils. Wildflowers—yucca, catsclaw sensitivebrier, spiderwort, pitchersage, gayfeather and many more—add color in the spring and fall as do the spring blossoms of sand hill plums and the crimson fall leaves of smooth sumac. Although there are dozens of wildflower species common, neither bison nor elk seem to graze them heavily. The animals do a good job of rotating themselves through the entire refuge during the growing season, and few areas are under- or overgrazed.

Controlled burning is used in conjunction with control of elk and bison numbers to maintain the productivity of the rangeland. Burning also prevents sandhill plum and other woody species from dominating the grassland. Fire



Bison were introduced to the 2,254-acre Maxwell area in 1951. Although the area is fenced, the buffalo are free-ranging within the enclosure. The herd is kept at around 200 animals.



In the spring, the native prairie at Maxwell comes alive with the color of wildflowers including this butterfly milkweed. The observation tower is a good place to locate and observe the bison and elk. Foot travel away from the maintained roads is prohibited.

is used to control sandhill plum, but there is no attempt to eradicate it as it is a natural component of the area's ecosystem and is used by elk as summer bedding sites and by many wildlife species for food and cover. Maxwell is currently scheduled to be burned two consecutive years out every five. Burning is done in mid- to late April, just prior to the start of growth of warm-season grasses.

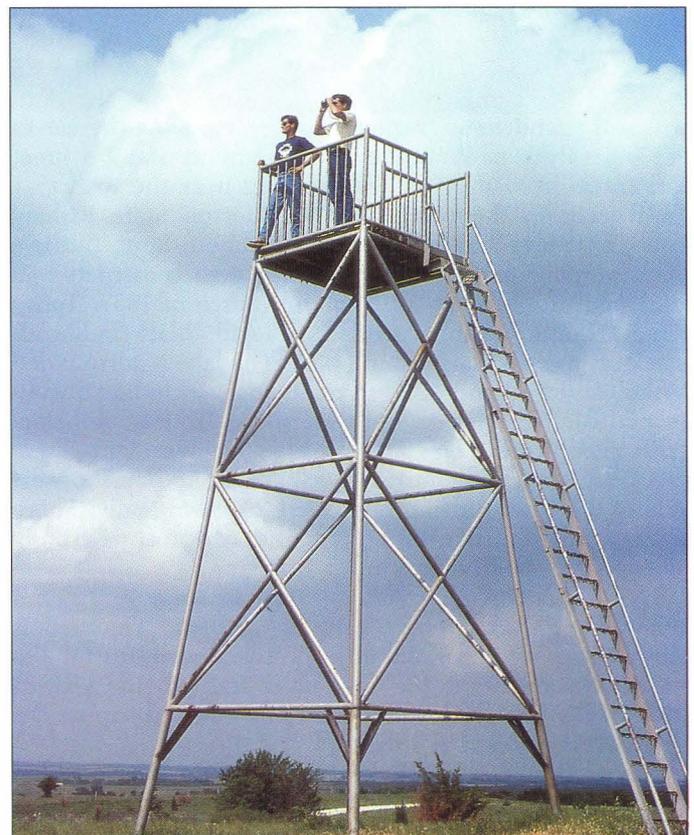
In addition to the elk and bison, Maxwell is home to all the wildlife species commonly found in northeast McPherson County. Larger mammals include white-tailed deer, coyote, skunk, opossum, raccoon, cottontail rabbit, fox squirrel, beaver and bobcat. Smaller mammals include numerous rodent species ranging in size from shrews to thirteen-lined ground squirrels up to something the size of the plains pocket gopher or an Eastern woodrat.

Reptiles are abundant in the prairie. Some of the most common snakes found include the bullsnake, kingsnake, black rat snake, red-sided garter snake and prairie ring-neck snake. A few massasauga rattlesnakes also call Maxwell home. Lizards common to the area are the prairie-lined racerunner, the western slender glass lizard and the prairie skink. Ornate box turtles are plentiful on the entire area, while common snapping turtles, smooth softshell turtles and northern water snakes may possibly be spotted in and around the lake.

Maxwell is a great area for bird watching. It lies on the western edge of the transition zone that is inhabited by both prairie species and eastern woodland species. Some of the more abundant prairie species include upland plovers, common nighthawks, grasshopper sparrows and eastern meadowlarks. It is not uncommon to see a dozen different bird species when driving the 2½ miles through the refuge. And you will frequently see species as diverse as great blue herons, eastern bluebirds, bobwhite quail, bank swallows, American kestrels, eastern kingbirds, turkey vultures, red-winged blackbirds, red-tailed hawks, brown thrashers, yellow-shafted flickers and belted kingfishers, all in the span of a couple of hours. By finishing a drive through the refuge with a walk along the lakeshore or down the nature trail, one can easily observe a total of two dozen bird species in a single morning.

Even though the bison and elk are confined to the refuge, they are still wild animals and must be given the respect due an animal of their size and strength. For both the safety of people and security of the animals, as well as the protection of the fragile soils, visitors are not allowed to leave the road on foot or by vehicle. Viewing must be done from the road or the observation tower. The terrain of the areas may cause the animals to be hidden from view. However, there are enough buffalo on the area, that most of the time some are visible.

Elk are shy and harder to spot than buffalo, but the best times to see them are early in the morning or late



The rolling prairie is accentuated by Dakota sandstone outcroppings on the ridges. The management program uses elk and bison grazing and a controlled burning schedule to maintain the native vegetation.



in the evening, except during extremely cold weather, when midday is best. In the summer, when daytime temperatures exceed 80 degrees, elk usually sleep during the day in heavy cover and feed during the night. In the fall, bulls can be heard bugling and rutting behavior can sometimes be seen. The best times to hear bugling are calm evenings or mornings from late September through the first half of October. A good spot to start listening is along the road near the refuge headquarters and west toward the observation tower.

The elk and buffalo can roam the entire 3 $\frac{1}{2}$ -square-mile area and may be anywhere from on the road to a mile away. It's a good idea to have binoculars or a spotting scope just in case. Cow bison will avoid the road in April and May when the calves are young, however, the bulls will still spend time grazing near the road. As the calves get older, the cows become less cautious and by June, the entire herd may be seen grazing near the road.

Adjacent to the refuge lies McPherson State Fishing Lake, a 46-acre lake managed for public fishing, picnicking, camping and hiking. The lake was constructed in 1954 and first opened to fishing in March of 1957. Today the lake offers channel catfish, bluegill, black bullhead, black crappie and largemouth bass. The lake is surrounded by 260 acres of land open to public use, including a well-shaded campground on the west shore. Toilets, fire-ring/grills and picnic tables are available for overnight stays.

A boat ramp and courtesy dock are located on the west side of the lake. Boating is allowed for fishing only. Shore anglers will find five rock piers and two floating fishing piers that provide access to deep water.

The Gypsum Creek Nature Trail is open year-round along the southwestern corner of the lake. The trail is mowed and well marked. Interpretive brochures for the trail are available at the trail head and provide visitors with an easy-to-follow self-guided hike. Round-trip on the trail covers about 1 $\frac{1}{2}$  miles.

Henry Irving Maxwell left his estate for the creation of a wildlife refuge so that future generations could witness sights his parents and other early white settlers saw

when they arrived on the plains of Kansas. Because of Maxwell's generosity and vision, visitors can still experience the natural Kansas prairie and leave refreshed, knowing that at least one small part of our faunal heritage will not disappear.



### Prairie Day

The Kansas Department of Wildlife and Parks will hold the fourth annual Prairie Day at the Maxwell Wildlife Refuge on Saturday, June 6, 1992. The event will run from 9 a.m.-4 p.m. and will include hay wagon tours of the buffalo herd, guided walking tours on wildflower and bird identification and black powder shooting demonstrations. In addition to these four main events, there are other activities that vary from year to year. In the past, they have included exhibits, demonstrations and talks on flintknapping, prairie snakes, plains Indian culture and use of the buffalo, medicinal wild plants and life along the Santa Fe Trail. Admission is free and refreshments will be available. For more information, contact Cliff Peterson, refuge manager at (316) 628-4592 or Bert Wilson at (316) 767-5900 or the Department's Region 4 office at (316) 755-2711. The event is not only a great way to learn more about Kansas' natural heritage, but it's also a family activity suitable for all ages.



# Possibilities Unlimited

by J. Mark Shoup  
*associate editor*

photos by Mike Blair

*Quail Unlimited might be the new conservation kid on the block, but this active organization is making its mark, especially in Kansas.*

In 1981, a small group of Georgia sportsmen led by Joseph Rocky Evans realized something was amiss. For years, they had watched quail habitat in the Peach State dwindle as small farms and fields were planted to pine or converted to huge crop fields. Long active in Ducks Unlimited, the men felt that an organization dedicated to quail could do as much to help upland bird habitat as DU had done for wetlands. But it didn't exist.

Through their work with DU, the group had developed a working relationship with the Georgia Department of Natural Resources. They had a good idea how habitat programs worked, what Georgia's habitat needs were and how programs could be implemented. What they needed was a fund-raising entity to back these efforts. With help from former National Wild Turkey Federation

employees in South Carolina, Evans and company drew up a charter and started a collector's stamp and print program. Quail Unlimited was born.

Their goal? In a nutshell, to "promote and assist or otherwise encourage wise habitat management" and "to plant and maintain suitable game food and habitat plots." The organization would fund research on everything from population trends to habitat needs to chemical and pesticide use. Education would also figure strongly into QU's mission. A bimonthly magazine, aptly titled Quail Unlimited, is packed with conservation information.

QU's organizational structure is much like that of Ducks Unlimited. One division manager and several regional directors, whose responsibility is to work with chapters in one or more states, are QU employees. Roger Wells, Americus, who was formerly small game project leader for the Department of Wildlife and Parks, is western division manager, supervising all regional directors west of the Mississippi River. Currently, he also acts as regional director for several states, including Iowa, Kansas, Missouri, Nebraska and Oklahoma.

Within Kansas, a state council comprised of QU volunteers conducts four meetings per year, and each chapter in the state may send two local members to each meeting. The council approves projects recommended by its Habitat Committee and works as a coordinating body to keep chapters working in the same direction. To meet this end, a number of services—including chapter officer workshops on fund raising and habitat projects—are offered throughout the year. In some cases, the Habitat Committee may arrange funding for projects through a rural chapter with smaller membership but greater habitat needs, using the larger chapter's funds.

As an organization, QU may be the new kids on the conservation block, but their members are often seasoned veterans of other conservation groups, and QU is rapidly making its own mark. Today, more than 300 chapters in 30 states are actively involved in upland game bird habitat protection and development, mostly through the fund-raising efforts of lo-



Quail Unlimited's efforts are directed at habitat and food plots. The organization has been responsible for the planting of thousands of acres of native grass and food plots in Kansas.

cal chapter banquets.

In Kansas, 32 chapters are currently active. Kansas Quail Unlimited ranks number one in the nation in virtually every category, including membership (4,000), funds raised and projects. Two Kansas chapters—in Manhattan and Topeka—have won honors for the best habitat projects of fiscal years (FY) 1990 and 1991.

Kansas chapters have raised more than \$1 million dollars to date. Sixty percent of this money goes to local chapter projects, 30 percent goes to field operations within Kansas, and 10 percent goes to national education and administrative work. Local chapters choose their own projects and are free to spend their money largely as they wish. Release of pen-raised birds, building of facilities and conducting private events are the only activities prohibited. Research projects must first be approved at the national level to prevent duplication of research that may already have been conducted.

Al Ward is one of the pioneers of Quail Unlimited in the Sunflower State. In 1983, Ward saw an advertisement in the newspaper for two of the state's first QU banquets—at

Kansas City and Hiawatha. (The Hiawatha chapter was the second in the nation.) Inspired by the concept, Ward called the national office in Georgia and asked for information about starting a chapter in Topeka. With the help of outdoor writer Jim Ramberg, Ward put his own ad in the Topeka Capital-Journal calling a meeting to form a chapter. Seven men showed up. For the second meeting, two showed. Undeterred, Ward was elected chapter chairman and his wife, Sandra, was elected secretary.

Just a few months following that inauspicious beginning, the Kaw Valley Chapter, as it is now known, held its first banquet. More than 480 people attended—the largest first-event banquet in QU's history and the largest QU banquet in the nation that year.

Not long after, Ward became the first state chairman of QU, helping establish the state council. Although no longer state chairman, he is one of five members of the Board of National Directors. Rocky Evans is also one of the five.

Of the many volunteer hours he has spent working for QU, Ward has

this to say: "It's been a lot of fun and well worth my time and effort. I've met a lot of super people. But mainly, I want my children and grandchildren to go out with me and have the same thrill of being outdoors with wildlife that I had with my father." Ward adds that there is still much work to be done—Kansas has more than 100,000 upland bird hunters, but only 4,000 are members of QU.

Today, the QU Kansas State Council reins have been turned over to Jeff Holmes, Riley. Holmes still sees the council as being in its infancy, constantly defining and redefining its role. "To keep volunteers working for the cause," he says, "we have to act as a sounding board for local chapters." To this end, Holmes attends about 10-15 local banquets each year, in addition to quarterly council meetings and the annual national meeting.

"The State Council's biggest accomplishment has been the establishment of the Habitat Committee," says Holmes. The Habitat Committee is comprised of local chapter members who make recommendations on where in Kansas to spend money that comes to the state council from corporate donations and state fund raising.

So what kinds of QU projects are being conducted in Kansas? According to western division manager Roger Wells, there is a great diversity. "Chapters purchase equipment ranging from seed drills and broadcast seeders to root plows to video cameras," Wells says. "We also help with food plot and cover crop plantings, tree and shrub plantings, information and education programs and fencing to keep cattle out of riparian areas."

In most cases, QU hires someone to do the work or cost-shares with the landowner.

QU's seed program helped plant nearly 18,000 acres of food plots in FY 1990. Under this program, seed companies donate surplus seed—mostly corn and milo—and QU paid the shipping costs. QU also paid for milo as a cover crop on tens of thousands of acres of Conservation Reserve Program (CRP) land. Without this assistance, farmers would normally have planted sudan grass in



QU has purchased various farm implements it makes available to farmers who want to improve or develop wildlife habitat. The root plow is one example.

late season, which provides cover but has little food value to wildlife.

Tree and shrub plantings are also important QU activities. In FY 1990, QU planted 46,000 trees and shrubs statewide. The state organization also donates approximately \$30,000 annually to the Kansas Department of

Wildlife and Parks' Wildtrust Program for summer aides to assist in wildlife plantings. This help is especially appreciated by the Department.

"Summer aides are perhaps the most important thing we've gotten from QU," says Charlie Lee, Department Wildtrust administrator for the QU account and chairman of the QU Habitat Committee. "Many landowners are more concerned with time than with cost."

Annually, QU presents a framed wildlife art print to the winners of the Kansas Bankers Association/Department of Wildlife and Parks-sponsored Wildlife Habitat Conservation Awards. These awards are given annually to one farmer in each county for significant improvements in overall wildlife habitat quality, quantity, maintenance and enhancements on the entire farm.

In the information and education department, local chapters publish brochures on habitat management and help produce and distribute educational videos. In FY 1990, Kansas QU also spent \$15,000 on information and publications to reach more than 90,000 people.

While a national organization oversees state organization activities and state organizations administer individual chapters, the local chapters



Milo food plots are designed as late-winter food supplies. Left standing, the stalks hold grain above snow cover when waste grain would not be available. And, contrary to the name's implication, the habitat work benefits many more species besides quail.



By making a grass drill available and helping landowners with the purchase of native grass seed, QU has been instrumental in developing wildlife habitat on Conservation Reserve Program lands.

get the real work done. In Kansas, this is especially true.

For two years running, Kansas chapters have won Quail Unlimited's National Habitat Award for the most outstanding habitat work of any chapter in the nation. In FY 1990, the Flint Hills Chapter in Manhattan won this honor based on the variety and scope of their work. In FY 1991, the Flint Hills Chapter also won the prestigious Director's Award from the U.S. Fish and Wildlife Service for habitat work (only one is given nationally each year) and the "Take Pride in America" Award for Kansas. Much of this was for efforts to maintain wildlife habitat on Ft. Riley.

"There are not many chapters in Kansas doing work on public land," says Fred Smith, chairman of the Flint Hills Chapter, noting that military activities on the base often disrupt habitat. "We wanted to give Army biologists money to reclaim damaged land. We also wanted to help birds in the winter, so we provided seed and funds for hard winter food plots. This is particularly important on Ft. Riley because the land is primarily grass that provides little insect and seed forage when snow is on the ground." The chapter's milo plantings provide quail and other wildlife with a ready winter food supply above the snow.

In September, the Flint Hills

Chapter sponsored a habitat tour of the fort for the general public. Fisheries, forest, range, and land and stream reclamation projects were toured. More such education tours are planned on Ft. Riley.

Public land is not the only place the Flint Hills Chapter is active. "We do work all over northeast Kansas," says Smith. "You don't have to have 160 acres or more to benefit from our work. Five acres can be worked."

In fact, the chapter has projects in Clay, Dickinson, Geary, Riley, Pottawatomie and Washington counties. In addition to food plot projects, the chapter has a tree and shrub planting program, and they're sponsoring research on placement of wildlife cover. Each year, they maintain an education booth at the Riley County Fair, and the chapter is actively involving young people in habitat development through seminars with biologists from K-State Extension Forestry, Wildlife and Parks and Ft. Riley. They have purchased several pieces of habitat enhancement equipment, including five root plows, and have even donated blaze orange hats to Wildlife and Parks' hunter education program.

The Kaw Valley Chapter in Topeka has been no less active in recent years. In FY 1991, they followed the Flint Hills Chapter's act by bringing

the National Habitat Award back to Kansas for the second year in a row. For work largely in Douglas, Jackson, Jefferson, Shawnee and Wabunsee counties, the Kaw Valley's 350 members donated more than \$49,000 in FY 1991.

Working closely with local Soil Conservation Service (SCS) offices, they helped numerous landowners plant food plots and grass. They not only donated seed for these projects, they provided seeders and discs and root plows to help farmers maintain shelterbelts.

In addition to these projects, they helped conduct hunter education classes, sponsored hunting and fishing days for young people, and recently helped with tree, shrub and foot plot planting on the 6,000-acre public wildlife area at the Jeffrey Energy Center near St. Marys.

Kaw Valley chairman Dr. Ed Weber believes such efforts are essential to maintaining healthy quail populations in northeast Kansas. "Food plots, which are usually planted next to timber or shrub cover, greatly increase the success of spring breeders," he says. Weber also credits government agencies for much of the chapter's success.

"SCS offices have been very cooperative in letting landowners change cover requirements to allow food plots, and Wildlife and Parks biologists were also very helpful."

Quail Unlimited's Ark Valley Chapter could be the next Kansas winner of the National Habitat Award. They placed third in FY 1991, and their newly established Habitat Services Association (HSA) promises to revolutionize the way many chapters conduct projects.

In 1990, the chapter decided they needed a single vehicle to provide comprehensive wildlife habitat services to farmers. They solicited ideas from a variety of sources, but Wildlife and Parks biologist Randy Clark came up with one they liked. For years, the Department of Wildlife and Parks had been involved with the Southcentral Kansas Tree Project (SKTP), but Clark felt more than tree planting was needed to help upland game. He decided to adapt the concept of the SKTP to include all kinds of wildlife habitat enhancement. The result is the HSA.

Put simply, HSA is a nonprofit business run by a foreman and crew paid by Ark Valley QU. The business offers greatly reduced prices on tree and shrub planting and cultivation (including replacement of shelterbelts destroyed by area tornados), site preparations, timber stand improvement, brush pile construction, fence construction and native grass seeding. Equipment, manpower and materials are all provided through one source. Now in its second year, the program has had great success. Forty-eight landowners in nine counties used the HSA to develop habitat the first year.

But the Ark Valley Chapter has not put all its eggs in one basket. Information and education also play critical roles. They have helped fund the development and distribution of video tapes on such subjects as habitat development and use of the root plow, and they sponsor at least 10 events each year featuring expert speakers on the subjects of conservation and hunter/landowner relations. Last, but not least, they have funded construction of three weed barrier laying machines for tree planting—one each for southcentral, northwest and southwest Kansas.

This diversity fits chapter chairman Paul Attwater's philosophy: "Conservation is a complete thing and we have to keep working hard to preserve what we've got."

According to Al Ward, the success of Kansas QU chapters has taken the national organizers by surprise. Of course, it's no surprise to those members in eastern Kansas, where quail populations are perhaps the best in the nation. What is likely to surprise QU's Georgia benefactors even more than the commitment of eastern Kansas chapters is the activities in the western portion of the state.

Naturally, western Kansas does not support the number of quail or Quail Unlimited members as the more populous (in terms of both people and quail) eastern regions. However, this has not prevented chapters from forming. Dodge City and Hays both have very active chapters. In fact, two years ago these chapters planted more than 40,000 acres of CRP with milo cover crop. In FY 1991, the Hays chapter alone spent \$20,000 on weed barrier for tree plantings.

Such activity exemplifies the conservation attitudes of QU. One of the

most interesting—and misunderstood—facts about QU and (and other organizations such as Ducks Unlimited, Rocky Mountain Elk Foundation and the Wild Turkey Federation) is that their name belies the scope of their mission. Those plantings in western Kansas did little for quail because few quail can be found in those areas. Pheasants and a variety of other wildlife, however, benefitted greatly. That's just fine with Roger Wells.

"Quail Unlimited is not a quail organization," says Wells. "We have chapters in places where there isn't a quail for 300 miles." Nor does Wells see a conflict with other conservation groups, such as Pheasants Forever. "There's room for everybody. We're all really after the same thing."

Kaw Valley chairman Fred Smith probably says it best. "If Quail Unlimited members were there just to help quail, they wouldn't be members. Elk, deer and cardinals benefit just as much as quail. If you're planting just for one species, you're not getting the job done."

But if you're planting like QU does, the possibilities are unlimited. ♡



Kansas QU is number one in the U.S. in nearly all categories including chapter numbers, total members and funds raised. Perhaps it's no mistake that Kansas is one of the top quail states in the nation.

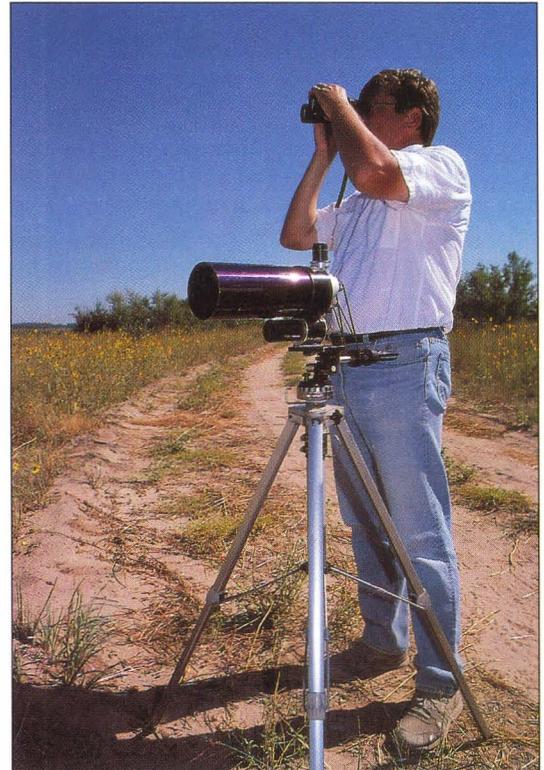


# Wildlife Watch

by Ken Brunson  
urban nongame program coordinator  
Pratt

photos by Mike Blair

*Few activities can bring as much pleasure as merely watching wildlife can. And more Kansans than ever are discovering the wealth of watchable wildlife in their own state.*



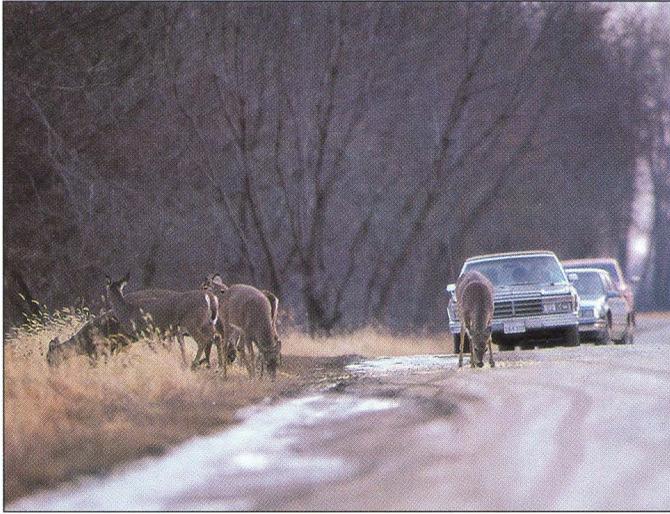
**H**ave you ever watched a flock of white pelicans slowly skim the water's surface with only an occasional wing flap to stall their landing? It's a ballet of feathered grace matched only by their amazing synchronized swimming—nature's own organized fishing event. As a flotilla of these orange-beaked, buoy-like birds drifts in tight formation, they'll poke their monstrous snouts into a shallow school of shad in perfect unison. It's hard for me to claim the white pelican as my favorite Kansas animal to watch. As soon as I do, I conjure up dozens of other special wildlife sights. But, watching these elegant fliers is always a delight.

Even watching something as common as a migrating flock of blackbirds is entertaining—something akin to natural hypnotism as a mass of birds maneuvers in exact aerial coordination. The undulations of a mile-long flock of red-winged blackbirds looks like a giant whip rolling through the sky. I feel a similar fascination watching a school of shiners flash beneath the water's surface. I won-

der who first learned such coordination—fish or blackbirds.

In my quest to fill life with such meandered purpose as to watch it swim or fly by, I gravitate toward activities that seem to guarantee results. Excursions to Cheyenne Bottoms, field trips of various wildlife organizations, spring turkey hunting and lek-sitting for courting prairie chickens help appease this insatiable appetite.

Am I weird—at least in this respect? Not at all. Kansans love wildlife, spending millions of hours each year feeding and watching a variety of species. Some will spend hundreds of dollars in licenses, gas and equipment to sit quietly in trees through miserably cold weather mainly to watch wildlife. Occasionally, one of these arboreal hominids will reduce a deer to table fare and thereby justify their wildlife watching. Serious birdwatchers will tempt frostbite to trek across a chilling marsh, hoping to add that rare "lifer" to their personal list of honored distinction. More sane people simply put a feeder near the



Deer are high on the list of watchable wildlife. Nearly everyone, hunters and non-hunters alike, enjoy watching deer.

window and have the birds come to them.

Perhaps the simplest of explanations for this pastime is that people simply like a diversity in life. If it moves, eats and vocalizes, it is interesting. And if it can be seen up close doing any number of curious behaviors, it's fascinating.

Surveys prove a growing interest in wildlife viewing. A national study done in 1985 showed a dramatic 20 percent increase in wildlife viewing effort over a five-year period. According to the National Survey of Fishing, Hunting and Wildlife-associated Recreation, people spend nearly as much for wildlife-related viewing activities as

they did for hunting in Kansas. And that doesn't account for the wildlife watching enjoyed by hunters as well. A Department of Wildlife and Parks survey in 1990 indicated that 57 percent of Kansas residents age 16 or older participate in wildlife observation activities.

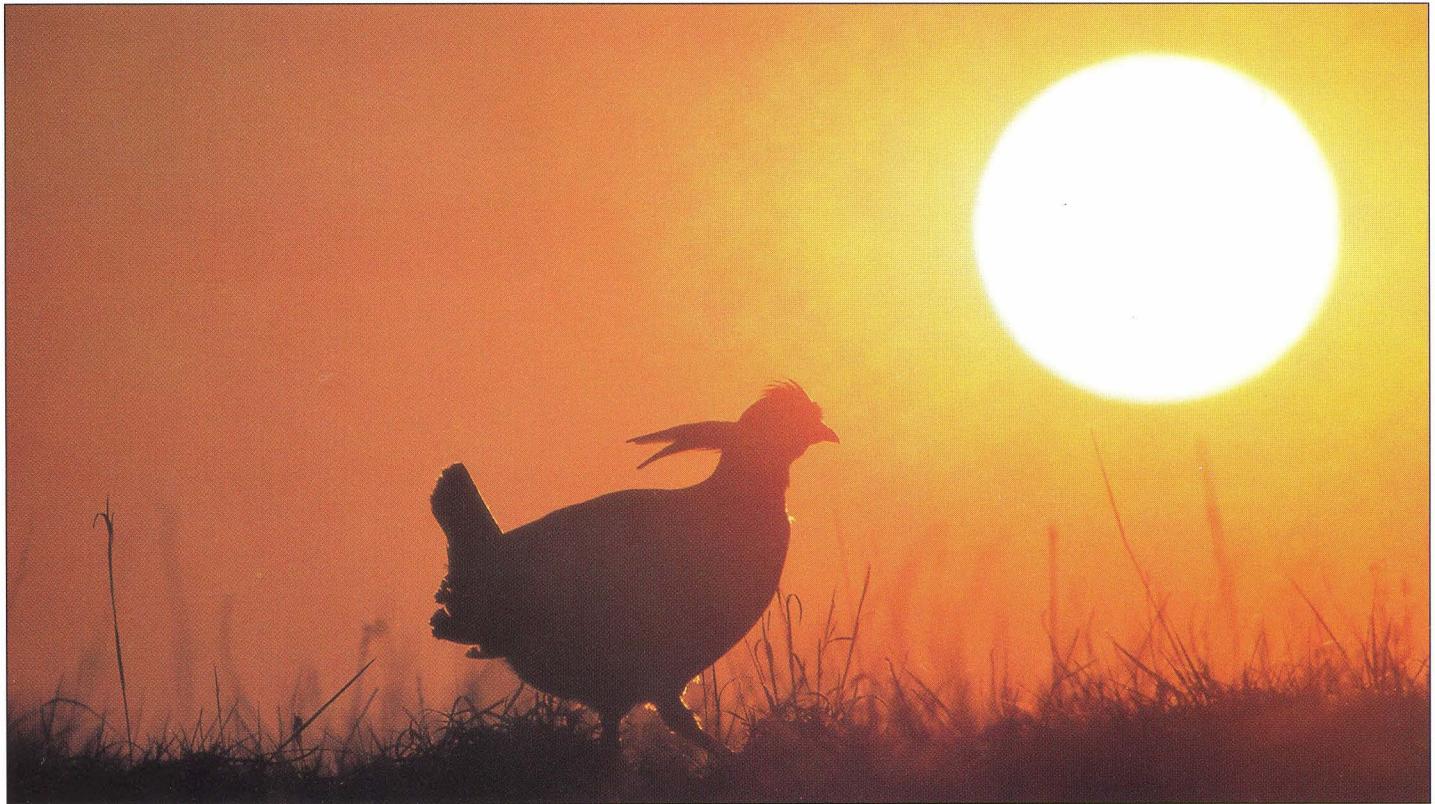
Recognizing this growing interest, Kansas is following the lead of several other states with plans for a guide for those who just want to go somewhere and watch wildlife. Opportunities are always there. All it takes is getting outside near our wild places. But, for the average person, some guidance and information will greatly help.

Next year, the *Kansas Wildlife Viewing Guide*, a full-color booklet that will highlight about 100 of the top places in Kansas to watch wildlife, will be available. Many of our state parks, wildlife areas and reservoirs will be featured, along with maps, best viewing times and specific information about wildlife. Some special, privately owned areas will also be highlighted pending arrangements with landowners.

Here are some examples of prime wildlife viewing sites that will be included in the book:

**Cheyenne Bottoms Wildlife Area**—One of the premier wetlands in the country. The Bottoms offers a tremendous diversity of waterfowl, shorebirds and other wildlife. As any serious birder knows, Cheyenne Bottoms is where you go at least once a year to see lots of wildlife.

**Quivira National Wildlife Refuge**—Cheyenne Bottoms' partner in a fantastic mid-state wetland duo, Quivira is known for great birding and lots of other viewing opportunities. Shorebirds, bobolinks, eagles, whooping cranes,



Kansas remains one of the last strongholds for prairie chickens, and the spring booming grounds are a sight to behold. The Department maintains several blinds around the state for observers. Booming activity usually begins in March.

deer, turkey and all kinds of turtles can be enjoyed here.

**Clinton Reservoir**—Wintering bald eagles highlight the viewing opportunities at Clinton and many other large reservoirs. Popular among wildlife watchers, several hundred bald eagles winter in Kansas. The guide will include the best places and times to see them.

**Cimarron National Grasslands**—Avid birders all go there, but the average Kansan doesn't know the wildlife opportunities available at this 105,000-acre grassland treasure in the southwest. There are elk, (one of the two wild herds in the state) lesser prairie chickens (with viewing blinds available in the spring) and a host of rare Kansas birds.

**Flint Hills Flowers**—Several key spots that showcase wildflowers will be looked at for inclusion in the guide. There will also be opportunities for greater prairie chicken and big game watching included on any of the Flint Hills sites.

**Red Hills**—Prairie flowers, gyp hills, turkey, armadillos, deer and spectacular vistas make it easy to qualify some of southcentral Kansas' Red Hills for the viewing guide.

**Smoky Hill Breaks**—Monument Rock, Chimney Rocks and other outcrops in the western part of the Smoky Hill River valley are eyecatchers. Ferruginous hawks and prairie rattlesnakes are prime ingredients to this wild western outback of Kansas.

The *Kansas Wildlife Viewing Guide* will be a cooperative effort of many conservation organizations. It will be a very useful guide for Kansas residents and non-residents alike.

Another Department effort to further general wildlife appreciation is the Naturalist program. Every spring an enthusiastic group of naturalists canvas the state and spread the conservation and ecological gospel to thousands of campers and other state park visitors. Providing the public with wildlife viewing opportunities and basic education provides a firm basis for wildlife conservation in

Kansas. The Naturalist program is a strong companion to the overall effort to make it easier for people to learn about wild Kansas.

The Parks and Public Lands Division of the Department is also creating more wildlife viewing areas by re-establishing native vegetation and restricting mowing in areas where little wildlife habitat previously existed. Learning opportunities have also been expanded by including interpretive information in the form of brochures, signs and self-guided tours at selected sites.

Wildlife education centers at the Milford Fish Hatchery, the Pratt Operations office and a future center in Wichita will also play a key role in this education process. The Wildlife Education Center at Milford provides displays of specific ecosystems and convenient learning opportunities. Many Department grounds are being landscaped to showcase native plants and their importance to Kansas wildlife.

The Chickadee Checkoff is continuing several programs designed to satisfy the viewing interests of citizens. The Nursing Home Bird Feeder Program has been in action since 1985, involving more than 250 facilities across the state. The Outdoor Wildlife Learning Sites (OWLS) program is off the ground and is helping to establish wildlife habitat areas on school grounds. The Backyard Habitat Improvement Program will continue to provide information to people interested in improving wildlife habitat in their own yards.

The wildlife resource in Kansas is truly a valuable treasure. From elk and bald eagles to grassland hills covered with wildflowers, our natural resources are here to enjoy and conserve. We are only beginning to see the true beauty in this grand state. And it's not somewhere over the rainbow. It's in our own backyards—for everyone to see, hear and feel. The Wildlife Viewing Guide and other education efforts are important not only because Kansans are demanding them, but also for the critical conservation side of the program. It may be best summed up by a quote from the late Baba Dioum, a conservationist from Senegal: "In the end, we will conserve only what we love, we will love only what we understand, we will understand only what we are taught." 



More than 300 species of birds have been documented in Kansas. Kansas wetlands are an important stopover point for migratory birds like this common loon, and these areas are prime birdwatching sites.



# Working With A Bunch of Turkeys

by Dan Buford

graduate student, Texas Tech University

photos by Mike Blair

*With help from the Department and the Kansas Chapter of The Wild Turkey Federation, two graduate students are learning more about the Kansas Rio Grande turkey.*

In the hills of southcentral Kansas, the sun, soil and wind collaborate with grassy peaks, cedar breaks and wooded creeks to transform dawn and dusk into a mystical pageant of warm red hills and dark distended shadows. Spring and summer rains feed a myriad of wooded creeks whose names portray the local flora; names like Cottonwood, Hackberry and Elm Creek. Other evoke memories of local history such as Cavalry, Nescatunga, Bitter and Deadman Creek.

These creeks are not only the lifeblood for rivers such as the Salt Fork of the Arkansas and the Medicine, but also the wildlife of the region, especially turkeys. The riparian areas serve as travel corridors with sufficient cover for hiding and large trees for roosting at night. During the heat of summer afternoons, turkeys loaf in the shade of the cottonwoods lining these creeks.

Five subspecies of wild turkeys are recognized in the continental U.S. Eastern wild turkeys inhabit the

hardwood river bottoms from eastern Kansas to the Atlantic coast. Florida turkeys are restricted to the pine-palmetto woods of the southeastern corner of the nation. Merriam's turkeys are now found in the mountains of many western states, while the Mexican turkey finds its home in the mountains of southern Arizona. It is the Rio Grande turkey, however, that resides in the western half of Kansas, western Oklahoma and Texas.

Once nearly eliminated from most of its native range, the comeback of the wild turkey is one of wildlife management's most exciting success stories. In the early 1960s, wild birds trapped in Oklahoma and Texas were released in southwest Kansas, and these Rio Grande flocks did well and expanded. These flocks were subsequently trapped and birds were released in other parts of the state to accelerate the population expansion. Today, nearly every county in Kansas has turkeys, and nationwide, turkeys inhabit all states within their ances-

tral range along with 16 states, including Hawaii, where the birds aren't native.

In 1980, however, a prominent turkey biologist cautioned that while turkey populations may prosper nationwide for several more years, their numbers will inevitably peak and decline due to continued loss of habitat. In southwest Kansas, this prediction may be coming true. In the late 1980s, turkey populations in several southwest Kansas counties experienced drastic declines. Biologists noted changes in the habitat quality and quantity over the 25 years since the first reintroduction. Specifically, this habitat loss is associated with the Arkansas River bottom. As the river has dried, cottonwood trees and other woody cover along it has died. Center-pivot irrigation is attributed to the loss of sand-sage prairie and lowering of groundwater tables.

Biologists recognize, however, that the extent to which these changes have influenced turkey populations is obscured by an incomplete knowledge of the factors limiting this subspecies here in Kansas. While Rio Grande wild turkeys have been studied to some extent in Texas and Oklahoma, there has been no research done in Kansas, the northern limit of the Rio Grande's historical range.

In 1990, Kansas Department of Wildlife and Parks, the Kansas Chapter of The Wild Turkey Federation and Texas Tech University developed a research project to answer the questions raised by the recent decline in turkeys in southwest Kansas. A strategy was outlined to study ar-

eas with stable or increasing populations which will then serve as a model from which to draw comparisons to areas suffering declines. Funding for the study came from the Kansas Chapter of the Wild Turkey Federation and Kansas Wildlife and Parks.

Two study areas were selected to gauge the influence of different agricultural uses of the land. An area dominated by cropland was selected in Comanche County, while an area of predominantly rangeland was selected in Barber County.

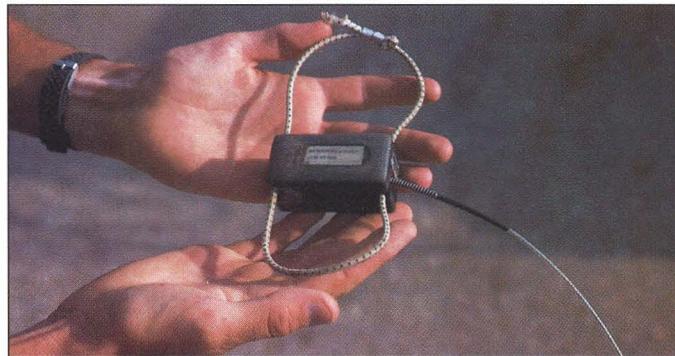
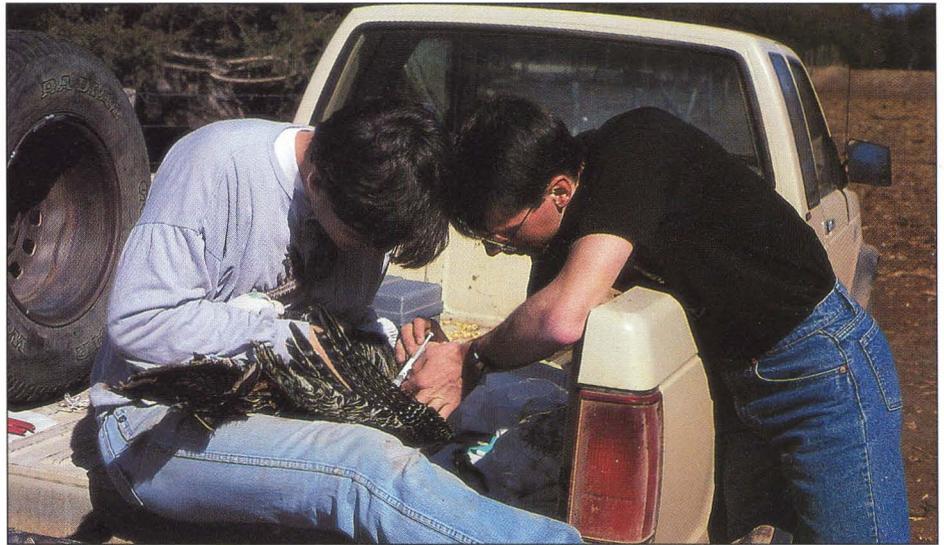
Wild turkey females incubate and raise broods without help from the male. Therefore, the health of a wild turkey population hinges on the hen's survival and reproductive success. For these reasons, we limited our research female turkeys.

We have set out to determine aspects of habitat selection at several levels of resolution, from general to specific. We are also investigating factors that influence population change in terms of natality and mortality, and are relating these factors back to habitat selection.

We began trapping in January 1991, using 60-foot by 60-foot dropnets, propped up much like a circus tent with a high pole in the center. Corn and milo was spread under the net with trails running out to cajole the undecided and wily flock. A wire led from a small charge on the center pole out to our truck behind some cedar trees. When detonated, the charge would release the assortment of ropes that held the net above the ground and capture our quarry of hens.

We arrive at our trap site well before dawn. From the warmth of our well-hidden pick-up, we watch as the turkeys flew from the roost trees along the creek. On a typical trapping morning, we would anxiously watch the birds slowly work toward the bait site, consume all the grain trails outside the net, then move on to complete their daily habits.

For nearly three weeks, our trap efforts proceeded as above. Unseasonably mild weather was no help in pressuring the flock to seek the gain under our nets. The funnels we set up failed to work and we were starting to feel very much like Wile E. Coyote with his ACME turkey trap-



Graduate students Dan Buford and Mike Miller conducted research to learn more about the Rio Grande turkey in Kansas. Several test samples were taken from each hen captured before it was fitted with a backpack-like radio transmitter (pictured left) and released.

ping kit. It was a lesson in the infamous wariness of this bird.

After one such morning, we left our trap site in Barber County typically frustrated and drove to our other site in Comanche County to check the bait for signs of use. As we approached the trap site we observed a flock of 30 hens approaching the net from the opposite direction. A few expletives were muttered as we realized that in order to get to the detonator, we would have to drive past the net and the flock, then detonate the charge in full view of the turkeys. Don't ask me why, but it worked. We caught our first 18 birds.

We caught a total of 45 hen turkeys in Barber and Comanche counties. Each was fitted with a Wildlife and Parks leg band and a radio transmitter. The transmitters, fitted on the birds like backpacks, each emit a pulse at a unique frequency so we can collect information on individual birds.

In mid-March we installed directional antenna units on our pickups and began the tracking phase of our

research, locating individuals twice weekly when possible. Hens were located by setting our antenna systems at two spots identifiable on U.S. Geologic Survey topographical maps. Each truck sent out a signal, thereby serving as a beacon for the other truck to "zero" its compass rosette using the directional antennas. By taking simultaneous compass readings of the angle of the bird from the beacon we were able to calculate a discrete location of an individual by the intersection of those two angles (trigonometry does have practical uses in life) and plot that location on aerial photographs.

By pooling locations for individual birds over a period of time, we came up with an area of "home range." Home range size reflects the suitability of available resources. The closer the habitat approaches optimum conditions, the smaller the home range will be. Population density effects home range size as well. It can be inferred that as the home range increases, energy requirements increase, and there is greater stress on the bird.

Within their home range, wild turkeys are selective in their use of cover types such as riparian areas, cropland and rangeland. A study of Rio Grande turkeys transplanted into eastern Colorado found that riparian areas were very important to hens with young. A change in the quality of riparian habitat along the Arkansas River may have had a profound effect on young turkey survival.

While use of cover types may be highly variable, selection of vegetative characteristics within cover types may be very specific. In each county we randomly selected two hens each week to identify a roost location. We later returned to these sites to measure specific vegetative characteristics. Some of the variables we measured included the species and height of the roost tree, the amount of canopy coverage, and the number of trees and shrubs within a 20-meter radius. We have noticed a preference for mature cottonwood and elm snags (dead standing trees).

We also took measurements of the vegetation at nest sites which we have yet to analyze. Hens used a number of different cover types for nesting, but the herbaceous (non-woody) vegetation directly surrounding the nest was with few exceptions dense, thick and tall. This may explain why many nests were found in Conservation Reserve Program (CRP) grasslands. Trees and shrubs were conspicuously absent from most nest sites, however, nests were sometimes found under a short stunted elm sapling or shrub.

Hens laid an average of 10 eggs with several nests having as many as 14. Of the successful nests, approximately 90 percent of the eggs that were laid, hatched. Of the 15 hens whose first nests failed, four hens that survived attempted to re-nest. All but one of these nests failed.

The nesting season was tough on the survival of our hens. A neat feature of our transmitters is the built-in mortality sensor. Normally, the transmitter will emit a standard pulse at 60 beats per minute, but if the transmitter remains motionless for more than four hours, that pulse will slow to 40 beats per minute. It was no coincidence that in May, the peak of nesting activity, seven transmitters slowed to 40 beats per minute. It was

unfortunate that three of these mortalities were due to poaching.

In both Barber and Comanche counties, poaching accounted for 20 percent of hen mortalities. In Comanche County, 80 percent of the mortalities were due to mammalian predators (coyotes and bobcats). In Barber, mammalian predators accounted for 56 percent, a great-horned owl accounted for 11 percent and another 11 percent were of unknown causes.

The survival rate for our study season (March 15-August 15) was 60 percent for both counties. This low figure may seem alarming, but annual survival for turkeys is commonly around 50 percent, and most deaths occur during the nesting season. Sitting alone on a nest is dangerous duty.

We will have a better understanding of how Kansas' wild turkeys use their habitats once we've completed our second year of research and have analyzed that data. We will be writing a follow-up article on some of those findings once the work has been finished. We did learn one new way in which wild turkeys use their habitats, though, and we believe it to be the first time recorded.

The display strut of the male wild turkey trying to attract a mate is familiar. With tail fanned, blue head tucked in above deep red, fleshy neck skin and wings scraping the

ground, a strutting tom is a sight to behold. Typically, toms display on the ground in fields or other open areas. A hen, attracted to this display and ready to mate will approach the tom. After a number of physical and vocal signals, the tom mounts the hen's back and copulation follows. Mating behavior nearly always occurs in remote open areas, rarely under human observation.

Our unique observation happened on a warm May evening, just after sunset. Mike and I stepped out of the pickup to verify that our radio-equipped hen was with a flock of eight turkeys roosting in a cottonwood snag visible on the western horizon. With binoculars, we searched each bird silhouette for the tell-tale flexible antenna extending from the transmitter our hen wore. Then we noticed several toms displaying on the roost. One flew down to a lower limb, mounted and copulated with a hen. A second tom flew up to a second hen and they too copulated. We were amazed.

To the best of our knowledge, this is the first record of turkeys copulating anywhere but on the ground. I don't believe it indicates a moral crisis in our Rio Grande subspecies, but rather, it may be an indication of the creative nature of the populations we are dealing with here in Kansas. ♡



Hen turkeys were located several times over a period of time to determine their home range. Nesting turkeys were located to determine nest habitat preference and nesting success.



# Gallery

by Mike Blair

Winter's frozen grasp—while uncomfortable, it is often a stunning scene of reflecting sunlight. **Left:** 105mm micro lens, f/13.5, @ 1/125. **Below:** 600mm lens, f/4, @ 1/125. **Above right:** 55mm lens, f/16, @ 1/125. **Below right:** 600mm lens, f22, @ 1/30.







# Wooden Shorebirds

by Jack K. Krum, PhD  
*Paola*

photos by Mike Blair

**T**he wildfowl decoy has the distinction of being uniquely American. People in other countries made and used primitive hunting lures, but the decoy specifically designed to attract birds, developed into an art form only in America. The oldest known decoy, made from tule rushes and painted in earth colors, was used in this continent in about 1,000 AD.

Early settlers learned about decoys from North American Indians, who shaped bird images from reeds, mud or roots and placed them at the water's edge to lure wild birds. The colonists followed this working principle, but their building material was usually wood since they had efficient

metal tools unknown to Indians. To make decoys more lifelike, Indians sometimes stuffed bird skins with dried grass, while the colonists wrapped their carved decoys with skins or attached bird wings to the wooden bodies.

During the evolution of the decoy, two basic types resulted: the floating decoy and the stick up decoy. Most duck, goose and brant decoys were designed to float, weighted to sit upright and anchored with a line and weight. Stick ups were placed on land or in very shallow water with a stake.

Many of the early stick up decoys were two dimensional, or profiles, much like the duck and goose decoys

still in use today in wheat and corn-fields of the Midwest. Cardboard, tin or wood were materials generally used. Early East Coast profiles, usually placed on beaches, sandbars or tidal flats, are not as common as the full-bodied shorebird decoys used at the same time.

The Atlantic Coast and Midwest have a great variety of shorebirds. Because their appearance changes with the season and the subtle differences between some species, identification is difficult, and many are known by local names. Regardless of what the birds were called, they were attracted to their own variety, so decoys were made for each species and color phase. Museums

and collectors have decoys for all of the following species: greater yellowlegs, lesser yellowlegs, long-billed curlew, hudsonian curlew or whimbrel, Eskimo curlew, dowitcher, knot, black-bellied plover, golden plover, semipalmated plover, marbled godwit, hudsonian godwit, willet, ruddy turnstone, pectoral sandpiper, least sandpiper, semipalmated sandpiper, red-backed sandpiper or dunlin, and sanderling.

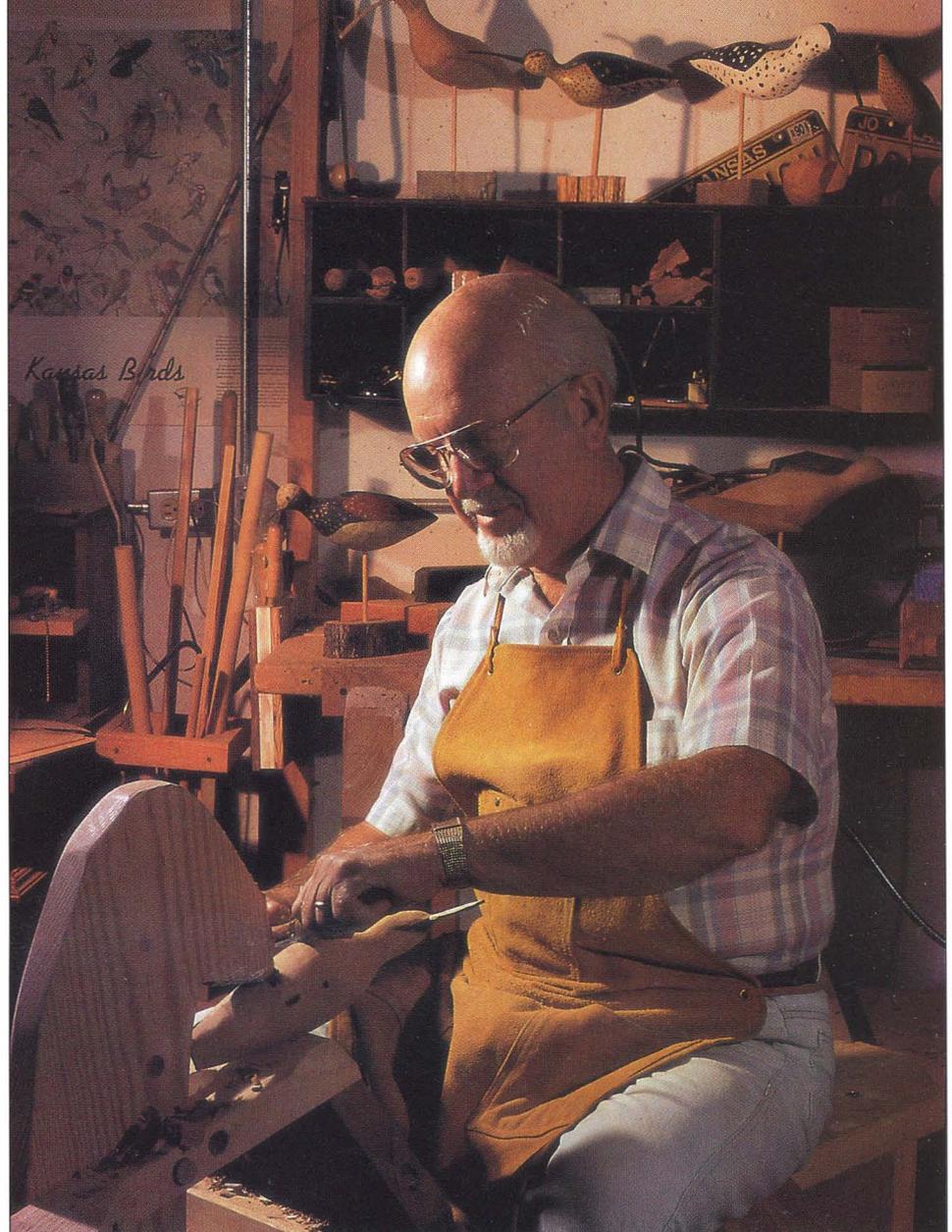
An Audubon guide is helpful in identifying the decoy by species, however, anatomical realism with the old decoys cannot be expected. The hunters, fishermen and farmers who created the early bird lures knew instinctively about impressions and abstractions. Shapes were simplified to create the impression of a live bird, not to produce a replica.

Detailed feather work, for example, was not necessary to attract the birds, but was often a trademark of individual decoy makers. The painting of decoys was as varied and distinctive as the carving. Feathers were suggested by such painting techniques as stippling, flecking, scoring, scratch coating or graining with a comb. Some were not painted at all, but simply creosoted or charred to protect them against water and sun. Eyes were often painted in or possibly carved or gouged, and occasionally tacs, buttons or fine glass eyes from a taxidermist's shop were used.

Since the stick up decoys did not provide the movement inherent in a flock of floating decoys, the carver would make various poses such as runners, feeders, preeners and even sleepers with heads tucked over their backs.

In the early days, the preferred decoy wood was cedar or white juniper, both of which were plentiful, inexpensive, easily worked and rot resistant. Other woods such as pine, cottonwood, tupelo, cypress, mahogany and some exotic woods taken from shipwrecks were also used occasionally. There are even a few old cork decoys.

The necessary tools of the carver were few. He needed an axe or hatchet, drawknife, pocket knife, gouge, rasp and sometimes sandpaper. When the need for stick up decoys was at its peak, during the later



The author prefers antique tools much like the original shorebird decoy makers used. Here he works a drawknife on a block held by a shaving or dumb horse.

part of the 19th century, manufacturing plants began producing decoys using mechanized equipment such as band saws, lathes and sanders. One such facility was the Mason Decoy Co., in Detroit, Mich.

The demand for shorebird decoys was greatest during the later part of the 1800s, due mainly to three factors: 1) an abundant supply of wildfowl, 2) human population expansion 3) and improved equipment, namely the invention of the Kentucky rifle and 12 gauge shotgun.

Incredible numbers of shorebirds seemed appropriate to fill the food needs of the growing population. During the migrations of the 1800s, Audubon reported Eskimo curlew "flights so immense that they dark-

ened the sky." And there were other accounts of curlews covering areas 100 miles long and 5 miles wide. Although not all shorebirds were hunted for food, the Eskimo curlew was considered a choice morsel and was known as "doughbird" on Cape Cod. The golden plover was also an excellent table bird, but few decoys exist because it did not share the same stopping places as other shorebirds during the migration. The piping plover and semipalmated plover were also considered delectable tidbits.

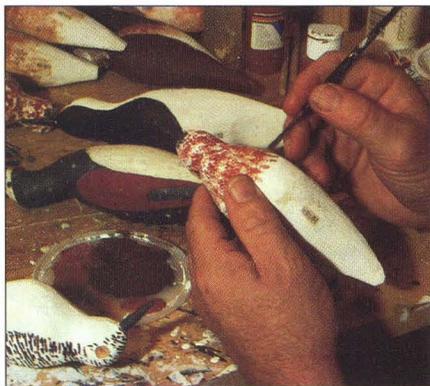
The knot and ruddy turnstone were not highly prized as table birds, but furnished sporty shooting as did the smaller beach birds like the sandpiper and sanderling. However, no



After body is roughed out with a bandsaw, the general shape is formed with a drawknife and spokeshave.



Bills are made from hardwood or even metal. Eyes are carved in, painted or some even use taxidermist's glass eyes.



Old decoys were not exact replicas, but rather simulated live birds. Feathers were suggested with a variety of techniques.

market hunter could afford to shoot these small birds unless many could be killed with a single shot. Market prices for the smaller birds was about \$1 per 100 birds. They did tend to bunch up when landing, especially on cold days, allowing high kills.

From this abundance of food and the demands of an expanding population, the market hunter evolved. Skilled market hunters could kill 50 or more birds with a single shot, and in a day's hunt provide hundreds of

shorebirds for the restaurant and meat market. The shorebird decoy became an essential tool to the market hunter. The hunter's collection of decoys, known as a rig, were either carved during the off-season or purchased from professional carvers for as little as 5 cents each. The proper balance of types and species of decoys appeared to influence the success of the hunter's day.

Unfortunately, this unregulated slaughter over a 75-year period ended in the extermination of such species as the Labrador duck, passenger pigeon and the heath hen. Shorebirds that were brought to the brink of extinction were the Eskimo curlew, long-billed curlew, marbled and Hudsonian godwit and the straight-billed curlew. As a result of the over-kill, public opinion forced the passage of the Migratory Bird Treaty Act on July 3, 1918. This ended the sale of most waterfowl and shorebirds and forced thousands of market hunters out of business.

Shorebird decoys made and used by hunters and sportsmen during that period are now collectors items worth hundreds of dollars and even hundreds of thousands of dollars. The original hand-carved decoys are a treasure, each holding a piece of the past, but replicas can be fashioned and along with a study of the history, I've found an enjoyable pastime.

#### Notes on carving and painting:

**Wood**—Cedar was the wood of choice in the early days and it is the wood I use today. It is lightweight, very durable and has good overall working qualities. Knots are sometimes a problem, but can add character to the carving. Other good choices of wood include redwood, very soft and easy to carve; basswood, good carving wood, but shows little grain; white and sugar pine, each has uniform texture, straight grain and is easy to carve.

**Tools**—Most of my decoys are carved on a shaving horse, also known as a dumb horse, using a drawknife and a spokeshave, both antiques since the new ones didn't work for me. A band saw is used to provide the two-dimensional outlines, and a drill press to drill holes for the bill and leg inserts. Chisels are sometimes

needed on small birds or to outline wings and tails.

**Bills**—Hardwoods, mostly dowels, are used for straight bills and are shaped with a carving knife. Hardwood dowels are also used for the curved beaks by soaking in water overnight and drying in wooden forms under pressure. The larger and thicker bills are carved in a curved shape, usually from walnut, because it's readily available on my Kansas farm. Even more durable and often found in the early working decoys is an iron bill from a piece of wire or rusted nail.

**Eyes**—Although glass eyes were rarely used in the old days, they are common today. To copy the earlier decoys, tacks, both round- and flat-headed, may be used, or the eye may simply be carved or painted with a dot of dark paint.

**Painting**—The early decoys were usually painted with oil based paints. Today I use acrylics because they dry fast, blend well and clean up with water. One disadvantage is the water in the paint raises the grain of the wood and the decoy has to be resanded. However, sanding does help give that worn look. I use several different techniques to simulate a particular species' appearance or markings. Scratch painting is scratching a wet coat of paint to reveal a dry coat of contrasting color. Combed painting is wiggling or dragging a comb through the second coat of paint while it's wet to show the color beneath. Stippled painting is done by dabbing with a piece of wood, sponge or old paint brush. A distressed patina or antiqued finish is applied to mellow and soften the light and dark areas and emphasize the worn sections or bring out the natural grain of the wood. ♪

*Jack Krum gathered much of the information for this article while researching the shorebird decoys he makes using much the same methods as the original carvers. Dr. Krum, whose hobby is watercolor painting, started carving for his own pleasure but soon found himself busy making them for gifts and sporting event trophies.*

# WILD CURRENTS

## letters

Edited by Mark Shoup

### Landowner Mad At Mad

Editor:

I have lived in Rawlins County my entire 41 years and have been involved with farming all my life. I also own 960 acres in Rawlins County and have been an avid hunter and sportsman all my life. I have a background in being a landowner and in obtaining permission to hunt. I have and always will obtain permission to hunt on land owned by others.

But the main reason I am writing is a letter in the Nov./Dec. issue of KANSAS WILD-LIFE AND PARKS called "Mad Landowner" (Page 33). The writer was upset about not drawing a regular firearms deer permit. Since she and her husband are landowners, she believes that they should be able to get a permit every year.

In my opinion, everyone who applies for a deer permit or any other permit should have to pay the same amount and draw from the same pot. I am getting tired of landowners and farmers thinking they should get a free ride every time they want something. The taxpayers of this state and country pay a lot of money in government subsidies to the farmers every year. In my opinion, any farmer or landowner receiving any government subsidy should have to open his land to public hunting, under strict regulation, of course.

Richard Howland  
Atwood

### Parasitic Grub

Editor:

I want you to know I really appreciate your high-quality magazine. It is one of the favorites in my office waiting room.

I am writing in regard to parasitic worms I have found in the flesh and gills of largemouth bass I have caught from farm ponds. They are slightly larger than a pin head and cream to white in color. Some fish have only a few, while others have so many they can be seen on the outside of the fish at the junction of tail and

body. I have only noticed these worms in largemouth bass. It appears that ponds that are overstocked, or that have a lot aquatic vegetation, have fish with more severe infestations.

Are these fish safe for human consumption if thoroughly cooked? What is the cause and cure (if any) for these infestations?

Again, thank you for a truly fine magazine.

Dr. Robert S. Elliott  
Kansas City

Dear Dr. Elliott:

When it comes to wild food, man is not the only creature that finds fish to be its favorite grub. Like all animals, fish play host to parasites. One of the most common parasites found on Kansas fish is the yellow grub, and this sounds like what you have seen. This small, immature form of the flatworm is more frequently found on the catfishes although sunfish, largemouth bass and even crappie fall prey to the tiny free-loaders.

The yellow grub is generally found between the skin and the flesh but sometimes in flesh and muscle. To protect itself, the worm forms a whitish lump called a cyst. If released from this cyst, it looks like a tiny white or yellow worm, somewhat flattened, approximately one-fourth inch long and one-twentieth inch wide. When a fish becomes heavily infested, encysted grubs may be found in the muscles, abdominal wall, gills and tissues of the head and throat.

The yellow grub is transferred from one body of water to another by fishing birds such as herons and gulls, which are also host carriers of the parasite. Concentrations are usually highest in clear water ponds or lakes having considerable amounts of plants harboring snails. Unfortunately, fisheries biologists have yet to find a successful means of controlling yellow grubs. Efforts have been made to decimate the snails that carry them, but such control is difficult and often only partially effective.

For the fisherman, this does not mean the end of a favorite pastime. These parasites will not affect humans or other warm-

blooded animals, even if they are consumed raw. Of course, most fish are cooked before they are eaten, and cooking kills and disintegrates the grubs. For aesthetic reasons, some anglers may not want to eat infested fish -- particularly if the infestation is heavy -- but there is no real danger to humans. In most cases, cooking should even take care of aesthetic considerations. --Shoup

### Live Targets

Editor:

Last summer, I decided to stop at the Drury Dam on the Chikaskia River east of Caldwell for a picnic lunch. What I found made me sick.

There were several dead water snakes and water turtles below the dam in a small pool. It looked like they had been shot with .22s. There were also some dead shorebirds. While I was there, three boys drove up in an old pickup. They told me that everyone shoots snakes and turtles because the snakes and turtles eat the fish. When I tried to talk to them, they drove away laughing.

Are there any laws in Kansas to protect water snakes and turtles from what I observed at Drury Dam? What should someone like me do if we see people shooting these animals?

I am not against sport hunting, and I am not anti-gun in any way. However, that could change if I see many more mass killings of wild animals for no reason at all.

I ask true sportsmen of Kansas to help stop this kind of thing. Those slobs that shoot anything and everything are not sportsmen.

Martin Johnstone  
Kansas City, Missouri

Dear Mr. Johnstone:

You said it. Those who shot the reptiles and shorebirds are nothing but vandals. Their connection to sport hunting is nonexistent, and elimination of sport hunting would do nothing to curb their activity.

Soft-shelled turtles and common snapping turtles may not be shot legally. Some other reptiles may be taken, but there is a limit of five per species. Permission must be obtained to hunt or shoot on private prop-

erty. Wanton waste laws may also apply to animals left to rot. In addition, several snakes are on the state threatened and endangered species list, and shorebirds are protected by federal law.

When you see such activity, call Operation Game Thief, 1-800-228-4263. —*Shoup*

## Home Under Water

Editor:

Being a native of Kansas, I really appreciate KANSAS WILDLIFE AND PARKS magazine, with its interesting articles and beautiful photographs. My father owned a 120-acre farm 16 miles northeast of Winfield until the 1960s, when the city of Winfield bought it and other land in the area for a city lake.

Until my teens, we used to spend our summers there, so when I went back for a visit in the late 1970s, it was a unique experience to recall what used to be under the water I looked out on.

I especially enjoy your articles on southcentral Kansas because I didn't leave there until 1952, when I married a California man. I think there is more variety of wildlife back there now than when I was growing up. I never saw a deer all the time I lived in Kansas.

Esther Merriam Rice  
Hemet, California

## Who's Fringe?

Editor:

H. C. Palmer's letter in the Sept./Oct. issue of KANSAS WILDLIFE AND PARKS ("Veiled Prejudice," Page 18) is typical of the liberal mindset. Apparently hunting was justifiable when he hunted, but now it is not. As a member of Ducks Unlimited (DU), the National Rifle Association (NRA) and Safari Club, I would suspect that the fringe elements -- unethical hunters -- are not members of any organization that furthers conservation and restoration of wildlife habitat. The NRA is probably one of the most important civil rights organizations in the U.S. today. I consider the NRA the most normal and most needed. I wonder if the fringe elements in the medical field belong to the American Medical Association.

Between DU, the NRA, Safari Club, and

hunting licenses and fees, I probably spend more than \$3,000 per year to conserve wildlife. This doesn't take into account the \$14,000 I spent last year in Zimbabwe to further their conservation effort. Zimbabwe, by the way, is one of only two or three African countries to recognize that for their elephants and other wild game to survive in the long term, millions of hunter and tourist dollars will be required to justify wildlife habitat instead of corn fields.

In comparison, Mr. Palmer's \$10 Kansas fishing license isn't very impressive. It takes more than talk to help our wildlife.

Bill Stewart  
Olathe

## Who's Fringe II?

Editor:

I enjoyed Chris Mammoliti's examination of the wise-use "conservation" coalition's agenda and activities (KANSAS WILDLIFE AND PARKS, Nov./Dec. 1991, Page 39). His exploration of the fundamental flaw in their economically expedient philosophy was certainly accurate. And his further description of the assorted industrial dupes and mercenaries grouped under the wise-use umbrella as "pseudo-conservationists" was, if anything, lavishly generous. He could, however, have gone even one step further and stated the obvious: the wisest "use" of a natural resource is sometimes no consumptive use at all.

On a marginally related note, I have on numerous occasions read in the general press that the National Rifle Association was affiliated with the wise-use coalition. Perhaps these accounts were mistaken. It wouldn't be the first time the press got something wrong. If however, the reports were indeed correct, Mammoliti would have been well-advised to include the NRA in his "pseudo-conservationists" category. Considering your magazine's readership, failing to do so would constitute a grave disservice to those readers and their environmental commitment.

Randy Winter  
Manhattan

**Dear Readers:**

As you can see from the previous two letters and other letters we have printed in the past, people and groups across the po-

litical spectrum lay claim to the label "conservationist." For most of us, what constitutes a "pseudo-conservationist" may be as unclear as defining a "typical liberal mindset."

In the spirit of stimulating open-minded debate, we invite the thoughts of our readers on these, and other, letters. --*Shoup*

## Two Turkeys?

Editor:

I think someone should inform the Wildlife and Parks Commission that there has never, to my way of remembering, been a two turkey day. Also, I think we should have a longer or earlier turkey season. Where I hunt, by the time season opens the hens are on the nest, and it is impossible to call a gobbler in.

**Dear Mr. Stoskopf:**

Since we first instituted the second turkey tags in a portion of southcentral Kansas, hunters who had purchased a regular turkey permit could obtain a tag to take a second turkey. Until the recent commission action, there was no restriction on filling both permits in the same day.

Biologists make season recommendations that they believe will provide the best balance between hunter success and turkey nesting success. Don't despair if hens are nesting by the time you hunt. Often, this makes gobblers more anxious than ever to find a willing hen. --*Shoup*

## Another "Expatriate"

Editor:

Reading your magazine brings back fond memories of my childhood and young adult years in the countryside surrounding Russell. As our society becomes more and more urban, it's refreshing to pick up your magazine and see one of our most precious resources -- wildlife -- presented in an interesting and informative format.

If more people could or would read your magazine, they might realize how important our wildlife is to our planet and work to preserve it for our future generations. I hope that my children and grandchildren see and experience the outdoors as I have, and grow to love it as I do.

Randy Smejkal  
Oklahoma City, Oklahoma

## As Close As Your Phone

Just after 5 p.m. on Nov. 6, 1991, conservation officer Greg Salisbury, Salina, received a call from a man who had been archery deer hunting on an Ellsworth County ranch when he heard four or five .22 rifle shots. Curious about the shots, the man had followed the sound and watched another man drag a deer from the field to his truck.

The caller blocked the poacher's retreat from the ranch with his own vehicle as he spoke to Salisbury from a mobile phone.

When Salisbury arrived on the scene, the caller was still blocking the man's exit. Salisbury asked the shooter to step out of his vehicle and answer a few questions. A blizzard was swirling around them, and the man quickly admitted that he had shot a deer. Because of the weather and darkness, Salisbury loaded the deer into his truck and adjourned the investigation to the Salina Police Department.

Once inside, the man admitted that he had wounded a deer with his bow and trailed it to the nearby ranch. He said that he only had three arrows when he started hunting that afternoon, and one of those did not have a broadhead. When he missed with his second and last usable arrow, he returned to his vehicle and drove to the last place he had seen the deer. He then tracked and found the deer, and shot it with his .22 cal. rifle.

Salisbury issued citations for taking a deer illegally and failure to properly tag a deer. In addition to fines, the man faces possible loss of his bow and rifle. --*Shoup*

## Border Patrol

On the last weekend of the 1990 deer season, I received a call from Missouri conservation agent Terry Daugherty saying that he had information that a meat locker in Nevada, Mo., was processing untagged deer taken illegally in Kansas.

The day after the season closed, Daugherty and I investigated the meat locker. We found three deer in the locker that were untagged or appeared to have fraudulent tags. Two of the deer originated in Kansas, and one came from Missouri.

We then interviewed two Garland, Ks., men who confessed to taking the two Kansas deer illegally and transporting them across the border. Both men were charged with violations of the federal Lacy Act after the cases were forwarded to U.S. Fish and Wildlife agent Case Vendel. Each was fined \$400. -- *Doug Whiteaker, conservation officer, Fort Scott*

## Turkey Time?

"Is the turkey season open?" asked the voice on the phone. The obvious answer at 8 a.m. on Sept. 8, 1991, was "No." That's how a Dickinson County turkey poaching complaint began for me that Sunday morning.

The caller explained that he had just seen a couple of hunters shoot some turkeys north of Herington. I was familiar with that portion of the county and knew it to be rich with game,



including turkeys. The concerned sportsman, who was also a friend of the landowner, had obtained the license number and the name of the owner of the vehicle involved.

The vehicle description was important, but I thought that surely the license number was wrong because it didn't agree with current Kansas license plate formats. While in route, I asked the Herington Police Department to be on the lookout for the vehicle, in case it was driven to their city. When they discovered that the plate was expired from 1985, I began to fear that I wouldn't be able to locate it.

As luck would have it, the name was recognized by Herington police officer Johnson and dispatcher Leach. Officer Johnson believed that the subject had recently moved. While I checked out the old address, Johnson found the two men dressing the birds at the new address.

I discovered during the interview that one man and done all the shooting, actually chasing the birds through timber. It seems that the two had not intentionally gone out to kill turkeys, but just couldn't resist when a large flock was sighted. In the end, there were two dead hen turkeys.

The shooter was charged with hunting without a license, hunting during closed season and taking turkeys illegally. Fines totalled \$432 plus forfeiture of the Winchester shotgun.

Without the concerned actions of responsible sportsmen and the welcome assistance of other law enforcement agencies, many such cases could not be solved. --*Steve Stackhouse, former conservation officer, Abilene, now hunter education coordinator*

## New Twist

The adage "crime doesn't pay" was proven last summer in Shawnee County when an illegal net fisherman was arrested after a week-long investigation. Not only did he forfeit a \$250 fine, two hoop nets, a boat and motor, but when his bank found out he was using his new van for the illegal operation, foreclosure proceedings were initiated, and he lost his wheels. Perhaps the bank figured they better get their investment back before the courts did. --*Richard Harrold, chief of special operations*

## \$2.5 Million To Bottoms

Last fall, the Kansas Department of Wildlife and Parks announced that Cheyenne Bottoms Wildlife Area would receive a \$2.5-million grant from the North American Waterfowl Management Plan (NAWMP). NAWMP is a joint effort by government, private organizations, individuals and businesses to help restore wetlands in North America.

The grant is the third to go to Kansas since the NAWMP began issuing grants in fiscal year 1991. In that year, Kansas received some of the first money allocated by NAWMP, for the Playa Lakes region and McPherson Wetlands. In addition to the Cheyenne Bottoms grant, the Playa Lakes received \$100,000 for FY '92. The McPherson Wetlands may get additional funding later in the year.

Under the NAWMP, states and provinces in the U.S., Canada and Mexico outline projects and submit them to the North American Wetlands Conservation Council (NAWCC). NAWCC reviews the projects and makes recommendations for final approval to the Migratory Bird Conservation Commission, a group consisting of several federal legislators and cabinet-level officials. The Commission is chaired by Assistant Secretary of the Interior Mike Hayden.

This recent \$2.5-million grant will be combined with a \$1.6-million grant from the U.S. Fish and Wildlife Service (USFWS), \$165,000 from Ducks Unlimited, and \$2.5 million in state-appropriated funds. Senator Bob Dole was instrumental in securing the USFWS grant. These funds will be used to complete several stages of renovation already under way at Cheyenne Bottoms. This work includes creation of a deep-water storage pool in Pool 1, extension of the inlet canal dike, replacement of a bridge on the inlet canal, creation of a mitigation marsh to replace marsh lost in the dike extension, and design of three pump stations and installation of one.

The latest grant is good news for Cheyenne Bottoms, which is not only a critical waterfowl area but is also considered the most important migration stopover for shorebirds in the Western Hemisphere. Once all stages of the renovation are complete, officials hope to be able to retain water in the marsh in dry years and prevent flooding of nearby landowners in wet ones. --Shoup



## No Spice For Highways

About the best you can say for road salt is that it's cheap. At \$25 a ton, it is America's weapon of choice for de-icing street and highways every winter.

But if the weapon seems a bargain, the effects of deploying it are disturbing: sodium chloride (the chemical name for common salt) eats auto bodies, disintegrates pavement, corrodes bridges and destroys aquatic and roadside vegetation. Perhaps worse, road salt is increasingly polluting groundwater, forcing authorities to close public and private wells in many areas.

In one of the earliest incidents of salt contamination, the town of Weston, Mass., closed its municipal well in 1971. The likely source of the salt was meltwater from nearby Route 128 and the Massachusetts Turnpike. Eight other municipal wells and more than 100 private wells have since been closed due to salt contamination in Massachusetts, but the problem is not limited to that state.

Given the problems salt causes, why aren't we using a nicer de-icer? Because the alternatives are expensive, costing 10 to 25 times as

much as salt.

However, that is only one measure of the cost. According to some authorities, the real cost of rock salt could be as high as \$1,600 per ton after figuring economic and environmental impacts. Those costs include extra maintenance for roads and bridges, consumer losses due to corroded car bodies, and damage to underground pipelines and electrical cables.

Some non-chemical alternatives include sand, light gravel and cinders. --Atchison Daily Globe

## Furadan Threatens Wildlife

During the Kansas wildlife check station on I-70 last October, a U.S. Fish and Wildlife Service (USFWS) officer related a problem that has recently cropped up in western states and has the potential to reach devastating proportions.

Furadan is the market name for a manufactured chemical known as carbofuran. It is an agricultural insecticide-nematicide controlled by the U.S. Department of Agriculture with specific application controls. It may be purchased only by certified applicators in speci-

fied amounts and must be applied by certified applicators. Furadan is used for the treatment of certain seed grains, including sunflowers, sorghum, soybeans, field corn and alfalfa.

Furadan may be purchased in both granular and liquid form. Granular Furadan is usually placed in the ground during seed drilling. Liquid may be purchased in one-gallon amounts and applied by crop-dusting airplanes at the rate of one-half pint per acre. In-field application is not recommended due to the toxicity of the product.

It is an extremely fast-acting poison and has the potential of entering into the environment and passing from the first victim to four or five successive victims, i.e., from insect to mouse to raptor to another predator to a scavenger.

In the western United States and probably throughout the country, farmers and ranchers have learned that liquid Furadan injected into raw meat is a very deadly form of poison bait used for killing coyotes, eagles, foxes and any form of wildlife deemed a problem. [Of course, when the target species die, many other species are killed through scavenging and predation.]

It has been reported that various groups are

providing instructions in the illegal use of Furadan during closed-door meetings. The rationale is that "we must do it or we will go out of business." Some agricultural businesses are reportedly falsifying records of purchases and amounts to cover illegal volumes of Furadan in use.

This brings back memories of the early 1960s when Rachel Carson, also an employee of the USFWS, published *Silent Spring*. This was one of the first publications available to the general public that points out the vast environmental dangers of DDT.

Agricultural groups scorned the warning and labeled Carson and her publication ridiculous. They made such arguments as "The world will die of hunger if DDT is discontinued"; "Our nation's farmers will go broke"; and "What value is a bald eagle or a brown pelican?" They went so far as to have a person drink a mixture of DDT and water to prove that DDT was safe; however, the reliability of the mixture and the ultimate demise of the subject who drank the brew was never publicized.

Once controls were placed on DDT in the U.S., chemical companies continued to sell their products (and still do) to under-developed countries such as Mexico, out of reach of American controls.

Unlike DDT and other pesticides that enter into the environment and kill slowly as carcinogens or affect reproduction of birds by weakening egg shells, Furadan kills quickly and non-selectively. One sign of a Furadan kill is wildlife on or adjacent to a dead domestic animal. During death, complete muscle distention takes place. A classic example can be seen in a dead raptor, head thrown back and tail fanned out and tipped upward.

In Kansas, Furadan problems are only beginning to surface. A preliminary investigation by this author in Jewell County indicated limited use and intense awareness of the toxicity of the product. A local farmer in the Esbon area lost a number of hogs when they accidentally ingested some Furadan. Another suspected case of Furadan poisoning recently surfaced in Saline County. --Merle Heskett, conservation officer, Mankato

## CRP Future

A national survey recently sampled some owners of the 34 million U.S. acres currently enrolled in the federal Conservation Reserve Program (CRP). The program is primarily intended to take highly erodible soils out of crop production by planting them to native grass, trees or other permanent cover. Participating landowners, in turn, receive payments through the federal government. The primary objective is to conserve the nation's food-producing capacity. CRP also benefits clean water efforts and has been a boon to wildlife habitat, especially in intensively farmed states such as Kansas. The survey was intended to determine what would likely happen to the enrolled acres after the 10-year CRP contracts begin to expire in 1995. Landowners were asked questions about their plans for CRP acres and what incentives would motivate them to leave their lands in permanent cover.

About one-third of the respondents said they would put their CRP acres back into crop production. Another third said they plan to keep their acres in permanent grass for grazing and haying. One in ten survey respondents reported plans to keep their lands in trees. Surprisingly, almost eight percent said they would return their highly erodible lands to crop production without a conservation compliance plan. Nearly one fifth of those surveyed owned, but did not do the actual farming or ranching on their CRP acres.

Many respondents indicated fencing and water supplies would have to be developed to use their CRP lands for grazing after contract expiration. The average estimated cost of these improvements was \$8,540. Slightly more than 13 percent said they would extend their CRP contracts for five more years, if the government would share in those expenses. Respondents said they would accept an average annual per-acre payment reduction of 10 percent, if they were allowed to hay and graze CRP acres after mid July. That timing would afford important wildlife benefits.

Slightly more than one-fourth of the survey participants said they would sell conservation easements that would not allow haying, grazing or a continued commodity base on their CRP acres. The predominant annual payment requirement for such an easement, according to the responses, was \$108 per acre. About one-third preferred a single lump-sum payment at an

average of \$632 per acre. The survey results indicated that easements allowing haying and grazing would demand \$97 per acre annually and \$481 in lump sum.

The survey indicated that about one-third of the current CRP acres could be retained under extended contracts. About one-third of the respondents said they would consider five-year extensions, and about one-third would be receptive to 10-year extensions -- if financial incentives were adequate.

More than half of the respondents said economics would be the major consideration in their decisions regarding the future use of CRP lands. Almost one fourth said lifestyle factors were most important in their decision. Only 13.7 percent indicated conservation considerations were most important. --Manes

## Water Robbers

The process of water allocation in the arid west continues to neglect instream flow requirements for fisheries and has consistently resulted in needless damage to fishery resources. Nowhere is this more evident than in the state of California, where the demands of 30 million people and a massive irrigated farm economy have left little water for the state's fish and wildlife resources.

Fresh and salt water mix together in the San Francisco Bay, creating an important nursery area for fish. This nursery is being raided by massive diversion pumps in the Delta-- where the Sacramento and San Joaquin rivers flow into the bay. These pumps directly kill millions of young fish each year, and striped bass stocks have declined due to the loss of brackish marsh feeding areas created by seasonal flooding. The pumps do not permit these floods to occur. The delicate biology of the Bay's fisheries is no match for the power of the pumps.

Indeed, the amount of water being diverted from the Delta is so great that the ecological balance of the Bay has been upset. The Bay is increasing in salinity due to a drought problem compounded by diversion of freshwater from the Delta. Seven pumps divert water into the state water project, supplying only half the water promised to southern California. Four new pumps are being installed that will double the amount of water now being drawn from the Delta. This could devastate the Bay's fisheries. --Sport Fishing Institute

# hunting

## Elmer Fudd Needs a Beagle

What hunting dog makes a sound like a locked up, squealing car tire on hot pavement? If you don't know the correct answer, you're probably from Kansas and hunt dogs on upland game birds instead of rabbits. The answer is a beagle in pursuit of a cottontail rabbit. This little dog is one of the most popular game dogs east of the Mississippi, but it's a rare breed in Kansas.

I became interested in the sport of beagling rabbits through Bill Cork, a native of Indiana. He had made a trip to Kansas and could not believe the number of cottontails, the liberal season and bag limit we have, and that few people here hunt them. In Indiana, the season is restrictive, open only two and one-half months, and the daily bag limit is four.

After talking to Bill, I decided to buy a beagle, not only because it would improve my rabbit hunting, but because it would extend my hunting season into March. I also like the taste of rabbit better than most other wild game, and my oldest daughter was wanting a pet.

After deciding to get a beagle, the most difficult task was to find one in Kansas from hunting stock. Jon Blumb of Lawrence was the only avid beagler I knew. He didn't have any pups, but he gave me the names of individuals associated with two beagle clubs in the state -- Mid-Kansas Beagle and MO-KAN Beagle. Finally, after three months of looking, we got a pup.

Training was simple. I just took him out a lot and instinct took over. Roscoe (as I named him) and I also hunted with Blumb's dogs, and the pup knew what he was doing by the age of 9 months.

Roscoe is not only an excellent rabbit chaser, he has made a great pet and companion for our whole family. These little dogs thrive on attention and have a humorous personality.

In the eastern U.S., a typical chase consists of the dog scent-trailing one rabbit that is pushed just fast enough to move it in a circle and back to the hunter. If the rabbit is pushed too fast and feels threatened, it will run down a hole and the chase is over. This is why beagles have lots of stamina but short legs.

In Kansas, this typical chase rarely occurs because of sheer numbers of rabbits. When you find good cottontail habitat there are usually lots of rabbits and lots of scent, so dogs have difficulty staying on one trail. Here, one or two hunters and the dog or dogs drive the rabbits to blockers at the end of a field.

Most of my hunting buddies were reluctant to go with me at first, but now rabbit hunting trips are as frequent as those for ducks, geese, quail, pheasant and chickens that we pursue in fall.

Kansas is a wildlife mecca, and because we are spoiled by this a variety, we often overlook additional opportunities. If you're looking for more variety, try beagling. --Mike Cox, director of Education and Public Affairs

## Winterize Your Dog

Throughout most of the country, snow and cold weather add to the hardships facing gun dogs. To meet these stressful conditions, dogs must be in top physical condition, healthy, free of parasites, housed properly and fed a complete and balanced high-energy diet.

Although most dogs get a pre-season check, few get a mid-season visit to the veterinarian. If you consider what a dog is exposed to while hunting, a checkup makes good sense. Hunting dogs come in contact with game birds and animals, other dogs, domestic and wild ani-

mal droppings and contaminated water. Contact with any of these can result in a parasite infestation or other health problems. Also, keep an eye on your dog around farm machinery and storage buildings where antifreeze or other chemical spills can be very inviting, and deadly, to a thirsty gun dog.

Cold weather hunting can almost double your dog's energy demands. The number of calories needed per pound of body weight not only depends on the dog's size but on its level of activity and the outside temperature. Hunting dogs require a lot of calories. Not only do they use energy working cover during long

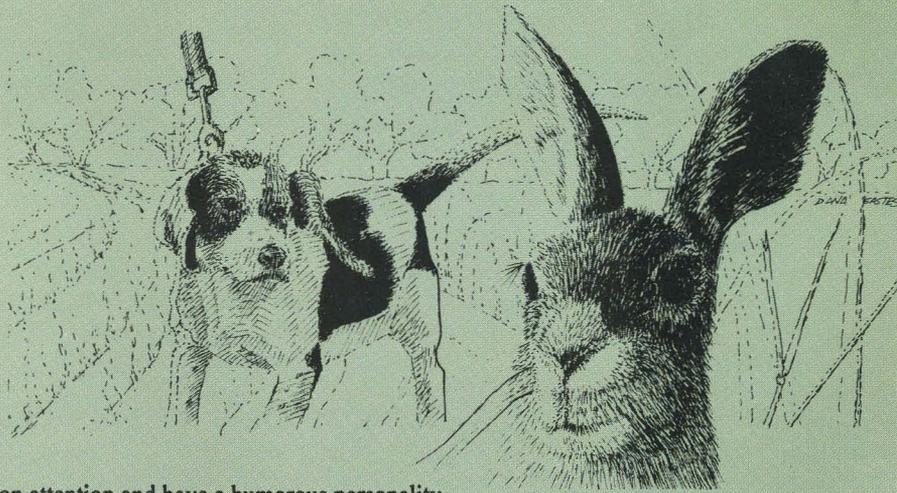
days afield, but additional calories are needed just to maintain body temperature because of winter cold.

Extremely hard-working dogs need up to 50 percent more calories than less active adult dogs during normal maintenance periods. During late-season winter days, a hard-working gun dog

can require 80 percent more calories per pound than during the less active summer months. If you're feeding a balanced food recommended by your vet, this simply means increased portions. Many hunters find it better to feed twice a day -- a light meal in the morning two or more hours before hunting and a larger portion fed in the evening after the dog has rested. Never feed immediately before or directly after periods of heavy hunting.

Fresh, clean water is also important. Hunting dogs should be given small amounts of cool water often while working, and fresh water should be available at all times. This is just as important in winter as it is in summer.

Many hunters ask if they should use additives with the dog's food while hunting. In most cases, the answer is "No." Supplementing a complete and balanced diet is usually not necessary. However, it is very important that our dogs eat full portions, which may be a problem on extended hunting trips. Hard-



working gun dogs often lose their appetites and would rather sleep than eat at the end of a hard day. In this case, supplementing to increase the palatability of your dog's regular food is a good idea. Warm water or a spoonful of cooking oil poured over the food can do the trick. --*Ralston Purina news release*

### A Cup Of Sharp

The ceramic knife sharpener is a great invention, but did you know that in a pinch you can sharpen your knife on an ordinary glazed coffee cup? Just draw the blade edge-first across the lip of the cup, like you would with a regular whetstone. That knife will sharpen right up with just a few strokes on each side. Of course, no ceramic sharpener will work on a knife blade that has a chipped or flat edge, but if your knife has a reasonably good edge already, you'll soon have it razor-sharp. --*R. O'Brien, Sports Afield*

### Seasons Come, Seasons Go

It's late in the season, but hunters still have a number of opportunities. Although duck season is over, waterfowling may still hunt dark geese until Jan. 19 and light geese until Feb. 16 (in Unit 1) or Feb. 2 (Unit 2). For many upland enthusiasts, this is the best time to hunt. Competition is down, and winter snows can increase hunter success during pheasant, quail and prairie chicken season, open through Jan. 31. January and February are two of the best months to hunt cottontails, and many deer hunters will take advantage of the special season at the first of the year.

The most anticipated new year season is probably the spring turkey season. In November, the Wildlife and Parks Commission set the following dates for spring turkey:

The 1992 spring turkey season dates are April 15-May 10. The season will encompass two units. Unit 1 will include the southwest portion of the state, and Unit 2 will be the rest of the state. Unit 1 will have 100 permits. Unit 2 will have an unlimited number of permits - one per hunter -- and an additional 2,000 second turkey game tags. Applications for Unit 1 will be accepted Jan. 8-Jan. 24. Applications for Unit 2 will be accepted Jan. 8-May 8. Applications for second turkey game tags will be accepted from Feb. 10 until season end or until all have been filled. Spring turkey hunters will no longer be able to take two turkeys in the same day. --Shoup

## UNDER CURRENTS

# OF POP BOTTLES, TELEVISION AND DUCKS



by *Mark Shoup*

For my eighth birthday, Dad gave me a Stevens single-shot 28-gauge shotgun. You'd be hard-pressed to find a 28-gauge today, much less an eight-year-old who has one. But things were different in 1956. My small-town world was so dependable, optimism was unnecessary.

A pop bottle in the ditch was worth 3 cents, and a nickle would buy a square Three Musketeers Bar about the size of my wallet. Trouble was, I couldn't find many bottles in the ditch. Even television was simple, dependable. A single scene of 1950s TV may have lasted several minutes. It required an attention span, and its messages were simple -- good conquered evil.

Every Friday night, boxing matches were the feature of television. The Friday Night Fights even carried heavyweight championship bouts, free to anyone with a television. One particularly big fight night, I remember looking at my dad in his lounge and asking, in all seriousness, "Dad, could you beat up Rocky Marciano?"

Dad was honest about it. He'd never met the guy and didn't really know, but probably he could. Life was dependable.

Elsewhere in the world, racial strife and the Cold War had people sweating, but in west-central Kansas, life was still a Norman Rockwell painting. Dogs tagged along with boys as they carried cane poles and worm cans to one of two rivers -- the Arkansas and the Pawnee -- that joined on the edge of town. Stringers full of catfish and bullfrogs were common. In summer, the rivers provided the quintessential rural playground. They were always there, always flowing and rich with cattails and mussels, riffles and pools deep enough to swim.

On my eighth birthday, however, as I

opened the package that I knew -- I prayed -- could only be a shotgun, the rivers meant one thing to me -- ducks. Ducks were thick in the mid-fifties, and they liked those rivers. I'd been duck hunting with Dad a few times, and I'd even killed a few rabbits with his .22 cal. rifle; but I'd never even fired a shotgun. I wouldn't eat, drink or sleep until I had squeezed the trigger.

Dad and I piled into the old 1951 Studebaker pickup and headed for the country. Mentally, I blasted cans and bottles from the air as fast as Dad could throw them. He would be impressed. Imagine my disappointment when Dad pulled off the road, picked up a dirt clod, and placed it on the ground twenty yards away. Okay, I thought. He doesn't think I'm ready. Just gimme that gun.

My father was a stickler for safety, and although he had already drilled me repeatedly on every rule of safe firearms handling, we had to go over it again. "This isn't a .22," he added. "It kicks like the devil, so hold it tight against your shoulder."

I listened patiently. Finally, Dad handed me the gun, breach open, and one shell. He looked at me and nodded, then stepped back as I closed the breach and leveled the shotgun on my target. Squeeze, don't jerk, I thought at the same instant the gun exploded, kicking the muzzle straight up and knocking me back a step. I lowered the gun and rotated my shoulder but felt no pain. The dirt clod had disappeared.

I didn't know the term at age eight, but I knew what a rite of passage felt like. For several generations, Shoup men had hunted and fished this fertile countryside, and ducks were the favored game. Now it was my turn. Later that winter, I would shoot my first duck, a blue-winged teal, on the Arkansas River. It was a world of plenty. Even if pop bottles were hard to come by, the country was rich with ducks.

Time, of course, is rich with irony.

# fishing

## For Icefishing, Gear Up

More and more, Kansas fishermen are venturing out during cold winter days to try their luck at icefishing. Icefishing can be very enjoyable entertainment if you're prepared for the weather.

Appropriate clothing is a must before heading out to your favorite frozen body of water. Dress in layers and wear more than you think you'll need. You can always shed excess clothing. "Pac" boots with felt liners and insulated gloves are necessities. If you don't own an insulated pair of boots or gloves, feet and hand warmers can be purchased at almost any

rounded so the runners don't snag on crusty ice or snow. Also, the sled should sit at least 4 inches off the ice. The sled can be pulled by rope or a tongue made of pipe. If you're using an all-terrain vehicle, a tongue works better. Some fishermen build their sleds so they can stand them on end. This enables them to sit inside their sleds and get out of the wind. Rod holders, cabinets and wind-shields can also be added.

For those who don't have sleds, five-gallon buckets work for hauling gear, and they also make good seats. Other equipment you might take to the ice



sporting goods store. Other important clothing includes stocking hats, face masks, hoods, mufflers, earmuffs and sunglasses. Avoid wearing tight, restrictive clothing and try to cover exposed flesh. For safety, you should have a change of clothes in your vehicle.

Proper equipment is also needed. Ice augers are valuable when cutting holes through thick ice. However, many people use axes and sharp-shooter shovels. Never bang auger blades on the ice, always keep blades sharp, sharpen only the beveled (top) side of blades, and keep blades covered during transportation. By law, the maximum hole size is 12 inches in diameter. A ladle is also needed to clear ice chips from the hole.

The most fascinating piece of equipment seen on the ice is the sled. A sled can be easily constructed with a 4-foot x 8-foot sheet of 3/4-inch plywood. Runners can be built with two-by-fours or 3/4-inch pipe. Make sure the front corners are

includes cleats for your boots, a burlap sack to haul fish, a rope, a buoyant throw cushion, a piece of carpet to put your feet on and a gaff. A gaff can easily be made with a short piece of broom handle and a large 10/0 trotline hook.

The right fishing gear is crucial while icefishing. A light, sensitive, good-quality rod works great for sensing light strikes. Many hits go undetected with heavier rods. A reel with a good drag system is a must while fishing for larger species such as white bass and stripers. Electronic fish finders help locate structure and schools of fish and save valuable time drilling holes.

Last, but not least, you should have a wide variety of lures, depending on the species targeted. Jigging spoons, rubber-bodied jigs and even live bait work great under the ice. By following a few of these pointers, icefishing can be a pleasure. --Kevin Becker, Pratt Hatchery assistant

## Sauger Makes Record Book

On July 20, 1991, Craig Athon of Topeka set the hook on the new state record sauger at Melvern Reservoir. The fish hit a jig and nightcrawler combination in 8 feet of water.

"I had been catching several nice sauger each trip, along with a few walleye, but I never thought about them being a state record until a friend of mine told me the category was open and no fish had ever been verified," Athon said. "I didn't want to check in a real small fish, so I waited until I caught a decent one," he said. The fish was 17 1/8 inches long and weighed 1 pound, 8 ounces.

Sauger, which are in the same family as walleye, were first introduced into Melvern (the only lake to receive these fish) in 1988. Fertilized eggs were obtained from the Genoa National Fish Hatchery in Wisconsin and hatched in the Milford Fish Hatchery. They were placed in Melvern in an effort to develop a brood source for the saugeye, a cross between a walleye and sauger, which would be more adaptive to Kansas lakes and reservoirs. Although they are similar in appearance to walleye, they don't get as large and seldom exceed 18 inches or weigh more than 2 1/2 pounds. They are typically found in large free-flowing rivers and streams. Kansas lies on the southwest corner of the sauger's range. --Murrell

## Fishintalk

Here's a conversation overheard between two fishermen on the bank of Big Hill Reservoir last spring.

"Hiyamac."

"Lobuddy."

"Binearlong?"

"Coplours."

"Cetchanenny?"

"Goddafew."

"Kindarthey?"

"Bassenperch."

"Ennysizetoom?"

"Cuplapowns."

"Hittinhard?"

"Sordalike."

"Wahchoozin?"

"Gobbawurms."

"Fishanonaboddum?"

"Rydonaboddum."

"Igoddago."

"Seeyaroun."

"Yahtakideezy."

"Guluk."

--Bud Hosfelt, Cherryvale Gazette

## Confirmed Cottonmouth

In a rare documentation of a species not considered indigenous to the state, officials from Pittsburg State University, the University of Kansas and the Kansas Department of Wildlife and Parks have confirmed a Galena man's discovery of a western cottonmouth in Kansas. It was the first confirmed sighting of the venomous cottonmouth since 1937.

On Sept. 14, Shane Eckhardt, Galena, pulled off the road near Spring River in the extreme southeast corner of Cherokee County to scout for deer. As he stepped out of his pickup, he was greeted by a large, aggressive snake not 3 feet away, head reared and ready to strike. Eckhardt has seen many snakes, but he knew immediately that this one was different.

"Most snakes only care about getting away from you," notes Eckhardt, "but this one had a whole different attitude. And I could tell by the shape of its head that it was unusual."

Eckhardt was able to ease back into his truck without being bitten, but when the snake did not back off, he shot it and took it home and froze it. He was certain that he had killed a cottonmouth.

A few days later, he showed the snake to conservation officer Harley McDaniel, Columbus, who was also convinced the snake was a cottonmouth. McDaniel then took the frozen snake to Professor Jim Triplet at Pittsburg State. Triplet confirmed the identification and called Professor Joseph T. Collins of Kansas University.

On Sept. 28, Collins and two graduate students drove to Pittsburg to pick up the snake for the museum's herpetology collection. They also spent the weekend searching the area with Eckhardt for more specimens. Although none were found, Collins thinks the chances are good that more inhabit the area.

"Normally, there are more than one in any area," Collins says. "We plan to do more field work there next spring or summer."

To officially recognize the cottonmouth as a Kansas resident, Collins will include it as a species indigenous to Kansas in the third edition of his book, *Amphibians and Reptiles of Kansas*, which he is currently revising. Collins also co-authored *Peterson's Guide to Amphibians and Reptiles: Eastern/Central North America* with Roger Conant. --Shoup

## Labor For Life

When it comes to efficiency and selflessness, the honeybee (*Apis mellifera*) could teach us all a thing or two. They lead short, intense lives filled with labor for the common good.

The honeybee comprises one of several thousand species of bees in existence today. Its role in life is determined early; females are either queens or workers. Males, or drones, serve only to fertilize queen bees. A typical worker bee in this highly social species lives six to eight weeks, but its activity during that short life span helps ensure the survival of her species.

German entomologist Gustav Rosch, in a series of experiments conducted more than 50 years ago, determined that a worker bee performs a variety of tasks during its short life. Each of those tasks coincides with physiological changes in its body. A pair of "nurse" glands in the worker's head secrete food essential to the development of young larvae. This food -- known as bee milk -- is fed to all larvae for three days after they hatch. Nurse glands develop when a worker is five or six days old. The worker continues larvae feeding until its body undergoes another change -- the development of abdominal wax-producing glands, which mature when it is about 12 days old. When that happens, the worker's function shifts from feeding larvae to comb-making and repair -- its main function for the next week or so, when these wax-producing glands wither.

For the remainder of its short life, the worker serves as a forager, collecting nectar and pollen and returning its payload to the hive. The worker bee repeats this mission repeatedly for the next month or so, when its natural life span comes to an end. --Mathews

## Plant Songbird Bundles

The Kansas Department of Wildlife and Parks and the Kansas State Extension Forestry have a ready solution to the problem of dwindling urban wildlife habitat -- plant trees and shrubs for songbirds.

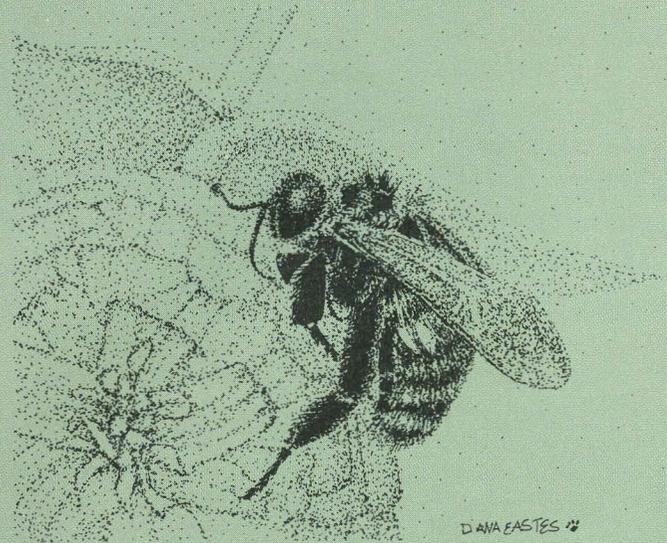
For \$12, a "songbird bundle" of 20 trees and shrubs is offered as part of the Kansas Conservation Tree Planting Program. The Department partially finances the songbird project through taxpayer contributions to the Nongame Wildlife Tax Checkoff, or Chickadee Checkoff, appearing on Kansas state income tax forms.

Bill Loucks, the K-State forester charged with the job of obtaining and distributing more than a million trees each year, labels the songbird bundle ideal for backyard situations.

"They create a small island of plants of varying heights," says Loucks. "The bundle is designed to provide year-round cover and food for late summer, fall and winter."

Each bundle contains five Nanking cherry, which grows rapidly and provides food early in the summer; three redcedar, often considered the best wildlife plant because of its long-term food and shelter provisions; three autumn olive, a shrub with attractive cardinal berries in the fall; five Peking cotoneaster, with attractive foliage and dark berries; and four golden current, for early summer food.

Planting a songbird bundle makes a yard more attractive, improves property values and provides essential habitat for birds, squirrels and other wildlife. Contact your local K-State Extension agent for order forms, which list songbird bundles as well as other trees and shrubs for use in conservation plantings. --Shoup



## Bird Book Critique

Cheyenne Bottoms is regarded as the most important shorebird staging area in America, providing Kansans an excellent opportunity to observe these unique birds. Trouble is, they are often difficult to identify, given their small size and similar colorations. Birders who accept the challenge need good optics and the best reference material available.

The Houghton Mifflin Publishing Company has just simplified identification problems through the release of two excellent books, entitled *Shorebirds* and *Seabirds*. Both volumes contain detailed paintings and distribution maps on more than 1,500 bird species. *Shorebirds* is perhaps the more useful volume for Kansans, thoroughly treating such difficult groups as plovers and sandpipers. However, *Seabirds* also has application through its treatment of grebes, cormorants, pelicans, gulls, terns, sea ducks and loons.

More than a decade of work has gone into the books, and it shows. Unlike general birding field guides, which may feature two illustrations of a species showing adult and juvenile plumage, these volumes use as many as 16 illustrations of each species, carefully detailing breeding and non-breeding plumages, adult and juvenile characteristics, flight characteristics from several angles and general body languages. In field guide style, general characteristics are discussed in text corresponding to each illustration; then the reader is sent to a separate book section dealing with descriptions, voice, habits, movements and other pertinent information relative to each species.

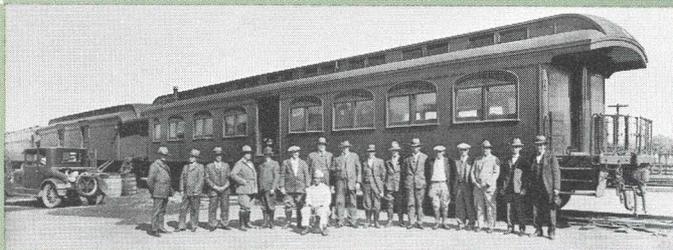
These are the finest bird books of any kind I have seen and should prove invaluable to anyone serious about shorebirding. Because they treat all species worldwide and must be sorted somewhat for common North American representatives, these books cover the very real possibility of identifying accidentals that may stray into the midwest. I'll never be afield without them. --Blair

## Take the Angler Train

The Pratt hatchery had its beginning in 1903 when the Kansas Legislature authorized the acquisition of land for a fish hatchery. Land for such a project was acquired near Pratt, and building of the first state fish hatchery in Kansas began. Initially, the hatchery had 11 ponds.

served in that capacity until July 1, 1909. During his term, Travis purchased the first fish distribution railroad car -- called "Angler No. 1" -- to distribute fish from the hatchery to various points around the state. (This was not Travis' only innovative project; he was also responsible for importation of ringneck pheasants to Kansas.)

Until the mid-1920s, Angler No. 1 and other fish distribution cars were the primary means of moving fish from hatchery to impoundment in Kansas. In the fall of 1919, Angler No. 1 was rebuilt in the Santa Fe shops at Topeka. The car could then transport as many as 14,000 fish at one time, depending on size of fish and length of trip. The railroad charged 30 cents per road



When Del Travis was named state fish warden in 1903, he was also placed in charge of the hatchery. The title was changed to state fish and game warden in 1905, and Travis

mile, with a minimum charge of \$15.

Pictured below is Angler No. 1 with a number of Fish and Game Department officials. If you know anything about Angler No. 1 or anyone in this picture, please contact Don Patton, RR 2, Box 61, Pratt, KS 67124 or Mark Shoup, (316) 672-5911. --Don Patton, Pratt Hatchery manager

## New Boat Registration System

The Department of Wildlife and Parks has a new boat registration system, and as is the case with all things new, questions have arisen and will continue to arise. The following is a reminder list of elements in the new system:

--Boat owners may register their boats at all state park offices, regional offices, the Pratt Operations Office, some county clerks and volunteer vendors. Both boats purchased from dealerships (proof of sales tax required) and those bought from individuals (only a bill of sale required) may be registered at these locations.

-- If the purchaser of a used boat wants to retain the same numbers that are on boat, he should tell the vendor and present the bill of sale from the currently registered owner.

-- A three-year registration is \$9.50, and when the fee is paid and the form completed, the owner will receive a temporary certificate of number and the Kansas-shaped decal for the current year, which must be placed on the boat. The certificate must also be carried on the boat. Within three weeks, the new owner will receive a permanent certificate that will assign a boat number to them.

-- Renewals may be made through the Pratt Office or the above vendor locations by calling the Pratt Office, (316) 672-5911, for the verification of the renewal date.

-- Legally-registered boats will display either the boat decal or the decal and the boat number.

-- A limited number of dealers are offering to register only boats sold at their dealerships. The Department will provide encouragement to sell to all who ask.

-- If you know a dealer who is interesting in becoming a vendor, or if you have questions about boat registration, please call the Kansas Department of Wildlife and Parks, (316) 672-5911. --Mike Theurer, Administrative Services director

by Dana Eastes

## WAPITI

You may have heard of this majestic four-legged creature. They are called elk by most people, but another common name is "wapiti," a Shawnee Indian word meaning "pale rump." The word "elk" is actually an English word meaning "moose." If you ever visit the Maxwell game preserve or Cimmaron National Grasslands and your Dad says, "Look kids, Elk!" You can say, "Yes Dad, Wapiti!"

At any rate, a chance to see one of these animals in the Kansas wild will make your heart skip a beat. Here are some facts about wapiti that you can impress friends and family with.

Wapiti are thought to have lived in North America for 120,000 years. A land bridge nearly 1,000 miles wide allowed animals to migrate east from Asia to North America. These first animals formed four distinct groups that covered almost all of North America. Man showed up a few thousand years later. There is evidence in Alaska that Paleo Indians were some of the first wapiti hunters. Remains found there are thought to be at least 11,000 years old. The Archaic Indians followed from 8,000 to 3,500 years ago; they hunted elk

more extensively using spears and atlatlas (a spear-throwing device).

By the time European man arrived, the wapiti had evolved into six sub-species. Differences in sub-species are determined by antler formations, body size and coat color. Merrimen elk ranged far into Mexico and up into Texas and the southwest. Eastern elk ranged in the eastern U.S. and Canada. Both species were hit hard by advancing civilizations and are considered extinct today. The

four sub-species that remain today are Tule elk of the San Joaquin and Sacramento Valleys of California; Manitoban elk, once found throughout the Great Plains (including Kansas) and now found only in Manitoba and Saskatchewan; Roosevelt elk, plentiful throughout the Pacific Coast Range from California to Vancouver Island, B.C. (also called Olympic elk); and Rocky Mountain elk, ranging from central Arizona north to British Columbia and Alberta and from central Washington east to South Dakota.



The Rocky Mountain elk are the most plentiful, having the largest range. Although Manitoban or Great Plains elk were probably native in Kansas, the Rocky Mountain elk is the sub-species that has been transplanted back into the state.

Females, called cows, are somewhat darker with less contrast than bulls, or males. Both cows and bulls have

straw-colored rumps and dark manes; and dark brown heads, sides, and underparts. Legs appear long and thin compared to the heavy, thick body. After the molt, body color turns to a dark chestnut, but the rump remains yellow or straw-colored. Older bulls are lighter colored. Rocky Mountain elk can reach 5 feet at the shoulder and 7 1/2 feet in length. Only bulls grow antlers. A mature bull can have five to seven points on each side. Antlers are shed in March or April. Elk are primarily grazing animals, making the Kansas prairie and woodland edges prime habitat for the wapiti to thrive. Elk chew their "cud" like cows and can consume 12 to 18 pounds of grass a day.

Kansas Wapiti still numbered in the thousands in the mid-1800s. Unregulated hunting, grazing and agriculture interests forced the elk herds to extinction in Kansas by 1900. The last elk were probably seen in southwestern Kansas. Today, there are a few captive herds throughout the state and two free-roaming herds at Cimarron National Grasslands in Morton County and Ft. Riley military reservation near Manhattan. Kansas now holds a limited hunting season on these two areas. Depending on the health of the herd, a limited number of game tags are drawn by lottery.

In Autumn, a bugling elk signals the beginning of the rut or breeding season. Bugling begins on a low-pitch and swoops up high to clear bugle-like notes. This bugling is usually followed by a series of low grunts. Cows are attracted to the bull with the best bugling and aggressive displays. The neck and shoulders of bulls swell during the rut. Usually, the largest and strongest bulls dominate, maintaining the health of the herd. Dominant bulls gather from five to 15 cows and defend them against bachelor bulls. There are lots of threats and sparing, but actual fighting is rare. The gestation period is 247 to 270 days, with birthing in late May and early June. A newborn elk weighs from 23 to 45 pounds.

Elk were always a secondary meat source to most Indian tribes. Elk were harder to hunt than buffalo, deer and fish, which were the staples of Indian diet. There were various methods of hunting elk by the different tribes. The Plains Indians used dogs to chase the elk. According to some sources, most Indians preferred the bow to gun even when guns were available.

Indians used all of the elk. Antlers were used for decoration, tools and weapons but were never prized as

"trophies" as they are today.

Today, people wanting to make big bucks legally and illegally have put the entire wild elk species at somewhat of a risk. Poaching and elk farms are two factors that threaten the purity and health of the North American elk herd. Poachers sell meat, antlers and body parts to willing buyers. There is a great demand for trophy antlers and especially velvet antlers. Asian cultures use the antlers for teas, medicines and as aphrodesiacs.

## Build your own beast

Make a papier-mache elk head. Begin by gathering pictures. Outdoor magazines are a great source for pictures of elk. Using the pictures as references, construct your papier-mache head. Start by forming the head shape with wads of paper and masking tape. Complete the head with papier-mache (paste and strips of newspaper). Next, search the woods for two fallen branches that resemble elk antlers. Shave the bark from your branches and shape and sand the points to the likeness of real antlers. Cut holes in the head above and between the ears and fit the antlers. (Make sure your branches or antlers don't out weigh your head.) Secure the antlers with glue, if needed. Finally, paint with tempera paint and shellac entire head and antlers with acrylic medium or diluted glue.

**Objective:** Students will further their knowledge of the size, shape and color of wapiti through this hands-on project. It is also an opportunity to get outdoors and discover nature.

**Materials:** Pictures of elk, newspaper, vinyl wallpaper paste, tempera paint, branches, Elmer's glue, masking tape, sand paper, exacto knives.

**For teachers:** Another variation on this project. Give a short lesson on the American Indian and elk. Have students make papier-mache elk masks similar to Indian ceremonial masks.



by Mark Shoup

## No Place For Exotics

In past years, a number of non-native wildlife have been brought to Kansas. According to most biologists, such introductions usually have destructive effects on native species. The European starling and the house sparrow push many native birds from their territories and create health hazards in urban areas. The common carp competes with native species for forage, and the white amur, or grass carp, destroys vegetation important to native species for spawning and cover.

In the spring of 1990, the Kansas legislature defeated a bill attempting to allow the introduction of bighead carp to Kansas waters. Ironically, this occurred just as a new exotic species called rudd had established itself in Kansas fisheries.

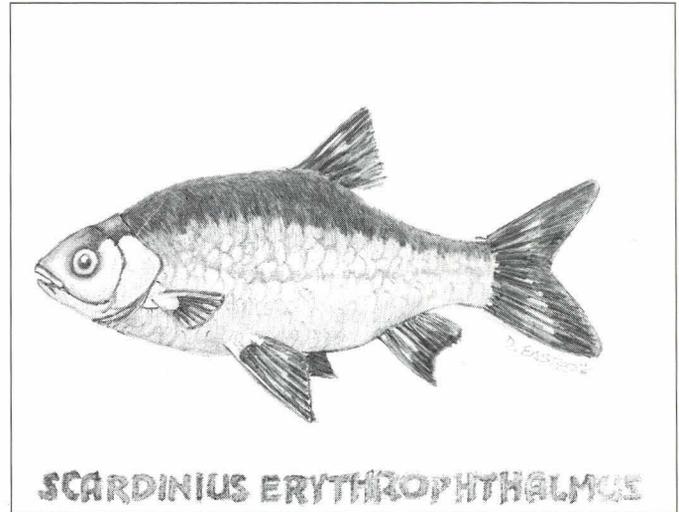
Rudd is a European minnow first brought to the United States in the early 1900s as an ornamental species. That first introduction caused no problems because the fish were confined to the northeastern U.S., where waters are largely cold and sterile. In the richer, warmer waters of the south and the midwest, however, the fish can thrive, which it is apparently doing. Rudd have been found in bait shops, reservoirs and rivers across the state.

According to Jim Williams of the U.S. Fish and Wildlife Service (USFWS) National Fisheries Research Center in Gainesville, Fla., rudd were brought to Arkansas about six or seven years ago by bait breeders. Apparently, neither the USFWS nor state officials new about the importation until about two years ago, but the fish have subsequently been shipped all over the country as a "new hybrid" bait fish.

"It's almost too late to do anything," says Williams. "This was done before anyone knew a thing about it. They are hearty and potentially abundant in rich waters. They spawn early, in March or early April in Kansas, and one female can produce 3,000 to 15,000 eggs. And they are also easily confused with the golden shiner," he added.

The golden shiner is a native Kansas minnow, and therein lies the problem. Fishermen and bait dealers may find it difficult to distinguish rudd from golden shiners, but there are differences. Rudd have bright red fins; golden shiners have yellow or yellow-orange fins. Rudd may grow 17 inches long and weigh 1 to 1 1/2 pounds, while golden shiners never grow more than 8 inches.

Rudd are extremely aggressive, capable of out-competing golden shiners for food and cover. They also live much longer than golden shiners—7 to 12 years—and can hybridize with the native species. Therefore, according to Williams, rudd pose two threats. First, because they live longer and grow bigger than golden shiners, rudd will eventually compete with larger native fish—such as



Dana Eastes illustration

bass, walleye and crappie—rather than being forage for them. Secondly, it is not yet known if the hybrids created when rudd cross with golden shiners in the wild are sterile or fertile. If they are sterile, as many such crosses are, then it is possible that rudd and rudd hybrids would replace golden shiners. If the hybrids are fertile, they will compete with all fish for forage.

Although the fish has been banned in many states, Williams points out that many state officials think they have laws preventing the introduction, when they actually don't. "They [the states] have laws that prohibit introductions, but these laws often don't cover bait."

KDWP aquatic biologist Larry Zuckerman says, "These fish are bad news. I've got some in a tank, and they are the most aggressive minnows I've ever seen. There are perfectly good natural bait fish in Kansas, but people are always trying to find something better. This kind of thing always backfires. Once you introduce an exotic, you can't get rid of it. It's forever."

Responding to concerns of biologists and increasing reports of rudd in Kansas waters, the Department passed a regulation in September of 1990 banning the commercial sale of rudd.

Kansas rudd apparently entered the state through sources in Arkansas, and that state has passed some regulations concerning rudd. According to Arkansas Game and Fish Commission officials, rudd can no longer be sold as bait in the state or released into public waters. However, Arkansas bait breeders can still culture rudd and sell them to states where they are legal.

That's not to say our laws on exotics are perfect. Grass carp can still be legally stocked in Kansas waters.

